

MARQUETTE UNIVERSITY

Undergraduate Bulletin



2002 - 2003

The 2002–2003 *Undergraduate Bulletin* is also available on Marquette University's Web site www.marquette.edu. While the university strives to maintain an accurate online bulletin, the printed bulletin is the university's official document. The provisions of this bulletin are subject to change at any time by Marquette University in its sole discretion.

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The University

HOW TO USE THIS BULLETIN

This 2002-2003 *Marquette University Undergraduate Bulletin* governs curricular requirements of all students entering Marquette University undergraduate programs as freshmen or as advanced standing students during the 2002-2003 academic year. These requirements, and other provisions within this bulletin, may be changed from time to time without notice. Each entering student should preserve his/her copy of the bulletin for reference during his/her entire undergraduate career at Marquette. Each student should refer to subsequent editions of the bulletin for any changes. Additional copies of the bulletin, to be published annually, may be purchased at the university's Book Marq store. Reference copies of the *Undergraduate Bulletin* are available in the Memorial Library as well as in the offices of colleges, schools and departments, and on the university's Web site.

FROM THE PRESIDENT

"We have proclaimed on a number of occasions, both public and private, that historically as a Christian and Catholic institution we are dedicated to the proposition that all human beings possess an inherent dignity in the eyes of their Creator and equality as children of God. The university entirely and consistently disowns, as a matter of principle, any unlawful or wrongful discrimination against the rights of others. It tolerates no such discrimination in its internal affairs and deplores such discrimination wherever it may exist. The university is committed to the principle of equal opportunity in admissions, financial aids, employment and housing regardless of race, color, sex, religion, age, national origin, disability, or veteran's status. The university also is committed to the principle of affirmative action. The university reserves the right to maintain its heritage and destiny as a Christian and Catholic witness in higher education."

Rev. Robert A. Wild, S.J.
President
Marquette University

THE UNIVERSITY

HISTORY

Marquette University was founded in 1881 by members of the Society of Jesus, a Catholic religious order established in 1540 by St. Ignatius Loyola. The university is named after Father Jacques Marquette (1637-1675), a French, Jesuit missionary and explorer in North America.

The origins of Marquette University date from 1848 when the Most Rev. John Martin Henni, first bishop of Milwaukee, obtained \$16,000 from Guillaume DeBoey, a Belgian, Catholic businessman, to establish a Jesuit college. Bishop Henni petitioned the Jesuits to open a school, Marquette College, in Milwaukee. Because the Jesuits lacked personnel to undertake the project for decades, Marquette College did not open until 1881.

Marquette remained a small liberal arts college for men at North 10th and West State Streets until 1907. That year its leaders obtained a university charter from the state of Wisconsin and moved operations to a building just east of Gesu Church, at North 12th Street and West Wisconsin Avenue. That building, Johnston Hall, is the oldest building on the Marquette campus.

Between 1907 and 1913, Marquette expanded to include divisions of medicine, dentistry, nursing, pharmacy, law, business, engineering, music and journalism. In 1909, Marquette became the first Jesuit university in the world to officially admit women students. Influenced by the need for certified parochial school teachers, women were admitted to the university's first summer school session that year.

Following World War II, enrollment at Marquette increased dramatically, as at other American colleges and universities. Demand for graduate and professional education grew.

In the 1960s and '70s, Marquette introduced doctoral programs in various fields, including religious studies, biology, history and chemistry.

Since 1990, Marquette has added degree programs for working adults, which offer courses on campus as well as at satellite locations in southeastern Wisconsin; a part-time law program; an executive master in business administration program; and programs in physician assistant studies and exercise science.

Today Marquette University has a campus of approximately 80 acres and 51 buildings located in downtown Milwaukee. It consists of 11 colleges and schools:

Arts and Sciences	Education	Law
Business Administration	Engineering	Nursing
Communication	Graduate	Professional Studies
Dentistry	Health Sciences	

MISSION STATEMENT

Marquette University is a Catholic, Jesuit university dedicated to serving God by serving our students and contributing to the advancement of knowledge. Our mission, therefore, is the search for truth, the discovery and sharing of knowledge, the fostering of personal and professional excellence, the promotion of a life of faith, and the development of leadership expressed in service to others.

Excellence

Our students, whether traditional or non-traditional, undergraduate, graduate or professional, come to Marquette University to share our commitment to the pursuit of excellence in all things as a lifelong endeavor. They come to join a community whose members — faculty, staff, students, trustees, alumni and friends alike — believe that education must encompass the whole person: spiritual and moral as well as intellectual, the heart as well as the mind. And they come seeking the educational, professional and cultural advantages of a university located in the heart of the city. We, in turn, take seriously our responsibility to foster and support excellence in teaching and research, to keep a Marquette education accessible to a diverse population of students, and to offer personal attention and care to each member of the Marquette community.

Faith

As a Catholic university, we are committed to the unfettered pursuit of truth under the mutually illuminating powers of human intelligence and Christian faith. Our Catholic identity is expressed in our choices of curricula, our sponsorship of programs and activities devoted to the cultivation of our religious character, our ecumenical outlook, and our support of Catholic beliefs and values. Precisely because Catholicism at its best seeks to be inclusive, we are open to all who share our mission and seek the truth about God and the world, and we are firmly com-

mitted to academic freedom as the necessary precondition for that search. We welcome and benefit enormously from the diversity of seekers within our ranks, even as we freely choose and celebrate our own Catholic identity.

Leadership

As a Jesuit university, Marquette embodies the intellectual and religious traditions of the Society of Jesus. Through an academically rigorous, values-centered curriculum, our students receive a firm grounding in the liberal arts, preparation for work in a world of increasing complexity and diversity, and formation for life as ethical and informed leaders in their religious, cultural, professional and civic communities. They work with and learn from faculty who are true teacher-scholars, whose research not only advances the sum of human knowledge, but also informs their teaching, and whose commitment to students is fundamental to their intellectual and professional lives.

Service

Through both our academic and co-curricular programs, Marquette strives to develop men and women who will dedicate their lives to the service of others, actively entering into the struggle for a more just society. We expect all members of the Marquette community, whatever their faith traditions, to give concrete expression to their beliefs by giving of themselves in service to those in need.

All this we pursue for the greater glory of God and the common benefit of the human community.

VISION STATEMENT

Our vision is to provide a Catholic, Jesuit education that is genuinely transformational, so that our students graduate not simply better educated but better people, and to do so with such excellence that when asked to name the three or four best Catholic universities in America, people will include Marquette as a matter of course.

STATEMENT ON HUMAN DIGNITY AND DIVERSITY

As a Catholic, Jesuit university, Marquette recognizes and cherishes the dignity of each individual regardless of age, culture, faith, ethnicity, race, gender, sexual orientation, language, disability or social class. Precisely because Catholicism at its best seeks to be inclusive, we are open to all who share our mission and seek the truth about God and the world. Through our admissions and employment policies and practices, our curricular and co-curricula offerings, and our welcoming and caring campus environment, Marquette seeks to become a more diverse and inclusive academic community dedicated to the promotion of justice.

Our commitment to a diverse university community helps us to achieve excellence by promoting a culture of learning, appreciation and understanding. Each member of the Marquette community is charged to treat everyone with care and respect, and to value and treasure our differences. This call to action is integral to the tradition which we share.

ACCREDITATION

An educational institution is only as strong as the level of excellence which it demands of itself as well as of its faculty and students. As an institution, Marquette University is accredited by the Higher Learning Commission, a commission of the North Central Association of Colleges and Schools. Marquette University has set consistently high standards for itself which have resulted in accreditation and approval of its academic programs from these additional organizations and associations:

Accreditation Board for Engineering and Technology, Accreditation Review Committee for Physician Assistant Education, Accrediting Council on Education in Journalism and Mass Communication, American Chemical Society, American College of Nurse Midwives, American Physical Therapy Association, Association for the Advancement of Collegiate Schools of Business, Association of American Law Schools, Council on Accreditation of the American Dental Association, Commission on Collegiate Nursing Education, Council on Legal Education and Admissions to the Bar of the American Bar Association, Council on Social Work Education, Department of Public Instruction of State of Wisconsin, Council on Academic Accreditation of The American Speech-Language-Hearing Association, National Accrediting Agency for Clinical Laboratory Sciences, National Council for Accreditation of Teacher Education, National League for Nursing Accrediting Commission, Wisconsin State Board of Nursing and Council for National Register of Health Service Providers in Psychology.

These accreditations assure a student that Marquette is recognized and approved by select national and regional educational associations, societies and councils. In addition, a student has the security of knowing that credits earned at Marquette have transfer value to comparable institutions of learning, just as an incoming transfer student learns by checking this list that Marquette can be expected to honor most credits earned at a similarly accredited college or university.

2002–2003 ACADEMIC CALENDAR

FALL TERM 2002-2003

Key:Module 1 — 16 weeks 8/26/02 – 12/14/02 (term)

Module 2 — 8 weeks 8/26/02 – 10/19/02

Module 3 — 8 weeks 9/9/02 – 11/2/02

Module 4 — 8 weeks 10/21/02 – 12/14/02

Module 5 — 8 weeks 11/4/02 – 1/11/03

August 2002

20-24	Monday-Friday	First-year Law Orientation
21-25	Wednesday-Sunday	New undergraduate student orientation
24	Saturday	Undergraduate Part-time Studies orientation
24	Saturday	MBA Saturday classes begin for Fall Term
26	Monday	Classes begin for Fall Modules 1 and 2
26	Monday	TVR Late Registration for Fall Modules 1 and 2 begin

September 2002

2	Monday	Labor Day holiday; classes excused
3	Tuesday	Fall Modules 1 and 2 TVR registration ends at noon
7	Saturday	College of Professional Studies orientation
9	Monday	Fall Module 3 begins
9	Monday	Fall Module 3 TVR late registration begins
17	Tuesday	Fall Module 3 TVR registration ends at noon

October 2002

4-5	Friday-Saturday	Make-up examinations; removal of incompletes from Spring Term 2001-2002
4	Friday	Final day for withdrawal with grade of W for Module 2
17-18	Thursday-Friday	Mid-semester holiday; classes excused for Module 1
18	Friday	Final day for withdrawal with grade of W for Module 3
19	Saturday	Fall Module 2 ends
21	Monday	Fall Module 4 begins
21	Monday	Module 4 TVR late registration begins
28-31	Monday-Friday	Advising for Spring Term 2002-2003 registration
29	Tuesday	Fall Module 4 TVR registration ends

November 2002

1	Friday	All Saints Day; classes will be held
2	Saturday	Fall Module 3 ends
4	Monday	TVR early registration for Spring Term 2002-2003 begins
4	Monday	Fall Module 5 begins
4	Monday	Module 5 TVR late registration begins
12	Tuesday	Module 5 TVR registration ends at noon
15	Friday	Final day for withdrawal with grade of W for Fall Module 1
23	Saturday	TVR interim registration for Spring Term 2002-2003 begins
25-Dec. 1	Monday-Sunday	Thanksgiving holiday; classes excused for Professional Studies
27-Dec. 1	Wednesday-Sunday	Thanksgiving holiday; classes excused for Modules 1 and 4
29	Friday	Final day for withdrawal with grade of W for Module 4

December 2002

2	Monday	Modules 1, 4 and 5 classes resume
5	Thursday	Classes end for Module 1
6	Friday	Study day; no classes for Module 1
8	Sunday	Feast of the Immaculate Conception
9-14	Monday-Saturday	Final examinations for Module 1 — undergraduate and graduate
14	Saturday	Fall Modules 1 and 4 end
15	Sunday	Mid-year graduation ceremonies
15-Jan. 12	Saturday-Tuesday	Christmas holiday; classes excused for Modules 1
20	Friday	Final day for withdrawal with grade of W for Module 5
22-29	Sunday-Sunday	Christmas holiday; classes excused for Fall Module 5

SPRING TERM 2002-2003**Key: Module 1 — 16 weeks 1/13/03 – 5/10/03 (term)****Module 2 — 8 weeks 1/13/03 – 3/08/03****Module 3 — 8 weeks 3/10/03 – 5/10/03***January 2003*

8	Wednesday	Law School classes begin
11	Saturday	Fall Module 5 ends
11	Saturday	College of Professional Studies orientation
13	Monday	TVR late registration for Spring Term 2002-2003 begins for Modules 1 and 2
13	Monday	Classes begin for Spring Modules 1 and 2
20	Monday	Martin Luther King Day; classes excused (except Waukesha MBA program)
21	Tuesday	TVR registration for Spring Modules 1 and 2 ends at noon

February 2003

14-15	Friday-Saturday	Make-up examinations; removal of incompletes for undergraduates from Fall 2002-2003
21	Friday	Final day for withdrawal with grade of W for Module 2

March 2003

3	Monday	TVR registration for Summer Term begins
8	Saturday	Spring Module 2 ends, College of Professional Studies Orientation
9-16	Sunday-Sunday	Spring holiday; classes excused for Modules 1 and 2 (except in Professional Studies)
10	Monday	Module 3 begins; Module 3 TVR late registration begins
17	Monday	Classes resume for Module 1
17-21	Monday-Friday	Advising for Fall Term 2003-2004
18	Tuesday	Spring Module 3 TVR registration ends at noon
24	Monday	TVR early registration for Fall Term 2003-2004 begins

April 2003

11	Friday	Final day for withdrawal with grade of W for Module 1
12	Saturday	TVR interim registration for Fall Term 2003-2004 begins
13-20	Sunday-Sunday	Easter holiday; classes excused for courses offered by College of Professional Studies
17-21	Thursday-Monday	Easter holiday for Module 1
17-18	Thursday-Friday	Classes excused for MBA program
22	Tuesday	Classes resume for Modules 1 and 3
25	Friday	Module 3 final day for withdrawal with grade of W

May 2003

3	Saturday	Classes end for Module 1
5-10	Monday-Saturday	Final examinations for Module 1 — undergraduate and graduate
10	Saturday	Spring Modules 1 and 3 end
11-16	Sunday-Friday	Undergraduate Senior Week
12	Monday	Summer Modules 4 and 6 begin
12	Monday	Summer Modules 4 and 6 TVR late registration begins
17-18	Saturday-Sunday	Baccalaureate and Commencement

* Calendar dates for a number of programs and classes may differ from the term (Module 1) calendar dates listed above.

Please check the *Timetable of Classes* or check with your particular program to verify dates.

SUMMER 2003

Key: Summer Module 1 — 5/19/03 – 6/28/03 (Traditional first session 6-week courses)
 Summer Module 2 — 6/30/03 – 8/9/03 (Traditional second session 6-week courses)
 Summer Module 3 — 5/27/03 – 7/26/03 (8-week courses primarily offered by the College of Professional Studies)
 Summer Module 4 — 5/12/03 – 6/28/03 (First group of 7-week courses primarily offered by the MBA and physician assistant studies programs)
 Summer Module 5 — 6/30/03 – 8/23/03 (Second group of 7- to 8-week courses primarily offered by the MBA and physician assistant studies programs)
 Summer Module 6 — 5/12/03 – 8/9/03 (Courses normally longer than 8 weeks in length include MBA and long courses)

May 2003

19	Monday	Summer Module 1 begins
19	Monday	Summer Module 1 TVR late registration begins
20	Tuesday	Summer Modules 4 and 6 TVR late registration ends at noon
21	Wednesday	Summer Module 1 TVR late registration ends at noon
26	Monday	Memorial Day observed; classes excused
26	Monday	Summer Module 3 TVR late registration begins
27	Tuesday	Summer Module 3 begins

June 2003

3	Tuesday	Summer Module 3 TVR late registration ends at noon
13	Friday	Final day for withdrawal with grade of W for Summer Modules 1 and 4
28	Saturday	Summer Modules 1 and 4 end
29-July 6	Sunday-Sunday	Independence Day holiday; classes excused for courses offered by College of Professional Studies
30	Monday	Summer Modules 2 and 5 begin
30	Monday	Summer Modules 2 and 5 TVR late registration begins

July 2003

2	Wednesday	Summer Module 2 TVR late registration ends at noon
4	Friday	Independence Day holiday; classes excused
8	Tuesday	Summer Module 5 TVR late registration ends at noon
11	Friday	Final day for withdrawal with grade of W for Summer Module 3
18	Friday	Final day for withdrawal with grade of W for Summer Module 6
25	Friday	Final day for withdrawal with grade of W For Summer Module 2
26	Saturday	Summer Module 3 ends

August 2003

8	Friday	Final day for withdrawal with grade of W for Summer Module 5
9	Saturday	Summer Module 2 ends
9	Saturday	Summer Module 6 ends
23	Saturday	Summer Module 5 ends

Note: Final examinations for Summer Modules classes are administered during the last regularly scheduled class.

ACADEMIC PROGRAMS

UNDERGRADUATE PROGRAMS

College of Arts and Sciences: Curricula leading to the degrees bachelor of arts, bachelor of science and associate in arts (criminology and law studies only).

College of Business Administration: Curricula leading to the degree bachelor of science.

College of Communication: Curricula leading to the degree bachelor of arts.

School of Education: Curricula leading to certification in elementary/middle school and middle school/ secondary school teaching.

College of Engineering: Curricula in biomedical, civil, computer, electrical, industrial and mechanical engineering leading to the degrees bachelor of science in biomedical, civil, computer, electrical, industrial and mechanical engineering.

College of Health Sciences: Curricula in athletic training, biomedical sciences, clinical laboratory science, dental hygiene*, exercise science, and speech pathology and audiology leading to the degree bachelor of science. Also, curriculum in physician assistant studies leading to the professional degree master of physician assistant studies and curriculum in physical therapy leading to the professional degree doctor of physical therapy.

College of Nursing: Curriculum leading to the degree bachelor of science in nursing.

College of Professional Studies: Curricula leading to the degrees bachelor of science and bachelor of arts.

Marquette University assumes no responsibility for the success of its students in obtaining professional certification or other types of professional licensure.

*see page 253

GRADUATE SCHOOL

The Graduate School, in partnership with several undergraduate colleges, offers joint bachelor's and master's degrees. As of this printing, the colleges of Engineering, Business Administration (accounting and applied economics), Health Sciences (speech pathology and audiology), Arts and Sciences (political science) and Nursing are participating. For information, contact the undergraduate college.

Marquette University's Graduate School offers more than 50 different master's and doctoral degrees and several certificate and post-master's programs. For a complete list of program offerings or for additional information, including admission criteria, see the *Graduate Bulletin* which is available upon request from the Graduate School and on the Graduate School's Web page at www.grad.mu.edu.

PROFESSIONAL PROGRAMS

SCHOOL OF DENTISTRY

The Marquette University School of Dentistry has provided quality dental education, research and clinical services since 1894. The School of Dentistry is the only dental school in the state of Wisconsin and, as such, is the largest single provider of dental care in the state.

The School of Dentistry will open a new 120,000-square-foot dental facility and clinic in August 2002. The new dental facility will enhance the dental education program by facilitating the delivery of a case-based, integrated curriculum that reduces repetitive didactic course work to a sequence of multidisciplinary tracks and mini tracks. The goal is to provide dental students a more comprehensive approach to learning dentistry while they consider the overall health of a patient — not just oral care. Besides the adult clinics, there will be special clinics for children, patients requiring orthodontic treatment and a clinic designed to treat the elderly and the disabled. In addition, the new facility will accommodate expanded continuing education programs providing the latest technology, including distance learning and teledentistry capabilities, as well as opportunities for hands-on courses.

The School of Dentistry grants a doctor of dental surgery degree. In addition, the school offers graduate programs in the specialties of endodontics, orthodontics, dental materials and a combined program of fixed and removable prosthodontics.

LAW SCHOOL

For more than a century, the Marquette University Law School has been dedicated to training moral and ethical lawyers to meet the changing needs of society. The Law School prides itself on producing lawyers capable of representing clients in the "real world," as well as understanding the theoretical and philosophical bases for the law. The strong Law School core curriculum prepares students for practice anywhere in the United States. In recent years particular emphasis has been placed on business law, intellectual property, children and family and the law, sports law, criminal justice and international law. As a Catholic and Jesuit Law School, Marquette emphasizes the lawyer's obligation to serve the community, to act as an agent of change in society, to provide *pro bono* legal services, and to act as a responsible and reasonable member of the community.

The Law School is home to the National Sports Law Institute and the *Sports Law Review*. The *Marquette Law Review* is recognized as an outstanding scholarly journal. The intellectual property law curriculum is one of the most developed curricula in the country, which includes the *Intellectual Property Law Review*. The Law School's clinical program includes placements throughout southeast Wisconsin in a variety of public and public interest law firms and with judges.

The school offers the juris doctor degree. Upon graduation, Marquette graduates who are residents of the state are admitted to the Wisconsin Bar without the necessity of a bar examination. The Law School began a part-time evening program in the fall of 1997.

MASTER OF PHYSICIAN ASSISTANT STUDIES DEGREE

The five-year master of physician assistant studies degree program, which is included in the College of Health Sciences, consists of two phases: the pre-professional phase and the professional phase. This program is an entry-level professional course of study which allows individuals who are working toward a baccalaureate degree or who hold a baccalaureate degree to apply for admission to the professional phase of the program.

Marquette freshmen who enroll in the College of Health Sciences and who begin the pre-PA track as biomedical sciences major are able to apply during their sophomore year. If accepted, they begin the professional component of the program in their junior year.

DOCTOR OF PHYSICAL THERAPY DEGREE

The six-year doctor of physical therapy degree program, which is included in the College of Health Sciences, consists of two phases: the pre-professional phase and the professional phase. During the pre-professional phase, students will work toward completion of a bachelor's degree of choice and will complete all undergraduate prerequisites for entry to the professional phase. Course selection will vary depending on each student's prior academic preparation and choice of undergraduate major. Entrance requirements and possible majors are outlined in the document detailing the DPT program available from the Office of Undergraduate Admissions. In the three-year professional phase of the program, students will be enrolled in curricula culminating in a doctor of physical therapy. Entrance requirements for transfer students into the professional phase may be obtained in the Department of Physical Therapy.

Marquette University assumes no responsibility for the success of its students in obtaining professional certification or other types of professional licensure.

PROGRAMS FOR WORKING ADULTS

The College of Professional Studies provides undergraduate degrees and non-credit courses, certificates and programs for adult students. Non-credit programs are administered by Corporate Outreach and Professional Development (formerly Continuing Education) and credit programs are administered by the Undergraduate Degree Program in the college.

CORPORATE OUTREACH AND PROFESSIONAL DEVELOPMENT (FORMERLY CONTINUING EDUCATION)

Corporate Outreach and Professional Development offers professional development workshops, seminars and certificate programs in business, management, computers and other areas for adults with varying educational backgrounds. Short-term, non-credit programs are available days and evenings throughout the year. Most programs are held in the Corporate Outreach and Professional Development Center, Mashuda Hall, 1918 W. Wisconsin Ave., and in other buildings on the Marquette campus. However, some programs are held at off-campus learning sites, including Kenosha and Waukesha. The conference facility on the Marquette campus is available for rent. For information on courses or rental opportunities, call (414) 288-7345; fax (414) 288-3730 e-mail, (info@www.conted.mu.edu) or write to Corporate Outreach and Professional Development, Marquette University, Mashuda Hall, 250, P.O. Box 1881, Milwaukee, WI 53201-1881.

UNDERGRADUATE DEGREE PROGRAMS

The College of Professional Studies offers a variety of undergraduate degrees designed for working adults. Set within convenient eight- and 16-week modules, classes are on Saturdays from 8 a.m. to noon and from 1 p.m. to 5 p.m. and evenings during the week. See the program section of the College of Professional Studies in this bulletin for specific admission criteria, degree requirements and curriculum information.

Qualified students may enroll with no prior college experience or with transfer credits from other colleges. Working in concert with Part-time Studies, the College of Professional Studies coordinates a range of academic, administrative and student services for working adults.

PART-TIME STUDIES

The Part-time Studies Program offers a variety of undergraduate degrees for working adults. Students enrolled in the Part-time Studies Program, may take classes during weekdays, evenings, and weekends depending on the course of study.

Students eligible for the Part-time Studies Program are individuals who must pursue or continue their education on a part-time basis until graduation. (Part-time is defined as 11 or fewer credit hours per term.)

Taking a reduced course load on a temporary basis does not constitute eligibility for the Part-time Studies Program. Students temporarily taking 11 or fewer credit hours in a term will be charged the non Part-time Studies tuition rate, as quoted in the Tuition, Fees and Housing section of this bulletin.

For information for both the College of Professional Studies and the Part-time Studies Program, call (414) 288-3153; fax (414) 288-3298, e-mail MCPS@Marquette.edu or write to: The College of Professional Studies, Marquette University, 1212 Building, 103, P.O. Box 1881, Milwaukee, WI 53201-1881.

SUMMER STUDIES

During the summer term, Summer Studies offers undergraduate and professional courses that are applicable to degrees in all colleges and schools of the university in the following modular formats: two consecutive six-week modules and four additional modules longer than the traditional six-week format. Several of the six summer modules offer short courses varying in length.

Domestic and foreign travel programs are offered each summer and provide undergraduate and graduate students with an exciting off-campus study experience.

Summer Studies provides an opportunity for students to take needed course work, accelerate their programs of study and enroll in courses of personal interest.

For information, contact the Office of Summer Studies, Marquette University, Marquette Hall, 013, P.O. Box 1881, Milwaukee, WI 53201-1881; call (414) 288-7506; fax (414) 288-6318; or e-mail (summerstudy@Marquette.edu); or visit the Summer Studies Web site at www.marquette.edu/summer.

PRE-DENTAL SCHOLARS PROGRAM

The Pre-dental Scholars program is an accelerated program which allows students to receive conditional acceptance to Marquette's School of Dentistry, the only dental school in the State of Wisconsin. Pre-dental scholars complete a bachelor's degree and a dental degree in seven years, rather than the eight years normally required.

Pre-dental scholars enroll either in the College of Arts and Sciences and major in Biology or in the College of Health Sciences and major in Biomedical Sciences, completing the undergraduate portion of their studies in three years. They are awarded a bachelor's degree upon successful completion of the first year in Marquette University's School of Dentistry. For information, call the Office of Undergraduate Admissions at (414) 288-7302.

PRE-LAW SCHOLARS PROGRAM

The Pre-law Scholars program is an accelerated program that provides a select group of students with conditional admission to Marquette University Law School. Pre-law Scholars complete their bachelor's and law degrees in six years, rather than the seven years normally required.

Pre-law Scholars enroll in the College of Arts and Sciences or College of Business Administration, choose from a variety of approved majors, and complete the undergraduate portion of their studies in three years. They are awarded a bachelor's degree upon successful completion of their first year in Marquette Law School. For information, contact the Office of Undergraduate Admissions, (414) 288-7302.

WASHINGTON, D.C., INTERNSHIP PROGRAM

The Marquette University Les Aspin Center for Government offers students the opportunity to study in Washington, D.C., as part of their degree program. Students live and work on Capitol Hill, participate in House and Senate internships, and receive hands-on training in legislative processes. Students attend lectures and symposia by leading figures in Congress, government agencies and business, gaining insight to the inner workings of the democratic process and the relationships that exist between government and business.

The center also conducts opportunities for foreign studies and international exchanges. For information, contact the center at (800) 544-1789.

STUDY ABROAD PROGRAMS

Students may study abroad with a Marquette-sponsored program, an exchange program, an affiliated program, a Marquette summer or intersession program, or a non-Marquette program. The College of Arts and Sciences maintains a Study Abroad Resource Center in Marquette Hall, 208, with a collection of study abroad materials available to all students interested in exploring study abroad possibilities. Study abroad information also is available in the reference collection and at the reserve desk in the Memorial Library.

MARQUETTE-SPONSORED PROGRAMS

Marquette sponsors a foreign program in Madrid, Spain. Most forms of financial aid may apply. Details are available from the Office of Student Financial Aid, 1212 Building, (414) 288-7390.

MADRID, SPAIN

Since 1965 Marquette has offered students with the required Spanish language skills the opportunity to study for one or two terms in Spain. Courses are taught in Spanish by the faculty of the Universidad Complutense de Madrid. Fields of study include art, economics, history, philosophy, political science, Spanish language and literature, and theology. Special features include excursions, social and cultural activities, and a language review during the orientation before the term begins. The resident director is a member of the College of Arts and Sciences faculty. For information, contact the administrative director, Study Center in Madrid, College of Arts and Sciences, Marquette Hall, (414) 288-7059.

EXCHANGE PROGRAMS

Marquette has completed a number of exchange agreements with foreign universities. Under these agreements students pay tuition to Marquette but study at the university abroad. Most forms of financial aid apply. Details are available from the Office of Student Financial Aid, 1212 Building, (414) 288-7390.

In order to keep their Marquette records current, students who participate in an exchange program must register via TVR for the appropriate section of the zero-credit "International Exchange" course (ARSC 190, COMM 190, GEEN 190, HESC 190, INBU 190, NURS 190).

1. For information about study at the following institutions, contact the College of Business Administration study abroad coordinator and the director of International Business Studies in the College of Business Administration, David A. Straz Jr. Hall, (414) 288-3433.

- Monash University, Melbourne, Australia
- University of Innsbruck, Austria
- University of Antwerp, Belgium
- Laval University, Quebec, Canada
- Pontificia Universidad Catolica de Chile, Santiago, Chile
- Southern Denmark Business School, Sønderborg, Denmark
- Université Catholique de Lille, France
- Université Catholique de Lyon, France
- Robert-Schumann School of Business, Strasbourg, France
- Catholic University of Eichstätt, Germany
- Phillipps Universität, Marburg, Germany
- National University of Ireland, Galway, Ireland
- European School of Economics, Rome, Milan and Lucca, Italy
- Sophia University, Tokyo, Japan
- Universidad Iberoamericana, Mexico City, Mexico
- Kuban Institute, Krasnodar, Russia
- Universidad Pontificia Comillas ICADE/ICAI, Madrid, Spain
- University de Deusto, San Sebastian and Bilbao, Spain

2. For information about study at the Universidad del Sagrado Corazon (San Juan, Puerto Rico), contact the study abroad coordinator in the College of Arts and Sciences, Marquette Hall.

AFFILIATED PROGRAMS

Federal financial aid, but not Marquette aid (including scholarships and grants), applies to affiliated programs. Details are available from the Office of Student Financial Aid, (414) 288-7390. In order to keep their Marquette records current, students who participate in an affiliated program must register via TVR for the appropriate zero-credit study abroad course (ARSC 192 or INBU 191).

AUSTRALEARN, AUSTRALIA AND NEW ZEALAND

In cooperation with AusraLearn, this program offers direct enrollment at 19 universities in Australia and four universities in New Zealand. For information, contact the study abroad coordinator, College of Arts and Sciences, Marquette Hall, (414) 288-7059.

CENTER FOR EDUCATION ABROAD ARCADIA UNIVERSITY (FORMERLY BEAVER COLLEGE), VARIOUS COUNTRIES

In cooperation with the Center for Education Abroad, Arcadia University, this program offers study abroad opportunities in several countries, including direct enrollment in Australia, England, Ireland, Mexico, Scotland and Wales, island programs in England, Greece, Italy and Spain; and internship programs in Canberra, Dublin, Edinburgh and London. For information, contact the College of Arts and Sciences study abroad coordinator, Marquette Hall. (414) 288-7059

THE BEIJING CENTER OF LANGUAGE AND CULTURE, BEIJING, CHINA

In cooperation with Loyola Marymount University, this program offers students the opportunity to combine intensive language study with course work, cultural seminars and excursions. For information, contact the College of Arts and Sciences, study abroad coordinator, Marquette Hall, (414) 288-7059.

LOYOLA UNIVERSITY ROME CENTER OF LIBERAL ARTS, ROME, ITALY

In cooperation with Loyola University, Chicago, this program offers courses in the liberal arts and Italian studies. For information, contact the College of Arts and Sciences study abroad coordinator, Marquette Hall, (414) 288-7059.

ST. CLARE'S COLLEGE, OXFORD, ENGLAND

In cooperation with St. Clare's College, this program offers courses in liberal arts, economics and foreign languages during the fall and spring terms. Most students take a combination of lecture courses and tutorials. Independent studies and internships are also available. For information, contact the College of Business Administration study abroad coordinator and the director of International Business, David A. Straz Jr. Hall, (414) 288-3433.

UNIVERSITY OF WISCONSIN—MILWAUKEE STUDY PROGRAM IN CHILE

In cooperation with the University of Wisconsin—Milwaukee, this program offers direct enrollment at the Pontificia Universidad Católica de Chile in Santiago, Chile. For information, contact the College of Arts and Sciences study abroad coordinator, Marquette Hall, (414) 288-7059.

SUMMER AND INTERSESSION PROGRAMS

Students may earn Marquette credit in summer and intersession programs. Presently, Marquette conducts summer programs in Belgium (Antwerp), Mexico (Xalapa) and intersession programs (in December and January) in the Czech Republic. For information, students should contact:

1. Belgium, France or the Czech Republic, the College of Business Administration study abroad coordinator and the director of International Business, David A. Straz Jr. Hall, (414) 288-3433.
2. Mexico: the Department of Foreign Languages and Literatures, Lalumiere Language Hall, (414) 288-7063.

NON-MARQUETTE STUDY PROGRAMS

Students may elect to study abroad with an accredited non-Marquette program. They must obtain the approval of their college or program and, if possible, determine course equivalents in advance. Neither Marquette aid (including scholarships and grants) nor Federal financial aid applies to non-Marquette programs. Details are available from the Office of Student Financial Aid, 1212 Building., (414) 288-7390. In order to keep their Marquette records current, students who study abroad with non-Marquette programs must also register via TVR for a zero-credit "International Study" course (ARSC 101, COMM 101, GEEN 101, HESC 100, INBU 100) for the term in which they will be abroad. It is the student's responsibility to have all necessary documents and records sent to Marquette for processing upon completion of their study abroad. Neither Marquette aid nor federal financial aid applies to non-Marquette programs. For information, contact the College of Arts and Sciences study abroad coordinator, Marquette Hall, (414) 288-7059, or the College of Business Administration study abroad coordinator and the director of International Business, David A. Straz Jr. Hall, (414) 288-3433.

HONORS PROGRAM

Organized in 1963, the Honors Program is designed to enhance the educational experience of intellectually talented and academically motivated students from all colleges in the university. In general, students apply to the program when applying to Marquette, but the program does review a small number of applications from students at the end of their first semester at Marquette. First-year honors students live on honors-designated floors in Straz Tower.

During the first year, honors students take a sequence of specially designated courses (or sections of courses) in English, history, philosophy and theology as well as a one-credit Honors Program seminar. Each year thereafter Honors Program students enroll in specialized seminars, independent study, and individualized tutorials or “contracts” that complement their regular courses. The Honors Degree is awarded to qualified graduates who complete a minimum of 15 courses for honors credit, six of which must be upper-division courses and two of which must be advanced undergraduate seminars. An Honors Certificate is awarded to qualified graduates who complete at least eight courses for honors credit, two of which must be upper-division courses and one of which must be an advanced undergraduate seminar. Candidates must maintain a minimum quality point average of 3.200 (both cumulative and by semester) during all four years of their enrollment in the program.

For more information, please visit the Honors Program Web site at www.mu.edu/honors or call (414) 288-7516. We can also be reached by mail at Honors Program, Coughlin Hall 001, Marquette University, P.O. Box 1881, Milwaukee, WI 53201-1881.

THE EDUCATIONAL OPPORTUNITY PROGRAM

The Educational Opportunity Program is an academic department of Marquette University that assists first-generation college students, underrepresented students and students from low-income families to succeed in higher education. EOP manages four major TRIO grants from the U.S. Department of Education, all of which share the common purpose of making a college education a realistic option for eligible students.

EOP STUDENT SUPPORT SERVICES

EOP Student Support Services provide a network of services designed to increase the probability that each student will succeed in the university. Support services include need-based financial aid, a pre-freshman summer program, academic counseling, specialized courses, developmental seminars and tutoring, as well as personal career counseling. Students may apply to EOP-SSS when they apply for admission to Marquette University, after completion of the Marquette application, or even after beginning studies at Marquette. The majority of EOP-SSS students enroll as entering freshmen and participate in the EOP-SSS summer program. For application information, call (414) 288-7593.

McNAIR SCHOLARS PROGRAM

The McNair Scholars Program provides services designed to encourage eligible sophomores, juniors and seniors to prepare for doctoral study. During the academic year, McNair Scholars participate in seminars, meet with visiting minority scholars, and attend professional and undergraduate research conferences. In the summer, McNair Scholars receive eight-week paid research internships with Marquette faculty, visit graduate schools, and enroll in a GRE preparation course. McNair Scholars are eligible for conference travel grants, research stipends, GRE fee waivers and admissions application fee waivers. For application information, call (414) 288-1771.

EOP PRECOLLEGE PROGRAMS

In addition to Student Support Services and McNair Scholars, EOP administers two precollege programs to motivate and prepare high school students to enroll and succeed in college. These structured programs provide summer instruction and enrichment programs, as well as after-school activities during the school year. For further information, call (414) 288-7368.

FRESHMAN FRONTIER PROGRAM

The Freshman Frontier Program is an academic support program for selected entering freshmen who do not meet regular admission requirements but show potential for success at Marquette. Students in this program must attend the summer studies prior to their freshman year. In addition they must carry a reduced course load (12-13 credit hours) during the fall and spring terms of their freshman year. The summer studies provides an opportunity for the student to enroll in a three-credit hour course from the regular freshman curriculum and two non-

credit learning skills courses. Supportive services are provided during the summer studies and during the entire freshman year.

ENGLISH AS A SECOND LANGUAGE

The Office of Campus International Programs provides advanced English language courses for students of other language backgrounds who need further formal instruction in speaking, reading or writing skills, for success in their Marquette academic studies. Students whose evidence of English language ability does not assure adequate proficiency are required to take an English language placement test after arrival at Marquette. The results of the placement tests are used to assign students to any appropriate English language courses. English language (ESLP) courses are offered in both the fall and spring terms. There are also sections of English 001 and 002 designated for these students. Up to six credits of ESLP course work may be counted toward degree requirements in all undergraduate colleges except Engineering.

MILITARY PROGRAMS

AIR FORCE AEROSPACE STUDIES

Marquette University students have the opportunity to fully participate in the Air Force Reserve Officers Training Corps Program. The required AFROTC courses are offered at Marquette University and are taught by resident full-time aerospace studies faculty.

Through this program, Marquette University offers its students the opportunity to prepare for initial active duty assignments as Air Force Commissioned Officers. In order to receive a commission, AFROTC cadets must complete all university requirements for a degree and courses specified by the Air Force. AFROTC courses are normally taken for credit as part of a student's electives. The amount of credit given toward a degree for AFROTC academic work varies as determined by the student's college and major. AFROTC offers four-, three- and two-year programs leading to a commission as an Air Force officer. Four-year program students complete the general military course and the professional officer course, in addition to a four-week summer field training between their second and third years in the program. Three- and two-year students complete only the professional officer course, but attend five-week summer field training before entering the professional officer course.

General Qualifications:

- be a full-time student;
- be a United States citizen (for scholarship appointment);
- be in good physical condition;
- be of good moral character;
- for pilot or navigator training, fulfill all commissioning requirements before age 29.

General Military Course: The first- and second-year educational program in Air Force aerospace studies consists of a series of one-hour courses designed to give students basic information on world military systems and the role of the U.S. Air Force in the defense of the free world. All required textbooks and uniforms are provided free. The general military course is open to all students at Marquette without advance application and does not obligate students to the Air Force in any way.

Field Training: AFROTC field training is offered during the summer months at selected Air Force bases throughout the U.S. The Air Force pays all expenses associated with field training. The major areas of study include junior officer training, aircraft and air crew orientation, career orientation, survival training, base functions and Air Force environment, and physical training.

Professional Officer Course: The third and fourth years of Air Force aerospace studies instruction are designed to develop skills and attitudes vital to the professional officer. Students completing the professional officer course are commissioned as officers in the U.S. Air Force upon college graduation. All students in the professional officer course receive a nontaxable subsistence allowance of \$350 per month during the academic year and during the summer between the third and fourth year. Students who want to enter the professional officer course should apply early in the spring term in order to begin this course of study in the following fall term. Final selection of students rests with the professor of aerospace studies.

Leadership Laboratory: Leadership laboratory is a cadet-centered activity. It is largely cadet planned and directed, in line with the premise that it provides leadership training experience that will improve a cadet's ability to perform as an Air Force officer. The freshman and sophomore leadership laboratory program introduces Air Force customs and courtesies, drill and ceremonies, wearing the uniform, career opportunities in the Air Force, education and training benefits, the life and work of an Air Force officer, and opportunities for field trips to Air Force

installations throughout the U.S. Initial experiences include preparing the cadet for individual, squadron and flight movements in drill and ceremonies and for the field training assignment prior to the junior year.

The junior and senior leadership laboratory program involves the cadets in advanced leadership experiences. Cadet responsibilities include planning and directing the activities of the cadet corps, preparing briefings and written communications, and providing interviews, guidance, information and other services which will increase the performance and motivation of other cadets.

AFROTC College Scholarship Program: This program provides scholarships to selected students participating in AFROTC. While participating in AFROTC, students receive \$250 per month along with paid tuition, fees, laboratory expenses and a fixed reimbursement for textbooks.

In order to be eligible for this scholarship, students must:

- be a U.S. citizen;
- be at least 17 years of age on the date of enrollment and under 31 years of age on Dec. 31 of the estimated year of commissioning;
- pass an Air Force physical exam;
- be selected by a board of Air Force officers;
- have no moral objections or personal convictions that will prevent bearing arms and supporting and defending the Constitution of the United States against all enemies, foreign and domestic (Applicants must not be conscientious objectors.);
- achieve a qualifying score on the Air Force Officer Qualifying Test;
- maintain a quality grade-point average.

High school students can apply for this scholarship late in their junior year or early in their senior year. High school students may get pre-applicant questionnaires by asking their guidance counselor or by writing or telephoning the nearest Air Force recruiting office. Completed pre-application questionnaires should be sent as soon as possible (to meet the earliest selection board) but will not be accepted if sent after December 1 the year before entering college. An online scholarship application is available at www.afrotc.com. High school students who receive an Air Force scholarship may also be eligible for further subsidies from Marquette University.

For students already enrolled at Marquette, three- and two-year scholarships are available. Applications can be submitted to the professor of aerospace studies.

MILITARY SCIENCE

The Department of Military Science, sponsored by the United States Army Reserve Officers' Training Corps program, was established under the auspices of the College of Arts and Sciences at Marquette University in 1951. Located in the east wing of the Marquette Gymnasium, the Marquette University Army Reserve Officers' Training Corps program combines college courses in military science with one summer training session. This prepares Marquette University undergraduate men and women to receive commissions in the U.S. Active Army, Army National Guard or the U.S. Army Reserve.

There are two program options: a four- or two-year program. The four-year program is divided into two phases: the basic course and the advanced course.

Four-year Program: The basic course is taken during the freshman and sophomore years. These courses are open to all students on an elective basis. All military science courses carry Marquette University credit. The courses, taught to meet the basic requirements, incur no military obligation and are free to all registered Marquette University students.

The advanced course is taken during the junior and senior year of the four-year program. Students in this program must have completed the basic course, have two years remaining in college and enter into a contract with the U.S. Army. Advanced course students take classes in leadership and participate in leadership laboratories to prepare for a five-week advanced camp during the summer between junior and senior years.

Two-year Program: The two-year program is designed for students at four-year institutions who did not take AROTC during their first two years of college, students entering a two-year postgraduate course of study, or students who have previous military experience. Training is formally started by attending a five-week paid summer session, called Camp Challenge. Successful completion of this camp is a prerequisite for enrolling in the AROTC advanced course.

Scholarships: The Army offers a number of scholarship opportunities to Marquette students enrolled in the Senior ROTC Program. High School seniors can apply for four-year, three-year advance designee, and four-year nursing scholarships. These scholarships are applied for through the U.S. Army Cadet Command, but are awarded on a competitive basis by the ROTC Department at Marquette University. These scholarships are worth \$17,000 annually with a \$600

textbook allowance. The scholarship student will also receive at least \$2,500 a year in subsistence during each year the scholarship is in effect.

Marquette University provides additional incentive funds for scholarship winners. Four-year scholarship winners receive \$7,000 toward tuition cap or university housing and board. Three-year advance designee winners receive \$13,000 in benefits for the freshman year. Once the scholarship benefits are applied in the sophomore year, Marquette University will still provide \$5,000 annually toward tuition cap or university housing and board.

Prospective students interested in a four-year Reserve Officers' Training Corps Scholarship should start the application process during their junior and senior year of high school. Scholarship applications may be obtained through the Department of Military Science, Marquette University, or at www.armyrotc.com. Current college students may apply for four-, three and a half-, three-, two and a half-, and two-year on-campus scholarships.

In order to be eligible for a scholarship, students must:

- be a U.S. citizen;
- be under 31 years of age at the time of commissioning;
- have a minimum cumulative Q.P.A. of 2.500;
- have a minimum score of 920 on the SAT or 19 on the ACT;
- satisfactorily explain any record of arrest and/or civil conviction;
- pass a Department of Defense physical;
- have no moral obligation or personal convictions that will prevent student from bearing arms and supporting and defending the Constitution of the United States.

Applications can be obtained from the Department of Military Science. On-campus applications may be submitted at any time during the school year.

Partnership in Nursing Excellence Scholarships: Marquette University is one of 41 colleges and universities to be designated as one of the U.S. Army's Partnership in Nursing Excellence Schools. As part of this program, the Marquette ROTC department is able to offer five four-year PNE scholarships annually to qualified applicants to the Marquette University College of Nursing. The application process and scholarship benefits are the same as those for other ROTC scholarships. The applicant should start the application process between the junior and senior years of high school. Nursing students already enrolled in the College of Nursing may also apply for two- and three-year on-campus scholarships through the ROTC department.

Non-scholarship Program: All students enrolled in the advanced course receive a monthly subsistence allowance during the school year. Successful completion of the advanced course leads to commissioning in the Active Army, U.S. Army Reserve or National Guard. Veterans: Men and women at Marquette University with prior military service may enroll directly into the advanced course with the permission of the professor of military science. Veterans must be able to meet the age, citizenship and physical standards of the Reserve Officers' Training Corps program.

Graduate Educational Delay: Students may request that their active duty service be deferred to attend graduate school.

Cross-enrollment: Students enrolled in other Milwaukee-area universities and colleges may, with approval of the dean of the College of Arts and Sciences, enroll in military science courses and participate in the AROTC program at Marquette while continuing their major curricula at these neighboring institutions.

For course descriptions, credit and information see the Arts and Sciences section of this bulletin. For complete information, contact the Department of Military Science, Gymnasium A100, Marquette University, P.O. Box 1881, Milwaukee, WI 53201-1881 or call (800) 563-7339.

NAVAL SCIENCE

The United States Naval ROTC unit, established at Marquette University in 1940, provides qualified commissioned officers for the Navy and Marine Corps. The mission is to develop midshipmen morally, mentally, and physically, and to imbue them with the highest ideals of honor, courage and commitment in order to commission college graduates as officers who possess a basic professional background, are motivated towards careers in the naval service and have a potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship, and government. Graduates who complete all requirements will receive reserve commissions and serve on active duty in the Navy or Marine Corps, with a minimum three-year commitment for non-scholarship students and four-year commitment for scholarship students.

Academically, the Naval Science Department, in the College of Arts and Sciences, teaches naval science courses and administers the program. All midshipmen are required to register for and participate in a two-hour weekly drill period. A naval science class is required each term, with few exceptions, for which Marquette grants credit toward graduation requirements.

Midshipmen are also required to attend a summer training period for a period of four to six weeks each summer. This summer training introduces midshipmen to the fleet, and the life of a junior naval officer. The summer training period also provides an orientation to each of the different warfare specialties (air, surface, submarine and Marine Corps).

All NROTC students fall into one of two broad categories: scholarship, or non-scholarship (college program). Some students will enter Marquette with a four-year scholarship, earned on a competitive basis while still in high school. Scholarships are for full tuition, fees, a textbook stipend, laboratory expenses and include a subsistence of \$250 to \$350 per month, depending on class year. In addition, Marquette provides incentive funds for scholarship winners. Four-year scholarship winners receive about \$7,000 per year toward university housing and board.

Students not on scholarship are termed college program students. They receive uniforms, naval science text books and \$300 or \$350 per month during their junior and senior years, respectively. All college program students are eligible to compete for Chief of Naval Education and Training scholarships. Students are selected on a competitive basis after completing a minimum of one term as a NROTC college program student. Selection boards meet semi-annually in March and June to consider students based on their most recent term. Students may receive scholarships benefits ranging from one to seven terms. Once selected, the students receive all the benefits and incur the same active duty requirements as students in the regular scholarship program.

All NROTC navy option students, except nurse option, are required to complete two terms of calculus by the end of the sophomore year, and two terms of calculus-based physics by the end of the junior year. Navy option college program students must complete one year each in mathematics and physical science. One course in computer science, two terms of English, and either American Military History (HIST 118) or National Security Policy (POSC 129) are required for all navy option students.

All Marine Corps option students, scholarship and college program, are required to complete only the naval science class requirements during the first and last year. Calculus and physics are not required unless they are a prerequisite of the major field of study. During the junior and senior years, students are required to take the marine corps naval science course and American Military History (HIST 118) or National Security Policy (POSC 129). In addition, each student is required to complete a six-week officer training course at Quantico, Va., during the summer between the junior and senior years.

All scholarships are awarded on the basis of merit and personal qualifications. The FAFSA is not required for consideration for naval scholarships.

For additional information, contact the Department of Naval Science, Marquette University, P.O. Box 1881, Milwaukee, WI 53201-1881, call (414) 288-7076 or (800) 554-NAVY or visit our Web site at www.marquette.edu/rotc/navy/.

ADMISSION PROCEDURES

APPLICATION FOR UNDERGRADUATE ADMISSION

Admission to Marquette University may be granted by the Committee on Admissions to an applicant whose qualifications indicate a potential for successful college work. During the application process, the educational background of the applicant is carefully reviewed, and each applicant is given personal attention and consideration.

After reviewing the admission procedures and requirements, prospective students should request an application from the Office of Undergraduate Admissions, Marquette University, P.O. Box 1881, Milwaukee, Wisconsin 53201-1881; or the university's Web site, www.marquette.edu. The request for an application should indicate the classification for which the applicant wishes to apply.

Undergraduate applicants are considered for admission to Marquette University in one of the following classifications:

Admission as a Freshman: For applicants entering college for the first time.

Admission with Advanced Standing: For applicants who have been enrolled or registered in an institution of higher learning since high school graduation.

Admission as a Non-degree Student: For applicants who wish to receive credit for courses but who are not (yet) seeking degree status.

All records and other materials required for admission are described in this section. With the exception of physical therapy, admissions decisions are made on a rolling, first-come, first-served basis. If colleges and schools of the university have special admission procedures and requirements, they are listed in the respective sections of this bulletin.

Applicants with questions not answered in this section are encouraged to write to the Office of Undergraduate Admissions, Marquette University, P.O. Box 1881, Milwaukee, WI 53201-1881, or call (800) 222-6544 or (414) 288-7302.

ADMISSION TO THE FRESHMAN CLASS

GENERAL NORMS

Graduation from an accredited high school or the equivalent is required. For success in all of its programs, Marquette University recommends a balanced high school preparation with course work in the following areas: English, mathematics, natural science, social studies, and foreign language. The chart below lists the *minimum* recommended preparation.

	English	Social Studies	Foreign Language	Mathematics	Science (any)	Biology	Chemistry	Physics	Additional Academic Subjects	TOTAL
RECOMMENDED HIGH SCHOOL PREPARATION										
Arts and Sciences	4	3	2	3#	2†				2	16
Business Administration	4	2	2††	3#	2				3	16
Communication	4	2	2	2	1				5	16
Engineering	4	2		4	1	1	1	1	2	16
Nursing	4	2		3##		1*	1*		5	16
Health Sciences	4	2		3#		1	1		5	16

*Academic units specifically required for admission.

#Algebra, geometry, intermediate algebra required. Fourth year of mathematics recommended.

##Algebra and geometry required. Third-year mathematics suggested.

†Pre-medical/dental and science majors should complete three units of science (preferably biology, chemistry, physics; where physics is unavailable, another senior-level science or math course should be substituted).

††Students interested in international business are strongly urged to complete four units of a single foreign language.

ENTRANCE EXAMINATIONS

All applicants for admission as freshmen are required to take the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board or the examination of the American College Testing Program (ACT). Information concerning these examinations can be obtained from high school counselors or by requesting information from the respective organizations. College Board ATP, P.O. Box 6200, Princeton, NJ 08541-6200; ACT Registration, P.O. Box 414, Iowa City, IA 52243. The bulletins, sent without cost, contain information on procedures, fees, and reports, and provide advice to applicants, descriptions of tests and lists of examination centers.

APPLICATION FEE AND TUITION DEPOSIT

Each application for admission must be accompanied by a non-refundable application fee of \$30. An applicant who is admitted may reserve a place in class by forwarding a \$100 tuition deposit (and a \$100 housing deposit if university housing is desired) by the deadline date specified in his or her admission notification. The tuition deposit will be applied to the tuition assessment of the first term. The tuition and housing deposits are non-refundable.

ADMISSION WITH ADVANCED STANDING

Students from other colleges, universities, or schools of recognized standing who have pursued courses equivalent to those offered at Marquette University may be considered for admission. In addition to the application forms and high school record, the applicant must submit an official transcript from each post-secondary school, college, university or other insti-

tution in which he or she was registered. The applicant must request that these transcripts be sent to the Office of Undergraduate Admissions, Marquette University, P.O. Box 1881, Milwaukee, Wisconsin 53201-1881. These transcripts must be sent directly to the Office of Undergraduate Admissions by the other institutions; they will not be accepted by Marquette if routed through the student. Failure to report attendance at any such institution since high school graduation is considered sufficient reason for dismissal.

Generally, applicants for advanced standing must present a satisfactory record from the schools previously attended. Specific programs may require an average above a 2.500 (on the four-point system). Applicants who are seeking to enter some of Marquette's academic programs as juniors or seniors may, at the discretion of the dean or director, be exempted from some freshman and sophomore subjects, provided they present acceptable substitutes.

An applicant for advanced standing admission who has completed fewer than 12 term hours of college level work (or its equivalent) and who has never taken the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board or the American College Testing Program (ACT) examination is required to take one of these tests and to have the results sent to Marquette University. (See Entrance Examinations, above.)

The university may accept credit from two- and four-year accredited educational institutions based on an individual evaluation of credits by the student's college using the following criteria:

- Educational nature of the institution from which the student intends to transfer credit.
- Comparability of the nature, content, and level of credit earned to that offered by the university.
- Appropriateness and applicability of the credit earned to the programs offered by the college, in light of the student's goals and the nature of Marquette's education. The university will normally not accept trade school or job training courses, physical education courses, or continuing education courses.

NOTE: Refer to individual colleges on Transfer Credit Policy for any transfer requirements.

The following regulations are observed in the granting of credit for work completed at other institutions:

1. Credit is not allowed for courses completed with lower than a C grade; credit may not be granted for certain courses of a professional, technical, or vocational nature.
2. A maximum of 16 hours of correspondence credits (including USAFI courses) may be accepted, provided that these credits are presented on the valid transcript of an accredited institution and that they would normally be accepted for degree credit by the sponsoring institution. These credits may not be used to meet major or minor requirements on the upper division level.
3. Credits from community colleges may not exceed one-half the number of semester hours required for graduation from a four-year curriculum.
4. A tentative evaluation of credits is usually made at the time of admission to Marquette University. This evaluation is subject to cancellation or revision at the close of two terms of full-time attendance, in accordance with the quality of the record made in the interim.
5. Registered nurse applicants follow general admission procedures. Transcripts from nursing programs and/or colleges must be sent to the Office of Undergraduate Admissions. The applicant must be a graduate of a nationally accredited program in nursing and must be currently licensed to practice as a registered nurse.
6. The final 30 credits earned must be from Marquette.

In addition, advanced standing students must meet all graduation requirements of their curricula as stated elsewhere in this bulletin.

ADMISSION WITH NON-DEGREE STATUS

Students who wish to pursue courses for personal or professional development and who do not (yet) wish to pursue a degree may apply for admission with non-degree status. Although supporting credentials are not ordinarily required for the admission of non-degree students, applicants are encouraged to provide transcripts of high school and/or college work. An interview with the Office of Undergraduate Admissions is required.

Students who have been dismissed from other colleges or universities may be admitted with non-degree status with the lapse of at least one term since the drop, and then only with the approval of the Committee on Admissions. Such applicants must file transcripts from schools previously attended before their requests for admission will be reviewed. These transcripts must be sent directly to the Office of Undergraduate Admissions by the other institutions; they will not be accepted by Marquette if routed through the student.

Students who wish to apply for student financial aid must seek degree status and must apply for admission as a freshman or for admission with advanced standing.

Additional regulations for non-degree students appear in the academic regulations section of this bulletin.

ADMISSION OF NON-IMMIGRANT STUDENTS

Marquette University is pleased to enroll more than 600 non-immigrant students from more than 80 countries. Applicants for undergraduate admission who are not citizens or immigrants (permanent residents) of the United States should contact the Office of Campus International Programs for the correct information and assistance to become students. The address is Alumni Memorial Union, 425B, Marquette University, P.O. Box 1881, Milwaukee, WI 53201-1881, U.S.A. The telephone number is (414) 288-7289; fax number (414) 288-3701; and e-mail World@Marquette.edu.

The application procedure is to help each candidate show the Admissions Committee that he or she has the four abilities which are necessary for successful studies at Marquette. These four are high academic ability, positive personal ability, strong English language ability, and sufficient financial ability. To show these four abilities, each applicant must arrange for the appropriate evidence to reach the Office of Campus International Programs. The application procedure can require from one week to many months or more, depending primarily upon when the applicant can provide the required application materials. A complete list of application materials is sent to each prospective student along with complete instructions and information about Marquette University.

ADMISSION TO SUMMER STUDIES

Detailed information on admission for the summer term may be found in the *Summer Studies Bulletin* (published each February and sent upon request). For information, contact the Office of Summer Studies, Marquette University, Marquette Hall, 013, P.O. Box 1881, Milwaukee, WI 53201-1881; call (414) 288-7506; fax (414) 288-6318; or e-mail summer.study@Marquette.edu; or visit the Summer Study Web site at www.marquette.edu/summer.

APPROVAL FOR STUDY AT OTHER INSTITUTIONS

Students who plan to study at another institution must obtain written approval for each course prior to enrollment in the course. If prior approval is not obtained, the university reserves the right to not accept the credits earned at the other institution. Course approval forms may be obtained from the student's college office.

Upon completion of the course work, it is the student's responsibility to have an official transcript sent directly from the institution to the Office of the Registrar.

READMISSION OF FORMER STUDENTS

A former Marquette University student who wishes to return after the lapse of at least one full term (excluding summer studies) must submit to the Office of the Registrar an Application for Readmission. Because Marquette conducts an early registration which begins several months prior to the start of each term, it is to the student's advantage to apply and be accepted as early as possible. Application forms are available in the Office of the Registrar and should be filed no later than three weeks prior to the day classes begin. A re-entering student who wishes degree status and who has attended another school or schools since leaving Marquette must request that a transcript of credits from each such school be sent to the Marquette Office of the Registrar. The transcript(s) must be received before the application for readmission will be considered. The transcript(s) must be sent directly to the Office of the Registrar by the other institution(s); transcript(s) will not be accepted by Marquette if routed through the student. Records of applicants for readmission, including previous work at Marquette University, are subject to review and to a new evaluation of credits.

TRANSFER WITHIN THE UNIVERSITY

The various colleges of Marquette University operate under the jurisdiction of separate deans. Therefore, enrolled students must submit to the Office of the Registrar a formal Application for Transfer if they wish to transfer from one college to another. If the Application for Transfer is approved, the student will be governed by the degree requirements of the college to which transfer is made. Because Marquette conducts an early registration which begins several months prior to the start of each term, it is to the student's advantage to apply and be accepted as early as

possible. Application forms are available in the Office of the Registrar and should be filed no later than three weeks before the day classes begin.

CHANGE OF STATUS

Applicants who enter any program at Marquette University with non-degree status may later petition for degree status, as either full time or part time. Application forms are available in the Office of the Registrar and should be filed no later than three weeks before the day classes begin.

SECOND BACCALAUREATE DEGREE

Baccalaureate degree holders with good scholastic records may be admitted to candidacy for a second baccalaureate degree. Application for acceptance into such a program is made through the readmission procedure in the Office of the Registrar. The appropriate dean will review the application and, if admission is granted, the applicant together with the dean or director will develop a specific plan of study. Candidates for the second degree must complete all the requirements of the college in which they are enrolled. The minimum residence requirement is 32 additional semester hours of upper-division credit. A second baccalaureate degree may not be awarded at the same time as the first degree. Eligibility for graduation with university honors and the attendant quality point average and rank-in-class do not apply to the second baccalaureate degree. Students with a baccalaureate degree who wish to further their education should consider the option of applying for admission to a graduate program. (Note: Completing an additional major may or may not constitute the completion of a second degree. Consult the college in which you are re-admitting for further clarification.)

With the written approval of a dean, a student with a good scholastic record who is entering his or her final term of study for a first baccalaureate degree may enroll in courses that will count toward a second baccalaureate degree. An approved plan must be provided to the Office of the Registrar, prior to the beginning of the final term of work leading to the first degree, as part of the readmission process. The plan must delineate clearly which courses to be taken in the coming term will apply to the first degree and which apply to the second degree. All other conditions specified in the paragraph above apply.

TUITION, FEES AND HOUSING

Payment of tuition, room and board, service fees and other course charges is due approximately 15 days prior to the beginning of classes for fall and spring terms.

A STUDENT'S REGISTRATION IS NOT COMPLETE UNTIL ALL TUITION, FEES AND HOUSING ARE PAID. A student who does not pay in full or make acceptable payment arrangements with the Office of the Bursar by the due date will be subject to a late payment fee. All courses for which a student is officially registered as of the close of Late Registration are subject to fee assessment and payment, and as such to appear as part of the student's permanent record even if the student does not attend any sessions of the class. Therefore, to avoid unnecessary fee charges and unnecessary courses with permanent grades of UW, WA or F on the student's permanent record, it is the student's responsibility to be certain that before Late Registration ends, his/her official registration accurately reflects only those courses for which the student plans to enroll.

If a student has an unpaid Bursar account at the end of any term, the student will not be permitted to enroll for a subsequent term. A student is not entitled to receive an official transcript of credits or diploma from the Registrar until all tuition, fees and housing have been paid.

A 50 percent discount on tuition (only) is available to individuals 62 years of age and older taking undergraduate and graduate courses for credit and/or audit. This opportunity is offered to students who have the proper background and prerequisite for the course(s) in question. This discount is not available to anyone who takes the audit-only student discount.

A 50 percent discount on tuition (only) is available to individuals who enroll as audit-only students in undergraduate and graduate courses during the term. Individuals taking course(s) for credit during any of the other modules are ineligible for this discount. This opportunity is offered on a space available basis during Late Registration of the module to students who have the proper background and prerequisites for the course(s) in question. Interested individuals should contact the Office of the Bursar at (414) 288-7157. This discount is not available to individuals who take the senior citizen discount.

Tuition, fees and housing costs listed are subject to change.

PAYMENT ARRANGEMENTS

All students are expected to make payment in full approximately 15 days prior to each term. Payment arrangements may be made with the Office of the Bursar if parents and students are unable to make payment from personal funds or if financial aid will not be available until after the term begins.

Acceptable payment arrangements consist of one of the following:

1. Payment of all fees in full approximately 15 days prior to the term. Cash and checks are acceptable methods of payment. For a variable convenience fee, you may charge your payment with PhoneCharge Inc. Call 1-877-685-7794 to use this service.
2. Enrollment in the Marquette University Payment Plan.
3. Enrollment in AMS Tuition Pay, a university-approved installment plan.
4. Payment by a university-approved third-party sponsor (ROTC, foreign embassies, companies directly billed.)

NOTE: All financial aid recipients are required to make one of the above payment arrangements.

TUITION (NEW STUDENT RATE 2002-2003)

Full-time (12 to 18 credit hours), per term,	
All colleges except Engineering	\$9,700.00
Full-time (12 to 19 credit hours), per term, Engineering	9,700.00
Full-time (credit hours may vary), per term,	
Physical Therapy (Master's phase)	9,700.00
Physical Therapy (Doctoral phase)	10,450.00 *
Part-time, per credit hour	
Part-time Studies Program	380.00
Non Part-time Studies Program	570.00
Excess credit hours over full-time, per credit hour	175.00
Study Center in Madrid:	
Per term	7,880.00
Credit established by examination, per credit hour	75.00
Les Aspin Center for Government Congressional Internship Program,	
per term	12,435.00
Language Reading Course	
(cost per course/audit only) FREN/GERM (non-credit)	450.00**

* This rate applies to students in years four through six of the program.

** Special rate. No other discounts apply.

LABORATORY AND SPECIAL COURSE FEES

Nursing

Uniforms (must be purchased through a private vendor.	
Vendor list available from the College of Nursing.)	\$100.00 *
Assessment equipment (Stethoscope for sophomore nursing courses,	
\$25.00.** Sphygmomanometer for senior nursing course 179, \$60.00.) . . .	80.00 *
Sophomore- and junior-year equipment	60.00
Diagnostic Assessment Test for Licensure Examination (seniors only)*.	40.00

* Approximate fee. Exact amount based upon vendor costs in effect at time of registration.

** Paid in fall term only.

SERVICE FEES

Nursing credits by Advanced Course Validation fee (RN students only).	200.00
Student Activity Fee (per 16-week term)	60.00
Student Health Service Fee (per 16-week term)	120.00

For part-time students: The \$25.00 examination fee to establish credit will be credited against the \$75.00 per credit hour tuition if credit is earned.

For full-time students: The \$25.00 examination fee to establish credit will be the only charge if credit hours so earned come within an 18-hour course load (19-hour course load in Engineering). Credits earned by examination in excess of the full-time course load will be charged \$75.00 per credit hour, and the \$25.00 examination fee will be credited against this amount.

HOUSING

Living in a residence hall provides easy access to classes, comfortable furnishings, out-of-class educational experiences, an opportunity to develop personal friendships, recreational facilities, and a chance to get involved in the university community. The university accommodates approximately 3,000 students in men's, women's and coeducational residence halls. Traditional and block meal options are offered to students. Most accommodations are double rooms, although single, triple and quadruple rooms also are available.

An important aspect of residence hall living is the trained staff members available to assist students. Qualified students are employed as resident assistants, while full-time professionally trained staff direct each hall.

All single freshman and sophomore students, except those residing with their parents or guardians during the academic year, are required to live in university residence halls. In addition, all students living in residence halls are required to purchase a meal plan each semester. Students who are at least 21 or two years beyond high school are allowed to select their own housing and may wish to inquire about university-owned apartment buildings. A limited number of efficiency and one-bedroom apartments are available on campus for married students, although the facilities cannot accommodate children beyond infancy.

A deposit of \$100 is required for room reservation and is payable in conjunction with the tuition deposit. Room assignments are based upon the date of deposit, so new students who apply early are more apt to receive their preferred location. Final assignment of rooms remains at the discretion of the university, however, and though it is possible to meet the first alternative for most students, it is not possible to guarantee everyone a preferred assignment.

Carpenter Tower is the only residence hall that is open during Winter and Spring Break periods. Students who are assigned to Carpenter Tower may stay over these break periods for an additional charge. A limited number of spaces are available for housing during the Winter and Spring Break periods. Students may make reservations for these accommodations by contacting the Office of Residence Life.

Students who are not required to live in residence halls may obtain a list of off-campus housing from the university. Meal plans also are available for off-campus students who wish to eat in the residence halls. Inquiries about housing should be addressed to the Office of Residence Life, P.O. Box 1881, Marquette University, Milwaukee, WI 53201-1881.

2000-2001 RESIDENCE HALL, APARTMENTS AND MEAL PLAN RATES PER TERM

Hall	Room Type	19 Meals	14 Meals	175 Block	125 Block
Coben:	Single	\$3,878	\$3,783	\$3,826	\$3,721
	Double	3,315	3,220	3,263	3,158
	Quad	3,315	3,220	3,263	3,158
Straz:	Double	3,585	3,490	3,533	3,428
	Triple	3,012	2,917	2,960	2,855
Mashuda:	Single	3,921	3,826	3,869	3,764
	Double	3,499	3,404	3,447	3,342
	Large Double	3,537	3,442	3,485	3,380
	Triple	2,916	2,821	2,864	2,759
McCormick:	Quad	3,499	3,404	3,447	3,342
	Double	3,395	3,300	3,343	3,238
	Triple	2,916	2,821	2,864	2,759
O'Donnell:	Single	3,878	3,783	3,826	3,721
	Double	3,315	3,220	3,263	3,158
	Triple	2,744	2,649	2,692	2,587
Schroeder:	Double	3,413	3,318	3,361	3,256
	Triple	2,981	2,886	2,929	2,824
Carpenter:	Single	3,913	3,818	3,861	3,756
	Double	3,426	3,331	3,374	3,269

Apartments (no meal plan included)		
Abbottsford	Studio	\$445/month
	One bedroom	458/month
Humphrey	One bedroom	704/month
	Two bedroom	959/month
Carmel	Efficiency	382/month
	One bedroom	490/month
Gilman	Studio	304/month
	One bedroom	397/month
Campus Town	One bedroom	724/month
	One bedroom townhouse	794/month
	Two bedroom	1,051/month
	Two bedroom corner	1,131/month
	Two bedroom coop	1,214/month
	Two bedroom townhouse	1,121/month
	Two and a half bedroom	1,238/month
	Large two and a half bedroom	1,273/month
	Three bedroom	1,349/month
	Three bedroom corner	1,467/month
Meal Plan Only:		
Traditional 19		\$1,270
Traditional 14		1,175
Block 175		1,218
Block 125		1,113
Housing Deposit:		\$100

REFUNDS AND ADJUSTMENTS

Students who have prepaid charges but do not register for class will be given a full refund, less applicable non-refundable deposits. Students who register for classes and subsequently change their course load through either a partial withdrawal from courses or a complete withdrawal from the university will have an adjustment made to their student account. If that adjustment results in a refund due to the student, proper application must be made with the Bursar's Office to obtain the refund. See page 36 of this bulletin for a full description of withdrawal procedures.

After the first class, special course fees, Student Activity Fee and the Health Service Fee are non-refundable. Tuition deposits are non-refundable but are applied toward first term tuition charges. Housing deposits are non-refundable but are applied toward first term housing charges.

All courses for which a student is officially registered as of the close of Late Registration are subject to fee assessment and payment, and as such to appear as part of the student's permanent record even if the student does not attend any sessions of the class. Therefore, to avoid unnecessary fee charges and unnecessary courses with permanent grades of UW, WA or F on the student's permanent record, it is the student's responsibility to be certain that before Late Registration ends, his/her official registration accurately reflects only those courses for which the student plans to enroll. Refunds for tuition and room will be given based on the following schedule:

Refund and Adjustment Schedule	
100 percent refund	Through the close of late registration
80 percent refund.....	During the second week
60 percent refund	During the third week
40 percent refund	During the fourth week
20 percent refund	During the fifth week
NO REFUND	After the fifth week

Board—Pro-rated number of full weeks remaining in the term as a percent of 16 weeks.

NOTES: Refunds for first time Title IV borrowers will be pro-rated on a weekly basis.

Lab fees are not refunded after Late Registration.

STUDENT FINANCIAL AID

The primary purpose of the financial aid program at Marquette is to aid those students who would be unable to attend the university without assistance. Marquette makes every effort within its means to assist such students in financing their education. No applicant will be considered for financial assistance until he or she has been formally admitted into the university, although one certainly can apply for financial aid before acceptance to the university has been granted.

Financial resources available to undergraduate students include scholarships, grants, loans, and part-time employment. Since these resources can be limited, priority for financial assistance is based on the financial need of the applicant as well as the date on which all application materials have been received by the Office of Student Financial Aid. Students should begin the application process the January prior to their enrollment.

For detailed information on the programs and procedures described in this section and others, which may not be listed here, consult the Office of Student Financial Aid's Web site at www.marquette.edu/financialaid. The Web site is the primary means of communication, questions can be sent via e-mail to financialaid@Marquette.edu. However, paper versions of this information are also available by contacting the Office of Student Financial Aid, P.O. Box 1881, Marquette University, Milwaukee, WI 53201-1881, or by calling (414) 288-7390.

APPLICATION FOR STUDENT FINANCIAL AID

To be considered for scholarships, grants, employment and loans, entering freshmen, advanced standing (transfer) and re-entering students must complete the Marquette University Application for Admission.

Since most financial aid is awarded to students on the basis of financial need, applicants are also required to complete a Free Application for Federal Student Aid (FAFSA). The FAFSA allows the Office of Student Financial Aid to determine each applicant's financial need in a uniform manner. The Title IV School Code for Marquette is 003863.

SCHOLARSHIPS

A scholarship is a form of gift assistance which does not have to be repaid. Selection for Ignatius Scholarships is based upon meeting and maintaining certain academic requirements. Students wishing to apply for academic scholarships should complete the scholarship portion of the Application for Admission. All students having completed applications by the scholarship deadline each year will be considered for a Ignatius Scholarship and be notified in early spring. Students may contact the Office of Undergraduate Admissions for the specific scholarship application deadline.

Marquette University also offers competitive scholarships, athletic scholarships and ROTC scholarships. For information about selection criteria, application procedures and renewal requirements for all Marquette scholarships contact the Office of Undergraduate Admissions.

Marquette University scholarships are funded through gifts and endowments provided by private donors in addition to funds set aside by the university.

GRANTS

A grant is a form of financial assistance which does not have to be repaid. Funding for grant programs is supplied by state and federal agencies as well as institutional sources.

Federal Pell Grant (PELL): This is a federal program which provides funds to eligible undergraduate students who do not possess a bachelor's degree. Students eligible for assistance through this grant program may receive up to \$4,000 per year.

Federal Supplemental Educational Opportunity Grant (SEOG): The SEOG is a federal program which provides funds to needy full-time undergraduate students who do not possess a bachelor's degree. These grants may range from \$250 to \$4,000 per year.

Wisconsin Tuition Grant (WTG): (Wisconsin residents only.) This grant program, funded by the state of Wisconsin, attempts to provide a percentage of the cost differential between attendance at a public and private institution. In order to be eligible, a student must be a legal resident of the state of Wisconsin, enrolled in an undergraduate program on at least a half-time basis, and must not possess a bachelor's degree. The amount of this grant ranges from \$250 to \$2,300 and is based on need. WTG can be received for a maximum of ten terms.

Marquette University Grants (MU Grant): MU Grants are awarded to full-time students in the same manner as the SEOG program.

Talent Incentive Program Grants (TIP Grants): The TIP Program is a Wisconsin state-sponsored program providing grants to eligible Wisconsin residents with exceptional financial need. Recipients must meet state criteria as low income/disadvantaged students. Grants range up to \$1,800 per year. TIP Grants can be received for a maximum of 10 terms.

Miscellaneous Grants: The Office of Student Financial Aid also administers other federal and state grants.

LOANS

Students are considered for loan assistance if they are attending Marquette on at least a half-time basis and are in good academic standing. Loans must be repaid according to the terms outlined on the promissory note for each loan program.

The principal loan programs administered by Marquette are the Federal Perkins Loan, the William D. Ford Federal Direct Stafford Loan and the William D. Ford Federal Direct PLUS loan. Eligible students will receive promissory note materials from the Office of Student Financial Aid after filing the FAFSA. All required application materials must be received by the Office of Student Financial Aid prior to July 1 in order to be processed in time for the beginning fall term.

STUDENT EMPLOYMENT

The primary function of Student Employment Services, located within the Office of Student Financial Aid, is to assist students in securing employment on campus or within businesses in the area. All Marquette students are welcome.

Many students help finance their education through part-time employment. Part-time employment can benefit students in several ways:

- Employment helps offset the cost of education.
- Students who work tend to manage their time better than students who do not.
- Studies have shown that grades don't suffer if students limit the number of hours worked to less than 20 per week.
- Part-time employment can be an important part of the total educational experience at Marquette. Students can learn good work habits, human relations skills and other skills that may not be learned in the classroom.

There is an ample number of jobs for those who want to work. To conduct a successful job search, new students should begin during the week of fall orientation. Job vacancies are filled on a first-come, first-served basis. Once a job is secured, students can arrange a work schedule around their class schedule. Typical jobs include food service worker, laboratory assistant, residence hall desk receptionist, typist, computer programmer, maintenance worker, community service worker and many more. Off-campus jobs are found in non-profit agencies as well as many area businesses.

Students wishing to work must comply with the Immigration Reform Act of 1986. Eligible U.S. citizens must bring a copy of their original birth certificate, Social Security card, or a U.S. passport to the Office of Student Financial Aid. A picture identification card such as a driver's license or Marquette University identification card is also required. Foreign students interested in working on campus should contact the Office of Student Financial Aid for information.

ACADEMIC REGULATIONS

OFFICIAL PUBLICATIONS

This edition of the *Undergraduate Bulletin* governs curricular requirements of all students entering Marquette University undergraduate programs as freshmen or as advanced standing students during the 2002–2003 academic year. Students are held accountable for knowledge of the detailed information and for compliance with the regulations contained in this bulletin and in the *Student Handbook*.

Each student receives a copy of the bulletin, free of charge, upon entrance to the university, and should preserve that copy for reference during his/her entire undergraduate career at Marquette. Additional copies of the bulletin, revised and published annually, will *not* be issued to continuing students free of charge. Should a continuing student misplace the copy of the bulletin he/she received as an entering student, he or she will be able to purchase a bulletin at the Book Marq or the Golden Eagle shops. Copies of the bulletin also are available for reference in the university's libraries, residence halls and school and college offices. For refinement of some

of the general policies listed in The University section, and for information on specific regulations, requirements, activities, awards and financial aids in the various divisions of the university, students are requested to refer to the college, school and program sections of this bulletin.

The Student Handbook, also issued annually, contains information and regulations on housing, conduct and student activities. Rules governing eligibility for membership and participation in student organizations, as well as descriptions of all recognized student organizations, also are contained in the *Student Handbook*. Copies of the handbook are available from the Office of Student Development.

Some departments in the College of Health Sciences issue a student handbook unique to their majors. The student is also governed by the rules and regulations of this handbook.

CREDIT

The semester hour is the unit of academic credit used by Marquette University. One semester hour of credit is awarded for one hour of lecture per week for a 16-week course; credit for laboratory hours are appropriately awarded. Semester hour credit is given only in accordance with descriptions for individual courses as published in this bulletin. No credit is given for a course for which a student has not regularly registered.

The normal schedule for full-time students in the undergraduate day division is 16 or 17 credit hours, with the exception of students in the ROTC programs, the special requirements of which necessitate carrying more. An upperclassman may be allowed, with the consent of the dean or director, to carry more than the normal load, provided that, in the preceding term, all his/her grades were B or higher. Part-time Studies students are ordinarily limited to a maximum of nine credit hours.

Credit for courses pursued at another educational institution while simultaneously enrolled at Marquette (concurrent registration) will not be allowed unless specifically authorized by the dean.

AUDIT

Applicants who wish to audit courses without earning credit must present evidence of their preparation for the course or courses in which they wish to enroll. Students may change from credit to audit status during the period extending from the first day of classes through the four weeks following the end of mid-term examinations with the permission of both the course instructor and the dean of the college in which the student is enrolled. Auditors are required to attend all classes but are not required to complete written course assignments or examinations. Audit-only students should refer to the Tuition and Fees section of this bulletin for information on available discounts.

UPPER AND LOWER DIVISION COURSES

Lower division courses are numbered 001-099 and normally are taken by freshmen and sophomores. Upper division courses are numbered 100-199 and normally are taken by juniors and seniors.

CREDIT BY MARQUETTE EXAMINATION

Marquette recognizes that students by virtue of independent study, previous training, or experience may already possess mastery of the content of a particular course in which they have not been formally registered. To enable students to enrich or accelerate their course of study, the university provides for the establishment of academic credit by means of a special Marquette examination. Such credit, granted only to matriculated students, is the equivalent of the credit the student would have earned had he or she actually been enrolled in the course at Marquette and successfully completed it. Students wishing to establish credit by Marquette examination should submit a request for such examination to the office of their dean or director.

ADVANCED PLACEMENT

Applicants may be granted advanced placement for college level courses taken in high school. Usually such courses are under the auspices of the Advanced Placement (AP) Program of the College Entrance Examination Board, and tests are taken upon the recommendation of high school teachers. Tests are administered by the College Entrance Examination Board only in the high schools.

Applicants who have participated in the Advanced Placement Program will have their work evaluated by a Marquette University faculty committee after they have been admitted and their test results have been received from the College Entrance Examination Board Advanced Placement Program. Ordinarily, these test results are received by Marquette during the summer just preceding the enrollment. The applicant will be notified of the decision concerning advanced placement shortly after the university has received the test results.

Following is a chart listing those advanced placement subjects accepted at Marquette and what amount of credit may be awarded for each score.†

ADVANCED PLACEMENT CREDIT AND PLACEMENT

SUBJECT/SCORE	1	2	3	4	5
Art History	No Credit	No Credit	Waiver of fine arts requirement	3 cr. for FIAR 069 with an S	6 cr. for HIST 007 and 008 with an S
Biology	No Credit	No Credit	Placement into BIOL 002 or 004	3 cr. for BIOL 001 with an S and placement into BIOL 002 or 004	6 cr. for BIOL 001 and 004 with an S
Chemistry	No Credit	No Credit	4 cr. for CHEM 001 with an S and placement into CHEM002	8 cr. for CHEM 001 and 002 with an S and placement into CHEM 023 or 123	8 cr. for CHEM 001 and 002 with an A and placement into CHEM 023 or 123
American Government and Politics	No Credit	No Credit	No Credit	3 cr. for POSC 020 with an S and placement into upper division* courses	3 cr. for POSC 020 with an S and placement into upper division* courses
Comparative Government and Politics	No Credit	No Credit	No Credit	3 cr. for POSC 040 with an S and placement into upper division* courses	3 cr. for POSC 040 with an S and placement into upper division* courses
Environmental Science	No Credit	No Credit	No Credit	3 cr. for PHYS 009 with an S	3 cr. for PHYS 009 with an S
English Language and Literature	No Credit	No Credit	No Credit	3 cr. for ENGL 001 with an S and placement into ENGL002	6 cr. for ENGL 001 and 002 with an S and placement into sophomore level English
Computer Science A	No Credit	No Credit	3 cr. for COSC 051 with an S	3 cr. for COSC 051 with an A	3 cr. for COSC 051 with an A
Computer Science AB	No Credit	No Credit	6 cr. for COSC 051 and 055 with an S	6 cr. for COSC 051 and 055 with an A	6 cr. for COSC 051 and 055 with an A
American History	No Credit	No Credit	No Credit	6 cr. for HIST 004 and 005 with an S and placement into upper division* courses	6 cr. for HIST 004 and 005 with an A and placement into upper division* courses
European History	No Credit	No Credit	No Credit	3 cr. for HIST 002 with an S and placement into upper division* courses (HIST 001 must still be completed)	3 cr. for HIST 002 with an A and placement into upper division* courses (HIST 001 must still be completed)
French, or German Language	No Credit	No Credit	Placement into course 003	4 cr. for course 010 with an S	3 cr. for course 040 with an S
Spanish Language	No Credit	No Credit	Placement into course 003	4 cr. for course 010 with an S	3 cr. for course 082 with an S
French Literature	No Credit	No Credit	Placement into course 003	3 cr. for course 040 with an S	3 cr. for course 120 with an S
German Literature	No Credit	No Credit	Placement into course 003	3 cr. for course 198 with an S	3 cr. for course 065 with an S
Spanish Literature	No Credit	No Credit	Placement into course 003	3 cr. for course 198 with an S	3 cr. for course 056 with an S
Latin	No Credit	No Credit	Placement into Latin 003	3 cr. for Latin 004 with an S	3 cr. for Latin 055 with an S
Math/Calculus AB	No Credit	No credit, with possible placement into MATH081	4 cr. for MATH 080 with an S and placement into MATH 081	4 cr. for MATH 080 with an A and placement into MATH081	4 cr. for MATH 080 with an A and placement into MATH081
Math/Calculus BC	No credit, with placement into MATH081	No credit with possible placement into MATH082	8 cr. for MATH 080 and 081 with an S and placement into MATH082	8 cr. for MATH 080 and 081 with an A and placement into MATH082	8 cr. for MATH 080 and 081 with an A and placement into MATH082
Microeconomics	No Credit	No Credit	3 cr. for ECON 043 with an S	3 cr. for ECON 043 with an S	3 cr. for ECON 043 with an A
Macroeconomics	No Credit	No Credit	3 cr. for ECON 044 with an S	3 cr. for ECON 044 with an S	3 cr. for ECON 044 with an A
Physics B**#	No Credit	No Credit	No Credit	6 cr. for PHYS 001 and 002 with an S	6 cr. for PHYS 001 and 002 with an S
Physics C*** (mechanics)	No Credit	No Credit	No Credit	3 cr. for PHYS 003 with an S	3 cr. for PHYS 003 with an S
Physics C*** (electricity and magnetism)	No Credit	No Credit	No Credit	3 cr. for PHYS 004 with an S	3 cr. for PHYS 004 with an S
Psychology	No Credit	No Credit	No Credit	3 cr. for PSYC 001 with an S	3 cr. for PSYC 001 with an S
Statistics	No Credit	No Credit	No Credit	3 cr. for MATH 060 with an S	3 cr. for MATH 060 with an S

† Pre-medical and pre-dental students should consult with the health professions adviser before accepting APcredits.

* Upper division classes are junior and senior level courses.

** Those students planning to attend medical school should not accept AP credit or placement in physics.

Science majors should note that credit received does not include lab credit. Labs must be completed at Marquette.

Note: AP code is 1448.

Revised March 2002

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

Credit and/or exemption for some college courses may be earned through the College Level Examination Program (CLEP) of the College Entrance Examination Board. Recent high school graduates as well as those who have acquired knowledge in ways other than through traditional formal classroom attendance may benefit from these tests. The maximum number of credits that students can earn by CLEP examination is 30. Marquette credit is not granted for any of the five general examinations. It is granted only for those approved subject examinations listed below. Credits are approved by the respective dean or director. Credit will be designated as earned by CLEP on the permanent record and indicated as an S grade (satisfactory), and therefore will not affect the student's quality point average.

General information on CLEP costs and test centers may be obtained from the College Entrance Examination Board, 888 Seventh Avenue, New York, New York 10019.

APPROVED CLEP SUBJECT EXAMINATIONS

SUBJECT EXAMINATION	SCALED SCORE REQUIRED	MARQUETTE EQUIV. COURSE	HOURS OF CREDIT
HISTORY OF THE U.S. 1	55	HIST 004	3
HISTORY OF THE U.S. 2	55	HIST 005	3
AMERICAN GOVERNMENT	50	POSC 020	3
WESTERN CIVILIZATION 1	60	HIST 001	3
WESTERN CIVILIZATION 2	60	HIST 002	3
INTRODUCTORY SOCIOLOGY	50	SOCI 001	3
INTRODUCTION TO PSYCHOLOGY 1	55	PSYC 001	3
ANALYSIS AND INTERPRETATION OF LITERATURE	51	SOPHOMORE LITERATURE	3
AMERICAN LITERATURE	50	SOPHOMORE LITERATURE	3
ENGLISH LITERATURE	49	SOPHOMORE LITERATURE	3
CALCULUS WITH ELEMENTARY FUNCTIONS	55	MATH 080	4
COLLEGE ALGEBRA	50	MATH 020	3
INFORMATION SYSTEMS AND COMPUTER APPLICATIONS	54	COSC 050	3
PRINCIPLES OF MARKETING	55	MARK 140	3
PRINCIPLES OF MACROECONOMICS	55	ECON 044	3
PRINCIPLES OF MICROECONOMICS	55	ECON 043	3
PRINCIPLES OF MANAGEMENT	55	MANA 156	3
GENERAL BIOLOGY	48	BIOL 001 AND 004	6
GENERAL CHEMISTRY	48	CHEM 001 AND 002	8

NOTE: The score reported on CLEP reports is the scaled score, not the percentile. CLEP code is 1448.

PLACEMENT IN FOREIGN LANGUAGE COURSES

The goal of the Department of Foreign Languages and Literatures is to place students in the most appropriate level of foreign language study based on their previous exposure to the language.

Students in colleges or majors with a foreign language requirement (Arts and Sciences, Communication, Health Sciences, International Business, etc.) should verify the language requirement with their undergraduate adviser.

The following procedures have been established by the Department of Foreign Languages and Literatures for placement in foreign language courses:

- 1) Students who have never studied the language, or who are beginning the study of a new language, do not have to take a placement examination. They should register for an Elementary Language 001 course.
- 2) Students who have earned high school credit in French, German, or Spanish, and who plan to continue with the study of that language must take the placement examination to determine placement in the appropriate course.
- 3) Students who have completed two years or less of Classical Greek, Latin, Italian, or Japanese in high school, and who plan to continue with the study of that language should register for an Elementary Language 001 course. Students with three years or more of high school study should register for an Intermediate Language 003 course.
- 4) Students who are native or near-native speakers of French, German, Italian, Japanese, or Spanish, and who plan to continue study of that language must consult with the Department of Foreign Languages and Literatures before registering for a foreign language course. Native speakers of other languages should consult with the College of Arts and Sciences regarding possible exemption from the foreign language requirement.

- 5) Students who have spent six weeks or more studying abroad must take the placement examination (if the language is French, German, or Spanish), and consult with the Department of Foreign Languages and Literatures before registering for a foreign language course.
- 6) Students who have college credit for a foreign language course should consult with the Registrar and their college office regarding the transfer of foreign language credit.
- 7) Students who have taken the Advanced Placement Exam or the International Baccalaureate Exam and have received credit for a course in a foreign language or literature, and who plan to continue the study of that language should refer to the Department of Foreign Languages and Literatures' Web site for recommendations on the appropriate course for which to register.

Further information on the procedures and instructions regarding the placement examination will be mailed to incoming students and can be found on the Department of Foreign Languages and Literatures' Web site.

PLACEMENT CREDIT IN FOREIGN LANGUAGES

Students who enter Marquette University who have studied or have had previous experience with or exposure to French, German, Classical Greek, Italian, Japanese, Latin, or Spanish, and who plan to continue the study of that language are required to be placed in the appropriate course on the basis of procedures established by the Department of Foreign Languages and Literatures. For information on Foreign Language requirement, see the appropriate College section in the Undergraduate Bulletin). They may be eligible to apply for three to six hours of special placement credit dependent upon the level in which they are placed, and the completion of that course with a grade of B or better (plus earn credit for the course in which they are enrolled),

For example: if a student places at Level 010 in French, German, or Spanish, and completes the course with a grade of B or better, he or she may be eligible to apply for three hours of special placement credit (plus earn four credits for course 010). If a student places in a third-year course (or above) in French, German, or Spanish, and completes the course with a grade of B or better, he or she may be eligible to apply for six hours of special placement credit (plus earn three credits for the course in which the student is enrolled).

The grade awarded for the special placement credit will be an S (Satisfactory) which will be noted on the student's transcript as German 005, Spanish 005, etc. These credits will only count toward the total hours needed for graduation from Marquette, and cannot be used toward the completion of a major or minor in the language. Such special placement credit is not automatic. It is the student's responsibility to complete an Application for Placement Credit in Foreign Languages form in the first college-level language course the student enrolls in at Marquette. If a student receives additional special placement credits they will be noted on the student's transcript at the end of the semester after the course was completed.

ELIGIBILITY REQUIREMENTS FOR SPECIAL PLACEMENT CREDIT:

- 1) the student must have earned the high school credits for the language in question from a U.S. high school;
- 2) the student may not be a native speaker or equivalent of the language, nor a long-time resident of a country where the language is spoken;
- 3) the student may not have college credit in the language (including Advanced Placement (AP) credit, credit by examination, or transfer credit from another institution); and
- 4) the student may not have previously audited a college course in the language or enrolled in, and then withdrew from, a course in the language after the third week of the term.

UNDERGRADUATE STUDENTS IN GRADUATE COURSES

An undergraduate senior may register for a 200-level course if the student has a B (3.000) or better average, his/her current program is such as to allow for involvement in graduate level work and has approval from the Graduate School. To register for a graduate course an undergraduate student must complete the Request for Permission to Enroll in a Graduate Course form, available from the Graduate School office. The student is responsible for securing the necessary signatures (including the course instructor, the graduate department chairperson and the dean of his/her undergraduate college or school), returning the completed form to the Graduate School, then registering for the course using the TVR system.

Undergraduate students taking graduate level courses or upper-division (100-level) courses (any of those designated by a # symbol in the registration *Timetable of Classes*) with the intention of transferring the credits to a graduate program must be graded according to Graduate School standards. Courses may not be graded using the S/U or audit option unless that is the only grading option available for the course. Students are not eligible to receive CD or D grades.

For information on transferring credits to a Marquette graduate program see the *Graduate School Bulletin*.

UNDERGRADUATE QUALITY POINTS AND GRADING SYSTEM

Marquette uses the quality point system to determine a student's academic average and his/her eligibility to graduate (see Graduation Requirements.) Each grade (A through F) earned in a course carries a specified number of quality points. The quality points earned in any given course equal the quality point value of the grade multiplied by the total number of semester hours credited. A student's quality point average is found by dividing the total number of quality points earned by the total number of semester hours credited in those courses for which quality points have been assigned.

All students must earn at least a C (or 2.000) average in courses actually taken at Marquette. If a student's quality point average falls below 2.000, or if the student has accumulated excessive hours of failure, he/she will be given a scholastic censure or may be required to withdraw. (See Scholastic Censure section in this bulletin.)

The following letter grades, their equivalents in achievement, and quality points per credit hour are used by Marquette instructors to evaluate a student's performance in a course:

<i>Grade</i>	<i>Achievement</i>	<i>Quality Points</i>
A	Superior	4
AB		3.5
B	Good	3
BC		2.5
C	Satisfactory	2
CD		1.5
D	Minimum passing	1
F	Failing	0

Former students who are applying for readmission should consult their respective deans for information concerning the application of the new grading policy to their earlier academic records.

Junior and senior students are given an option to elect one course per term (to a maximum of four courses) for which only an S or U grade is assigned:

<i>Grade</i>	<i>Achievement</i>
S	Satisfactory completion of the course, equivalent of C work or better. Full credit earned, but the grade does not affect the quality point average
U	Unsatisfactory completion of the course. No credit earned and the grade does not affect the quality point average

The following letter grades are used to indicate circumstances involving audits, incompletes, absences and withdrawals:

<i>Grade</i>	<i>Circumstance</i>
AU	Audit (no credit).
I	Assigned by the instructor, normally on a pre-arranged basis, to allow completion of course assignments other than the final examination. It is understood that the student's performance in the course must merit this special concession. If the instructor judges that the student has not merited the I grade, he or she will assign an F grade if the missing work is significant enough to deserve an F or, alternatively, a passing grade which reflects both the quality of the work completed and the significance of the work which has not been completed.
X	Assigned by the instructor to a student who is absent from the final examination and who might earn a passing grade in the course were he/she to take a delayed examination. If the two conditions do not exist, the student is assigned the grade of F immediately. A student receiving the grade of X must file an explanation for his or her absence in writing to the dean of the student's college.

IX	Issued by the instructor to a student who is incomplete in the course work and absent from the final examination but who otherwise meets the criteria for the I grade and the X grade. (A student not qualifying will be assigned the grade of F)
W	Official withdrawal, initiated by the student, with approval of dean or director.
UW	Unexcused withdrawal from one or more courses.
WA	Student was withdrawn from the course for excessive absences. (The college office decided that the student—whether passing or failing at the time—was not allowed to return to the class.)

Clearance of grades I, X and IX is effected through the office of the dean of the college, school or program which offers the course. These grades must be cleared by the date specified in the academic calendar for the term following the term in which the grade was assigned or they will automatically become the grade of F (unless the dean has specifically granted a petition for extension of the deadline date). For those continuing students who entered under the previous grading policy, the I, X, and IX grades will remain such on the permanent record. But because these grades denote that the student has not fulfilled all course requirements, the university views these grades, when not removed by the student, with the same seriousness as the grade of earned F.

The letter grades involving withdrawal (i.e., grades with a W) do not imply any loss of quality points and therefore do not affect the student's quality point average.

CD AND D GRADES

The policy on CD and D grades earned in courses taken at Marquette University differs for students in the various colleges, schools and programs. See the pertinent sections of this bulletin for statements of individual policy.

S/U OPTION

For enrichment purposes, junior and senior students are given an option to elect one course per term (to a maximum of four courses) for which only an S or U grade is assigned. This course must be a true elective in the individual's program, the prerequisites for which the student has met. Courses excluded are those taken in fulfillment of the requirements for the core curriculum, courses for the major or minor including teacher certification and the like, or special courses excluded by the individual colleges, schools or programs and described each term in the *Timetable of Classes*. Arrangements to take a course under the S/U option must be made in person, in the Office of the Registrar, and arrangements must be completed no later than the close of late registration.

After the close of late registration, the student does not have the option of changing from S/U to regular grading or from regular grading to S/U grades.

S/U GRADES

The grades S and U are also awarded routinely to all students enrolled in certain internship type courses such as student teaching and in some practicums. S grades are also routinely awarded in the granting of credit through the CLEP examinations, and S grades may be a student's choice in accepting credit through the Advanced Placement Program.

REPEATED COURSES

Students who are required to repeat a course because of failure to achieve a required minimum grade for a specific major or minor field, or who choose to repeat a course for other reasons, must file with the office of their dean a request to repeat the course. The repeat course must be identical to the original course in title, subtitle, and credits. Substitution of one course for a different course is never permitted.

Credit hours earned in a repeated course are only given once. All previous courses and grades remain on the students permanent record and appear on the transcript. Beginning with courses repeated during the Fall Term 1999, the grade in the original course is not included by Marquette in the calculation of the students cumulative quality point average. Cumulative quality point average is adjusted at the time the repeated course grade is recorded. If a student withdraws from the repeated course, the earlier grade will remain in the students cumulative quality point average.

Students may repeat a course regardless of the original grade earned. Academic programs may specify courses that normally are not allowed to be repeated, or may identify limits on the num-

ber of times specific courses in their curriculum may be repeated. Otherwise, there is not a limit on the number of times a student may repeat a course. Students may not exercise the S/U option for a repeated course. Courses repeated at other institutions will not be used to replace grades earned at Marquette.

APPEALS PROCEDURE

Undergraduate students may appeal a grade which the student believes to be in error. The student is expected, first of all, to exhaust all possibilities of resolving the problem with the pertinent instructor. If this does not lead to resolution, the student may initiate, in writing, the formal procedure for appealing the grade to the chairperson of the department or, in schools with no departmental structure, to the dean, stating the reasons he or she believes the grade should be changed. The chairperson or the dean will employ the appeals procedure which has been established by the department or college to ensure a fair consideration of the student's appeal. Normally no formal procedure of appeal will be given consideration if the documents are submitted later than the final day officially scheduled for the removal of incompletes, approximately four weeks after the beginning of the regular academic term immediately following the term in which the grade was assigned. The final disposition of the appeal is reserved to the dean of the college or director of the program in which the course was taken.

EXAMINATIONS AND GRADE REPORTING

MIDTERM ASSESSMENT

There is a midterm assessment of the work of all undergraduate students in their undergraduate courses. However, the assignment of midterm grades in courses numbered 195-199 and those designated "Possibly No Midterm Grading" in the *Timetable of Classes* is at the option of the instructor, who will make known to the class at the beginning of the term whether or not such grades will be assigned.

University policy does not require a formal midterm examination. It is not unlikely, however, that many instructors administer such a test in their undergraduate courses.

Undergraduate students are expected to obtain their midterm grade information by using the Window account available on Marquette's VAX computer cluster, as described in the Window section of this bulletin and in the *Timetable of Classes*.

FINAL EXAMS

Final examinations are held in most subjects. A student's achievement in each of his or her subjects, expressed as a letter grade, is based on the combined results of class work and examinations.

A student who misses a final examination risks an F grade for the course. If he or she meets the pertinent criteria detailed under "Undergraduate Quality Points and Grading System" on page 30, he or she will be assigned the grade of X; he or she may be permitted to write a late examination to remove the X if the absence was for a valid reason and was reported in accordance with the norms established by the dean of the student's college.

GRADE REPORTS

Final grade reports are prepared at end of term and mailed to the student at his/her permanent address. Two copies of the grades are included in the final grade report sent to each student so that any wanting to provide a copy to their parents may do so. A copy of the final grades of any student will be sent to their parents if that student requests it.

HONOR SOCIETIES

ALPHA SIGMA LAMBDA

The Zeta Psi chapter of Alpha Sigma Lambda was established at Marquette in 1990. The society honors those dedicated part-time adult students who while adroitly handling their life responsibilities, achieve and maintain high scholastic standards. For information, contact Part-time Studies at (414) 288-3153.

ALPHA SIGMA NU

Founded in 1915, Alpha Sigma Nu honors students who have maintained high academic standards as well as a demonstrated commitment to service and loyalty to the ideals of Jesuit education. Membership requirements include junior/senior standing and a Q.P.A. within the top

15 percent of their class. Of the pool of eligible students, only four percent of the students from each class within the various colleges and programs of the university will be considered.

Alpha Sigma Nu boasts 32 student chapters with 53,495 alumni members from Jesuit institutions of higher education throughout the United States, Canada and Korea. The society maintains ongoing service and professional projects, provides mentoring and networking possibilities for its members, aids 32 Jesuit institutions of higher education through scholarships, and coordinates four national book awards on an annual basis.

Founded at Marquette University, Alpha Sigma Nu's headquarters remain on the Marquette campus. For information contact the office at (414) 288-7542 or visit the Web site at www.AlphaSigmaNu.org.

PHI BETA KAPPA

Phi Beta Kappa, chartered at William and Mary in 1776, is the oldest and most prestigious of the academic honor societies in the United States. Its purpose is to distinguish superior academic character and achievement and, through lectureships, scholarships, and publication of *The American Scholar*, to promote liberal education throughout the culture. There are only 249 chapters, and Marquette's Zeta chapter dates from 1971. Membership requirements typically include good (faculty-attested) academic character and a Q.P.A. in liberal arts courses within the top seven or eight percent of the graduating class. Students need not apply to be considered for membership. For further details, consult the College of Arts and Sciences for the name of the current secretary.

GRADUATION REQUIREMENTS

Normally undergraduate students must meet the graduation requirements which are stated in the *Undergraduate Bulletin* issued for the year in which they entered Marquette. Exceptions to this rule may occur, as determined by the dean or director. It is to be expected that exceptions will occur in the case of any student whose enrollment period extends for more than eight years. Students whose enrollment is interrupted for two or more terms at a time normally must meet the requirements in the bulletin issued for the year in which they return to the university. *Students are responsible for keeping themselves informed of the requirements which apply in their particular cases.*

Every student has available faculty advisers who will assist in planning and implementing the student's program of studies; *however it is ultimately each student's responsibility to know and fulfill the requirements for graduation specified for the selected program.*

A candidate for a baccalaureate degree must meet the following graduation requirements:

In all colleges and programs a minimum quality point average of 2.000 must be earned for graduation.

1. The candidate for a degree in arts and sciences or communication must earn 128 credit hours and a minimum of 256 quality points (2.000 quality point average). In addition, an arts and sciences candidate must achieve a 2.000 quality point average in all courses in his/her major or minor.

In business administration (non-accounting), 129 credit hours (includes one one-credit S/U course) and 256 quality points (2.000 quality point average) are required. In addition, a candidate must achieve a 2.000 quality point average in all courses in the College of Business Administration. A candidate majoring in accounting must earn 129 credit hours with a 2.500 average in all courses taken in the college. At least 50 percent of the required business credits must be taken at Marquette University.

In education, students must have a minimum of a 2.500 overall quality point average and a minimum of a 2.750 quality point average in major courses, each additional area of licensure, and in education course work.

In engineering, 133 semester hours and a 2.000 quality point average must be earned in Marquette and transfer credits accepted. In addition, there must be a 2.000 average in all engineering course work.

In health sciences, the candidate for a degree with a major in biomedical sciences, clinical laboratory science, or speech pathology and audiology must earn 128 credit hours and a minimum of 256 quality points (2.000 quality point average.) For athletic training, 131 credit hours and 262 quality points are required. For *dental hygiene, 126 credit hours and 252 quality points are required. For exercise science, 127 credit hours and 254 quality points are required. For physician assistant studies, undergraduates must meet the graduation requirements of the biomedical sciences major and must complete in the professional phase 131 credit hours and 262 quality points required for the degree of master of physician assistant studies. For physical therapy,

*see page 260

undergraduates must meet the graduation requirements of their selected major, and must complete 49 credit hours of pre-professional course work; in the professional phase, 122 credit hours and 244 quality points are required for the doctor of physical therapy. In addition, a health sciences candidate must achieve a 2.000 quality point average in all courses in his/her major.

In nursing, 128 credit hours and a minimum of 256 quality points (2.000 quality point average) are required.

In professional studies, 126 credit hours and 252 quality points (2.000 quality point average) are required.

2. Once a student has gained senior classification (as defined in this bulletin in terms of credit hours accumulated), a minimum of 30 hours of the remaining course work normally must be completed at Marquette University. Clinical laboratory science students must spend the second term of the junior year in residency.

3. A minimum of 32 hours of upper division work normally must be completed at Marquette University.

4. A minimum of 15 credit hours in the major normally must be completed at Marquette University.

5. A student who interrupts residence for two or more consecutive terms must meet the graduation requirements which prevail at the time of readmission.

6. The student must attend any course of lectures, or any other exercises which have been or may be required, even though such courses receive no recognition in terms of credit hours.

7. The student must file a formal application for a degree at the college office.

8. May graduates must attend Commencement exercises. Permission to be absent may be secured only for serious reasons by writing before May 1 to the office of the student's dean.

GRADUATION HONORS

The quality point system is used to compute graduation honors. The computation is made by dividing the total number of quality points earned at Marquette University by the total number of quality point hours earned. To graduate with honors, a candidate must have earned at least 60 quality point hours and 60 degree hours at Marquette University, normally as a junior and senior.

A candidate whose average is 3.500 graduates *cum laude*; one whose average is 3.700 *magna cum laude*; and one whose average is 3.900 *summa cum laude*. Graduation honors are inscribed on diplomas, noted in the published lists of graduates at Commencement, and recorded on the student's transcript.

FAMILY EDUCATION RIGHTS AND PRIVACY ACT

In compliance with the Family Educational Rights and Privacy Act, Marquette University notifies its students of their rights to inspect, amend and prevent disclosure of their education records. Marquette's policy regarding education records is printed in the *At Marquette* student handbook and copies may be obtained from the Office of Student Development in the Alumni Memorial Union, 329.

ATTENDANCE

Students are expected to attend all exercises of the courses in which they are registered and to be on time. Any absence, regardless of the reason, will prevent the student from getting the full benefit of the course. Instructors may include class attendance as a measure of academic performance, and inexcusable absences may render a student liable to censure. Students must comply with the absence regulations of the college or school in which the course is offered. An instructor's syllabus should give particular directions regarding class attendance. Students who miss an exam or a deadline for an excusable reason should contact their instructor as soon as possible. (Students who are absent from class for a week or more for an excusable reason, such as a major illness, should inform the college in which they are enrolled.)

CLASSIFICATION

A matriculated (a student who has declared degree candidacy) undergraduate student must have earned 24 credit hours before being classified as a sophomore; 60 hours before being classified as a junior; and 92 hours before being classified as a senior. A non-matriculated undergraduate student is not included under any of the above classifications but is categorized as an unclassified (because non-degree) student.

NON-DEGREE STUDENT ACADEMIC REGULATIONS

1. Non-degree students may register for a maximum of seven credits each term. Written authorization from the student's dean/director must be acquired for exception to this policy. When requesting an exception, non-degree students may be required to present transcripts and other documents for evaluation.

2. Ordinarily, non-degree students may accumulate a maximum of 24 credits at Marquette. Authorization from the office of the dean/director is required before students may exceed this limit.

3. Twenty-four credit hours earned at Marquette University on non-degree status is the maximum that may be applied toward a degree in all disciplines with the exception of nursing, in which only 12 credit hours may be applied.

4. Normally, students who are accepted and enroll with non-degree status must complete at least 12 credits before applying for degree status.

5. A 2.000 grade point average in Marquette University course work is a minimum requirement to be considered for degree status.

6. At the time non-degree students petition for degree status, they must comply with all regulations regarding credential submission as outlined for degree candidates in the Admissions Procedures section of this Bulletin.

7. Non-degree students are expected to maintain satisfactory academic progress at Marquette University. The student's progress in these areas is monitored regularly by the office of the dean/director. The university's policy and procedures governing scholastic censure outlined in this bulletin apply to non-degree students and are exercised as necessary by the colleges.

SCHOLASTIC CENSURE

Quality Point Deficiency—All students are expected to maintain at least a C (2.000) Q.P.A. in Marquette work. Students whose cumulative Q.P.A. falls below a C (2.000) will be warned of such on their grade report and advised of the Q.P.A. level they must earn in future course work to remove the deficiency and achieve a 2.000 average.

All students who do not maintain at least a 2.000 cumulative quality point average in Marquette work are subject to an Executive Board review and possible academic dismissal at the discretion of the student's college or program. However, all students who do not maintain at least a 2.000 cumulative average in Marquette work and whose Q.P.A. deficiency falls within the following categories will be reviewed by the Executive Board and are subject to possible academic dismissal.

<i>Degree Hours Earned</i>	<i>Student's Quality Point Deficiency</i>
0-34	18 or more
35-70	16 or more
71-102	13 or more
103-	9 or more

Failing Grades—Continuing students who are graded under the prior policy are subject to review by the Executive Board as outlined in the section on "Scholastic Censure" in the bulletin under which they entered.

When a student is allowed to continue at Marquette with either excessive quality point deficiency or excessive failing grades the Executive Board, through the dean or director, will prescribe, in writing, conditions under which a student is allowed to continue. Students who fail to meet the conditions for progress stipulated by the Executive Board may be required to withdraw for academic reasons.

Any deviation from this policy appears in the appropriate college or school section of this bulletin.

WITHDRAWAL FROM COURSES

A student who wishes to withdraw from one or more courses, but who will still be attending at least one other course during the term, must contact his or her college office.

A student may obtain permission to withdraw from a course with a "W" grade during the period extending from the day following the close of late registration until the date specified in the academic calendar. Before withdrawal, a student should confer with the office of the dean or director to learn what procedures he or she is expected to follow. After this period, a student will no longer be given permission to withdraw from courses except for serious non-academic reasons (e.g., injury, family crisis). A student may, with the consent of the instructor, continue to attend a class from which he or she has withdrawn and may, with the agreement of the instructor and the dean, change to auditor status unless a tuition refund for the course has been received.

If a student, at any time, fails to manifest those qualities judged to be appropriate and necessary to the professional field for which he or she is preparing, withdrawal from the program may be required.

WITHDRAWAL FROM THE UNIVERSITY

A student who is enrolled for one or more classes but decides to completely discontinue study for the term must formally withdraw from the university. Application for withdrawal must be obtained from the office of the student's academic dean.

After obtaining the Official Withdrawal form, a student who wishes to withdraw from the university during the term will personally confer with the dean at the time of such action.

If a student withdraws from the university during the term without the permission of the dean, he or she receives the grade UW (unexcused withdrawal) in each course, and the grade must be cleared by the dean before the student is eligible for readmission.

When the student obtains the Official Withdrawal form from the academic dean, the student will be informed whether the student must confer with any offices in addition to the dean's.

Withdrawal will not be processed by the university or considered officially complete until the withdrawal form with all necessary signatures is returned by the student to the office of the academic dean.

The only exception permitted to the policies and procedures described above applies to students who have classes only in the evening (after 5 p.m.). Such students do not have to physically appear at the academic dean's office; written notification of intent constitutes acceptable means of compliance with university policy and procedure.

In cases of withdrawal because of disciplinary reasons, the student must be cleared by the academic dean and the dean of students to be eligible for readmission.

A student who intends to withdraw from the university after the close of a term is strongly advised to confer with the dean.

All courses for which a student is officially registered as of the close of Late Registration are subject to fee assessment and payment, and as such to appear as part of the student's permanent record—even if the student does not attend any sessions of the class. Therefore, to avoid unnecessary fee charges and unnecessary courses with permanent grades of UW, WA or F on the student's permanent record, it is the student's responsibility to be certain that before Late Registration ends, his/her official registration accurately reflects only those courses for which the student plans to enroll.

ACADEMIC DISHONESTY

It is not feasible to attempt to develop a list of all conceivable examples of academic dishonesty, but it may be helpful to list a few and to note that they all involve an attempt to deceive, to distort perceptions of reality, to gain a record of academic accomplishment greater than earned. All who are parties to the deceit are involved in academic dishonesty. Most acts of academic dishonesty involve cheating on examinations or reports in one way or another, improperly obtaining examination questions, plagiarism, forgery, falsification of records or impersonation of a candidate taking an examination.

Students who engage in academic dishonesty, whenever that may be, shall be subject to appropriate university penalties. Penalties ranging up to an F in the course in which the dishonesty occurs can be imposed by the dean of the college or school in which the course is offered. Additional penalties, if they are warranted, ranging up to expulsion from the university, can be imposed by the dean of the college or school in which the affected student is enrolled. If an appeal against the imposition of a penalty for academic dishonesty is taken beyond the college or school in which it was imposed, it should be directed to the Office of the Provost.

ACADEMIC FACILITIES AND RESOURCES

LIBRARIES OVERVIEW

The university libraries support the teaching, research and service mission of Marquette University by providing access to recorded knowledge through their collections, services, cooperative programs and connections to world wide resources. A full description of resources, services, hours and news is found at the libraries' Web site, www.marquette.edu/library.

Collections of more than one million volumes of books and bound journals and 6,000 serial subscriptions are housed in three facilities: Memorial, Science, and Law. The libraries are moving aggressively to integrate and provide remote access to more than 5,000 electronic journals and a growing collection of monographs. The new John P. Raynor, S.J., Library is under construction with an opening scheduled for August 2003.

The libraries' online catalog, MARQCAT, provides current information on book and periodical holdings. Students also may use library-sponsored search tools and databases on the World Wide Web to gain access to library catalogs, online periodical indexes, and full text sources in the full range of curricular subjects. These services are available from more than 100 PCs in the libraries, a 20-place instructional laboratory, and laptop computers available for checkout. Students with personal computers may connect to library resources from all campus residence halls, as well as from off-campus residences equipped with modem and Internet provider. A well-developed instructional program supports faculty and students in the use of electronic information resources.

During regular academic terms, Memorial Library and the Science Library are open 104 hours per week, including weekdays until 11:45 p.m.

Monday – Thursday	7:45 a.m.–11:45 p.m.
Friday	7:45 a.m.–10:00 p.m.
Saturday	10:00 a.m.–10:00 p.m.
Sunday	10:00 a.m.–11:45 p.m.

During final exam week, Memorial Library offers extended hours until 1:45 a.m. Library hours during the summer, intersessions and holidays are posted and updated regularly on the 24-hour recorded message at (414) 288-1530.

Reference assistance to students and faculty is available in a variety of formats: telephone, in-person, e-mail and research consultations by appointment. Each library maintains its own specialized collection of reference works, online databases and periodical indexes; subject specialists are appointed to assist with the research needs of students in all disciplines.

A variety of cooperative arrangements extend and supplement Marquette's library resources. Special borrowing privileges (InfoPass) are available to the Marquette community at Milwaukee Public Library (four blocks from campus), UW-Milwaukee, and the Medical College of Wisconsin, as well as more than a hundred other metro Milwaukee libraries. Interlibrary Loan service also obtains books and article copies at no cost for Marquette students and faculty from state, regional and national networks.

MEMORIAL LIBRARY

The largest campus library, at 1415 W. Wisconsin Ave., Memorial Library supports the social sciences, humanities and business disciplines with its collection and seating for 2,000. Reference and instruction services are available at (414) 288-7556.

The facilities in this library include study rooms for faculty and graduate students, a PC lab for student use, audiovisual and computer equipment, laser printing and photocopiers.

The Memorial Library Funding Information Center is part of the national network of regional collections of the Foundation Center in New York. The collection contains complete data on all Wisconsin grant-making foundations, as well as books, periodicals, and pamphlets on the subjects of fund raising, proposal writing and philanthropy.

Memorial Library also includes the Department of Special Collections and University Archives, which contains 11,000 cubic feet of archival and manuscript collections and rare book holdings of over 10,000 volumes. In addition to the archives of Marquette University and the papers of faculty, students, staff and alumni, the department holds major collections relating to Catholic social action in the 20th century. These include large collections for the following individuals and organizations: Dorothy Day and the Catholic Worker, the National Catholic Conference for Interracial Justice, the Catholic Association for International Peace, Sister Margaret Ellen Traxler, the Milwaukee Council on Urban Life, Monsignor Luigi G. Ligutti and the

National Catholic Rural Life Conference. The original manuscripts of J.R.R. Tolkien and the extensive Bureau of Catholic Indian Missions Records are also available for research use.

SCIENCE LIBRARY

The library materials and services needed for instruction and research in the physical, life, health and engineering sciences are located in the Science Library at 560 N. 16th St. There is seating for 450, and books and journals are shelved on six floors. Hours are described above and reference service is available at (414) 288-3398.

The Science Library offers all public services including reference, instruction in library use, interlibrary loan and mediated computer searching. The Science Library provides World Wide Web and CD-ROM computer workstations for student research in many science bibliographic databases.

LAW LIBRARY

The Marquette University Law Library is located in the Legal Research Center and was expanded in 1983. As the largest legal research facility in southeastern Wisconsin, and a selective governmental depository library, the library is used extensively by lawyers, judges, students and faculty. Open seven days a week, the library has a service-oriented staff of 18, including nine professional librarians, four of whom are reference librarians. All library operations are fully automated and patrons have access to MARQCAT, the Marquette University libraries online catalog.

The library's collection contains more than 290,000 volumes and equivalents in books and microforms, and new acquisitions are selected by the library's professional staff to meet the research needs of faculty, students, judges and attorneys. The library has a comprehensive collection of primary and secondary legal materials for Wisconsin and the United States, and primary legislative and judicial materials from each of the states. The collection also includes a growing number of public international legal materials as well as legislative and judicial legal materials from Great Britain, Canada and Australia. The library selectively collects legislative materials of other countries as they become available in English.

In addition to its collection of primary legal materials, the library acquires materials on the philosophy and theory of law, the history and development of law and legal institutions, the effects of law on society, and selected materials in the social sciences and humanities necessary to contemporary legal education, scholarship, and decision-making.

The library's print collection is complemented by several subscriptions to Web-based services such as *Congressional Universe*, *Legal Trac* and *Hein Online*, all of which are available on work stations in the library. Law faculty and law students have access to LEXIS and WESTLAW, two online computer-assisted legal research services. The Law Library maintains two computer labs providing law students with facilities for word processing, computer-assisted legal research and instruction and Internet access. One of the labs serves principally as the Victor and Isabel Miller Computer Classroom, with a "smart" podium and built-in electronic projection equipment. Other library users also may access the Internet through public computer stations. The library also maintains an Internet Web site www.mu.edu/law/library/index.html with information on the library and links to many legal research sources.

Students also may use the Memorial and Science libraries on campus as well as the Milwaukee Public Library and the Milwaukee Legal Research Center, both of which are located within two blocks of the Law School.

EDUCATION RESOURCES CENTER

The School of Education maintains an Education Resources Center in the Walter Schroeder Health Sciences and Education Complex, 199. Collections of the ERC include a large collection of current children's and young adult books (cataloged in the Marqcat system); sample copies of elementary and secondary school textbooks; audio-visual material and equipment, including educational videos, instructional games, and microcomputers; sample educational computer software, which includes word processing programs; and other items related to teaching and learning. Materials in the ERC may be used by any student, faculty or staff in the university and by public and private teachers in the Milwaukee area, with priority for the needs of students enrolled in undergraduate and graduate studies in the School of Education. Special permission may be granted for use of materials by persons not otherwise connected with the university.

HAGGERTY MUSEUM OF ART

The Patrick and Beatrice Haggerty Museum of Art opened in 1984 as a home for the university's permanent collection and a center for the fine arts on the Marquette campus. The collection comprises approximately 9,000 works of art from the 16th through the 20th centuries in the areas of painting, works on paper, sculpture, decorative arts, Asian and tribal arts. The museum serves the Marquette community and the city of Milwaukee with changing exhibitions, lectures, concerts, performances, tours and special events.

Education is fundamental to the mission of the Haggerty Museum which aspires to stimulate lifelong interest in the fine arts. Programming includes lectures by artists, scholars and critics; symposia; teacher workshops; and tours. Through educational programs planned in conjunction with academic disciplines at Marquette and with area schools, the museum offers learning opportunities for all ages.

The museum's exhibition schedule incorporates 10 to 12 special exhibitions annually including those organized by the Haggerty Museum staff, traveling exhibitions and interpretations of the permanent collection. The museum's program of innovative contemporary and historical exhibitions extends to nontraditional and experimental developments in the arts and reflects the cultural diversity of our world.

Admission to the museum is free. Hours are 10 a.m. to 4:30 p.m. Monday through Saturday, 10 a.m. to 8 p.m. Thursday, and noon to 5 p.m. Sunday. The museum is accessible to people with disabilities. For information or free tours, call (414) 288-1669.

HARTMAN LITERACY AND LEARNING CENTER

The Hartman Literacy and Learning Center is a facility within the School of Education which supports undergraduate and graduate literacy-related programs. The center library houses a children's literature collection which is used by School of Education students as well as children and families participating in the Marquette University Family Literacy Project, a collaboration between the university and three neighborhood elementary schools. Students enrolled in EDUC 160 (Practicum in Reading) participate in the Family Literacy Project by tutoring small groups of children in reading and writing after school. The Hartman Literacy and Learning Center provides faculty and staff to support and conduct research regarding the project.

INSTRUCTIONAL MEDIA CENTER

Located in Johnston Hall, the Instructional Media Center provides a broad range of media support to the university. Television, multimedia and still photography for classroom support and public communications are produced by the IMC's award-winning professional staff. Audiovisual equipment — from overhead projectors to video display systems — is available for instructional use on campus and may be reserved through the center's AV division. In addition, the center administers media screening and conference rooms for use by small groups.

The IMC also provides unique educational experiences to Marquette students of radio and television. These facilities include two broadcast quality television studios, five audio studios and numerous editing suites. WMUR and MUTV, the campus radio and television stations, operate out of facilities managed by the IMC. These closed circuit, student operations are open to all students of the university.

RESEARCH CENTERS AND INSTITUTES

In order to foster and enhance research and study at Marquette University, a number of units on campus have established thematic research centers and institutes. These centers and institutes offer the opportunity for active collaboration and research in a variety of categorical areas. Examples would include the Center for Intelligent Control Systems, the Center for Mass Media Research, the Center for Family Business, the National Sports Law Institute, the Nursing Center, the Parenting Center, the Les Aspin Center for Government, the Wisconsin Center for Addiction Studies and the Center for Highway and Traffic Engineering. The Graduate School maintains a list of currently active centers and institutes.

The centers generally are designed to bring an interdisciplinary focus to the study of complex problems and involve the participation of several faculty members. Opportunities are available for student participation in the programs of several of the centers and institutes.

PERSONAL RESOURCES AND FACILITIES

ALUMNI MEMORIAL UNION

The Alumni Memorial Union (AMU) provides students, alumni, university employees and guests with a comfortable environment for a variety of activities and meetings as well as a place to relax, eat or study. Union facilities include food-service areas featuring a wide variety of cuisines (Brew Bayou coffee shop, Lunda dining room, Marquette Place Food Market); a game-room; ticket sales service; Golden Eagle retail shop; University Information Center; a post office; banking services; two ATM machines; a chapel; meeting rooms; lounges and other facilities which enhance the out-of-the-classroom experience. Programs held in the Alumni Memorial Union and Union Sports Annex, along with the Varsity Theatre and Weasler Auditorium, include lectures and seminars, concerts, receptions, films, dances and dinners.

The Alumni Memorial Union also houses the offices of the vice-president for Student Affairs, Campus International Programs, University Special Events, University Ministry, the Marquette University Student Government, Student Educational Services, Student Development, student organizations, and the Marquette Card office.

Reservations for events, meeting space and conferences can be made by calling the Alumni Memorial Union at (414) 288-7202. Union facilities may be rented by students, alumni and employees for private use.

The AMU Catering Department offers complete catering services for events of all sizes. Catering services are available for use by university groups or private parties. Catering arrangements may be made by contacting the Catering Department at (414) 288-6370. For information go to www.marquette.edu/amu.

The Union Sports Annex is a part of AMU facilities and is located at 804 N. 16th St. Spaces include a sports theme restaurant, 12-lane bowling center and sports court. Catch a game on TV, a shuttle to a basketball game, cosmic bowling or dancing in the court. The Annex is a great social place for students, faculty and staff.

ATHLETICS

More than 230 Marquette University students, male and female, are active in intercollegiate sports at the NCAA Division I level. Six sports are available for women: basketball, cross country, indoor and outdoor track, tennis, volleyball, and soccer. Seven sports are available to men: basketball, cross country, golf, indoor and outdoor track, soccer and tennis.

The eligibility rules for participation in these sports are available from the Intercollegiate Athletics office in the 1212 Building.

CAMPUS INTERNATIONAL PROGRAMS

The Office of Campus International Programs (OCIP) assists students from other countries to accomplish the many changes of systems necessary for success in their Marquette experience and also arranges for cross-cultural experiences on campus for the educational benefit of Americans as well as students from other countries.

Prospective undergraduate students who are not U.S. citizens or immigrants should contact OCIP for appropriate information and application materials. OCIP is the worldwide marketing, recruitment and admissions office for nonimmigrant undergraduate applicants. OCIP is also the office which may issue the federal documents required for most students, faculty and researchers to apply for United States visas to enter this country for enrollment at Marquette.

New international undergraduate and graduate students are to report to OCIP as soon as they arrive at the university. OCIP administrators are the Designated School Officials (DSOs) under federal regulations to act on behalf of the university in numerous federal procedures for international students, faculty and researchers. These administrators are also the Responsible Officers (ROs) under federal regulations to operate Marquette's exchange visitor program. Enrolled students with certain visa statuses will need the involvement of OCIP in many federal procedures such as extension of stay in the United States, return to this country after a visit abroad, employment and practical training applications, and allowance for part-time enrollment in certain situations.

Specialized arrival, housing and orientation programs are provided for new international students prior to the beginning of the fall and spring terms. Ongoing orientation programs are offered throughout the year along with assistance to individual students regarding personal

situations, government regulations and procedures, campus and community involvement, and a wide range of other cross-cultural issues. Marquette's International Center is a branch of OCIP dedicated to the social interaction and cross-cultural education of students from around the world including Americans. OCIP also administers two international group health insurance programs for the protection of Marquette's international students, faculty and researchers.

Another branch of OCIP is the Marquette program in English as a Second Language (ESLP). Students of other language backgrounds may be required to take ESLP English proficiency examinations when they arrive at Marquette and may be assigned to special ESLP courses.

OCIP staff members serve frequently as international education resources for other Marquette personnel, and OCIP administrators offer information sessions upon request for other campus departments. These administrators represent the university in appropriate forums from the local to national levels and also represent Marquette overseas through international recruitment trips, professional relationships and speaking engagements in many areas of the world.

The Office of Campus International Programs is located in the Alumni Memorial Union, 425, telephone (414) 288-7289.

CAMPUS SAFETY

As the Marquette community is located in downtown Milwaukee, students need to be aware of the realities of city living. Recognizing this, the university strives to educate students about personal safety and crime prevention through a wide variety of safety programs and services.

Marquette maintains its own Department of Public Safety as a security and safety service to the university community. The department is located on the first floor of Parking Structure I, 749 N. 16th St. (between Wisconsin Avenue and Wells Street). This location houses Public Safety Administration, Officer Operations, Communications Center, Preventive Services, and Student Safety Programs. Public Safety operates 24 hours a day, every day. Services can be obtained by calling (414) 288-6800. In cases of emergency, students and employees should contact Public Safety's emergency line by dialing 8-1911 from any campus extension or (414) 288-1911 from any off-campus phone.

Public Safety officers monitor on- and off-campus areas utilizing squad, foot and bicycle patrols. Public Safety officers are trained to respond to all calls for assistance, including crimes in progress and medical emergencies. Communications officers operate the department's 24-hour Communications Center and university service officers patrol and service the university's parking lots, buildings and malls to ensure that security and safety are maintained. Security within the university's residence facilities is ensured by Public Safety's residence hall officers, who are on duty from 11:30 p.m. to 7:30 a.m., daily.

The department maintains an outdoor telephone system, including more than 70 Blue Light Phones. Blue Light Phones are located on campus pedestrian walkways, mall areas and within or near all of the university's parking lots. Six Blue Light Phones are located at Valley Fields and 13 are located in the near off-campus residential area. Blue Light Phones provide a direct link to Public Safety's Communication Center. Upon activation of a Blue Light Phone, the caller's location is immediately known to the communications officer, who will provide the appropriate assistance.

A wide variety of crime prevention and safety awareness programs are made available to groups that are interested in promoting safety. Popular topics include self defense, personal safety, sexual assault prevention and alcohol awareness. Numerous brochures, the *Awareness* newsletter and crime statistics are readily available to provide information.

Any member of the Marquette community who becomes involved in a crisis situation can receive the benefits of the Victim/Witness Services program. The program provides resources for those in need of counseling or support services in addition to providing escorts to and from all necessary court-related appearances.

Public Safety complies with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act through the publication of the *Safety Resource Guide*, a booklet which includes campus crime statistics and crime prevention strategies. Copies are available from Public Safety or by calling (414) 288-7320.

CAREER SERVICES CENTER

The Career Services Center in Marquette Hall offers career assistance to students, graduating seniors and alumni. It assists students seeking internships, graduating seniors looking for entry-level positions and alumni looking for new or different career positions. The center staff assists with career plans and job search efforts of all students. Resources in the career center also are

available for students applying to graduate or professional schools or for prestigious scholarships and fellowships.

Students and alumni are brought together with employers in a variety of ways. Approximately 300 employer interview visits are conducted each year resulting in approximately 3,000 campus interviews. Students can register for interviews once they complete a résumé and are entered into the database system. This also allows Career Services to make résumés available to employers who don't visit campus.

The Career Services Center has a Web site and advertises all internships and jobs through a program at this site called MU CareerTRAK. Marquette students or alumni who can access the Internet can make use of the job openings on CareerTRAK. In addition, many other job databases, employer resources, and career information sites are linked to the CSC homepage, including MUSCAN, a Marquette alumni career networking database. Computers are available in the career resource center for student and alumni use.

The Career Services Resource Center contains descriptive brochures and annual reports on a wide variety of employers, general information on government employment, specific public and private job announcements, directories of employer information, and books on the job search process. Several national job listings also can be accessed on the personal computers in the resource center. Also available are directories of graduate and professional school programs and information booklets and registration forms for advanced study entrance tests including the GRE, GMAT, LSAT, MCAT, etc.

Seminars for small groups are conducted regularly throughout the year on the job search, résumé writing and interviewing. Individual counseling is available by appointment on all of these topics or other career-related concerns. Every afternoon, students can drop in with résumés ready for polishing or other quick career-related questions and see a counselor without an appointment.

The main office, (414) 288-7423, and the career resource center with counselor's offices, (414) 288-3577, are located in the lower level of Marquette Hall and are open from 8 a.m. to 5 p.m. Monday through Friday. In addition, the library is open on Monday and Thursday evenings until 6:30 p.m. when classes are in session.

CHANGE OF NAME OR ADDRESS

Whenever a student changes his or her name or address, the change must be reported to the university registrar, who will notify all other appropriate offices.

In the case of a name change, the *Request for Change of Name* form must be requested from the Office of the Registrar, completed, notarized, and returned to that office. The basis for the change of name must also be attached to the form. In most cases (e.g., marriage), a letter of explanation will suffice; but in the case of legal change of name, a certified copy of the court order authorizing the change is required. Free notary service is available for those who appear in person at the Office of the Registrar.

Address changes may be made in person at the Office of the Registrar, on the return card included with the Registrar's confirmation of class schedule, or, perhaps most conveniently, through the WINDOW account on the computer.

CHECK CASHING SERVICES

A student may cash checks at the Office of the Bursar in Carpenter Tower and at U.S. Bancorp on the first floor in the Alumni Memorial Union. To cash a check, students must present a validated student ID card and pay a nominal fee. Check cashing is limited to \$50 on a personal check, \$150 on outside payroll checks, and any amount on Marquette University student payroll checks, per week. This service is available at the bursar's office between 8 a.m. and 4:30 p.m., Monday through Friday. Check cashing service also is available through the bank, between 8:30 a.m. and 5:30 p.m., Monday through Friday, and between noon and 3 p.m. on Saturday. Check cashing privileges are subject to suspension or revocation at the discretion of the bursar. Two ATM machines are available on the first floor of the AMU.

CHILD CARE CENTER

Marquette University Child Care Center is located on campus in the William and Evelyn Krueger Parent and Child Care Center at 749 N. 17th St. The center serves the children of students, staff, faculty and alumni of the university. Based in developmentally appropriate practice, the curriculum focuses on creative, child-centered play and hands-on discovery learning. The

center is committed toward educating the whole child — socially, emotionally, physically and intellectually — to set the state for lifelong learning.

Licensed through the Division of Children and Family Services for 122 children, the center enrolls children from six weeks of age through age 11. A special Summer Adventure program is also open to children age five to 11. Special arrangements can be made for days off school for school-aged children.

The center is open year round from 7 a.m. to 6 p.m. Monday through Friday, and is closed on all university holidays. For information on fees, waiting lists and enrollment, call (414) 288-5655.

CLUB SPORTS

The Club Sports program at Marquette is designed to provide competitive, recreational and instructional sports activities for students. Many clubs compete against other clubs, schools, colleges, or universities while others offer instruction and intralclub competition.

A club sport is a registered student organization conducted by elected student officers that coordinate club activities. The basic structure of the clubs allows members numerous opportunities for involvement with fund-raising, public relations, budgeting, administration and scheduling. The key to success of the club sport program is dependent upon the student leadership, interest and involvement.

The following clubs are currently active for the 2002-2003 school year: men's baseball, men's and women's curling, men's lacrosse, men's and women's rowing, men's and women's rugby, men's football, men's and women's sailing, men's and women's ski racing, women's softball, men's and women's swimming and diving, men's and women's volleyball, men's and women's fencing, and men's and women's taekwondo.

COMMUTER STUDENT PROGRAMS

Programs designed specifically for commuter students are provided through the Office of Student Development. Among the programs provided are Good Morning, Commuters!, Tips for Commuter Success, First-year Commuter Student Brunch, and an e-mail distribution list designed to provide an additional method of communication between Student Development and commuter students. The Alumni Memorial Union also provides services specifically for commuter students, including lockers available for a nominal rental fee and a lounge on the first level of the union.

For further information, contact the coordinator for Campus Programs in the Office of Student Development, Alumni Memorial Union, 121, (414) 288-7205.

COMPUTER SALES

See www.cdwg.com/mustudent or www.applestore.com (follow education link for educational discount).

COMPUTER SUPPORT — See Information Technology Services

COUNSELING CENTER

A staff of professional psychologists and counselors provides individual and group assistance to students with educational, vocational, personal or psychological adjustment problems. The staff is committed to providing a professional, yet comfortable setting. Counseling services are confidential and free for full-time students. Part-time students are seen for one, free session and then referred to a professional counselor in the Milwaukee community.

Career counseling is provided through individual appointments. Career information is available through the Career Information Library, S.I.G.I Plus and the Counseling Center Web page www.marquette.edu/counseling/careers/. A variety of assessment instruments are available to students.

The Counseling Center administers several national testing programs for candidates of graduate and professional schools. Registration information for the MAT, GRE, LSAT and MCAT can be obtained by calling (414) 288-7172.

The Counseling Center is in Holthusen Hall, second floor, and is open from 8 a.m. to 4:30 p.m. Monday through Friday. For information call (414) 288-7172.

DENTAL CLINIC

The clinic services of the School of Dentistry are available to all Marquette students. The Dental Clinic, which is not a part of the Student Health Service, is located in the School of Dentistry. Dental services are provided at a nominal fee; all Marquette students enrolled in credit courses receive an additional 10 percent discount. Further information can be obtained from the recorded message at (414) 288-1510, or directly from the dental school switchboard, (414) 288-6500. Marquette's students also may receive preventive periodontic services (cleaning) from dental hygiene students. Arrangements for such an appointment can be made by calling the Department of Dental Hygiene, (414) 288-7153.

DISABILITY SERVICES

Marquette University strives to integrate qualified students with disabilities as fully as possible into all aspects of university life. The Office of Disability Services, located within Student Educational Services, has been designated to coordinate this process in accordance with the university's compliance responsibilities under the law. Accommodations determinations for all students with identified and documented disabilities will be made on a case-by-case basis. Examples of possible accommodations or services provided to students with disabilities include taping of textbooks, locating interpreters and notetakers, orientation to campus, informal counseling, arranging for alternative tests, and advocacy.

A policies and procedures document containing more detailed information about accessibility for all students with disabilities at Marquette is available from the coordinator of disability services, Alumni Memorial Union, 317, P.O. Box 1881, Milwaukee, WI, 53201-1881; (414) 288-1645 (Voice/TDD).

INFORMATION TECHNOLOGY SERVICES

Information Technology Services is a support organization responsible for providing voice and data communications and computer-based services and training to the Marquette community. ITS manages MarquetteNet, the university's campuswide fiber optic network built to handle the voice, video and data needs of the Marquette community. MarquetteNet allows students to access the computing resources distributed throughout campus. Students also have access to the Internet from their residence hall rooms. E-mail is available through the central computing facilities consisting of a cluster of COMPAQ computers via various public workstations, dial-up connections, or through MarquetteNet. ITS also supports several UNIX and Windows NT servers for academic and administrative use.

ITS provides technical support for the PCs, Macintoshes, laser printers, and scanners in the Campus Computer Labs, Cudahy Hall, 108 and 240. Members of the Marquette community can receive computing information and assistance from the ITS Help Desk between 8 a.m. to 5 p.m. Monday through Friday. ITS supports business and information processing for university administrators as well as instructional and research needs of academic areas. ITS staff aid in designing, developing and implementing both third-party software and locally created systems. In addition, free training courses covering a variety of topics are offered each term through the GROW program. For information, visit the ITS Web site at www.marquette.edu/its/.

INTERNATIONAL CENTER

The International Center, located in the Alumni Memorial Union, 407, promotes interaction among students from around the world, including the United States. Students from all countries are invited to share in the international activities of the center, to participate in its operation and to plan international events. The center offers discussions and speakers, social and educational activities, films and exhibits on various cultures. Facilities include two computers for word processing and Internet access, an international music collection, worldwide television, international boardgames and a fully equipped kitchen. The center may be reserved by Marquette groups for their functions. The center is administered by the Office of Campus International Programs.

MAIL SERVICES

U.S. mail is delivered to students in on-campus housing by the U.S. Postal Service. Within the Alumni Memorial Union is Union Station, a U.S. Postal Contract station. Students and the public can bring letters and packages for processing by either U.S. Postal Service or United Parcel Service. Packaging, as well as shipping services, are available at Union Station.

MARQUETTE UNIVERSITY ALUMNI ASSOCIATION

The Marquette University Alumni Association has been a unifying force for Marquette alumni and the university since its founding in 1893. More than 100,000 alumni reside throughout the world.

With its mission to promote the ideals of Marquette and bring alumni closer to the university and one another, the alumni association sponsors nearly 300 service and social projects a year and sponsors numerous Marquette students through various scholarship programs.

Hundreds of volunteers comprise the various organizations of the Alumni Association, devoting time, talent and resources for the constant improvement of Marquette. The alumni association proudly recognizes 38 Marquette Clubs from San Juan to San Francisco and alumni associations attached to each of Marquette's colleges and programs.

The Alumni Association hosts two signature weekends annually — Reunion Weekend, which takes place the last weekend of July, and National Alumni Awards Weekend, the last weekend of April. The association also sponsors National Service Day when alumni throughout the country celebrate their ties to Marquette on the same day by helping those less fortunate in their communities.

MULTICULTURAL CENTER

The Multicultural Center is a part of the Office of Student Development. Established in 1972 as a focal point for ethnic minority student interaction and activities, the MCC promotes a philosophy of cultural inclusiveness in its services and programs. The purpose of the MCC is twofold. First, through programs and consultation, the campus community learns about ethnic minority cultures, celebrates each group's cultural contributions, and models how to live in a multicultural world. Second, the MCC assists students from different ethnic backgrounds to create a campus environment that supports their educational goals.

In conjunction with other departments and student organizations, the MCC offers programs and activities promoting ethnic awareness throughout the academic year. To learn more about these activities, contact the assistant dean for multicultural programs in the Office of Student Development, Alumni Memorial Union, 121, (414) 288-6769. The Multicultural Center lounge is located in the Alumni Memorial Union, 111.

PARKING SERVICES

To park in a university lot or structure at any time throughout the calendar year, a parking permit must first be purchased by registering the vehicle with the Parking Services office.

Full-term parking permits will be available for purchase in the ballroom of the Alumni Memorial Union on the first two days of classes of the fall term. After that, full-term and less than full-term temporary parking permits can be purchased from the Parking Services office, located at 749 N. 16th St.

Students who commute to campus may purchase a permit and gate card for entry to Lot M, located in the southeast portion of campus. Entrances to Lot M are located on Hibernia Street, just south of Tory Hill and on 12th Street, heading north from St. Paul Ave.

Overnight or 24-hour parking permits will be available for purchase for two of the university's structured ramps: Parking Structure 1, the seven-level parking ramp located at 749 N. 16th St., and Parking Structure 2, (Humphrey Hall) on 18th Street just north of Wisconsin Avenue. Surface lot parking also will be offered in Lot E located on N. 13th and W. Wells Streets, Lot R on N. 10th Street behind Straz Tower, Lots T and U located at 609 N. 19th St., as well as other smaller lots across campus.

Both evening and part-time student permits also are available for sale. Again, specific lot assignments and entry gate cards are issued. Please contact the parking office at (414) 288-6911 for information on any parking-related inquiries.

RECREATIONAL SPORTS

Indoor recreation activity at Marquette University revolves around the Helfaer Tennis Stadium and Recreation Center and the Rec Plex. Both facilities are free to all students, while their families are eligible to join for a nominal fee.

Facilities at the Recreation Center include six indoor tennis courts, three handball/racquetball/wallyball courts, a squash court, swimming pool, multipurpose room (containing space for five basketball courts, four volleyball courts, three badminton courts and a jogging

lane), fully equipped fitness/weight room, pro shop, four locker rooms, two saunas and a fitness assessment center.

The Rec Plex, located in Straz Tower, includes four handball/racquetball/wallyball courts, a squash court, two gyms, swimming pool, suspended jogging track, two weight rooms, four locker rooms, saunas, whirlpools, steam rooms, massage therapy and a fitness assessment center.

The Valley Fields Complex is a 13-acre facility located a short distance south of central campus. This outdoor complex includes an 8-lane 400 meter track; a synthetic turf regulation football/soccer/lacrosse field; two synthetic turf recreational fields; a natural turf soccer field; and a gatehouse service building for equipment issue, rest rooms and vending. It will serve as a venue for individual fitness activities, intramural sport contests, club and varsity sport practices and games/meets, and university and community group use.

The Instructional Sports Program is designed to acquaint individuals with the skills, rules, knowledge and strategies associated with many popular sports and physical activities. A key concept in this program is that it is geared toward providing avenues for one to get in shape, feel good, and have fun throughout his or her lifetime. Activities in this program include tennis, yoga, spinning, taekwondo, kick boxing, karate, aerobics, water exercise, swimming, SCUBA and more. Instruction is geared to meet individual needs. Instructional programs are offered during the regular academic year and during summer sessions. There is a nominal fee and enrollment is limited.

REGISTRATION (TVR)

Marquette University uses a system of registration by telephone known as Touchtone Voice Response, or TVR. In addition to offering the convenience of phone registration, TVR also offers early registration by permitting continuing and readmitted students to begin registering for the next term during the previous term. New students begin registration at a somewhat later date, but still several weeks before the first day of class.

A student must have both an MU Identification number (MUID) and a Personal Access Code (PAC) to register in the TVR system. The MU ID is assigned to students at the time of admission to the university. A PAC is assigned only to students who are eligible to register.

After receiving a PAC, students will complete their registrations using a touchtone phone according to the procedure described in the university's registration *Timetable of Classes*. No class may be attended for which the student is not properly registered. Proper registration includes the payment of all tuition and fees. Advising is required for all students prior to registration each term. Accordingly, students who register for course work without adviser approval assume full responsibility for their registrations. Courses that do not satisfy the requirements of their programs of study will not be applied toward the degree.

All courses for which the student is officially registered as of the close of TVR Late Registration are subject to fee assessment and payment, and as such to appear as part of the student's permanent record. It is the student's responsibility to be certain that, before Late Registration ends, his or her official registration accurately reflects only those courses for which he or she wants to be enrolled.

SPEECH AND HEARING CLINIC

The services of the Marquette Speech and Hearing Clinic are available to Marquette students, and their dependents, at no cost. Available services include speech and hearing evaluations, and therapy to assist in correcting speech or language problems. The clinic is located in Monitor Hall, 619 N. 16th St. An application can be obtained by calling (414) 288-7426.

STUDENT DEVELOPMENT

The Office of Student Development, housed within the Division of Student Affairs, promotes the education and development of each student and the campus community. The staff, programs, resources, and facilities that comprise the office contribute to the education of the whole person — the development of intellect, spirituality, integrity, identity, and professional and interpersonal competencies. Furthermore, the office serves as a catalyst in the evolution of a culture in which members of the campus community respect, appreciate, understand and learn from each other and from reflection on their experiences.

Through the design and delivery of a wide variety of programs and services, the Office of Student Development focuses on four goals: 1) encouraging active student involvement and a strong, vibrant campus community; 2) fostering a lifelong ethic of service and a commitment to

working for a more just society, 3) enhancing student leadership and character development, and 4) valuing diversity and diverse perspectives.

Specific programs coordinated by the Office of Student Development include:

- Preview, Orientation, and new student programs
- Students Taking Active Roles (STAR) first-year leadership program
- recognition and advisement of 160 student organizations including Marquette University Student Government
- multicultural events and celebrations
- student activities and campus traditions
- music organizations and programs
- commuter student programs
- Marquette University Community Action Program (MUCAP)
- Hunger Clean-up
- administration of the Burke Scholarship program
- community service student organizations and referrals
- leadership workshops, conferences, and training sessions
- leadership resources and recognition programs
- student conduct administration
- Greek life — 17 fraternities and sororities
- Senior Week

The Office of Student Development is located in the Alumni Memorial Union, 121 and 329, (414) 288-1412. Several of its programs and services are administered through the Center for Community Service (AMU 329), the Multicultural Center (AMU 121), the Center for New Student Programs (AMU 323) and the Leadership and Organizational Resource Center (AMU 140). Housed in the Office of Student Development, these centers serve as educational hubs that provide students, faculty, staff and community members with resources, expertise and support for their activities.

STUDENT EDUCATIONAL SERVICES

The Office of Student Educational Services provides a range of academic support services to students free of charge. These services include:

TUTORING SERVICES

Free tutoring services are provided for a variety of courses. Tutorial sessions are conducted by Marquette students in the Alumni Memorial Union. Students may request this service by completing a Tutor Request Form in AMU, 317. (See also Writing Center.)

STUDY SKILLS/TIME MANAGEMENT ASSISTANCE

Students may elect to attend workshops on a variety of topics related to study skills or they may meet individually with a study skills specialist to improve their study strategies.

DISABILITY SERVICES

See section on Disability Services in this bulletin.

RETENTION SERVICES

In collaboration with the greater campus community, retention services including assessment, referral, and follow-up are provided for students with questions or concerns about any aspect of their enrollment.

Located in the Alumni Memorial Union, 317, the Office of Student Educational Services invites students to drop in or phone the office at (414) 288-3270 with their requests or questions.

STUDENT GOVERNMENT

The Marquette University Student Government is the central student governmental body for the university. As such, it has several broad responsibilities: the planning and coordination of campus-wide educational, cultural and social programs through the MUSG Services Board, the development of activities in conjunction with student organizations, and the representation of student needs and concerns to the university community.

The student body president, executive vice-president and senators are popularly elected by the total undergraduate student population. Positions in the student government and on all-university committees are open to all full-time undergraduate students. The student government offices are located in the Alumni Memorial Union, 133.

STUDENT HEALTH INSURANCE

All students enrolled and attending Marquette University and their dependents are eligible to participate in the Student Health Insurance Plan (SHIP) administered by Rust & Associates. Plan description and enrollment materials will be mailed to all enrolled students before the start of fall term each year and to all new students starting spring term. Information about the plan may also be obtained at the Student Health Service. Marquette University makes no representations about the student health plan, but considers it to be an alternative to the limitations of family plans or for students who use it as their sole source of coverage.

BRIEF SUMMARY OF PLAN BENEFITS: (Based on 2001-2002 Plan Year)*

Maximum Benefit:

\$500,000 lifetime

Benefits:

\$150 annual deductible

80% of usual and customary charges in PPO network

Limited co-pays for physician visits and prescriptions

Maximum out-of-pocket expenses: \$3,150 per insured

For general information, how to file a claim and claim status:* (800) 336-0747 Rust and Associates (hours: Monday - Friday, 8 a.m. - 4:30 p.m. CST).

For general information only, call Student Health Service: (414) 288-7184 (hours: Monday - Friday, 8:30 a.m. - 4:30 p.m. CST).

More complete details of the plan are available by calling Rust and Associates (800) 336-0747 or the Student Health Service (414) 288-7184.

* Plan agent and/or carrier are subject to change, and benefits are subject to improvement for FY2003. If specific information cannot be obtained from the agent/carrier at the telephone number above, contact Student Health Service at (414) 288-7184.

STUDENT HEALTH SERVICE

ELIGIBILITY:

All students who are enrolled in credit classes are eligible to use the Student Health Service.

COST OF SERVICES:

Full-time undergraduates pay the \$120 per term health fee and are entitled to the following: unlimited access to a physician, nurse practitioner, physician assistant, registered nurse or health educator; no charges for most lab tests done in-house; reduced charges for prescriptions filled at SHS and lab tests sent to reference laboratories; reduced charges for immunizations, allergy injections and medically indicated procedures. Questions about additional expenses related to your medical care should be discussed with a health care provider. The health fee does not cover charges incurred for referrals or care delivered elsewhere.

Graduate and all professional students may choose to pay the health fee and access services. Students who have the option to pay the health fee may do so within the first 30 calendar days of each term (starting with the first day of class) or first 15 calendar days of each summer session. Voluntary prepaid health fees may be paid at the Student Health Service by cash, check, MU flex card, Visa or Master Card, or bank debit card.

Students, other than full-time undergraduates, will be charged on a fee-for-service basis unless they choose to pay the health fee.

The Student Health Service physicians are all board certified in family practice, pediatrics or internal medicine. Special areas in which these physicians are highly proficient include sports medicine, women's health, eating disorders, and adolescent medicine. Providers certified as nurse practitioners, physician assistants, registered nurses and health educators also assist students with their health care needs. Get to know Marquette's Student Health Service providers online by viewing our Web site at www.mu.edu/shs and clicking on "meet our staff."

Clinic

LOCATION:

The Student Health Service is located in the southeast wing, lower level of the Walter Schroeder Health Sciences and Education Complex.

Telephone: (414) 288-7184

Fax: (414) 288-5681

EMERGENCIES: Call 8-1911 on-campus or 911 off-campus

HOURS (academic year):

Monday through Thursday — 8:30 a.m. to 6 p.m.

Friday — 8:30 a.m. to 4 p.m.

Saturday Clinic — 10 a.m. to 2 p.m.

(summer)

Monday - Friday 8:30 a.m. to noon; 1 p.m. to 4 p.m.

Student Health Service provides quality primary care and preventive health education and wellness to the student community in the most accessible, efficient, perceptive and affordable manner possible. We are committed to helping students establish and maintain good health throughout their academic experience at Marquette. Through interactions with the Student Health Service, students learn the important role they play in managing their own health and in developing positive behaviors which will serve them well for the duration of their adult lives.

Clinical Services:

Primary/acute care clinic

Women's care services

Minor surgical procedures

Allergy injections

Immunizations

TB testing

STD screening

Confidential HIV testing

Eating disorder evaluation

Laboratory services

Limited pharmacy

Sports medicine

Physicals

Center for Health Education and Promotion

LOCATION:

707 Building, First Floor

Telephone: (414) 288-5217

Fax: (414) 288-0234

HOURS:

Monday through Friday, 8:30 a.m. to 4:30 p.m.

The Center for Health Education and Promotion offers a wide variety of prevention and wellness programs pertaining to college health issues. The programs consist of interactions, discussions and self discovery among the participants and presenters. Our programs are intended for use at meetings, dinners, study breaks and various group gatherings.

Health and Wellness Topics:

Nutrition /weight management

Hypertension screening

Men's health issues

Women's health issues

Intimate communications/relationship issues

Body image/eating disorders/self esteem

HIV/AIDS

Peer pressure

Tobacco cessation

Body art

To your health

Vegetarianism

Relaxation/stress management

Alcohol awareness

STUDENT IDENTIFICATION CARDS

The Marquette Card is a university-recognized source of student identification. A student is required to carry an identification card and be responsible for it at all times. The card is provided by the Marquette Card services and is required for admission to all academic and athletic events and for the following services or facilities: check cashing, e-mail account, flexible spending account, Helfaer Tennis Stadium and Recreation Center, LIMOs, meal plan, Memorial Library access, photocopying, PrintWise, Rec Plex, residence hall access, student employment, student health service, student ticket sales, after-hours building access (selected buildings) and obtaining personal university records. Falsification, misuse or failure to show a Marquette Card may subject a student to disciplinary action. If a student loses his or her card it should be reported immediately to Marquette Card office or Public Safety. There is a replacement fee for lost cards.

STUDENT PUBLICATIONS

Two publications serve the general needs of Marquette students — the *Marquette Tribune*, a newspaper published Tuesdays and Thursdays, and the *Marquette Journal*, a magazine published four times each year. Although often staffed by journalism and English majors, any Marquette student who is interested in publication work can join one of the staffs and serve in some capacity. Several schools and colleges of the university also publish their own magazines, newsletters or newspapers.

STUDENT SAFETY PROGRAMS

The Department of Public Safety's Student Safety Program provides students with two programs that offer safe transportation throughout the on- and near off-campus area. Both programs provide safety escorts (mobile or foot) seven nights a week to Marquette students, faculty and staff.

LIMO PROGRAM

The LIMO (Local Intercampus Mobile Operation) Program provides a means for Marquette students and employees to travel safely between the Marquette campus and its adjoining residential areas. With a fleet of 13 vans, the LIMO program is capable of transporting all individuals, including those with physical restrictions. Posted "LIMO STOP" signs are located in every residence hall, the Alumni Memorial Union, the Science and Memorial Libraries, the Rec Center, Humphrey Hall, Cudahy Hall and the Public Safety Office at 749 N. 16th St. These designated stops are visited by LIMO vans approximately every 15 minutes. To request a LIMO transport from any other location, call (414) 288-6363. By showing the LIMO driver a valid Marquette University ID card, students and employees are entitled to free transportation to any location in the on- and near off-campus areas. The LIMO program operates from 5 p.m. to 3 a.m. seven nights a week, year round.

SAFETY PATROL AND ESCORT SERVICE

Outfitted in yellow windbreakers and equipped with two-way radio and flashlights, pairs of student employees help to deter crime by patrolling the campus and near off-campus areas. Safety Patrollers report suspicious activity and are available to provide escorts to and from areas within the on- and near off-campus neighborhood.

The Safety Patrol operates from 5 p.m. to midnight, seven nights a week, throughout the school year. An escort can be obtained by contacting the Communications Center at (414) 288-6363.

BICYCLE SAFETY

Public Safety maintains a secured bike corral which is located on the lower level of Parking Structure 1. The secured area can only be entered via a card system and is monitored by Public Safety. Admission into the corral is free and bicycles can be registered with the Parking Services office. All stored bicycles must be secured to the corral's racks with a high security bicycle lock. In addition to the corral, several bicycle racks are located throughout the campus area which should be used in order to prevent theft and allow for an unobstructed flow of traffic on campus. Students should utilize bike racks on campus. Locking bikes to trees, light poles and other fixtures is not permitted.

THEATRE ARTS, DRAMA

The Evan P. and Marion Helfaer Theatre provides an excellent theatre/teaching facility on campus. The structure includes a 226-seat theatre, a proscenium stage, studio room for acting, directing and dance instruction, and full production support facilities.

In addition, Straz Tower Theatre supports additional performing and class space for the Department of Performing Arts and the student-driven producing organization, Marquette University Players.

The Department of Performing Arts produces six main stage productions per year. These productions are directed by the faculty or a guest artist. Theatre majors in performance are required to audition. Other students Marquette students are welcome to audition. All undergraduate students must have a 2.000 quality point average to participate.

The Marquette University Players, under the sponsorship of the Department of Performing Arts, produces 12 to 14 projects per year. These projects are produced, directed, designed and performed by students. Auditions are open to all Marquette students.

TRANSCRIPT OF RECORDS

A transcript is a complete and unabridged copy of all academic work attempted at Marquette University. Course and grade information contained on the transcript are released pursuant to the Family Educational Rights and Privacy Act of 1974 (as amended).

A student may obtain a transcript of his or her Marquette record by applying in writing to the Office of the Registrar at least one week in advance of the date on which the transcript is needed. Fax requests are accepted, but transcripts will NOT be forwarded by fax.

The fee for this regular service is \$3 per transcript. The fee for immediate (same day) transcript service is \$10 per transcript. All transcript fees are payable at the time of the request, preferably by check.

Every transcript that is issued directly to a student is clearly so marked. Because most institutions will not accept a transcript that has been in the student's possession, we urgently recommend the student request the Office of the Registrar to mail a transcript directly to the institution involved. Students who elect not to follow this recommendation are liable for any further charges for additional transcripts.

TUTORING

See Student Educational Services and Writing Center

UNIVERSITY BOOKSTORES

The Marquette University bookstores are located in two facilities: the Book Marq and The Golden Eagle. These facilities are provided by the university for the convenience of the Marquette community. Both stores accept Mastercard, VISA, Discover and American Express credit cards, FLEX and personal checks (with current identification).

BOOK MARQ

The Book Marq, located at 818 N. 16th St., provides all of the textbooks and supplies for the academic needs of the campus and general reading material. For information, call (414) 288-7317.

THE GOLDEN EAGLE

The Golden Eagle is located in the Alumni Memorial Union and is the source for imprinted sportswear, gifts and greeting cards to the Marquette community. For information, call (414) 288-3050.

UNIVERSITY INFORMATION

Located on the second level of the Alumni Memorial Union, University Information has information about university events and organizations as well as community activities which may be of interest to the university community. Phone numbers of students and university offices also are available. Walk-up and telephone information is available during the center's regular semester hours of 7 a.m. to 11:45 p.m. Monday through Friday; 8 a.m. to 11:45 p.m. Saturday; and 9 a.m. to 11:45 p.m. Sunday. (Summer hours vary.) Call (414) 288-7250 during these hours with any questions or e-mail eagleanswers@Marquette.edu. The *Milwaukee Journal Sentinel* is sold Monday through Friday at University Information.

UNIVERSITY MINISTRY

"Into whatever city you go . . . Say to them, the kingdom of God is near to you." (Luke 10)

The proclamation of the Good News of Jesus Christ in word, sacrament, service and the living out of gospel values is the missions of University Ministry in the "city" that is Marquette University. As missioned by the Catholic Church, this work of love is directed particularly toward the education and pastoral care of students and other members of the university community. This ministry is further defined by a commitment to continuing the work and spirituality of St. Ignatius of Loyola.

University Ministry provides opportunities for faith formation, pastoral care for individuals, education for justice and service, retreat and reflection, and sacramental preparation as well as prayer and worship in several religious traditions in addition to the Catholic tradition. University Ministry is located in the Alumni Memorial Union, 236. For information, call (414) 288-6873.

VETERANS BENEFITS

The Office of the Registrar acts as liaison between the student and the Veterans Administration or the Wisconsin Department of Veterans Affairs. Any student eligible to receive educational benefits under one of the various Veterans Administration programs must report to the Office of the Registrar at the beginning of each fall, spring or summer term for which he or she is registered. Information or consultation is available at any time during regular office hours.

V.A. regulations require schools to enforce certain standards of progress in regard to certifying veterans for educational benefits. Any veteran who fails to meet these standards cannot be certified by the school for V.A. benefits until he has satisfactorily completed counseling with the Veterans Administration.

The following norms refer only to eligibility for veterans' benefits. They do not, therefore, necessarily imply that a veteran who fails to meet them will be dropped from Marquette. They are minimal and apply to all undergraduate divisions of Marquette University. Individual colleges may, therefore, set higher norms for continuation in that college or program; such higher norms apply to all students enrolled in that college regardless of any relationship to the Veterans Administration. The following standards are required by law and must be maintained by the school to retain approval for V.A. benefits.

Required Quality Point Average

For freshmen.	1.500	For juniors.	1.800
For sophomores.	1.700	For seniors.	1.900

The required quality point average for graduation in all schools and divisions is 2.000.

For the application of these norms the following definitions by semester hours are used:

Freshman	has earned only 23 hours or less
Sophomore	has earned 24 to 59 hours (incl.)
Junior	has earned 60 to 91 hours (incl.)
Senior.	has earned 92 to 128 hours (and above)

Grades of F and permanent grades of I, X and IX

In addition to the above norms no veteran will continue to be certified if the number of hours with the grades of F and permanent grades of I, X and IX exceeds the following graduated scale:

For freshmen	10 hours	For juniors	20 hours
For sophomores	15 hours	For seniors	25 hours

WINDOW ACCOUNT

Window is an online Marquette computer account available seven days a week that allows students to:

- check their recently assigned grades and grade history;
- view their current course schedule;
- browse the online Timetable of Classes to see all the course sections offered;
- query the student directory for phone numbers and addresses;
- supply and update their addresses and/or phone numbers;
- change their Personal Access Code (PAC) used for TVR registration; and
- reserve campus housing.

The Marquette computer Window account and the Marquette VMS computer cluster can be accessed via:

- Web site: www.marquette.edu/window;

- time-sharing VMS cluster telephone dial-up connections for computers that have a modem with a terminal-emulation program; and
- computers and terminals located in buildings throughout the Marquette campus.

Further information and instructions regarding access to the Window account appear each term in the published *Timetable of Classes* and at the Marquette web site www.marquette.edu/window.

WRITING CENTER

The Ott Memorial Writing Center, located in Monitor Hall, offers comprehensive guidance in writing for the entire university community. Tutors assist students in identifying topics, revising, and creating final drafts. Call (414) 288-5542 to make an appointment, or use our walk-in hours at Cudahy Hall, posted on the first floor.

College of Arts and Sciences

As the academic center and intellectual heart of the university, the College of Arts and Sciences assumes the responsibility for the liberal education of all Marquette students. Through its courses in the humanities, natural sciences and social-behavioral sciences, it provides each student with an education directed at the whole person—one that nurtures the intellectual maturity and moral integrity every person needs to face the obligations and challenges of a rapidly changing world.

Degree students in the College of Arts and Sciences receive an education which serves for a lifetime. Through a wide variety of disciplines and courses, the college:

- Develops basic skills of comprehension, analysis, and communication.
- Illustrates the interrelationship of the many dimensions of knowledge.
- Encourages an appreciation of the genius and creativity of people throughout history.
- Addresses the need to understand science and its importance in a changing world.
- Emphasizes that learning is continuous in a life well-lived.
- Develops an understanding of Judeo-Christian values in the promotion of truth, justice, and peace.
- Asserts the necessity of ethical standards and moral values in life.
- Proclaims and affirms the integrity of every individual and the spiritual dimension of existence.

Underlying all these characteristics of an Arts and Sciences education at Marquette is the Jesuit tradition that gives the college a heritage begun in the sixteenth century. Each student educated in the college partakes of this tradition and contributes to this heritage, for in a complete education a student gives as well as receives.

To these ends, the college has established a core curriculum encompassing the natural sciences, social sciences, and humanities. While requiring basic courses, the core also allows for the individual needs and interests of students.

DEGREES/MAJORS OFFERED

Marquette University confers the degrees of bachelor of arts in the humanities and social sciences, bachelor of science in the natural sciences, mathematics, and computer science, and associate in arts in criminology and law studies on those students who have satisfactorily completed one of the regularly prescribed programs in the College of Arts and Sciences.

The degrees of master of arts, master of arts in public service, master of arts in teaching (Spanish), master of science, master of science in applied economics, master of education, doctor of philosophy, and doctor of education are conferred through the Marquette University Graduate School. (See the *Graduate Bulletin* for information concerning the following graduate degrees: master of arts in education, counseling, educational psychology, English, history, international affairs, medieval studies, philosophy, political science, Spanish, and theology; master of science in bioinformatics, biological sciences, chemistry, clinical psychology, computing, dentistry, and mathematics; doctoral programs in biological sciences, chemistry, clinical psychology,

counseling psychology, education, educational psychology, English, history, mathematics, philosophy, and religious studies. (For information about Marquette University's professional degrees, which are the master of physician assistant studies, the doctorate of physical therapy, the doctorate of dental surgery, D.D.S., and the juris doctorate, contact the College of Health Sciences, the School of Dentistry or the Law School.)

A student holding a bachelor's degree in one discipline may be admitted for work toward a bachelor's degree in another discipline, with approval from the college office (bachelor of arts to bachelor of science or vice versa). This option is useful for a student who wishes to change his or her field of concentration for graduate or professional study.

A candidate for a second baccalaureate degree must complete at least 32 additional upper division credits in residence and satisfy all current degree requirements. Students should see the University section of this bulletin for second degree requirements and procedures.

ADMISSION REQUIREMENTS

For admission requirements for the College of Arts and Sciences, see Admission Procedures on page 17 of this bulletin.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

In addition to university requirements for graduation (see the University section of this bulletin), candidates for a degree must earn a minimum of **128 semester hours of credit** and a minimum of quality points equal to twice the number of semester hours completed (2.000 quality point average). Students may present credits but not quality points from another institution. All students must earn at least a 2.000 average in their Marquette work.

Although most students can fulfill the core curriculum and major requirements and take elective courses within 128 credits, certain combinations of major and minor fields may require more than the minimum. Students are urged, therefore, to consult an adviser before selecting a major and an optional minor.

Applications for graduation are to be submitted to the college office by the last day of advising week in the term prior to the term of graduation (November for May and August graduates; March for December graduates).

It is the responsibility of students to know and fulfill all university, College of Arts and Sciences, and major department requirements.

BACHELOR OF ARTS DEGREE

The bachelor of arts degree is awarded in: anthropology, classical languages, classical studies, criminology and law studies, economics, English, writing intensive English, French, German, history of philosophy, social philosophy, history, African-American studies, international affairs, urban affairs, urban and environmental affairs, women's studies, political science, psychology, sociology, social welfare and justice, Spanish language and literature, Spanish for the professions, and theology. The bachelor of arts is also awarded for teaching majors in approved areas. (See departmental listings.)

A minimum of 48 semester hours of credit in upper division courses must be presented for the B.A. degree. Thirty-two upper-division credits must be completed at Marquette. (Lower division courses are numbered 001 to 099; upper division courses are numbered 100 to 199.)

All candidates for a bachelor of arts degree in the College of Arts and Sciences must complete the following requirements in the core curriculum:

	Credit Hours
English Composition	6
Foreign Language	0-14
History (Western Civilization)	6
Social-Behavioral Science	6
Literature / Fine Arts	8-9
Mathematics-Logic-Computer	6
Natural Science	6-8
Philosophy	12
Theology	9

BACHELOR OF SCIENCE DEGREE

The bachelor of science degree is awarded in: applied mathematical economics, biochemistry/molecular biology, biological sciences, broad field science, chemistry, computational mathematics, computer science, human biology, physics, physiological sciences, and mathematics. The bachelor of science is also awarded for teaching majors in approved areas. (See departmental listings.)

A minimum of 42 semester hours of credit in upper division courses must be presented for the B.S. degree. Thirty-two upper-division credits must be completed at Marquette. (Lower division courses are numbered 001 to 099; upper division courses are numbered 100 to 199.)

All candidates for a bachelor of science degree in the College of Arts and Sciences must complete the following requirements in the core curriculum:

	<i>Credit Hours</i>
English Composition	6
Foreign Language	0-8
History (Western Civilization)	3
Social-Behavioral Science	3
History or Social-Behavioral Science	3
Literature	6
Mathematics-Logic-Computer	6
Natural Science	6-8
Philosophy	9
Theology	9

Students who switch from a B.S. program to a B.A. program will be required to complete the core requirements for the bachelor of arts.

CORE CURRICULUM REQUIREMENTS

Core requirements may also fulfill major/minor requirements and vice versa, but a course can fulfill only one core requirement.

ENGLISH REQUIREMENT

B.A. and B.S. Degrees: All students must complete ENGL 001 and 002 for a minimum of six credit hours, unless placed directly into ENGL 002 or beyond by recommendation of the Department of English. (See Advanced Placement section of this bulletin.) Non-native speakers of English are required to take a placement test at Marquette during orientation.

FOREIGN LANGUAGE REQUIREMENT

All students must demonstrate competency in a foreign language. The number of credit hours to be completed may vary from 0-14, depending on the students' proficiency and whether they are enrolled in a B.A. or a B.S. degree program. Students coming to Marquette University directly from high school are advised to begin language study in their freshman year and are required to begin it no later than the first term of the sophomore year.

For information on placement in foreign language courses and/or special placement credit, see the corresponding sections in the University section of this bulletin.

B.A. Degree: The foreign language requirement for students in B.A. degree programs may be completed with 0-4 courses in the language. The number of credit hours to be completed may vary from 0-14, depending on the student's proficiency and level of placement.

For students who wish to study French, German, or Spanish as a new language, and have not studied, or had previous experience with or exposure to the language, the requirement may be completed in three to four terms of the same language. Students who earn an AB or better in Elementary Language 002 may elect to complete the requirement with Concentrated Intermediate Language 010 in place of Intermediate Language 003 and 004.

For students who are placed at the Intensive Elementary 009 level in French, German, or Spanish, the language requirement may be completed by taking 009, 003 and 004, or 009 and 010 (if the student has earned an AB or better in 009).

For students who wish to study Classical Greek, Italian, Japanese, or Latin as a new language, and have not studied, or had previous experience with or exposure to the language, only the four-term sequence (Language 001-004) is available.

B.S. Degree: The foreign language requirement for students enrolled in B.S. degree programs may be completed with 0-2 courses in the language. The number of credit hours to be completed may vary from 0-8, depending on the student's proficiency and level of placement.

For students who wish to study French, German, Classical Greek, Italian, Japanese, Latin, or Spanish as a new language, and have not studied, or had previous experience with or exposure

to the language, the requirement may be completed in two terms of the same language by completing Elementary Language 001 and 002 .

For students who are placed at the Intensive Elementary 009, or the Concentrated Intermediate 010 levels in French, German, or Spanish, the requirement may be completed with one course.

Students with previous study of a language, who are placed at the 003 level, may complete the requirement with Intermediate Language 003 and 004.

MATHEMATICS-LOGIC-COMPUTER REQUIREMENT

B.A. and B.S. Degrees: All students must fulfill this six-hour requirement by completing any combination of mathematics, computer science, or logic courses, except for a combination of two logic courses (PHIL 001, PHIL 099, MATH 099).

A statistics course in any discipline fulfills this requirement. The following courses will not fulfill the requirement: MATH 010, 020, and 021.

LITERATURE AND FINE ARTS REQUIREMENT

B.A. Degree: All students must complete six hours in literature, either English or foreign language (original or translation), plus either one fine arts course or another literature course for a minimum of eight or nine credit hours. Four terms of non-credit music courses (MUSI 010, 016, 020, 030, and/or 031) will satisfy the fine arts requirement.

B.S. Degree: All students must complete six hours in literature, either English or foreign language (original or translation).

NATURAL SCIENCE REQUIREMENT

B.A. and B.S. Degrees: All students are required to complete two courses in natural science for a minimum of six credit hours. One of the courses may be ANTH 002 or ANTH 106. An anthropology course used to fulfill this requirement cannot fulfill part of the social-behavioral science requirement.

PHILOSOPHY REQUIREMENT

B.A. Degree: All students are required to complete PHIL 050, 104, and two elective courses, at least one of which must be upper division, for a total of 12 hours. A philosophy course used to fulfill this requirement cannot also be used to fulfill part of the math-logic-computer requirement.

B.S. Degree: All students are required to complete PHIL 050, 104, and one upper division course.

HISTORY REQUIREMENT

B.A. Degree: All students are required to complete HIST 001 and 002 (Western Civilization).

B.S. Degree: All students are required to complete HIST 001.

SOCIAL-BEHAVIORAL SCIENCE REQUIREMENT

B.A. Degree: To complete the six hours in the social-behavioral sciences, students may select any two courses from the fields of anthropology, criminology and law studies, economics, political science, psychology, sociology, and social welfare and justice.

B.S. Degree: Students are required to complete one course in a social-behavioral science in the fields listed above. **NOTE: B.S. students are required to complete either a second history course or a second social-behavioral science course.**

THEOLOGY REQUIREMENT

B.A. and B.S. Degrees: All students must complete nine hours of theology: THEO 001, one second-level course (THEO 100-119), and one third-level course (THEO 120-199), in that sequence.

INTERDISCIPLINARY COURSES

Students seeking to apply an interdisciplinary course toward the fulfillment of a core requirement should contact the college office and, if taken at another institution, provide a course description or syllabus.

CORE CURRICULUM REQUIREMENTS FOR EDUCATION MAJORS

Besides completing at least one academic major, students in the College of Arts and Sciences intending to complete a teacher-preparation program, elementary/middle school or middle school/secondary, through the Marquette School of Education must also meet the core requirements of the College of Arts and Sciences, adjusted to meet both graduation and licensure requirements. These core curriculum requirements are very specific and require that students seeking to complete the program in four years plan their course work very carefully under the

supervision of an academic adviser from the School of Education. The elementary/middle school program and some middle school/secondary programs will extend beyond a four year sequence. Students who intend to complete a teacher-preparation program through the Marquette School of Education should contact the Office of Teacher Education as early as possible, and should carefully study the School of Education section of this bulletin.

Students interested in elementary/middle school education are required to complete one of the approved, regular academic majors offered in the College of Arts and Sciences. Students interested in middle school/secondary education must complete at least one teaching major to be eligible for Wisconsin licensure. A teaching minor alone is not sufficient for license eligibility but, as a supplement to a teaching major, may lead to licensure in additional areas. Students at either the elementary/middle school or middle school/secondary level must also complete the appropriate professional education sequence to be eligible for a Wisconsin teacher's license. Further information can be found under Curricula Information in the School of Education section of this bulletin.

MAJORS AND MINORS

DEPARTMENTAL MAJORS AND MINORS

Candidates for degrees are required to complete a major. Formal declaration of the major should be filed in the appropriate departmental office, usually during the sophomore year.

A bachelor of arts degree is offered in anthropology, classical languages, classical studies, criminology and law studies, economics, English, writing intensive English, French, German, international affairs, history, social philosophy, history of philosophy, political science, psychology, social science (see Education section), Spanish language and literature, Spanish for the professions, sociology, social welfare and justice, or theology.

A bachelor of science degree is offered in biological sciences, biochemistry and molecular biology, human biology, physiological sciences, chemistry, mathematics, computational mathematics, computer science, physics, or broad field science (see Education section).

Many of these departments offer a teaching major or minor for middle school/secondary education. Elementary/middle school education students are encouraged to review the list of majors in the School of Education section of this bulletin and to discuss their selection with an adviser.

A *minor* is not required but is offered in most disciplines and some interdisciplinary fields. The number of semester hours required for various majors and optional minors is listed in the departmental sections of the bulletin. Where applicable, students may overlap credits between majors and between majors and minors. Please consult the department(s) on the approved number of credits for overlap. *At least 15 hours in the major and nine hours in the minor must be completed at Marquette.*

INTERDISCIPLINARY MAJORS AND MINORS

Students for whom particular interests may be better served by a flexible grouping of courses from several areas can pursue an interdisciplinary major or minor. Such students should consult the college office where they will be referred to a faculty adviser in their area. With this adviser, the student will write a proposal explaining the relationship between educational objectives and the choice of an interdisciplinary major or minor, a listing of courses to be included, and the sequence in which they will be taken. Such proposals, as well as any subsequent modifications, must be approved by the college office.

The following interdisciplinary majors and minors are formalized and may be declared with the appropriate program coordinator (special permission is not required):

INTERDISCIPLINARY MAJOR/MINOR IN AFRICAN-AMERICAN STUDIES

At Marquette, we believe the study of African-American culture is an integral part of the fabric of life in the United States and must be understood and appreciated as one of the chief elements that shapes and defines what it means *to be* American.

Through interdisciplinary study, the courses that constitute the major and minor challenge students to develop a broad range of intellectual skills: critical thinking and argumentation, analysis and interpretation, historical-critical method and aesthetic sensitivity. Students who pursue the degree in African-American Studies come from a variety of racial, ethnic and cultural backgrounds and seek to enlarge and to enrich their intellectual horizons so as to understand more fully themselves, those around them, and the world in which they live.

The major consists of at least 36 credit hours (21 of which may also fulfill core curriculum requirements). The nucleus of the major consists of at least eight courses in English, history, philosophy, and theology, along with two electives from a range of disciplines including fine arts,

communication studies, and the social and cultural sciences. In addition, all majors will participate in an interdisciplinary African-American Studies colloquium and conduct a senior research project under faculty supervision.

The minor consists of at least 21 credit hours (18 of which may also fulfill core curriculum requirements): at least four courses in English, history, philosophy and theology; two electives from a range of disciplines including fine arts, communication studies, social and cultural sciences; and the colloquium.

For specific degree requirements, see the program coordinator.

INTERDISCIPLINARY MAJOR IN APPLIED MATHEMATICAL ECONOMICS

This interdisciplinary major blends mathematics and economics to provide the quantitative tools necessary for modern economic analysis. Economics students will find this major to be excellent training for employment as a business economist or excellent preparation for graduate study. The mathematics, engineering, or science student who wants to use mathematical expertise to learn a business discipline will find this major to be an interesting and useful application of mathematics.

Core Requirements:

Eighteen hours in economics: ECON 043, 044, 110, 120, 174, 175.

Fifteen hours in math: MATH 080, 081, 082, 161, or 164.

Electives:

Three hours in economics (one upper-division course).

Six hours in math: Two of the following: MATH 121, 140, 147, 160, 162, 163, 167.

INTERDISCIPLINARY MAJOR AND MINOR IN INTERNATIONAL AFFAIRS

These degrees offer interdisciplinary study of international affairs. Students take core courses in international politics and economics and, for the major, additional courses in history, languages, culture, and other areas to complete a concentration based either on a theme or a region. By graduation, students will have gained a solid base of knowledge regarding international affairs and the ability to integrate the diverse perspectives of several disciplines to gain subtle understandings of complex problems.

Requirements for the Interdisciplinary Major in International Affairs:

Background requirements: HIST 001 and 002; ECON 043 and 044; POSC 040 and 060; one course in statistics such as MATH 060, MANA 025, PSYCH 060, or SOCI 060; and demonstrated foreign language competency to the second intermediate (fourth term) level. Students are encouraged to take at least two language courses beyond the intermediate (004) level, and preferably to minor in a foreign language.

Program Requirements:

- A. POSC 165, 167, 177, and 178
- B. An upper division course in international economics. ECON 151 is recommended for all students except those with a concentration in international economics. ECON 154, 155 or 156 are recommended for students with a concentration in international economics.
- C. ARSC 160. (Usually completed during the student's last spring semester at Marquette.)
- D. 12 hours from one of the following subfields:
 1. Area Studies (all students opting for this subfield must select from one group only):
 - African Studies: HIST 177, 179; POSC 159; THEO 185
 - Asian Studies: HIST 127, 182, JAPA 101, POSC 154, 155, 158, 175; PHIL 188; THEO 186
 - European Studies: HIST 145, 156, 158, 162, 165, 166; POSC 142, 173; ANTH 126
 - Latin American studies: ANTH 124, 142; HIST 171, 173, 174; POSC 156, 176; SPAN 102; SPAN 158; SPAN 170; SPAN 170; SPAN 193
 - Russian Studies: ECON 155; HIST 167, 168, PHIL 150; POSC 105, 145, 148, 152, 173
 2. Cross Cultural Studies: Foreign language courses in culture and civilization: FREN/GERM/SPAN 100 or 101; JAPA 101; SPAN 102; ANTH 101, 112, 116, 126; PHIL 150, 188; POSC 148, 159; SOCI 165; THEO 157, 163, 168, 184, 185, 186
 3. International Economic Relations: Students with this concentration are strongly encouraged to complete at least two of the following three courses: ECON 154, 155, 156. (Any of these three may also be used to fulfill the international economics core requirement); ECON 150, FINA 185; HIST 135; MANA 183; MARK 153; POSC 141; BULA 132
 4. International Political-Military Relations: HIST 113, 114, 118, 127, 143, 158; POSC 129, 145, 148, 170, 173, 174, 175, 176

Other relevant courses (including courses offered at Marquette numbered 196, 197, 198, or 199 and many courses taken while studying abroad) may fulfill the subfield requirement with the prior approval of the program coordinator. Any substitutions must be approved by the program coordinator. No more than 15 hours of the credits counted to fulfill an INIA major may be counted toward any other major or minor.

Requirements for the Interdisciplinary Minor in International Affairs:

Background requirements: ECON 043 and 044; POSC 040 and 060.

Program Requirements:

A. POSC 165, 167, 177, and 178.

B. An upper division course in international economics. ECON 151 is recommended.

C. ARSC 160. This course is usually taken during the student's last spring term at Marquette. Any substitutions must be approved by the program coordinator. No more than nine hours of the credits counted to fulfill an INIA major may be counted toward any other major or minor.

INTERDISCIPLINARY MAJOR IN WOMEN'S STUDIES

Women's studies as an academic discipline examines the world and those who inhabit it in the light of women's own experiences of that world. Such an examination serves other established disciplines in both a complementary and corrective manner. Through its employment of gender, race, class and other critical categories of analysis, women's studies seeks not only to understand all women and their experience, but also to know each woman and her experience. The interdisciplinary nature of the women's studies major, the fact that critical thinking skills are at its core, and the "revolutionary" effects it has on students' personal lives all contribute to making women's studies a versatile and powerful degree.

The interdisciplinary major of women's studies would be secondary to the student's primary major. The women's studies major consists of 36 total credit hours (18 of which may also fulfill core curriculum requirements).

Requirements:

ARSC 140, and at least three courses from each of the following two areas:

Social-Behavioral Science

ANTH 130 (Also SOCI 198), CRLS 167, POSC 119, 196*; PSYC 157, 165, 166;
SOCI 021, 162, 166

Humanities

CMST 196*, ENGL 171*, 185, 186; FOLA 148; HIST 123, 152, 196*, 197*; PHIL 143,
190*; THEO 129

At least two courses from the following area:

Electives

COMM 167, CMST 137, HEAL 122

*These are special topics or colloquium courses that must focus on areas pertinent to women's studies.

The women's studies minor requires 21 credit hours: ARSC 140, and at least two courses from each of the above areas (Social-Behavioral Science, Humanities and Electives).

INTERDISCIPLINARY MINOR IN ASIAN STUDIES

The interdisciplinary minor in Asian studies introduces students to the culture, history, politics, economics, geography, anthropology, sociology, philosophies, and religions of Asia. The minor consists of 18 hours, six from culture and six from history and society. The remaining six hours may be chosen from any of the listed courses or may consist in whole or part of courses approved by relevant departments and the program coordinator.

Requirements: (six hours from each of the following)

Culture: CMST 140; JAPA 101, 148; PHIL 188; THEO 185, 186

History and Society: HIST 127, 183; POSC 154, 155, 158, 175; appropriate offerings of
SOCI 196

Any substitutions must be approved by the program coordinator.

INTERDISCIPLINARY MINOR IN CATHOLIC STUDIES

The interdisciplinary minor in Catholic studies offers students an integrated understanding of Catholicism as a unique form of Christianity, examining its distinctive doctrines, historical changes in institutional forms and world-views, and impact upon culture, art and literature. The minor combines courses in theology, philosophy, English and history, and other special courses that deal with Catholic Christianity, among other topics, from their various perspectives.

The minor consists of 21 hours. Required courses: THEO 157 or 158; HIST 138 or 139; one course each from electives in English and philosophy; nine additional hours drawn from other

approved upper-division offerings in the four areas, at least two areas of which must be represented in these nine hours.

INTERDISCIPLINARY MINOR IN ENVIRONMENTAL ETHICS (INEE)

Students who opt for this minor will acquire the intellectual resources they need to reflect on the ethical dimensions of environmental issues. Five core courses develop the knowledge and skills in the natural sciences and in the theological and philosophical traditions that are relevant to the minor. It culminates in a capstone seminar in which the ethical questions pertaining to a particular environmental problem are identified and approaches to its resolution are developed. When appropriate and feasible, the capstone facilitates student service in public or private organizations, government agencies, and businesses that are addressing the problem. Students are encouraged to take additional courses that complement the minor and to draw upon them during their capstone experience.

Faculty work together to schedule the required courses so the minor can be completed in two years. They identify students who are seeking the minor and guide their learning toward its goals. Faculty also help students to understand how their courses relate to the minor.

Students pursuing the minor gather at least once a term to discuss the program or a pertinent topic. On completion of the minor, each student is presented with a certificate listing the required and complementary courses taken and service learning completed. Every two years, the departments of Theology and Philosophy alternate directing the minor and leading the capstone seminar.

Required Courses (18 credit hours):

BIOL 040 or 140, ECON 163, PHIL 132, PHYS 009 (or CEEN 150, only for CEEN majors), THEO 171, ARSC 110.

Recommended Complementary Courses:

JOUR 173, ANTH 110, ARSC 120, CHEM 008, ENGL 198 (Literature and the Environment), THEO 170.

INTERDISCIPLINARY MINOR IN ETHICS

The interdisciplinary minor in ethics provides an opportunity for students to explore the moral dimensions of human life and to develop the ability for critical ethical analysis in their personal and professional lives. By encouraging students to seek values across the curriculum in a formal and disciplined way, it prepares graduates not only for the modern workplace, but for the world in its most urgent and deepest complexity. First-level courses introduce the basis of ethical reasoning within philosophy and Christian faith. Second level courses engage students in the application of ethical theories to particular ethical issues or problems (e.g., business ethics, environmental ethics, poverty). Third-level courses allow students to explore the contexts of various institutions and social domains (e.g., the legal system; social and institutional dimensions of race and gender, mass communication) in which ethical decisions must be made.

The Ethics minor comprises seven courses (21 credits) chosen from the following areas:

- I. *Ethical theory (two courses required)*: PHIL 104, and either THEO 115 or 165.
- II. *Applied ethics (two courses required, at least one from philosophy)*: PHIL 105, 108, 191, 192; THEO 171, 175, 179; COMM 161.
- III. *Contemporary Interfaces with Ethics (two courses required)*: PHIL 107, 106, 110, 131, 151, 132, 143, 189; POSC 080; SOCI 121, 128; THEO 168; MARK 157; MANA 181; COMM 166; HEAL 131, 140; and additional courses subject to special approval by the director of the Center for Ethics Study
- IV. *Capstone experience (required)*.

INTERDISCIPLINARY MINOR IN FAMILY STUDIES

The interdisciplinary minor in family studies allows students to combine theoretical and practical perspectives on the family and to become familiar with the various methodologies academic disciplines use to develop insights into the family. The minor requires 18 credit hours (17 credits for nursing students taking the NURS 138-139 sequence). To enroll, see the Family Studies Web page: Declaration Worksheet, or call the Family Studies Program. Any substitutions must be approved by the program coordinator. For course updates, see the Family Studies Web page.

Required courses:

SOCI 021—Should be taken before other courses in the minor, or at least as soon as the student has selected the minor.

ARSC 150—Should be taken last after the other five courses have been completed or during the student's last year of study.

Electives:

Twelve hours to include at least one course from each of the following three categories:

Category I Family as Experience

ANTH 130; HIST 123, 152; THEO 167; PHIL 110, PHIL 192, HEAL 025

Category II Family as System within Society

COMM 160, EDUC 078 (only for education majors), PSYC 078, 157, 166 (for PSYC majors); SOCI 125, 162; CMST 170; PSYC 101, 103 (for non-PSYC majors).

Category III Family as Resource for Human Needs

CMST 145; CRLS 152, 168; EDUC 088, 104; PSYC 138; SOWJ 170, 182

NURS 138, 139, (only for nursing students)

PHTH 415 (only for physical therapy students)

Some additional courses may be acceptable toward the requirements (especially relevant courses numbered 196, 197, 198, or 199). See the program coordinator to receive **prior** approval for any courses not listed above or for any substitutions.

INTERDISCIPLINARY MINOR IN MEDIEVAL STUDIES

The interdisciplinary minor in medieval studies integrates courses in English, foreign languages, literature, history, philosophy, and theology to introduce students to the major movements and achievements of the Latin Christian West from approximately A.D. 500 to 1500. The minor requires 21 credit hours.

Requirements:

ARSC 130

Three hours from HIST 134, 135, 136, 138

Three hours from ENGL 114, 115; Medieval offerings of ENGL 198; FREN 115, FOLA 098, 148, GERM 190, SPAN 190

PHIL 113

THEO 140

Electives:

Six hours from the following:

Appropriate offerings of HIST 197, 198

English courses listed under required courses

Language courses listed under required courses

PHIL 119; appropriate offerings of PHIL 190

THEO 138, 141, appropriate offerings of THEO 149

Any substitutions must be approved by the program coordinator.

INTERDISCIPLINARY MINOR IN URBAN AFFAIRS

The interdisciplinary minor in urban affairs introduces students to urban issues from multiple viewpoints. The minor requires 21 credit hours:

Students must take ARSC 120 and at least one course from each of the following four areas:

ECON 145, 146

POSC 117, 118

SOCI 131, SOWJ 182, ANTH 129

HIST 121 and appropriate offerings from 196, 197, 198

In addition, students may elect other courses from an approved list from the program coordinator. An interdisciplinary urban affairs major can be created for individual students in consultation with the program coordinator.

INTERDISCIPLINARY MINOR IN URBAN AND ENVIRONMENTAL AFFAIRS

The interdisciplinary minor in urban and environmental affairs introduces students to urban issues and environmental issues that affect urban areas. The minor requires 21 credit hours.

Students must take ARSC 120, at least two courses from one of the following areas, and at least one course from each of the remaining two areas:

ECON 163, PHIL 132

ECON 146, HIST 121, POSC 117, SOCI 131, CEEN 185

PHYS 009, BIOL 040, CHEM 123, CHEM 125

In addition, students may elect other courses from an approved list from the program coordinator.

An interdisciplinary urban and environmental affairs major can be created for individual students in consultation with the program coordinator.

PROFESSIONAL MINORS

Professional minors are available in advertising (College of Communication), business administration, human resource management and marketing (College of Business Administration), biomedical sciences (College of Health Sciences) and health studies (College of Nursing). See the appropriate sections of this bulletin for information.

CRIMINOLOGY AND LAW STUDIES CURRICULA

The College of Arts and Sciences offers programs of study leading to an associate in arts degree and the bachelor of arts degree in criminology and law studies. The associate in arts degree will be awarded by the college upon completion of a 65 credit hour program. All work included in the associate degree can be applied to the bachelor's degree at Marquette University.

ASSOCIATE IN ARTS*

Background requirements:

ENGL 001 and 002, HIST 001 and 002,
POSC 020, PHIL 050, PHIL 104 or THEO 001,
PSYC 001, SOWJ 080, ANTH 001. 30 sem. hrs.

Criminology and Law Studies:

051, 083, 152, 156, 157 or 159,
182, 186, 187, 188, 189 30 sem. hrs.

Electives: 5 sem. hrs.

TOTAL 65 sem. hrs.

*This is a two-year program. For the regular four-year program see the Department of Social and Cultural Sciences.

ELECTIVE COURSES

Of the 128 credit hours required for a degree, those not fulfilling core and major requirements are deemed electives. Courses in other divisions of the university may also be taken for elective credit.

PRE-PROFESSIONAL STUDIES

The Office of Pre-Professional Studies, sponsored by the College of Arts and Sciences, provides advice and service to students who wish to enter dental, law, medical or other health-related professional schools. Interested students should register with the Office of Pre-Professional Studies, Marquette Hall, 208.

PRE-DENTISTRY

COURSE REQUIREMENTS

The requirements for dental schools typically include:

Biology	8-9 semester hours	Organic Chemistry	8 semester hours
English	6 semester hours	Physics	8 semester hours
General Chemistry	8 semester hours		

All required courses in biology, chemistry, and physics must include laboratory work.

Generally, dental schools require a minimum of three years (90 semester hours) of undergraduate study.

For specific requirements of particular dental schools, refer to *Admission Requirements of U.S. and Canadian Dental Schools* which is available in the Office of Pre-Professional Studies.

DENTAL APTITUDE TEST

All candidates for dental school must take the Dental Aptitude Test (DAT). This test is now offered in computerized form and is usually taken 16 to 17 months before entering dental school. Registration packets are available in the Office of Pre-Professional Studies.

APPLICATION

Application is made through the American Association of Dental Schools Application Service (AADSAS), a central application service. Application packets are available in the Office of Pre-Professional Studies or the main office of Marquette's School of Dentistry. The application may also be obtained by downloading from the following Web site: www.adea.org.

PRE-MEDICINE

COURSE REQUIREMENTS

Although specific course requirements vary among medical schools, the common basic requirements are:

Biology	8-9 semester hours	Organic Chemistry	8 semester hours
English	6 semester hours	Physics	8 semester hours
General Chemistry	8 semester hours		

All required courses in biology, chemistry and physics must include laboratory work.

For requirements of specific medical schools, refer to *Medical School Admission Requirements: USA and Canada* which is available in the Office of Pre-Professional Studies. Most U.S. medical schools require a minimum of 90 semester hours of undergraduate work and most give preference to students who finish a bachelor's degree before entering medical school. Preference in admission is not given to students with particular majors or academic concentrations.

MEDICAL COLLEGE ADMISSION TEST

Most U.S. medical schools require the Medical College Admission Test (MCAT), which must be taken a full year before entering medical school. This test is given twice each year in April and August. Registration packets are available in the Office of Pre-Professional Studies or may be downloaded from the Association of American Colleges' Web site at www.aamc.org/mcat.

APPLICATION

Normally, application is made through the American Medical College Application Service (AMCAS). A few medical schools do not use AMCAS and require application directly to the schools. The application must be completed online at the following Web site: www.aamc.org/stuapps/admiss/amcase.

PRE-LAW

COURSE REQUIREMENTS

Law schools do not require specific college courses or majors. The Association of American Law Schools recommends that students take rigorous and demanding courses that develop basic intellectual skills: reading, writing, and speaking, critical and logical thinking.

For information, see the pre-law adviser in the Office of Pre-Professional Studies, Marquette Hall, 208.

LAW SCHOOL ADMISSION TEST

Almost all law schools require applicants to take the Law School Admission Test (LSAT). This test is offered four times a year, and should normally be taken at least one full year before entering law school.

APPLICATION

Almost all law schools require applicants to register with the Law School Data Assembly Service (LSDAS). Students will also need to call or write law schools in which they are interested, to request application forms and instructions. Although deadlines vary from school to school, it is generally advantageous to complete applications early. Application occurs within one year in advance of desired entrance.

ACADEMIC REGULATIONS

Students in the College of Arts and Sciences are expected to comply with the academic requirements and regulations listed in the University section of this bulletin and must fulfill the graduation requirements stated in the *bulletin issued the year they entered Marquette*. Students who have not enrolled for one or more years must follow the requirements in effect at the time of their return. (Exception is made for students who interrupted enrollment to serve in the Armed Forces.) *It is the responsibility of students to know and fulfill all university, College of Arts and Sciences, and major department requirements.*

While the principal policies and procedures of the college are contained in this section of the bulletin, questions concerning other regulations should be directed to the college or relevant department office.

ACADEMIC DISHONESTY

All students enrolled in Arts and Sciences classes are subject to the college's policy and procedure on academic dishonesty:

POLICY

The College of Arts and Sciences recognizes that any form or degree of academic dishonesty challenges the principles of truth and honesty which are among the most important foundation principles of Marquette University. Consequently, the college treats academic dishonesty as a serious violation of academic trust. It penalizes all students found to have engaged in such behavior.

The ensurance of academic honesty within the College of Arts and Sciences must be a cooperative enterprise of faculty, students and administrators. Acts of academic dishonesty include but are not limited to the following:

1. The illegitimate use of materials in any form during a quiz or examination.
2. Copying answers from the quiz or examination paper of another student.
3. Plagiarizing or falsifying materials or information used in the completion of any assignment which is graded or evaluated as the student's individual effort. Plagiarism includes submitting as one's own the ideas or work of another, including the computer programs or material from the computer files of another, regardless of whether that information is used verbatim or in paraphrased form, and regardless of whether those ideas or that work is derived from published materials or from private materials of another person who either intentionally or unintentionally contributes to the act of plagiarism. The same applies to anything derived from the Internet.
4. Obtaining, through theft, bribery, or collusion, or otherwise improperly securing an examination paper prior to the time and date for the administration of the examination. Also, use of an examination paper previously administered (e.g., during an earlier term) without the consent of the instructor who authored the examination.
5. Furnishing credentials that have been earned by another person, or falsifying records, transcripts, or other academic papers in order to falsely present one's academic position.
6. Impersonating a candidate at an examination or availing oneself of such an impersonation.
7. Intentionally interfering with any person's scholastic work, for example, by damaging or stealing laboratory experiments, computer files or library materials.
8. It is presumed that material submitted by a student for an assignment is original to that assignment and, therefore, submitting the same work for more than one course without the consent of the instructors of each course in which the work is submitted is considered dishonest.
9. Aiding or abetting any such offenses. A complete statement of the procedures followed in cases of academic dishonesty can be obtained from the college office, Marquette Hall, 208.

ADVISERS

Upon entering the College of Arts and Sciences, students are assigned a pre-major adviser. They must consult with this adviser (or the Arts and Sciences Advising Center) at least once before registering for their first term and at least once every term thereafter. Upon declaring a major, the student will be assigned a major adviser, with whom the student must consult at least once each term before registering. Advisers are available during each registration period as well as by appointment throughout the academic year.

CLASS ATTENDANCE POLICY

A. Attendance is mandatory for every exercise of a course in which a student is enrolled. Absence from class prevents a student from getting the full benefit of a course. In many courses, absence also detracts from the learning process for all other students in the class. Accordingly, absences can result in lower grades due to missed examinations, assignments and exercises, and due to the failure to enter into the classroom learning process.

B. Students registered in any course offered by the College of Arts and Sciences are bound by the college's attendance policy even when they are enrolled in another college, program, or division of the university. It is the responsibility of each student to know and follow this attendance policy and any specific attendance regulations of their instructors specified in the course syllabus.

C. The student is responsible for all material missed as a result of an absence.

D. Enforcement of the class attendance policy lies with the faculty. When their class attendance policies are clearly specified on the course syllabus, instructors may take attendance into

account in evaluating student performance and assigning final grades, provided the instructor documents absences.

E. Grade Penalties for Absence

In the case of unavoidable absence (defined below), a student may make up missed examinations, assignments and exercises within reason and at the discretion of the instructor according to conditions set forth in the course syllabus. It is the student's responsibility to make arrangements with the instructor to complete missed work in a timely fashion. In all other cases of absence, instructors are not required to allow students to make up missed work. The final course grade may be reduced to a degree commensurate with any incomplete material.

In the case of absences (regardless of cause) greater than the equivalent of two weeks of class and/or lab, as defined in the syllabus, final grades can be lowered up to a maximum of a half letter grade per additional absence.

In the case of absences (regardless of cause) greater than the equivalent of three weeks of class and/or lab, as defined in the syllabus, the student may be dropped from the course, earning a grade of WA. After the WA grade has been issued, the student may not apply for a grade of W.

F. The College of Arts and Sciences defines unavoidable absences as those due to debilitating illness, personal emergency, and, with prior approval, participation in university-sanctioned athletic competitions. Students must inform their instructors and the Arts and Sciences office, in a timely fashion and with supporting evidence, of the reasons for their unavoidable absence.

ABSENCES FROM FINAL EXAMINATIONS

An Arts and Sciences student who misses a final examination in any course must file a written excuse with the college office no later than 10 days after the examination. All other students taking Arts and Sciences courses must file excuses with their college/program office. Students with validated excuses may take make-up examinations during the following term at the time designated by the university. Clearance of temporary grades (I, X, and IX) in all Arts and Sciences courses is administered by the College of Arts and Sciences.

CD OR D GRADES

Courses completed with a grade of CD or D do not count toward the total hour requirement for a major or minor but do fulfill the subject matter requirement and do count toward the total 128 hours required for graduation. Since credit is never given twice for the same course, students who receive the grade of CD or D in a course in their major or minor field need not repeat the course. They may, however, repeat the course if they wish. In such cases, the grade earned in the course repeated will be counted in the cumulative quality point average, but both will appear on the official transcript; credit will be given only once. Cognate requirements can be completed at a CD or D grade.

TRANSFER CREDIT POLICY

In accordance with the University Transfer Credit Policy, the College of Arts and Sciences will grant credit for courses taken for a grade and completed at a C or better. Only credit will transfer, not grades. Courses completed in a quarter-hour system will be converted to semester credits, therefore reducing the total credits accepted by one-third. A Marquette equivalent will be specified for each transferable course. Courses awarded as 069 (lower division) and 169 (upper division) indicate transferable credit for which there is no discernable Marquette equivalent. These credits will count toward the degree and may fulfill core, major or minor requirements. However, they will not fulfill any requirement where a specific course number (i.e. PHIL 050 or THEO 001) has been indicated. An exception may be made by the college. Contact the director of student records with any questions or concerns regarding transfer of credit.

REPEATED COURSES

See the University section of this bulletin.

REQUIREMENT TO WITHDRAW FOR ACADEMIC REASONS

Students admitted to the College of Arts and Sciences are expected to meet college academic standards. Academic performance is monitored carefully by the Committee on Scholastic Actions, and students neither maintaining steady progress nor demonstrating adequate achievement will be required to withdraw from the college.

The bases for committee review are quality point deficiency, inadequate progress, grades of WA or UW, and the violation of special conditions. Special conditions may be prescribed in writing at the time of the student's admission, readmission, or transfer into the college. Conditions may also be prescribed in writing in the case of a student whose course performance or failure to follow academic advice warrants such action. *Registration is interpreted as the student's agreement to the specified conditions.* All students to whom conditions have been specified will be subject to committee review and academic dismissal should they fail to fulfill the terms specified.

It is possible that a student could be dismissed for academic reasons even though the student's cumulative Q.P.A. exceeds 2.000. Students concerned about their academic progress should consult the college office. Students required to withdraw for academic reasons will be notified by letter of the Committee's decision and of the appeal process.

SPECIAL ACADEMIC PROGRAMS

HONORS PROGRAM

The Marquette University Honors Program serves a select group of academically talented students from all divisions of the university. Participants in the program are provided with distinctively challenging learning experiences. For details, see the University section of this bulletin.

PRE-DENTAL SCHOLARS

The Pre-dental Scholars program is an accelerated program which allows students to reduce from eight years to seven years the total time needed to complete the bachelor's and dental degrees. A typical bachelor's degree program in the College of Arts and Sciences consists of three parts: core curriculum requirements, major requirements and electives. In the first three years of the Pre-dental Scholars program, students will partially complete the major and elective hours and finish all core curriculum requirements. Scholars major in biological sciences. The Pre-dental Scholars coordinator and faculty adviser will be responsible for the academic advising of the Pre-dental Scholars.

Academic Standards for the Pre-dental Scholars

Admission to the Pre-dental Scholars program is offered only to first-year students, ordinarily during the spring prior to the first year. Admission guarantees the scholar a place in the Marquette University School of Dentistry's first-year class of 2005, after completion of the third year of undergraduate studies (and having earned at least 98 credits). Students will maintain a place in the dental school by fulfilling the following requirements:

Maintain a cumulative 3.000 Q.P.A. in the undergraduate program.

Receive no grade less than a B in any science or math course.

Earn at least a 15 on the Dental Admission Test (DAT).

Students who fail to meet the academic requirements in any semester will be placed on probation the following semester. A second probationary semester separated from the first one by a semester of "Good Standing" will be permitted. Two consecutive semesters of failure to meet the Academic Requirements will result in withdrawal from the program.

While the dental school is bound to hold a place for scholars who meet all requirements, students are not obligated to attend Marquette's School of Dentistry.

For scholars who are in the Honors Program, the College of Arts and Sciences will base its calculations for academic honors on all credits earned toward the bachelor's degree, including dental school credits needed to total 128 credits.

Financial Aid

The financial aid and scholarships Pre-dental Scholars receive will be applicable only to the first three years at Marquette. After completing the first three years of undergraduate course work, the student must apply for financial aid and scholarships through the dental school.

PRE-LAW SCHOLARS

The Pre-law Scholars program allows students to reduce from seven years to six years the total time needed to complete the bachelor's and law degrees. A typical bachelor's degree program in the College of Arts and Sciences consists of three parts: core curriculum requirements, major requirements and electives. In the first three years of the Pre-law Scholars program, students will complete the core curriculum and major requirements. Courses taken in the fourth

year (the first year of law school) count as electives for the bachelor's degree and toward the completion of the law degree.

The majors students may choose to pursue are:

Humanities: Classical Languages, Classical Studies, English, Writing Intensive English, French, German, History, Philosophy, Spanish, Theology.

Natural Sciences: Computational Mathematics, Computer Science, Mathematics.

Social-Behavioral Sciences: Anthropology, Economics, Political Science, Psychology, Sociology.

Students considering a major in natural sciences should begin the sequence of courses for that major in the first term to ensure completion of the undergraduate program in three years. The Pre-law Scholars coordinator and selected faculty members will be responsible for the academic advising of Pre-law Scholars.

Academic Standards for Pre-law Scholars

Admission to the Pre-law Scholars program is offered only to incoming first-year students, ordinarily during the spring prior to the first year. Admission guarantees the scholar a place in Marquette Law School's first-year class of 2005, after completion of the third year of undergraduate studies (and having earned at least 98 credits) in the College of Arts and Sciences. Students will maintain a place in the Law School by fulfilling the following requirements:

- Maintain a minimum cumulative 3.400 Q.P.A. in the undergraduate program.
- Earn a score on the Law School Admissions Test that is equal to or greater than the median score of the class admitted to the Law School in the year before the scholar's enrollment in the Law School (i.e., the first-year class of 2004). Students may take the LSAT as many times as needed to earn this score, but should bear in mind that the Law School relies on the average of all the LSATs a student has taken.
- Meet the Law School's standards for character and fitness.

Students may choose to complete the fourth year as an undergraduate; in such a case, the student will be guaranteed a place in the Law School entering class the following year, provided the academic standards of the program are met. While the Law School is bound to hold a place for scholars who meet all requirements, students are not obligated to attend Marquette's Law School. Students may elect to complete the undergraduate degree in the major(s) chosen. The College of Arts and Sciences will base its calculations for academic honors on all credits earned toward the bachelor's degree, including Law School credits needed to total 128 credits.

Financial Aid

The financial aid and scholarships Pre-law Scholars receive will be applicable only to the first three years at Marquette. After completing the first three years of undergraduate course work, the student must apply for financial aid and scholarships through the Law School.

FIRST-YEAR SEMINAR: INTRODUCTION TO INQUIRY (ARSC 007)

This unique first-year seminar introduces students to academic culture by demonstrating academic inquiry and practicing the skills needed for successful learning: argumentation, listening, finding evidence. Each course meeting centers on a discussion of a short text, using the rules of shared inquiry. (The rules stipulate that no one may participate who has not read the text, that discussion be restricted to the text itself, that opinions be supported by textual evidence, and that discussion leaders only ask questions, never answer them.) The group also takes up a topic relating to the students' transition to academic culture. The faculty leader is also an academic adviser for each student.

STUDY ABROAD PROGRAMS

Students interested in studying abroad should consult the University section of this bulletin and meet with the study abroad coordinator. A collection of study abroad resource materials is located in the Study Abroad Resource Center, Marquette Hall, 208.

Those who wish to attend non-Marquette programs should obtain course approval forms from the college office and register for ARSC 101, for the term(s) abroad to maintain continuous enrollment. Likewise, students accepted into a Marquette exchange program should complete a course approval form and register for the appropriate section of ARSC 190, for the term(s) abroad to maintain continuous enrollment. Students accepted to affiliated programs should also complete a course approval form and register for ARSC 192. St. Clare's students should register for BUEX 191. Students on Marquette sponsored programs (e.g., Madrid, Xalapa) should follow the instructions provided by the program.

PART-TIME STUDIES PROGRAM

Part-time Studies serves students who wish to enroll at Marquette University but are unable to attend classes on a full-time basis. Students in the division are assigned to academic advisers in the College of Professional Studies. See the section on the Part-time Studies Program in the University section of this bulletin for information.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

CURRICULA INFORMATION

The following outlines may be helpful in planning programs for majors. However, these are only suggested outlines. Students should consult their academic advisers for variations. Students in special programs should also consult their program advisers. **Students taking only the minimum number of hours each term will not accumulate sufficient hours for graduation in four years.**

BACCALAUREATE DEGREE PROGRAM SEQUENCE

BACHELOR OF ARTS (TYPICAL FOR MAJORS IN THE HUMANITIES AND SOCIAL-BEHAVIORAL SCIENCES)

Freshman			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
HIST 001	3	HIST 002.	3
Natural Science.	3-4	Natural Science	3-4
Foreign Language	3-4	Foreign Language.	3-4
Social-Behavioral Science or THEO 001	3	Social-Behavioral Science or THEO 001.	3
<hr/>		<hr/>	
15-17		15-17	
Sophomore			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Mathematics-Logic-Computer	3	Mathematics-Logic-Computer	3
Literature	3	Literature	3
Foreign Language	3-4	Foreign Language	3
PHIL 050	3	Philosophy	3
Social-Behavioral Science or THEO 001	3	Major or elective.	3
<hr/>		<hr/>	
15-16		15	
Junior			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature or Fine Arts.	2-3	Philosophy (upper division)	3
Theology (second level).	3	Theology (third level)	3
PHIL 104	3	Major and electives.	9-12
Major and electives.	6-9	<hr/>	
<hr/>		15-18	
14-18		15-18	
Senior			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Major and electives	15-18	Major and electives.	15-18
<hr/>		<hr/>	
15-18		15-18	

BACHELOR OF SCIENCE (FOR BIOLOGICAL SCIENCES MAJORS)*Freshman*

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 001	3	BIOL 004.	3
CHEM 001.	4	CHEM 002	4
ENGL 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
Social-Behavioral Science	3	MATH 073 or 080	3-4
	<hr/> 16-17		<hr/> 16-18

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Biological Sci. elective or laboratory course ..	3	BIOL 100.	3
CHEM 023 or 123	4	CHEM 024 or 124.	4
PHIL 050	3	HIST001.	3
Literature	3	Literature	3
MATH/Logic/Computer elective*.	3-4	THEO 001.	3
	<hr/> 16-17		<hr/> 16

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 135	3	BIOL 125.	3
Biological Sci. elective or laboratory course ..	3	Biological Sci. elective or laboratory course. ..	3
PHYS 001 or 003	4	PHYS 002 or 004.	4
PHIL 104	3	History/Social Science	3
Elective	3	Elective.	3
	<hr/> 16		<hr/> 16

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Biological Sci. elective or laboratory	6-7	Biological Sci. elective or laboratory	6
Philosophy elective	3	Theology (third level)	3
Theology (second level).	3	Electives**.	6-8
Elective	3		
	<hr/> 15-16		<hr/> 15-17

* MATH 073 or 080 and one other MATH or COSC course.

** 128 credits are required for graduation.

BACHELOR OF SCIENCE (FOR BIOCHEMISTRY/MOLECULAR BIOLOGY MAJORS)

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 001	3	BIOL 004.	3
CHEM 001.	4	CHEM 002	4
MATH 080.	4	MATH 081	4
ENGL 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
<hr/>		<hr/>	
17-18		17-18	

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 123 or 023	4	BIOL 100.	3
PHYS 001 or 003	4	CHEM 124 or 024.	4
HIST 001	3	PHYS 002 or 004.	4
PHIL 050	3	PHIL 104.	3
THEO 001	3	History/Social Science	3
<hr/>		<hr/>	
17		17	

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 135	3	BIOL 101.	3
CHEM 131 *	3	BIOL 125.	3
Theology (second level).	3	CHEM 114	4
Literature	3	Literature	3
Elective	3	Elective.	3
<hr/>		<hr/>	
15		16	

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Biological Sci. laboratory course (upper division)**	3	Biochemistry/Molecular Biology electives	6
Biochemistry/Molecular Biology elective.	3-4	Philosophy elective	3
Theology (third level)	3	Social-Behavioral Science.	3
Electives.	6	Elective.	3
<hr/>		<hr/>	
15-16		15	

*Many students, including those continuing on to graduate school, should consider the option of two terms of physical chemistry (CHEM 132 and 133) which requires an additional term of calculus (MATH 082). Students who take CHEM 132, 133, and MATH 082 are required to take only one additional elective in biological sciences, chemistry or mathematics.

**BIOL or CHEM 195 may be substituted.

BACHELOR OF SCIENCE (FOR HUMAN BIOLOGY MAJORS)

Open only to undergraduate students who have been admitted directly into the six-year master of physical therapy degree program, are in good academic standing prior to the beginning of the professional phase of the program, and want to earn a bachelor of science degree from the College of Arts and Sciences after four years of study.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 001	3	BIOL 004.	3
CHEM 001.	4	CHEM 002	4
ENGL 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
THEO 001	3	Social-Behavioral Science.	3
<hr/> 16-17		<hr/> 16-17	

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
HIST 001	3	BIOL 100.	3
CHEM 023 (123).	4	CHEM 024 (124)	4
Electives	3-4	Elective.	3
Literature	3	Literature	3
MATH 073 (080).	3-4	Theology (second level)	3
<hr/> 16-18		<hr/> 16	

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 135	3	BIOL 125.	3
Theology (third level)	3	MATH 060 (164).	3
PHYS 001 (003).	4	PHYS 002 (004)	4
PHIL 050	3	PHIL 104.	3
History/Social Science	3	EXSC 106	3
		PHTH 001.	1
<hr/> 16		<hr/> 17	

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 013/125	2-4	BISC 120.	3
BIOL 172	4	PHTH 505.	3
PHIL 191	3	PHTH 515.	3
PHTH 512	3	PHTH 518.	3
BISC 130	5	PHTH 525.	3
		PHTH 555.	3
<hr/> 17-19		<hr/> 18	

For information on the physical therapy program, please see the College of Health Sciences section in this bulletin. Those students interested in the human biological sciences major should contact the Department of Biological Sciences as soon as possible.

BACHELOR OF SCIENCE (FOR CHEMISTRY MAJORS)

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 001.....	4	CHEM 002.....	4
ENGL 001.....	3	ENGL 002.....	3
MATH 080.....	4	MATH 081.....	4
Foreign Language.....	3-4	Foreign Language.....	3-4
		THEO 001.....	3
<hr/>		<hr/>	
14-15		17-18	

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 123.....	4	CHEM 124.....	4
PHYS 003.....	4	CHEM 114.....	4
MATH 082.....	4	PHYS 004.....	4
Literature.....	3	Literature.....	3
HIST 001.....	3	History/Social Science.....	3
<hr/>		<hr/>	
18		18	

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 115.....	4	CHEM 133.....	3
CHEM 132.....	3	Chemistry elective*.....	3
PHIL 050.....	3	Social Science.....	3
Theology (second level).....	3	Theology (third level).....	3
Elective.....	3	PHIL 104.....	3
<hr/>		<hr/>	
16		15	

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 105.....	3	CHEM 136**.....	2
CHEM 106.....	2	Chemistry elective*.....	3
Philosophy (upper division).....	3	Electives.....	12
Electives.....	6		
<hr/>		<hr/>	
14		17	

* CHEM 125 (offered alternate years) is required for the American Chemical Society certified degree.

** CHEM 136 may be taken the junior year, concurrently with CHEM 133.

BACHELOR OF SCIENCE (FOR MATHEMATICS MAJORS)

Students planning to complete a teaching major in mathematics should consult the outlines later in this section.

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.....	3
Foreign Language	3-4	Foreign Language.....	3-4
HIST 001	3	Required History or Social-Behavioral Science .	3
MATH 080	4	MATH 081	4
Social-Behavioral Science	3	Elective.....	3
	<hr/> 16-17		<hr/> 16-17
<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
MATH 082.....	4	Literature	3
Literature	3	Natural Science	4
Natural Science	4	MATH 090	3
THEO 001	3	PHIL 050.....	3
Elective	3	Elective.....	3
	<hr/> 17		<hr/> 16
<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Computer Science elective	3	MATH electives.....	6
MATH 121	3	PHIL 104.....	3
MATH elective	3	Electives.....	6-9
Electives	6-9		
	<hr/> 15-18		<hr/> 15-18
<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
MATH electives	6	MATH electives.....	6
Philosophy (upper division).....	3	Theology (third level)	3
Theology (second level).....	3	Electives.....	6-9
Electives	3-6		
	<hr/> 15-18		<hr/> 15-18

- Notes:
1. Taking the minimum number of hours each term will not accumulate sufficient hours for graduation in four years.
 - 2.MATH 082 and 090 can be taken in either order or concurrently.
 - 3.Potential mathematics majors who have taken a university-level calculus course in high school should discuss with the department the possibility of credit by examination for MATH 080 and/or 081 or placement in MATH 081 or 082 before registering for a calculus course.

BACHELOR OF SCIENCE (FOR COMPUTER SCIENCE MAJORS)

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 051	3	COSC 054.	3
ENGL 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
HIST 001	3	Required History or Social-Behavioral Science .	3
MATH 080	4	MATH 081	4
<hr/> 16-17		<hr/> 16-17	

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 055	3	COSC 148.	3
MATH 090	3	MATH 147	3
Social-Behavioral Science	3	PHIL 050.	3
THEO 001	3	Electives	6
Elective	3		
<hr/> 15		<hr/> 15	

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 152	3	COSC 149.	3
COSC 157	3	Computer Science elective.	3
Literature	3	PHIL 104.	3
Natural Science	4	Natural Science.	4
Elective	3	Elective.	3
<hr/> 16		<hr/> 16	

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Computer Science elective	3	Computer Science electives.	6
Literature	3	Theology (third level)	3
Philosophy (upper division).	3	Electives.	6-9
Theology (second level).	3		
Electives	3-6		
<hr/> 15-18		<hr/> 15-18	

Notes:

1. Taking the minimum number of hours each term will not accumulate sufficient hours for graduation in four years.
2. Potential computer science majors who have taken a university level calculus course in high school should discuss with the department the possibility of credit by examination for MATH 080 and/or 081 or placement in MATH 081 before registering for a calculus course.

BACHELOR OF SCIENCE (FOR COMPUTATIONAL MATHEMATICS MAJORS)

Freshman			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 051	3	COSC 054.	3
ENGL 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
HIST 001	3	Required History or Social-Behavioral Science .	3
MATH 080	4	MATH 081	4
	16-17		16-17
Sophomore			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 055	3	COSC 148.	3
MATH 082	4	MATH 090	3
Social-Behavioral Science	3	PHIL 050.	3
THEO 001	3	Electives	6
Elective	3		
	16		15
Junior			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature	3	Literature	3
MATH 147.	3	Math/Computer Science elective	3
MATH 121.	3	Natural Science	4
Natural Science	4	PHIL 104.	3
Elective	3	Elective.	3
	16		16
Senior			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 146	3	MATH 161 or 164	3
Math/Computer Science elective.	3	Math/Computer Science elective	3
Philosophy (upper division).	3	Theology (third level)	3
Theology (second level).	3	Electives.	6-9
Electives	3-6		
	15-18		15-18

Notes:

1. Taking the minimum number of hours each term will not accumulate sufficient hours for graduation in four years.
2. MATH 082 and 090 can be taken in either order or concurrently.
3. Potential computational mathematics majors who have taken a university level calculus course in high school should discuss with the department the possibility of credit by examination for MATH 080 and/or 081 or placement in MATH 081 or 082 before registering for a calculus course.

BACHELOR OF SCIENCE (FOR MATHEMATICS MAJORS WITH MIDDLE SCHOOL/SECONDARY TEACHER PREPARATION CURRICULUM, GRADES 6-12)

For students who enter Marquette in EVEN-numbered years (2002, 2004 . . .). From the beginning of their work toward a degree, students should consult with the department adviser for secondary mathematics teaching majors and the Office of Teacher Education.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 008	3	EDUC 048.	3
MATH 080 ¹	4	MATH 081	4
ENGL 001	3	Computer Science elective.	3
HIST 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
<hr/> 16-17		<hr/> 16-17	

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 078 ²	3	EDUC 079.	3
MATH 082.	4	EDUC 088.	3
MATH 090.	3	MATH 121	3
Science	3-4	MATH elective.	3
CMST 010 or 012.	3	PHIL 050 or THEO 001.	3
		Science.	3-4
<hr/> 16-17		<hr/> 18-19	

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 125	3	EDUC 128.	4
MATH 124.	3	EDUC 190.	1
MATH 160.	3	MATH elective.	3
Required History or Social Science.	3	MATH 161 or 164.	3
Required Literature	3	Theology (second level)	3
PHIL 050 or THEO 001	3	Required Literature	3
<hr/> 18		<hr/> 17	

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 158	3	EDUC 176 (student teaching)	12
EDUC 191	1	MATH 138	3
MATH 137 (METH).	3		
MATH 135.	3		
Theology (third level)	3		
PHIL 104	3		
<hr/> 16		<hr/> 15	

Notes:

1. Potential mathematics teaching majors who have taken a university level calculus course in high school should discuss with the department the possibility of credit by examination for MATH 080 and/or 081 or placement in MATH 081 or 082 before registering for a calculus course.
2. Fulfills social science core curriculum requirement.

BACHELOR OF SCIENCE (FOR MATHEMATICS MAJORS WITH MIDDLE SCHOOL/SECONDARY TEACHER PREPARATION CURRICULUM, GRADES 6-12)

For students who enter Marquette in ODD-numbered years (2003, 2005 . . .). From the beginning of their work toward a degree, students should consult with the department adviser for secondary mathematics teaching majors and the Office of Teacher Education.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 008	3	EDUC 048.	3
MATH 080 ¹	4	MATH 081	4
ENGL 001	3	Computer Science elective.	3
HIST 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
	<hr/> 16-17		<hr/> 16-17

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 078 ²	3	EDUC 079.	3
MATH 082.	4	EDUC 088.	3
MATH 090.	3	MATH 121	3
Physical Science	3-4	MATH elective.	3
CMST 010 or 012.	3	PHIL 050 or THEO 001.	3
		Life Science	3-4
	<hr/> 16-17		<hr/> 18-19

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 125	3	EDUC 128.	4
MATH 137 (METH).	3	EDUC 190.	1
MATH 124.	3	MATH 138	3
MATH 135.	3	MATH 164	3
Required History or Social Science.	3	Theology (second level)	3
PHIL 050 or THEO 001	3	Required Literature	3
	<hr/> 18		<hr/> 17

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 158	3	EDUC 176 (student teaching)	12
EDUC 191	1		
Math elective	3		
MATH 160.	3		
Required Literature	3		
Theology (third level)	3		
PHIL 104	3		
	<hr/> 19		<hr/> 12

Notes:

1. Potential mathematics teaching majors who have taken a university level calculus course in high school should discuss with the department the possibility of credit by examination for MATH 080 and/or 081 or placement in MATH 081 or 082 before registering for a calculus course.
2. Fulfills social science core curriculum requirement.

BACHELOR OF SCIENCE (FOR PHYSICS MAJORS, GENERAL OUTLINE)

Students planning to major in physics should consult with the physics department major adviser as soon as possible after matriculation. To satisfy the minimum requirements for a bachelor of science in physics, the courses marked as physics electives must include eight credit hours in upper division physics excluding courses 190-199.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
MATH 080	4	MATH 081	4
PHYS 013.	4	PHYS 014	4
		PHYS 018	0
	<hr/> 14-15		<hr/> 14-15

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 001.	4	CHEM 002	4
Elective	3	Literature	3
HIST 001	3	Elective.	3
MATH 082.	4	MATH 083	4
PHYS 104.	3	PHYS 105	3
	<hr/> 17		<hr/> 17

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Elective	3	Elective.	3
PHIL 050	3	PHIL 104.	3
PHYS 111.	3	Social/Behavioral Science.	3
PHYS 131.	3	PHYS 112	3
PHYS 155.	2	PHYS 132	3
THEO 001	3	PHYS 156	2
	<hr/> 17		<hr/> 17

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Philosophy elective	3	Literature	3
PHYS 162.	3	MATH 182	3
History/Social Science	3	Elective.	3
Theology (second level).	3	Theology (third level)	3
PHYS 148 or Math elective.	3	PHYS 124	3
	<hr/> 15	PHYS 157	2
			<hr/> 17

BACHELOR OF SCIENCE (FOR PHYSICS MAJORS, COMPUTATION)

This concentration is for students who wish to develop competence in using the computer as a scientific tool. To satisfy the requirements for a bachelor of science in physics, the five credit hours of physics electives must be upper division courses, excluding courses 190-199.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
Foreign Language	3-4	Foreign Language.	3-4
MATH 080	4	MATH 081	4
PHYS 013.	4	PHYS 014	4
		PHYS 018	0
	<hr/> 14-15		<hr/> 14-15

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 051	3	COSC 055.	3
HIST 001	3	History/Social Science	3
MATH 082.	4	Elective.	3
PHYS 104.	3	MATH 083	4
Elective	3	PHYS 105	3
	<hr/> 16		<hr/> 16

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 148	3	COSC 149.	3
PHIL 050	3	PHIL 104.	3
MATH 121	3	Literature	3
PHYS 111.	3	PHYS 156	2
PHYS 155.	2	Physics elective	3
THEO 001	3	Social/Behavioral Science.	3
	<hr/> 17		<hr/> 17

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COSC 146	3	COSC 153.	3
Philosophy Elective	3	Literature	3
PHYS 131.	3	PHYS 149	3
Theology (second level).	3	PHYS 157	2
Computer Science electives	6	Theology (third level)	3
	<hr/> 18	Elective.	3
			<hr/> 17

BACHELOR OF SCIENCE (FOR PHYSICS MAJORS, PRE-MEDICAL/PRE-DENTAL)

Pre-medical and pre-dental students planning to major in physics should consult with the physics department major adviser and the pre-medical/pre-dental adviser as soon as possible after matriculation. To satisfy the requirements for a bachelor of science in physics, the eight credit hours of physics electives must be upper division courses, excluding courses 190-199.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 001	3	BIOL 090.	3
ENGL 001	3	ENGL 002.	3
MATH 080.	4	MATH 081	4
PHYS 013.	4	PHYS 014	4
		PHYS 018	0
	<hr/> 14		<hr/> 14

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 001.	4	BIOL 004.	3
Foreign Language	3-4	CHEM 002	4
MATH 082.	4	Foreign Language.	3-4
PHYS 104.	3	MATH 083	4
Social/Behavioral Science	3	PHYS 105	3
	<hr/> 17-18		<hr/> 17-18

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 123.	4	BIOL 100*.	3
HIST 001	3	CHEM 124	4
Literature	3	Physics elective	3
PHIL 050	3	PHIL 104.	3
PHYS 111.	3	THEO 001.	3
	<hr/> 16		<hr/> 16

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Elective	3	Literature	3
Philosophy elective	3	History/Social Science	3
PHYS 131.	3	Physics elective	2-3
PHYS 155.	2	Theology (third level)	3
Physics elective	3	Electives	6
Theology (second level).	3		
	<hr/> 17		<hr/> 17-18

* Required by some medical and dental schools.

BACHELOR OF SCIENCE (FOR PHYSIOLOGICAL SCIENCES MAJORS)

This major is for students with interests in physiology and neurobiology, growing fields with expanding job opportunities in academics, industry and hospital research. Graduates can go on to advanced education at medical, dental and graduate schools.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 001	3	BIOL 004	3
CHEM 001	4	CHEM 002	4
ENGL 001	3	ENGL 002	3
Foreign Language	3-4	Foreign Language	3-4
Social/Behavioral Science	3	MATH 073 or 080	3-4
	<hr/> 16-17		<hr/> 16-18

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 023 or 123	4	BIOL 100	3
Biological Sciences elective or lab course . . .	3	CHEM 024 or 124	4
MATH 166	3	Literature	3
Literature	3	THEO 001	3
PHIL 050	3	HIST 001	3
	<hr/> 16		<hr/> 16

*Junior**

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHYS 001 or 003	4	BIOL 155	3
BIOL 170 or 172**	4	BIOL 156	3
BIOL 171	3	PHYS 002 or 004	4
PHIL 104	3	History/Social Science	3
Elective	3	Elective	3
	<hr/> 17		<hr/> 16

*Senior**

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 125 or 135	4	BISC 136***	2
BIOL 135	3	Biological Sciences electives	6
Biological Sciences elective	3	PHIL 191****	3
Theology (second level)	3	Theology (third level)	3
Elective	3	Elective	3
	<hr/> 16		<hr/> 17

* The courses listed in the junior and senior year may be interchanged.

** BIOL172 can only be taken with consent of instructor.

*** BISC 136 is recommended but not required.

****THEO 175 is interchangeable with PHIL191 for Medical Ethics.

COURSE DESCRIPTIONS

BIOLOGICAL SCIENCES (BSCI)

Chairperson and Professor: Unsworth
Professor: Buchanan, Courtright, Downs, Fitts (*Wehr Distinguished Professor*), Karrer (*Clare Boothe Luce Professor*), Munroe, Noel, Piacsek, Waring
Associate Professor: Eddinger, Maki, Stuart, Thomson (*Emeritus*)
Assistant Professor: Anderson, Mynlieff, Schläppi, Yang

MAJOR:

LECTURE COURSES: BIOL001, 004, 100, 125, and 135. **LAB COURSES:** Any three from 090, 101, 126, 137, 156, 171, and 195. Majors are encouraged to take upper division laboratories, although one lower division laboratory may be used to satisfy this requirement. **ELECTIVE COURSES:** any four courses of two or more credits from the following: (a) any of the core laboratory courses not previously taken, including a second BIOL195 course; (b) BIOL040, 140, 142, 155, 160, 170, 176, 180, 185; (c) by consent of instructor, departmental chairperson and Graduate School, any graduate course; (d) courses offered by other departments and acceptable to the Department of Biological Sciences as components of the major program. Cognate course requirements are: CHEM 001 and 002, 023 and 024 (or 123 and 124); PHYS 001 and 002 (or 003 and 004); and MATH 073 or 080 and one additional MATH or COSC course.

MINOR:

Six courses, including BIOL001 and BIOL004 plus two other courses offered in the biological sciences department. Two additional courses may be selected from three sources: a) the biological sciences department, and/or b) the chemistry department, and/or c) ANTH 106, PSYC 165, MATH 060.

TEACHING MINOR:

BIOL001, 002 or 004, 090, 100, 125, 135, and 170.

HUMAN BIOLOGY MAJOR:

Open only to undergraduate students who have been admitted directly into the six year master of physical therapy degree program, are in good academic standing prior to the beginning of the professional phase of the program, and want to earn a bachelor of science degree from the College of Arts and Sciences after four years of study.

Required courses: BIOL001, 004, 100, 125, 135, and 172; ANTH 001 or 002; BISC 120, 125, and 130; PHTH 402, 405, 412, 415, 418, 422, and 425; PSYC 001.

Cognate courses: (8 courses) CHEM 001 and 002, 023 and 024 (or 123 and 124); MATH 073 or 080, 060 or 164; PHYS 001 and 002 (or 003 and 004)

For information on physical therapy, please see the Physical Therapy section in this bulletin. Those students interested in the human biology major should contact the biological sciences department as soon as possible.

PHYSIOLOGICAL SCIENCES MAJOR:

Provides students interested in physiology and neurobiology a strong foundation in biological sciences, cell biology and biochemistry and further studies in comparative physiology, neurobiology, endocrinology, human physiology and anatomy, muscle and exercise physiology.

Required courses: BIOL001, 004, 100, 135, 155, 156, 170 (or 172), and 171; CHEM001, 002, 023 (or 123), 024 (or 124); MATH 073 (or 080) and MATH 166; PHIL191 (or THEO 175); PHYS 001 (or 003), 002 (or 004); BISC 125 (or 135); PSYC 001.

Elective courses: Any three of the following: BIOL090, 125, 126, 137, 140, 142, 160, 176, 177, 180, 185.

Recommended course: BISC 136.

BIOL001. General Biology 1

3 hrs. lec., disc., 3 sem. hrs.

Biology as a science. Cell structure, cycle and mitosis. General reproduction and meiosis. Mendelian genetics. Development. Evolution. Phylogenetic relationships. Bacteria, viruses, fungi, plants, lower animals, coelomates. Ecology. Offered fall term.

BIOL002. General Biology 2 3 sem. hrs.

Designed for the non-science student, the course introduces biological concepts and will focus on how scientific knowledge is created. Special emphasis on evolutionary biology, genetics, and modern genetic methods. Topics covered will include inheritance of genetic traits, cloning, and biotechnology, viral evolution, speciation and extinction. Offered Spring term. May be counted toward the natural science requirement of the core curriculum.

BIOL004. General Biology 4

3 hrs. lec., disc., 3 sem. hrs.

Biological macromolecules. Cell absorption and secretion. Energy flow. Glycolysis and cellular respiration. Photosynthesis. Molecular genetics. Digestion. Respiration. Circulation. Excretion. Immunobiology. Nervous coordination. Endocrine systems. Muscle contraction. Animal behavior. Human reproduction and development. Offered spring term. *Prereq: BIOL001 and CHEM 001. BIOL004 required of all biological sciences majors. Strongly recommended for premedical and pre dental students.*

BIOL040. Ecology 3 hrs. lec., 3 sem. hrs.

The study of the complex interactions of living organisms, including both micro- and macro-organisms, with each other and with their chemical and physical environments. Emphasis on the scientific principles involved in these interactions. Offered fall term. *Prereq: BIOL001; and either BIOL002 or BIOL004.*

BIOL090. Principles of Biological Investigation

1 hr. lec., 3 hrs. lab., 3 sem. hrs.

Introduction to selected instrumentation and techniques, including light microscopy, staining, aseptic procedures, and spectrophotometry. Other laboratory studies include: cell structure and function, restriction endonuclease effects on DNA, protein extraction and quantification, bacterial studies, vertebrate anatomy (gross

and microscopic) and physiology of cardiovascular and nervous systems. Offered every term. *Prereq: BIOL 001.*

BIOL100. The Molecular Basis of Biology

3 hrs. lec., 3 sem. hrs.

Major themes in biochemistry are examined in the context of mammalian physiology. Topics include: Protein structure and enzyme catalysis, carbohydrate and lipid metabolism in relation to energy production, nitrogen metabolism, vitamins, protein and nucleic acid synthesis, and the nature of the genetic code. Offered spring term. *Prereq: BIOL002 or 004; and CHEM 024 (the latter may be taken concurrently).*

BIOL101. Experimental Molecular Biology

1 hr. lec., 4 hrs. lab., 3 sem. hrs.

Purification, characterization and biosynthesis of proteins, nucleic acids, lipids and other biomolecules with emphasis on chemical and enzymatic methods of analysis. Offered spring term. *Prereq: BIOL 100 and cons. of dept. ch.*

BIOL105. Proteins and Nucleic Acids: Structure, Function, and Evolution

2 hrs. lec., 3 sem. hrs.

The structural and biochemical properties of proteins and nucleic acids are examined with respect to biological function and evolution. Specific topics include methods of biochemical analysis, mechanisms of enzyme catalysis, oxygen transport, protein-nucleic acid interactions, DNA replication, transcription, RNA splicing and translation. Offered alternate fall terms. *Prereq: BIOL100 and cons. of instr.*

BIOL 110. Cellular Metabolism 3 sem. hrs.

The mechanisms of biological energy generation, with emphasis on processes associated with cellular membranes. The outlines, principles, coordination, and evolution of fundamental metabolic pathways. The emphasis is on metabolism that is shared by diverse groups of organisms. Offered alternate spring terms. *Prereq: BIOL100 and cons. of instr.*

BIOL 112. Genomic Analysis 1 sem. hr.

Structure and gene ordering principles of prokaryotic and eukaryotic genomes, including the human genome. Biochemical experiments and computer strategies for determining gene order and nucleotide sequences, including algorithms used in sequence, phylogenetic analysis, and protein structure predictions. Offered alternate fall terms. *Prereq: BIOL125 and cons. of instr.*

BIOL125. Genetics 3 hrs. lec., 3 sem. hrs.

Analysis of mechanisms of inheritance with emphasis on the nature of the gene, gene regulation, and genetic changes in populations. Offered spring term. *Prereq: BIOL100.*

BIOL126. Experimental Genetics

1 hr. lec., 4 hrs. lab., 3 sem. hrs.

Genetic organization, function, engineering, and inheritance in prokaryotic and eukaryotic organisms. Offered spring term. *Prereq: BIOL 125 (may be taken concurrently) and cons. of dept. ch.*

BIOL127. Evolution of Genetic Systems

3 sem. hrs.

The analysis of gene structure and genetic regulation in selected prokaryotes and plant and animal systems, as well as transgenic organisms. Comparisons of multicomponent systems with functional homologies, with an emphasis on structural features of proteins and biological solutions to information processing. Mathematical principles of stable and evolving genetic populations. Offered alternate fall terms. *Prereq: BIOL 125 or cons. of instr.*

BIOL135. Cell Biology

3 hrs. lec., 3 sem. hrs. Ultrastructural and biochemical analysis of the structure and functions of cells with special reference to their evolution and to the molecular basis of function of cell organelles. Offered fall term. *Prereq: BIOL 100.*

BIOL137. Experimental Cell Biology

1 hr. lec., 4 hrs. lab., 3 sem. hrs.

Microscopic and biochemical studies of cellular structure and organization in relation to integrated cellular function. Offered fall term. *Prereq: BIOL135 (may be taken concurrently) and cons. of dept. ch.*

BIOL140. Advanced Ecology

3 hrs. lec., 3 sem. hrs.

The study of the complex interactions of micro- and macro-organisms with each other and with their chemical and physical environments. Emphasis on the environmental factors influencing these interactions. Students in BIOL040 and 140 will attend the same lectures but will meet in separate discussion sections; furthermore, students in BIOL140 will be expected to complete assignments and exam material beyond those required for students enrolled in BIOL040. May not be taken for credit by students who have completed BIOL040. Offered fall term. *Prereq: BIOL 001; and either BIOL002 or BIOL 004; or cons. of instr.*

BIOL142. Plant Biology

3 hrs. lec., 3 sem. hrs.

Despite their tremendous diversity in form, seed plants share many similarities in their cellular organization, metabolism, and development. Introduction to the organization, growth and development of vascular plants. Concepts of plant evolution and reproduction from algae to flowering plants. Application of genetic engineering to plants. Offered spring term. *Prereq: BIOL002 or 004.*

BIOL155. Neurobiology

3 hrs. lec., 3 sem. hrs.

General principles of the organization and function of the vertebrate nervous system. Topics include the cellular and molecular mechanisms of excitable cells and synaptic transmission, sensory information processing of both special (e.g., vision, audition) and somatic sensation, and cellular and systemic mechanisms of motor output. Physiology of "higher" nervous functions including sleep, emotional behavior, and learning will also be discussed. A functional approach to neuroanatomy will be integrated throughout the course. Offered spring term. *Prereq: BIOL 001; and BIOL002 or BIOL 004.*

BIOL156. Experimental Neurobiology

1 hr. lec., 4 hrs. lab., 3 sem. hrs.

Experimental analysis of synapses and neuronal circuitry using a variety of preparations

and electrophysiological techniques. The basic electrical properties of excitable cells and chemical communication between cells will be investigated. Offered spring term. *Prereq: BIOL 155 (may be taken concurrently) or BIOL 170; and cons. of dept. ch.*

BIOL 160. Animal Development

3 hrs. lec., 3 sem. hrs.

The study of the ordered formation of complex, multi-cellular organisms from a single cell. A multidisciplinary exploration of the integrative processes underlying animal development, incorporating techniques of cellular and molecular biology for the study of development. Offered spring term. *Prereq: BIOL100 or cons. of instr.*

BIOL170. Comparative Vertebrate**Physiology** 4 hrs. lec., 4 sem. hrs.

Introduction to the control and integration of homeostasis in vertebrate organisms and the adaptations which allow organisms to survive in a broad range of environments, both aquatic and terrestrial. Offered fall term. *Prereq: BIOL 100 or cons. of instr.*

BIOL171. Experimental Physiology

1 hr. lec., 4 hrs. lab., 3 sem. hrs.

Investigation of selected topics relating to the regulation of physiological activity in vertebrate organisms. Emphasis on use of modern recording systems and experimental preparation of the vertebrate for the study of integrated systemic functions. Offered fall term. *Prereq: BIOL 170 (may be taken concurrently) and cons. of dept. ch.*

BIOL 172. Human Physiology

4 hrs. lec., 4 sem. hrs.

A basic course designed to explain to students in the Medical Technology and Physical Therapy curricula the systemic and cellular mechanisms responsible for homeostasis in the human organism. Offered fall term. *Prereq: Registration in PHTH curriculum.*

BIOL176. Microbiology 3 hrs. lec., 3 sem. hrs.

Study of selected groups of microorganisms (algae, bacteria, and fungi). Topics include microbial morphology, taxonomy and metabolic activities, and the effect of microorganism on man and on the earth. Offered fall term. *Prereq: BIOL100.*

BIOL177. Exercise Physiology 3 sem. hrs.

Study of the effects of acute and chronic exercise on selected organ systems. Particular emphasis will be placed on muscle, cardiovascular, respiratory, and environmental physiology. Offered alternate spring terms. *Prereq: BIOL170 or 172 or their equivalents, or cons. of instr.*

BIOL180. Endocrinology and Reproduction of Vertebrates 3 sem. hrs.

This course is designed to examine the hormonal regulation and integration of homeostatic and reproductive function in vertebrates with special emphasis on mammalian species, including humans. This includes an analysis of the molecular, cellular and systematic aspects of hormone action and the mechanisms involved in the control of hormone secretion. Discussion of reproductive function emphasizes endocrine control as well as diversity of repro-

ductive strategies and adaptations found among vertebrates. Offered alternate spring terms. *Prereq: BIOL 100 and BIOL170; or cons. of instr.*

BIOL185. Immunobiology

2 hrs. lec., 3 sem. hrs.

Cellular and molecular mechanisms of the immune response. Nature of antigens and antibodies and their interactions. Special topics include complement, immediate and delayed hypersensitivity, transplantation and tumor immunobiology, immunosuppression, and immunological tolerance. Offered fall term. *Prereq: BIOL100.*

BIOL195. Independent Study 3 sem. hrs.

Experimental analysis of a selected topic under faculty supervision. Offered every term. *Prereq: Sr. stndg. and cons. of instr. and dept. ch.*

BIOL 198. Topics in Biology 1 sem. hr.

Analysis of selected topics under faculty supervision. Offered every term. *Prereq: Cons. of instr. and dept. ch. Does not count toward requirements for biological sciences major. S/U grade assessment.*

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Required courses:

BIOL 001, 004, 100, 101, 125, 135—18 sem. hrs.
CHEM 001, 002, 114, 123 (or 023), 124 (or 024), 131 (or 132 and 133)—23 sem. hrs.
Biological sciences laboratory course (upper division) or BIOL or CHEM 195 —3 sem. hrs.
MATH 080, 081—8 sem. hrs.
PHYS 001, 002 (or 003, 004)—8 sem. hrs.
Elective courses. Any three of the following:
BIOL105, 110, 126, 137, 140, 142, 155, 156, 160, 170, 171, 176, 180, 185, 200, 210
CHEM 105, 115, 125, 129, 166
MATH 082, 083, 166

Students who take CHEM 132, 133, and MATH 082 are required to take only one additional elective in biological sciences, chemistry or mathematics.

Students electing this curriculum are expected to complete all Arts and Sciences core curriculum requirements. Honors courses will be available from both departments by contract with the instructors. Courses available for honors credits will be identified.

CHEMISTRY (CHEM)

Chairperson and Professor: Wilkie
Professor: Cremer (Emeritus), Donaldson, Haworth, Hoffman (Emeritus), Kincaid, McKinney, Nakamoto (Emeritus), Ryan, Schrader (Research), Steinmetz, Tran
Associate Professor: Hossenlopp, Reid, Yi
Assistant Professor: Kurnikova, Rathore, Sem
Laboratory Supervisor: Ausman, Lukaszewski-Rose

MAJOR:

Forty-three hours, including CHEM 001, 002, 105, 106, 114, 115, 123, 124, 132, 133, 136 and six hours of electives. PHYS 003 and 004; MATH 080, 081 and 082 are also required for the major. (Students who select a chemistry major following their sophomore year may substitute CHEM 023,024, for 123, 124, respec-

tively.) French, German or Russian are recommended for fulfillment of the foreign language requirement. Chemistry offers both American Chemical Society (ACS) certified and non-certified degrees. Consult with the department undergraduate curriculum chairman for the requirements of each.

MINOR:

Five courses, including CHEM001, 002, 023 (or 123), 024 (or 124), plus one upper division chemistry course (not including CHEM123, 124, or 195).

TEACHING MAJOR:

Thirty-four hours, including CHEM 001, 002, 114, 115, 123, 124, 132 and 133; four hours of chemistry electives and EDUC 155. Note that PHYS 001 (or 003) and 002 (or 004) and MATH 082 are prerequisites for CHEM132 and 133.

Please refer to "Core Curriculum requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-two hours, including CHEM 001, 002, 023 (or 123), or 024 (or 124) and 114 plus two hours of chemistry electives.

BROAD FIELD SCIENCE TEACHING MAJOR WITH CHEMISTRY TEACHING MINOR:

Sixty-two to 64 hours, including CHEM 001, 002, 023 (or 123), or 024 (or 124), 114, plus one upper division chemistry elective; BIOL 001, 002 (or 004), 090; PHYS 001, 002, 008, 009, PHIL130, COSC 050, MATH 073 (or 080). Students should see the department adviser for middle school/secondary teaching majors or minors to consult about the appropriate sequence of courses. It is also important that prospective teachers study carefully the School of Education section in this bulletin regarding university and state requirements (in addition to department requirements) for teacher certification.

CHEM001. General Chemistry 1

3 hrs. lec., 3 hrs. lab., 1 hr. disc., 4 sem. hrs.

Introductory college chemistry. Fundamental principles of chemistry including stoichiometry, physical states of matter, energy relationships, periodic table, atomic and molecular structure and solutions. The following mathematical concepts are used in CHEM 001 and 002: Scientific notation, logarithms, the quadratic equation and proportionality. Offered every term.

CHEM002. General Chemistry 2

3 hrs. lec., 3 hrs. lab., 1 hr. disc., 4 sem. hrs.

Continuation of CHEM 001. Chemistry of metals and nonmetals, kinetics, chemical equilibrium, aqueous equilibria, free energy relationships, electrochemistry, nuclear chemistry, organic chemistry, and chemistry of the transition metals. Qualitative analysis included as part of the laboratory work. Offered every term. *Prereq: CHEM 001.*

CHEM004. General Chemistry for Chemistry

Majors 3 hrs. lec., 3 hrs. lab, 4 sem. hrs.

Continuation of CHEM001. Intended for chemistry majors. Emphasis in the lecture will be on kinetics, equilibrium, electrochemistry, nuclear chemistry, symmetry in coordination and organic chemistry, and industrial processes as applied from thermodynamic principles. The laboratory will consist of experiments designed to correlate with lecture; introduction of some research type instrumentation will be given. *Prereq: CHEM 001.*

CHEM008. Chemistry—The World

3 sem. hrs.

Introduction to chemical concepts and their applications to energy, the environment, air and water pollution, agriculture, food and drugs. Satisfies half of the Arts and Science core curriculum requirement. Course designed for non-science majors. Offered occasionally.

CHEM023. Organic Chemistry 1

3 hrs. lec., 4 hrs. lab., 4 sem. hrs.

Modern theories of bonding, stereochemistry, synthesis and reaction mechanism. The chemistry of aliphatic hydrocarbons and their functional group derivatives. Laboratory: basic organic manipulations such as distillation, recrystallization, including simple synthesis. Offered every term. *Prereq: CHEM 002 or 004.*

CHEM024. Organic Chemistry 2

3 hrs. lec., 4 hrs. lab., 4 sem. hrs.

Continuation of CHEM 023. Extension of the chemistry of the remaining mono and polyfunctional, and aromatic compounds. Bonding, stereochemistry, mechanisms, synthesis, applied spectroscopy, heterocycles and natural products. Laboratory: synthesis, instrumental application, organic qualitative analysis. Offered each spring. *Prereq: CHEM 023 or 123.*

CHEM080. Lecture Only—Lower Division

1-3 sem. hrs.

This is a variable title, variable credit course designed to provide students with a formal course number in which they may register for a lecture without laboratory basis for existing lower division chemistry courses.

Prereq: Cons. of dept. ch.

CHEM081. Laboratory Only—Lower

Division 1-2 sem. hrs.

This is a variable title, variable credit course designed to provide students with a formal course number in which they may register for a laboratory without lecture basis for existing lower division chemistry courses.

Prereq: Cons. of dept. ch.

CHEM105. Inorganic Chemistry

3 sem. hrs. Structure and bonding as related to physical and chemical properties; concepts relating to mechanisms; metal complexes; organometallic chemistry; molecular symmetry; catalysis; and descriptive chemistry to demonstrate applications of principles. Offered annually. *Prereq: CHEM 133.*

CHEM 106. Inorganic Synthesis

1 lab-recit., 4 hrs. lab., 2 sem. hrs.

Synthesis and characterization of transition and post-transition inorganic and organometallic compounds. Emphasis on structure elucidation through electronic and nuclear magnetic spectroscopy; handling of air-sensitive compounds; high-vacuum line techniques; homogeneous

catalysis. Offered fall term. *Prereq: CHEM 133; Coreq: CHEM 105.*

CHEM 114. Quantitative Analysis

3 hrs. lec., 4 hrs. lab., 4 sem. hrs.

Fundamental theory of analytical chemistry covering principal gravimetric and titrimetric methods with introduction to electrochemical and spectrophotometric techniques and to separations. Offered annually. *Prereq: CHEM 002 or 004.*

CHEM 115. Instrumental Analysis

3 hrs. lec., 4 hrs. lab., 4 sem. hrs.

Continuation of CHEM 114. Physical methods of analysis with emphasis on electrochemical, spectral and chromatographic methods. Offered annually. *Coreq: CHEM 132; Prereq: CHEM 114 and either PHYS 002 or 004.*

CHEM123. Organic Chemistry for Majors 1

3 hrs. lec., 1 lab-recit., 4 hrs. lab., 4 sem. hrs.

Intended to be taken by chemistry majors, honors students, and other interested science majors. Principles of bonding, stereochemistry, mechanisms, kinetics, and spectrometry applied to aliphatic and aromatic hydrocarbons and simple monofunctional organic molecules. Laboratory: modern techniques using research instruments. Offered fall term. *Prereq: CHEM 002 or 004. Does not carry credit for chemistry graduate students.*

CHEM124. Organic Chemistry for Majors 2

3 hrs. lec., 1 lab-recit., 4 hrs. lab., 4 sem. hrs.

Continuation of CHEM 123. Mechanisms, structure-reactivity relationships, and complex syntheses applied to the remaining principle classes of organic compounds. Laboratory: organic qualitative analysis. Offered spring term. *Prereq: CHEM 123 or CHEM 023.*

Does not carry graduate credit for chemistry graduate students.

CHEM125. Introduction to Biochemistry

3 sem. hrs.

Bioenergetics, glycolysis, oxidative degradation, enzymes, metabolic controls, metabolism of carbohydrates, lipids and amino acids. Offered occasionally. *Prereq: CHEM 024 and either CHEM 131 or 132.*

CHEM 129. Characterization of Organic Compounds

2 hrs. lec., 4 hrs. lab., 3 sem. hrs.

Fundamental theory of spectral methods used to identify organic compounds. Structure elucidation through application of nuclear magnetic resonance, ultraviolet, infrared, and mass spectroscopy. Hands-on use of spectrometers for structural analysis of synthetic intermediates and products. Offered occasionally. *Prereq: CHEM 133.*

CHEM131. Physical Chemistry: Fundamentals with Applications in Biological Sciences

3 sem. hrs.

One term course in Physical Chemistry with focus on basic principles, using examples drawn from applications to biological systems. Covers macroscopic, statistical, and microscopic descriptions of matter. Emphasis on thermodynamics, chemical and physical equilibria, transport properties, and kinetics. Offered fall term. *Prereq: CHEM 002 or 004, PHYS 002 or 004, and MATH 073 or 080.*

CHEM 132. Physical Chemistry 1

3 hrs. lec., 3 sem. hrs.

Atomic and molecular structure, states of matter, spectroscopy, laws of thermodynamics, phase and chemical equilibrium, electrochemistry, transport properties, kinetics and macromolecules. Offered fall term. *Prereq: CHEM 114, 124, MATH 082, PHYS 002 or 004.*

Does not carry graduate credit for chemistry graduate students.

CHEM 133. Physical Chemistry 2

3 hrs. lec., 3 sem. hrs.

Continuation of CHEM 132. Offered spring term. *Prereq: CHEM 132. Does not carry graduate credit for chemistry graduate students.*

CHEM 136. Physical Chemistry Laboratory

5 hrs. lab., 2 sem. hrs.

Laboratory experiments illustrating the principles of physical chemistry. Offered spring term. *Prereq: CHEM 132; Coreq: CHEM 133.*

CHEM160. Introduction to Polymer Science

3 sem. hrs.

Theory and practice of molecular weight determination for macromolecules. Characterization of polymers, including spectroscopic, chemical and mechanical procedures. Synthesis of polymers, including kinetics of reaction. Polymer additives and technology. Offered occasionally. *Prereq: CHEM 024, CHEM 133.*

CHEM166. Introduction to Quantum**Chemistry** 3 sem. hrs.

Elementary quantum theory and applications to atoms, molecules, and chemical bonding. Offered occasionally. *Prereq: CHEM 133.*

CHEM180. Lecture Only—Upper Division

1-3 sem. hrs.

This is a variable title, variable credit course designed to provide students with a formal course number in which they may register for a lecture without laboratory basis for existing upper division chemistry courses. *Prereq: Cons. of dept. ch.*

CHEM181. Laboratory Only—Upper**Division** 1-2 sem. hrs.

This is a variable title, variable credit course designed to provide students with a formal course number in which they may register for a laboratory without lecture basis for existing upper division chemistry courses. *Prereq: Cons. of dept. ch.*

CHEM195. Independent Study 1-3 sem. hrs.

Analysis of a specific topic under faculty supervision. Offered every term. *Prereq: CHEM 133 and cons. of dept. ch.*

CHEM196. Undergraduate Seminar

1-3 sem. hrs.

Emphasis on critical reading, analysis, and oral reporting of current literature sources in chemistry. Offered occasionally. *Prereq: CHEM133.*

CHEM197. Selected Topics in Chemistry

1-3 sem. hrs.

Topics of current interest in inorganic, organic, analytical, physical or biochemistry. Offered occasionally. *Coreq: CHEM 133 or with permission of instr.*

CHEM199. Senior Thesis 2-4 sem. hrs.

Laboratory work leading to a thesis under the direction of an adviser. Offered every term. *Prereq: CHEM 133 and cons. of dept. ch.*

ECONOMICS (ECON)

Chairperson and Professor: Brush*Professor:* Danner (Emeritus), Davis, Smiley

Associate Professor: Booth, Breeden, Chowdhury, D. Clark, Crane, Daniels, McGibany, Nourzad, Toumanoff, Trestrail (Emeritus)

Adjunct Assistant Professor: Lephardt*Lecturer:* Kashian**MAJOR:**

Twenty-seven hours, including ECON 043, 044, 110, 120, and fifteen additional hours of upper division work. In addition, courses in basic statistics (MATH 060 or equivalent) and mathematics (MATH 070 and 071, or MATH 080 and 081, or equivalent) are required. Students contemplating graduate study in economics should take MATH 080 and 081.

MINOR:

Eighteen hours, including ECON 043 and 044 and twelve hours of upper division course work. In addition, a course in basic statistics (MATH 060 or equivalent) is required. Students minoring in economics are urged to satisfy the mathematics-logic-computer requirement of the College of Arts and Sciences by taking MATH 070 and 071 or MATH 080 and 081.

TEACHING MINOR:

Twenty-four hours, including ECON 043, 044, 110, 120 and also including a course in basic statistics (MATH 060 or equivalent), with additional courses to fill out the minor requirements from the following groups, one course from each group:

Group I: ECON 125, 126, 181, 182

Group II: ECON 134, 145, 146, 150, 160, 163

Group III: ECON 151, 154, 155, 156

Please refer to "Core Curriculum requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

5-YEAR BA/MSAE PROGRAM:

The Department of Economics offers a special five-year program enabling students to earn an undergraduate degree and a Master of Science degree in Applied Economics (MSAE) degree. For information, consult the Graduate Bulletin or contact the Department of Economics.

ECON 020. Introduction to Economics

3 sem. hrs.

An introductory survey of economic issues for non-majors, with an emphasis on using economic concepts as elements of critical reasoning. Microeconomic topics include markets and the role of government in a market economy. Macroeconomic topics include the banking system, inflation and unemployment. International issues include the balance of trade and foreign exchange. Will not be counted towards the economics major.

ECON 043. Principles of Microeconomics

3 sem. hrs.

Institutions and processes of market specialization and exchange. Supply and demand and their determinants. Pricing and production decisions of the firm under varying competitive conditions. The role of government in a modern mixed economy. Microeconomic analysis applied to selected economic problems. Offered every term.

ECON 044. Principles of Macroeconomics

3 sem. hrs.

Processes and determinants of overall economic activity and growth. National income accounting, determination of aggregate income, employment, and the price level. Money and banking, government monetary and fiscal policy, and international economics. Offered every term. *Prereq: ECON 043.*

ECON 110. Applied Microeconomic Analysis

3 sem. hrs.

A review of the tools of supply and demand analysis. A study of the market behavior of consumers and business firms and the way they interact with each other and with public policy. The application of market theory to questions of resource allocation efficiency, changing market conditions, optimal pricing and output strategies, and to important social issues of the day. Offered every term. *Prereq: ECON 043 and 044; and MATH 071 or equivalent.*

ECON 120. Intermediate Macroeconomic**Analysis** 3 sem. hrs.

Determination of the levels of aggregate output, employment, and prices. Inflation and unemployment. A description of available policy variables and their impacts upon the money, bond, goods, and labor markets. International macroeconomic interrelationships. Fundamentals of the economic growth process. Offered annually. *Prereq: ECON 043 and 044; and MATH 071 or equivalent.*

ECON 125. American Business History

3 sem. hrs.

Survey of the development of American business from the Colonial era to the present. Industries and individual firms will be examined as well as entrepreneurs and their role in the development of American business, and the role of governments in the development of American businesses. *Prereq: ECON 043 and 044.*

ECON 126. American Economic History

3 sem. hrs.

Briefly surveys the pre-1900 development of the American economy and then examines 20th century changes in the agricultural, manufacturing, transportation, finance, and trade and communication sectors. Prosperity and depression in the 1920 to 1940 period will be examined in depth. Concludes with an examination of the distribution of income and wealth and the changing role of government in the 20th century American economy. *Prereq: ECON 043 and 044.*

ECON 134. Public Policies Toward American Industry 3 sem. hrs.

Role of competition as an economic regulator. Bases and consequences of monopoly power. Development of statutory and administrative law affecting market processes in the U.S. Antitrust policies applied to monopoly, oligopoly, mergers and restrictive trade practices. Alternatives to antitrust, including utility regulation and social regulation. *Prereq: ECON 043 and 044.*

ECON 145. Public Finance 3 sem. hrs.

Examination of such current topics as the growth of government spending, taxes, and deficits. The proper role of the state, centralization and decentralization, the impact of government decisions on the distribution of income and the efficient allocation of resources. *Prereq: ECON 043 and 044.*

ECON 146. Urban Economics 3 sem. hrs.

The economic role of cities. The forces behind urban growth. The problems of central city economic decline and urban poverty. The urban land and housing markets. Suburbanization of employment and population. *Prereq: ECON 043 and 044.*

ECON 150. Money, Banking, and Monetary Policy 3 sem. hrs.

Origins, nature and importance of money. Money demand and supply. Types of financial markets and their role in the economy. Banking institutions and the Federal Reserve. Role of monetary policy in business cycles and its impact on financial institutions and markets. International monetary policy and global financial markets. *Prereq: ECON 043 and 044.*

ECON 151. International Economic Issues 3 sem. hrs.

Survey of international economics. Basis for and welfare effects of international trade, commercial policies, and economic growth. International organizations, trading regions, and trade accords. Balance of payments concepts and exchange rate theories. History and theory of international monetary systems including fixed versus flexible exchange rates. Cannot be taken for credit after ECON 154 or ECON 156. *Prereq: ECON 043 and 044.*

ECON 154. International Currency Markets 3 sem. hrs.

Examination of various foreign exchange markets, including the spot, forward, futures and options markets. Risk, pricing and arbitrage procedures for cash and portfolio managers. Exchange rate management, structure of the international financial architecture, and the determination of exchange rates and the balance of payments. The role and practice of global financial intermediaries. *Prereq: ECON 043 and 044.*

ECON 155. Comparative Economic Development 3 sem. hrs.

An analysis and description of institutional differences among national economies. A theoretical framework for analyzing the effects of alternative systems on social and economic behavior is developed. Theoretical models are applied to specific cases, with special emphasis on issues of growth and development in advanced variants of capitalist, post-Communist, and less

developed economies. *Prereq: ECON 043 and 044.*

ECON 156. International Trade 3 sem. hrs.

Sources, patterns, and welfare implications of international trade. Empirical investigations of traditional trade theories. Arguments for and impact of commercial policies. Trade effects of economic growth. Imperfect competition and intra-industry trade as alternatives to traditional theories and views. *Prereq: ECON 043 and 044.*

ECON 160. Economics of Labor Markets 3 sem. hrs.

The study of the supply of and demand for labor. Topics include: Investment in education and training, compensation determination, work/family issues, discrimination, and poverty. *Prereq: ECON 043 and 044.*

ECON 163. Environmental and Natural Resource Economics 3 sem. hrs.

Economic analysis of environmental and natural resources including land, air, and water. Special emphasis on the roles of human values and economic institutions in resource exploitation. Topics covered include global warming, air and water pollution, energy and materials conservation, forestry practices, biodiversity preservation and the population problem. *Prereq: ECON 043 and 044.*

ECON 174. Introduction to Mathematical Economics 3 sem. hrs.

Provides students with an appreciation of the use of mathematics in economic analysis. Mathematical techniques are immediately applied to economic modeling. Mathematics topics include differential calculus, constrained and unconstrained optimization, and matrix algebra. Economics topics include market supply and demand, national income determination, consumer behavior, and production and cost. *Prereq: MATH 070 and 071 or their equivalent; and ECON 043 and 044.*

ECON 175. Introduction to Econometrics 3 sem. hrs.

Designed to teach how to specify and estimate statistical models of phenomena that are observed in business and economics. The estimated model is subjected to diagnostic tests in order to determine whether it satisfies desirable statistical assumptions. The verified model is used for hypothesis testing, forecasting, and policy analysis. Single-equation multivariate linear regression analysis provides the underlying statistical framework. *Prereq: ECON 043 and 044; and MANA026 or MATH 060 or their equivalents.*

ECON 181. Economics and Ethics 3 sem. hrs.

Investigation of the relation of economics to social values. Study of utilitarianism, welfare analysis, and Pareto efficiency concepts as foundations for normative economics. Introduction to justice, equity, and fairness approaches to normative economics. Applications to public policy issues. *Prereq: ECON 043 and 044, and PHIL104.*

ECON 182. Economics and Law 3 sem. hrs.

An application of microeconomic reasoning to the traditional areas of property, contract and tort (injury and accident) law. Develops and

then criticizes, the perspective that common law (judge-made law) should strive for economic efficiency. Topics include the economics of common property resources, the notion of optimal accident rates, and the contractarian logic of property rights/public choice theory. *Prereq: ECON 043 and 044.*

ECON 195. Independent Study 1-4 sem. hrs.

Prereq: Cons. of dept. ch.

ECON 196. Undergraduate Seminar 3 sem. hrs.

Specific titles to be announced in the *Timetable of Classes*. Offered occasionally. *Prereq: Jr. stndg.; ECON 043 and 044.*

ECON 199. Senior Thesis 2 sem. hrs.

With department approval, Seniors may write a thesis under direction of an adviser. *Prereq: Cons. of dept. ch.*

ENGLISH (ENGL)

Chairperson and Professor: Machan
Professor: Bates, Block, DeFalco (*Emeritus*), M.Gillespie, Hoeveler, McCanles (*Emeritus*), Rivero, Schwartz (*Emeritus*)
Associate Professor: Asp, Bodden, Boly, Chappell, Duffy, Hathaway, Hribal, Jeffers, Krueger, Ratcliffe, Stephens
Assistant Professor: Curran, Justice, Nowacek, M. Reid, Sandy, Sorby, Spargo, Su
Adjunct Assistant Professor: Agnew, Bieganski, P. Gillespie, Jablonsky, Karian, Picard
Lecturer: Allen, Batchelor, Ciemnieski, Cook, DeZoma, Foran, Mulrooney, Prochaska, Roy, Rymut, Sjostrom, Tallon, Yermolenko

MAJOR:

Thirty hours (excluding ENGL001 and 002), divided according to the following groups.
Group I, Historical Surveys (9 hrs.): 022, 023, either 032 or 033.
Group II, Language Study (3 hrs.): 101, 102, 103, or 170.
Group III, Individual Authors (3 hrs.): 114, 119, or 165.
Group IV, English or American Literature before 1800 (3 hrs.): 114, 115, 117, 118, 119, 120, 121, 150; or 165, 171, 173, 177, 198 when the course deals with pre-1800 English or American literature.
Group V, Shakespeare (3 hrs.): 160.
Group VI, Electives (9 hrs.): any three upper-division courses, no more than one of which may be a "writing" course.
See Director of Undergraduate Studies for a requirements checklist.

MINOR:

Eighteen hours (excluding ENGL001 and 002), divided according to the following groups:
Group I, Surveys or Introductions (6 hrs.): anytwo sophomore courses.
Group II, Shakespeare (3 hrs.): 160.
Group III, Electives (9 hrs.): any three upper-division literature courses.
See Director of Undergraduate Studies for a requirements checklist.

TEACHING MAJOR:

Thirty-three hours (excluding ENGL001 and 002), divided according to the following groups:

Group I, Historical Surveys (6 hrs.): at least one of which must be British.

Group II, Language Study (3 hrs.): 101, 102, 103 or 170.

Group III, One upper-division elective in British literature (3 hrs.).

Group IV, Advanced Composition (3 hrs.): 104.

Group V, Rhetoric (3 hrs.): either 106 or 192 (4 sem. hrs.).

Group VI, Multicultural (3 hrs.): either 159 or 177.

Group VII, Shakespeare (3 hrs.): 160.

Group VIII, Methods (3 hrs.): 190.

Group IX, Criticism (3 hrs.): 193.

Group X, One upper-division elective in American literature (3 hrs.).

Students should consult the departmental adviser for English Education about the appropriate sequence of courses. It is also essential to consult the School of Education section of this bulletin regarding university and state requirements for teacher certification. A teaching major is required for middle school/secondary teacher certification.

Please refer to "Core Curriculum requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-four hours (excluding ENGL001 and 002), divided according to the following groups:

Group I, Language Study (3 hrs.): 101, 102, 103 or 170.

Group II, One upper-division elective in British Literature (3 hrs.).

Group III, Advanced Composition (3 hrs.): 104.

Group IV, Rhetoric (3 hrs.): either 106 or 192 (4sem. hrs.).

Group V, Multicultural (3 hrs.): either 159 or 177.

Group VI, Shakespeare (3 hrs.): 160.

Group VII, Methods (3 hrs.): 190.

Group VIII, One upper-division elective in American Literature (3 hrs.).

Students should consult the departmental adviser for English Education about the appropriate sequence of courses. It is also essential to consult the School of Education section of this bulletin regarding university and state requirements for teacher certification.

WRITING-INTENSIVE ENGLISH

Thirty-six hours (excluding ENGL001 and 002), divided according to the following groups:

Group I, Surveys or Introductions (6 hrs.): any two sophomore courses.

Group II, Shakespeare (3 hrs.): 160.

Group III, Individual Authors (3 hrs.): 114, 119, 165.

Group IV, English or American Literature before 1800 (3 hrs.): 114, 115, 117, 118, 119, 120, 121, 150; or 165, 171, 173, 177, 198 when the course deals with pre-1800 English or American literature.

Group V, Language Study (3 hrs.): 101, 102, 103, or 170.

Group VI, Electives (6 hrs.): two upper-division literature courses.

Group VII, Writing (12 hrs.): 104 (required); 105, 106, 191, 192, or 197; or 173, 196, 198 when the course focuses on writing; or, if not used in Group V, 101, 102, 103, or 170; or no more than two among JOUR 111, 112, 113, 114, 151, 155 (all of which

have ENGL104 as a prerequisite; 151 and 155 also have JOUR 100 as a prerequisite).

See director of Undergraduate Studies for a requirements checklist.

COURSES FOR FRESHMEN

ENGL001. Expository Writing 1 3 sem. hrs.

An introduction to the basic principles of rhetoric and composition. Investigation of and practice in the methods of expository writing. Offered every term.

ENGL002. Expository Writing 2 3 sem. hrs.

A further introduction to the principles of rhetoric and composition. Investigation of and practice in the uses of the written language in argument, persuasion, and critical analysis. Offered every term. *Prereq: ENGL001 or equivalent.*

ENGL005. World and Text 1 3 sem. hrs.

This course studies the ways in which human beings have fashioned imaginative works that reflect, challenge, and transfigure the worlds in which they live. There is intensive analysis of texts selected from such writers as Homer, Sophocles, Virgil, Dante, Chaucer, Shakespeare, and Milton. Strong emphasis is placed on student writing. Enrollment is limited to students in the Honors Program. Counts as equivalent of ENGL022 for English majors and minors. Offered fall term. *Prereq: Cons. of program director.*

ENGL006. World and Text 2 3 sem. hrs.

A continuation of ENGL005, with texts selected from such writers as Pope, Swift, Austen, Wordsworth, Keats, Emily Brontë, Melville, Adams, Faulkner, Hemingway, and T.S. Eliot. Enrollment limited to students in the Honors Program. Counts as equivalent of ENGL023 for English majors and minors. Offered spring term. *Prereq: ENGL 005 and cons. of program director.*

COURSES FOR SOPHOMORES

ENGL022. Survey of English Literature 1 3 sem. hrs.

An introductory survey of the British literary tradition, from the beginnings to the latter part of the 18th century. Approaches vary with the instructor, as the focus may be on a particular theme or historical development. Readings drawn from authors such as Chaucer, Shakespeare, Milton, Pope, Swift, Fielding, and Johnson. Offered annually. Required for regular English majors. *Prereq: ENGL002 or equivalent.*

ENGL023. Survey of English Literature 2 3 sem. hrs.

Continuation of English 022, following the development of British literature up to the present. Readings drawn from authors such as Austen, Wordsworth, George Eliot, Tennyson, Shaw, Joyce, and Woolf. Offered annually. Required for regular English majors. *Prereq: ENGL002 or equivalent.*

ENGL032. Survey of American Literature 1 3 sem. hrs.

An introductory survey of American literary traditions, from the beginnings to the Civil War. Approaches vary with the instructor, as the focus may be on a particular theme or historical development. Readings drawn from authors such as Bradstreet, Franklin, Wheatley,

Emerson, Poe, Douglass, Hawthorne, Stowe, Melville, and Whitman. Offered annually. This course, or 033, is required for regular English majors. *Prereq: ENGL002 or equivalent.*

ENGL033. Survey of American Literature 2 3 sem. hrs.

Continuation of English 032, following American literary traditions since the Civil War. Readings will be drawn from authors such as Dickinson, Mark Twain, James, Frost, Stein, O'Neill, Stevens, Baldwin, and Rich. Offered annually. This course, or 032, is required for regular English majors. *Prereq: ENGL002 or equivalent.*

ENGL042. Introduction to Literature: Fiction 3 sem. hrs.

An introduction to various types of fiction (e.g., fable, short story, novel) representing a range of cultural points of view. Emphasis on techniques for analyzing the conventions, structures, and styles of fiction. Offered every term. *Prereq: ENGL002 or equivalent.*

ENGL043. Introduction to Literature: Drama 3 sem. hrs.

An introductory survey, from the ancient to the contemporary theater, of major writers, movements, and forms. Offered every term. *Prereq: ENGL002 or equivalent.*

ENGL044. Introduction to Literature: Poetry 3 sem. hrs.

Concentration on how the formal techniques of verse—for example, symbol, metaphor, simile, imagery, persona, meter, rhythm, and stanzaic patterns—combine for poetic effect. Emphasis on close reading of poems drawn from a variety of traditions. Offered annually. *Prereq: ENGL 002 or equivalent.*

COURSES FOR JUNIORS AND SENIORS

LANGUAGE, RHETORIC, AND COMPOSITION

ENGL101. History of the English Language 3 sem. hrs.

Elementary phonology, morphology, and syntax through the three stages of Old, Middle, and Modern English, along with dialectology and the sources of vocabulary. Characteristics of present-day American English. Offered annually. *Prereq: Jr. stndg. Comment: May not be counted as literature requirement in Arts & Sciences core curriculum.*

ENGL 102. Structure of the English Language 3 sem. hrs.

The phoneme and morpheme as structural units. Parts of speech. Analysis of Modern English syntax by traditional, structural, immediate constituent and generative-transformational methods. Offered annually. *Prereq: Jr. stndg. Comment: May not be counted as literature requirement in Arts and Sciences core curriculum.*

ENGL103. English Linguistics 3 sem. hrs.
The study of the English language, its structure, history, uses, and purposes. Attention to language acquisition, and to social and regional variations. Offered annually. *Prereq: Jr. stndg. Comment: May not be counted as literature requirement in Arts & Sciences core curriculum.*

ENGL104. Advanced Composition

3 sem. hrs.

Investigation of and sustained practice in the strategies of expository writing. Emphasis on various forms of argument and persuasion. Assumes a mastery of basic principles of rhetoric and composition. *Prereq: ENGL002 or equivalent. Comment: May not be counted as literature requirement in Arts & Sciences core curriculum.*

ENGL105. Writing for the Professions

3 sem. hrs.

Analysis of the rhetorical problems encountered in non-academic writing, designing documents and revising for style, with emphasis on analyzing audiences and purposes. Practical applications may include proposals, résumés, memos, letters, manuals, feasibility studies, and research and progress reports. *Prereq: Jr. stndg. and ENGL002 or equivalent. May not be counted as literature in the Arts and Sciences core curriculum.*

ENGL106. The Art of Rhetoric:**Theory and Application** 3 sem. hrs.

A definition of rhetoric. The discovery and reality of arguments. Evidence. The ethos of the rhetor and of the audience. Style as a concept. Rhetoric and reality. Offered spring term. *Prereq: Jr. stndg. Comment: May not be counted as literature requirement in Arts and Sciences core curriculum.*

LITERATURE IN HISTORICAL PERSPECTIVE

ENGL 114. Chaucer 3 sem. hrs.

Close reading of the *Canterbury Tales* and, on occasion, of *Troilus and Criseyde*. Emphasis on Chaucer's techniques and thematic concerns. Considerations of cultural context and Chaucer's place in literary history. Offered annually. *Prereq: Jr. stndg.*

ENGL 115. British Literature from the Beginnings to 1500 3 sem. hrs.

A reading of medieval works representative of the Old and Middle English periods and their backgrounds. Special attention to 14th century works—*The Pearl*, *Gawain*, *Piers Plowman*, and selections from Chaucer. All works prior to the 14th century read in translation. Offered annually. *Prereq: Jr. stndg.*

ENGL 117. The Literature of the Renaissance: The 16th Century 3 sem. hrs.

Developments in English prose and poetry from the close of the Middle Ages to the death of Queen Elizabeth. Emphasis on the Elizabethan period and the rise of forms and genres. Evaluation and analysis of significant works by More, Wyatt, Spenser, Sidney, Shakespeare, and Hooker. Currents and cross-currents in literary influence. Offered annually. *Prereq: Jr. stndg.*

ENGL 118. The Literature of the Renaissance: The 17th Century 3 sem. hrs.

Developments in English prose and poetry from 1603 to the beginnings of the neoclassical period. Emphasis on poetry on the metaphysical poets—Donne, Herbert, Marvell—and the Jonsonians—Jonson, Herrick and the Cavaliers. Readings in the prose of Bacon,

Burton, Browne and others, with emphasis on the major developments in prose style. Offered annually. *Prereq: Jr. stndg.*

ENGL 119. Milton 3 sem. hrs.

Close reading of *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*, as well as shorter poems and selected prose. Offered annually. *Prereq: Jr. stndg.*

ENGL120. The Ages of Dryden and Pope 1660-1744 3 sem. hrs.

The prose and poetry of the Restoration and early 18th century. Representative writers such as Dryden, Pope, and Swift. The background of history, together with philosophical and critical ideas. Offered annually. *Prereq: Jr. stndg.*

ENGL 121. The Age of Johnson, 1744-1790 3 sem. hrs.

The prose and poetry of the mid and later 18th century—Johnson, Boswell and their contemporaries. At least one of the longer novels and some of the minor prose and verse. The changing temper of ideas and literary forms of this era. Offered annually. *Prereq: Jr. stndg.*

ENGL130. The Romantic Movement, 1790-1837 3 sem. hrs.

The major and minor poets and the major non-fiction prose writers of the period, 1790-1837, such as Blake, Wordsworth, Coleridge, Shelley, Keats, and Byron. Offered annually. *Prereq: Jr. stndg.*

ENGL131. Victorian Literature 3 sem. hrs.

The major poets and prose writers of the period, 1837-1900, such as Browning, Tennyson, Arnold, Ruskin, Newman and Carlyle. Offered annually. *Prereq: Jr. stndg.*

ENGL135. The British Novel from the Beginnings to 1900 3 sem. hrs.

Representative major novels by such authors as Fielding, Austen, Scott, Dickens, Thackeray, the Brontës, Eliot, Trollope, and Hardy. Offered annually. *Prereq: Jr. stndg.*

ENGL145. Twentieth-Century British Literature: The Modern Period 3 sem. hrs.

The major figures in poetry and prose and the principal movements from about 1900 to 1930. Writers such as Yeats, Forster, Joyce, Lawrence, Woolf, Huxley. Offered annually. *Prereq: Jr. stndg.*

ENGL 146. Twentieth-Century British Literature: The Contemporary Period 3 sem. hrs.

The major writers in poetry and prose and the principal movements from about 1930 to the present. Writers such as Auden, Thomas, Greene, Waugh. Offered annually. *Prereq: Jr. stndg.*

ENGL 148. British Drama 3 sem. hrs.

Major developments in British drama. Analysis and evaluation of representative plays by such authors as Marlowe, Sheridan, Shaw and Pinter. The evolution of dramatic form with relation to social and intellectual currents. Offered annually. *Prereq: Jr. stndg.*

ENGL150. The Rise of a National Literature 3 sem. hrs.

The patterns of colonial writing, the literature of the Revolutionary War and the early republic,

and the emergence of a national literature. Representative writers from the Puritans through Washington Irving. Offered occasionally. *Prereq: Jr. stndg.*

ENGL151. American Literature from 1798-1865 3 sem. hrs.

Fiction, non-fiction and poetry of the major American writers from 1798 to the Civil War. Emphasis upon the individual author, his or her literary genre and special contribution to American thought. Representative writers such as Hawthorne, Emerson, Stowe, Thoreau, Melville, and Whitman. Offered annually. *Prereq: Jr. stndg.*

ENGL152. American Literature from 1865-1900 3 sem. hrs.

Literary aftermath of the Civil War. Disillusionment and the rise of realism. Important contributors to the tradition of realism such as Dickinson, Twain, Howells, Crane, James. Representative regional writers. Poets and non-fiction writers who anticipate the modern temperament in their respective genres. Offered annually. *Prereq: Jr. stndg.*

ENGL153. American Fiction from the Beginnings to 1900 3 sem. hrs.

American fiction from the beginnings to the rise of the Modern Period, with special emphasis on the novel. Representative major works by such writers as Cooper, Hawthorne, Stowe, Melville, Twain, James. Offered annually. *Prereq: Jr. stndg.*

ENGL 155. Twentieth-Century American Literature: The Modern Period 3 sem. hrs.

The main movements in modern American poetry and prose with emphasis upon poetry and fiction as literary forms from 1900 to about 1946. Emphasis on major writers such as Wharton, Frost, Eliot, Hemingway, Fitzgerald, Faulkner. Offered annually. *Prereq: Jr. stndg.*

ENGL156. Twentieth-Century American Literature: The Contemporary Period 3 sem. hrs.

The principal movements and representative major figures in American fiction and poetry from about 1946 to the present. Emphasis on writers such as Mailer, Lowell, Bishop, Baldwin, Updike, Levertov. Offered annually. *Prereq: Jr. stndg.*

ENGL158. American Drama from the Beginnings to the Present 3 sem. hrs.

American drama from the beginning to the present with emphasis on representative dramatists after 1918, including such authors as Herne, O'Neill, Williams, Miller, Mamet. Offered annually. *Prereq: Jr. stndg.*

ENGL 159. Ethnicity in Modern American Literature and Culture 3 sem. hrs.

This course will examine literary works by authors who identify with a range of different ethnic groups (including African American, Asian American, Chicano/a, Jewish, and Native American) in order to develop an understanding of how ethnicity has become defined in the contemporary U.S., obtain introductory knowledge of ethnic literature and theory, and consider the complex relationship between ethnic writing and literary modernism in the U.S. Offered annually. *Prereq: Jr. stndg.*

ENGL160. Shakespeare's Major Plays

3 sem. hrs.

Careful, detailed analysis of approximately 12 plays. Emphasis on each play as an organic whole. Attention also given to Shakespeare's development as a dramatist and to the major artistic and intellectual trends of his time. Offered every term. *Prereq: Jr. stndg.*

ENGL 165. Individual Author 3 sem. hrs.

A detailed examination of the works of an individual author. Instructors may incorporate various biographical, historical, and cultural concerns, and may focus on the development of an author's works, on that author's works in a unified corpus, or on a more selective group of texts. Specific author to be studied will be announced in the *Timetable of Classes* each term. *Prereq: Jr. stndg.*

SPECIAL COURSES**ENGL170. Studies in Language** 3 sem. hrs.

Examination of some aspect of language or language study. Topics may include stylistics, sociolinguistics, introductory linguistics, history of linguistics, or semiotics. Specific topics will be announced in the *Timetable of Classes*. *Prereq: Jr. stndg. Comment: May not be counted as literature requirement in Arts and Sciences core curriculum.*

ENGL171. Studies in Literature and Culture 3 sem. hrs.

Specific offerings under this rubric will investigate literary and cultural issues from a variety of perspectives including, but not limited to, those that are historical, cultural, multi-generic, interdisciplinary, or socio-ideological. Specific topics will be announced in the *Timetable of Classes*. *Prereq: Jr. stndg.*

ENGL 173. Studies in Genre 3 sem. hrs.

Introduction to a mode or form of literary expression and to its development across historical, social, and other boundaries. Examination of the potential of genre to articulate meaning in multiple contexts. Specific topics will be announced in the *Timetable of Classes*. *Prereq: Jr. stndg.*

ENGL 175. Literature for Teaching Majors 3 sem. hrs.

A specialized course that will focus both on young adult literature and on western and non-Western world literature. The purpose of the course is to acquaint prospective teachers of English with an overview of the drama, poetry and fiction typically taught in middle and secondary school. Offered annually. *Prereq: Jr. stndg.*

ENGL177. Studies in Multicultural Literature 3 sem. hrs.

The focus of this course will change each term, but all courses offered under this rubric will investigate a variety of literary and cultural issues pertaining to multicultural writing in the United States. Possible specific topics include ethnic autobiography, the Harlem Renaissance, Black women's writing, Commonwealth literature, and Native American oral narratives. Please consult the *Timetable of Classes* for specific topics. Course descriptions are available in the English Department. Offered annually. *Prereq: Jr. stndg.*

ENGL185. Women in Literature 3 sem. hrs.

Through the study of major authors, introduces a variety of the critical methods that are instrumental to feminist literary criticism—e.g., historicism, archetypal criticism, psychoanalysis, linguistics—and addresses the distinctive social and aesthetic problems encountered by women writers and readers. *Prereq: Jr. stndg.*

ENGL186. Special Topics in Women's Literature 3 sem. hrs.

Offers instruction in a major area of literary study concerned with women writers and/or women's issues. May be organized either historically or generically. Specific course descriptions available in the English Department. *Prereq: Jr. stndg.*

ENGL190. Teaching English in the Secondary School 3 sem. hrs.

Problems, curricular materials and procedures in the teaching of language, composition and literature. Includes field experience in selected area schools. Offered fall term. *Prereq: Either EDUC 079 or EDUC 095 and Jr. stndg. Comment: May not be counted as literature requirement in Arts and Sciences core curriculum. Admission to School of Education required.*

ENGL 191. Creative Writing Workshop 3 sem. hrs.

Workshop in the composition of various literary forms. Emphasis depending upon the needs of students and the perspective of the instructor. Offered annually. *Prereq: Jr. stndg. Comment: May not be counted as literature requirement in Arts and Sciences core curriculum.*

ENGL192. The Processes of Writing 4 sem. hrs.

Theoretical and practical aspects of the nature and development of composing processes. Topics include: prewriting and revision, current rhetorical theory and its historical antecedents, strategies for designing and sequencing writing assignments, and responding to others' writing. A quarter of the coursework is devoted to peer-tutoring experience. Offered annually. *Prereq: Jr. stndg. Comment: May not be counted as literature requirement in Arts and Sciences core curriculum.*

ENGL193. Literary Criticism 3 sem. hrs.

The premises and methods of criticism. Exercises in practical criticism; the analysis and comparison of literary works. Offered annually. *Prereq: Jr. stndg.*

ENGL194. Literature in Film 3 sem. hrs.

The existence of literary modes in film. The ways in which film derives its effects from literature. The interrelationship of literature and film. Special problems of film maker and fictionist. The film as a reading of a novel. Differences in scale. Both forms as social forces. Offered occasionally. *Prereq: Jr. stndg.*

ENGL195. Independent Study 1-3 sem. hrs.

Offered every term. *Prereq: Cons. of dept.ch.*

ENGL196. Undergraduate Seminar 3 sem. hrs.

Designed to initiate a selected group of qualified undergraduates in the techniques and discipline of intensive scholarly study by concentrated work in a restricted field. Emphasis on the critical reading and analysis of primary

and/or secondary sources. Specific subjects announced in the *Timetable of Classes*. Offered occasionally. *Prereq: Jr. stndg. and cons. of instr.*

ENGL197. Writing Internship 3 sem. hrs.

On-the-job experience as a writer and/or editor for a local agency; supervised by the agency and by English faculty. Although this course is graded S/U, it nonetheless counts toward the major or minor. It may be taken only once for credit toward fulfilling the requirements of the English Major. Offered every term. *Prereq: Jr. stndg. and cons. of instr. Comment: May not be counted as literature requirement in Arts and Sciences core curriculum.*

ENGL198. Special Topics 3 sem. hrs.

Topics vary by section to offer a variety of methodological or thematic approaches to bodies of literature. Specific course descriptions available in the English Department. *Prereq: Jr. stndg.*

ENGL199. Senior Thesis 1-3 sem. hrs.

The writing of a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of dept. ch.*

ENGLISH AS A SECOND LANGUAGE PROGRAM (ESLP)

The Office of Campus International Programs provides advanced English language courses for students of other language backgrounds who need further formal instruction in spoken or written English for success in their Marquette academic studies. Students whose evidence of English language ability does not assure adequate proficiency are required to take an English language placement test after arrival at Marquette.

The results of the placement tests are used to assign students to any appropriate English language courses. English language (ESLP) courses are offered in the fall and spring terms. There are also sections of English 001 and 002 designated for these students. Up to six credits of ESLP course work may be counted toward degree requirements in all undergraduate colleges except Engineering.

ESLP082. Composition 3 sem. hrs.

Advanced study of written English. Extensive practice in writing expository and argumentative essays; review of paragraph development; study skills associated with writing a composition; selection of topic, thesis statement, outlining. Offered every term. May not register as audit or S/U option. *Prereq: Cons. of ESL program director.*

ESLP083. Reading 3 sem. hrs.

Advanced reading in English. Extensive practice in reading comprehension, vocabulary development, increasing reading speed, study skills associated with reading university-level texts and reference materials: Previewing, reading for thorough comprehension, critical reading. Offered every term. May not register as audit or S/U option. *Prereq: Cons. of ESL program director.*

ESLP084. Listening Comprehension

3 sem. hrs.

Advanced listening comprehension in English. Extensive practice in listening to lectures, taking lecture notes, listening to different styles and different speakers of American English; work on study skills associated with listening and notetaking; outlining, reviewing lecture notes. May not register as audit or S/U option. *Prereq: Cons. of ESLprogram director.*

ESLP182. Expository Writing for Non-Native Speakers 2 sem. hrs.

Supplementary instruction and practice in composition for non-native speakers of English concurrently enrolled in the specially designated section of ENGL001. Students receive two hours each week of further explanation and/or practice in composition processes, assigned readings, and reviewing grammar difficulties. Registration in this course is required of all students registering for the specially designated section of ENGL001. May not register as audit or S/U option. *Prereq: Cons. of ESLprogram director.*

FINE ARTS (FIAR)

Students interested in pursuing subjects in the fine arts and/or in fulfilling fine arts core requirements should consult listings of the following departments:

Foreign Languages and Literatures, and History (College of Arts and Sciences) for offerings in cultural or art history.

Film, Broadcast and Electronic Communication, Journalism, Music, and Performing Arts (College of Communication).

Marquette's College of Arts and Sciences and College of Communication have worked in cooperation with the Milwaukee Institute of Art and Design to present two art minors: Studio Art and Art History.

Studio Art and Art History minors give you the opportunity to enhance your skills as an artist, increase your knowledge of the arts and fulfill your desire to create. The number of credit hours required to fulfill these minors varies between 18-21 credits. If you cannot complete a minor, you may take any of the MU/MIAD courses to fulfill core requirements or as electives. MIAD enrollment is restricted to courses in fine arts.

If you are interested and need information, please call or visit the College of Arts and Sciences or the College of Communication. Students wishing to pursue a minor in art should complete a Declaration of Art Minor form in Marquette Hall 208 or Johnston Hall, 114.

MINOR IN STUDIO ART

Basic Requirements

*HIST 007 History of Western Art 1

*HIST008 History of Western Art 2

(And either:)

FIAR 003 Fundamentals of Drawing

FIAR 004 Fundamentals of Design

Plus ONE of the following programs:

Program One

(Recommended for Advertising Majors)

FIAR 073 Communication Design 1

FIAR 074 Communication Design 2

*ADPR 143 Marketing Communications Design and Production

OR

Program Two

(Recommended for Theatre Arts Majors)

FIAR 031 Space, Form and Materials

And TWO courses listed here:

FIAR 061 Painting 1

FIAR 062 Painting 2

FIAR 071 Figure Sculpture—sem. 1

FIAR 072 Figure Sculpture—sem. 2

OR

Program Three

(Recommended for any major)

Two courses (in sequence) from a single MIAD fine arts discipline listed below:

Drawing (FIAR 063, 064)

Painting (FIAR 061, 062)

Photography (FIAR 075, 076)

Printmaking (FIAR 033, 034, 035, 036, 037, 038)

Sculpture (FIAR 065, 066)

Figure Sculpture (FIAR 071, 072)

MINOR IN ART HISTORY

Basic Requirements

*HIST 007 History of Western Art 1

*HIST 008 History of Western Art 2

(And either:)

*HIST190 Historical Theory and Method

*PHIL120 Philosophy of Art and Beauty

Plus three courses from the following:

Topics in Art History

FIAR180 History of Modern Design

FIAR 182 Art Since 1955

FIAR183 History of Photography

FIAR184 The History of Sculpture

*Indicates courses taken at Marquette University. All other courses are offered at the Milwaukee Institute of Art and Design located at 273 East Erie Street.

The MIAD catalogue identification number appears in parentheses following the Marquette course number. Students taking courses at MIAD must pay their fees for materials directly to MIAD before the start of classes.

FIAR 003 (F120). Fundamentals of Drawing

3 sem. hrs.

A one term course in which students meet twice weekly to develop their drawing skills. One half of the course places primary emphasis on depicting the human form; the other half places emphasis on depicting objects in space. While experimentation and imaginative probing are important and essential aspects of this course, the main thrust of the course is analytical seeing and drawing with traditional media. *Fee paid to MIAD.*

FIAR 004 (F121). Fundamentals of Design

3 sem. hrs.

A one term course that presents the basic elements and principles of two-dimensional design and color as a foundation for all the visual arts. The course broadens the beginning student's understanding of design in terms of concepts, methods and materials, and includes develop-

ment and improvement of technical and media skills. The theory and application of line, shape, mass, texture, composition, and color are all explored through a variety of processes and materials. Systems of design, and making good ideas visual are emphasized. *Fee paid to MIAD.*

FIAR 011 (F110). Two-Dimensional Composition 3 sem. hrs.

Two-Dimensional Composition is a problem solving course that presents the fundamental elements and principles of two-dimensional design as a foundation for all the visual arts. The course broadens the beginning student's understanding of composition in terms of concept, methods and materials and includes development and improvement of technical and media skills. This course introduces the student to the computer lab and digital imaging. *Fee paid to MIAD.*

FIAR 021 (F111). Color Theory/Composition 3 sem. hrs.

This course furthers the visual exploration begun in FIAR 011 with a concentration on color, one of the elements of design. The study of color theories in conjunction with studio problems allows the student to investigate the physical, perceptual and psychological properties of color. Color is explored as a phenomenon of light, as an optical occurrence, as pigment with specific mixing properties and as an element with powerful expressive and symbolic potential. A range of tools that include traditional/materials/mediums and digital imaging are used in increasingly complex problem-solving. *Prereq: FIAR 011. Fee paid to MIAD.*

FIAR 031 (F130). Space, Form and Materials 3 sem. hrs.

Space, Form and Materials investigates three-dimensional visual experiences and the application of design principles to the creation of vital and expressive forms. Three-dimensional design techniques are studied through projects dealing with the development of ideas via handmade forms. Within the course, students receive an orientation to MIAD's 3-D lab which includes instruction in the proper and safe use of simple hand tools and power equipment. *Fee paid to MIAD.*

FIAR 033, 034 (FA260, FA261). Introduction to Intaglio sem.1, sem. 2;

3 hrs. each sem.

FIAR 033 covers altering the plate's surface and the use of various grounds, inks, acids, plates, paper and resists. The techniques of dry point, mezzotint, etching and monotype are examined. FIAR 034 explores Collagraph (print made from collage intaglio), monoprint, relief etching, multiple-plate color printing and viscosity. *FIAR 003 and 004 are prerequisites for FIAR033. FIAR033 is a prerequisite for FIAR 034. Fee paid to MIAD.*

FIAR 035, 036 (FA270, FA271). Introduction to Lithography sem. 1, sem. 2;

3 hrs. each sem.

FIAR 035 covers methods and techniques of fine art lithography. Students work on stone and aluminum plates as part of the hand process of lithography. The lithographic press will be used in the technical aspect of lithographing. Direct drawing, transfer drawing, and photo transfer are examined. FIAR 036 empha-

sizes color printing, color separation technique, registration and printing processes. Students will examine objectives on usage of papers, editioning and storing of prints. *Prereq: FIAR 003 and 004 are prerequisites for FIAR 035. FIAR 035 is a prerequisite for FIAR 036. Fee paid to MIAD.*

FIAR 037, 038 (FA230, FA231). Introduction to Screenprinting sem.1, sem. 2;

3 hrs. each sem.

FIAR 037 covers screen printing approaches using water-based inks and other materials. Basic equipment and printing techniques such as monotypes, block out process, photographic stencil and positive and negative methods are examined. FIAR 038 emphasizes both technical proficiency and interpretations of color, texture and form into new visual language of imagery. Students will be inventive and explore the broad range of possibilities, which this medium offers. *Prereq: FIAR003 and 004 are prerequisites for FIAR037. FIAR037 is a prerequisite for FIAR038. Fee paid to MIAD.*

FIAR 051 (F150-F159). Visual Statement-Variable Titles 1.5 sem. hrs.

In Visual Statement, students are made aware of the interconnections which link the visual arts. The means of visual communication and artistic expression are examined. Each course emphasizes concept, process and creativity. Subject matter and media are exploited as a means of obtaining conceptual goals. *Fee paid to MIAD.*

FIAR 061, 062 (FA220, FA221). Painting 1, 2
3 hrs. each sem.

Painting 1: Painting materials, techniques, theory and practice are explored by working in oil and acrylic from direct observation. Critiques, lectures, assignments and demonstrations support studio instruction enabling the student to conceive, comprehend and compose visual ideas within a stable pictorial space. *Prereq: FIAR 003 and 004. Fee paid to MIAD.*
Painting 2: Indirect methods and glazing medium and techniques are introduced and practiced within traditional and alternative painting philosophies. Color theories, perception and formal principles provide the basis for directly observed studio assignments. Slide lectures, demonstrations and critiques assist in developing an expanded visual vocabulary. *Prereq: FIAR 003 and 004. Fee paid to MIAD.*

FIAR 063, 064 (FA200, FA201). Drawing sem.1, sem. 2; 3 hrs. each sem.

This drawing course challenges students with various compositional problems. Technical proficiency and diversity are enriched through the use of familiar drawing media as well as aggressive experimentation with new media and manners of working. Wide variety of drawing subjects, including the anatomy of the head and neck. *FIAR 003 and 004 are prerequisites for FIAR 063. FIAR 063 is a prerequisite for FIAR 064. Fee paid to MIAD.*

FIAR 065, 066 (FA250, FA251). Sculpture sem. 1, sem. 2; 3 hrs. each sem.

This year-long course focuses on form, material and structure while introducing a wide range of additive and reductive casting methods with hand and power tools. Problems investigate the potential of wood, assemblage, oxyacetylene and arc welding, and plastics carving.

Sculptural concepts of static and kinetic structure, scale, light, illusion, objectness and function elaborate those of line, plane, volume and space. Creative problem solving will be furthered by slide lectures, demonstrations, group critiques, visiting artists and field trips. *FIAR 031 is a prerequisite for FIAR 065. FIAR065 is a prerequisite for FIAR 066. Fee paid to MIAD.*

FIAR 071, 072 (FA252, FA253). Figure Sculpture sem.1, sem. 2;

3 hrs. each sem.

The first course in figurative sculpture is an introduction to the figure as a sculptural concern. Working from the figure, students learn a variety of basic techniques including the safe use of tools, modeling in both oil-based and terra cotta clays, molding, basic casting, carving, mounting and finishing. The figure also serves as a basis for resolving aesthetic questions in three dimensions. Through studying the figure, students begin to solve problems of composition, texture, line, scale and balance. Projects include both full and partial figure studies. *FIAR 003 and FIAR 031, or FIAR004 and FIAR031 are prerequisites for FIAR 071. FIAR071 is a prerequisite for FIAR 072. Fee paid to MIAD.*

FIAR 073, 074 (DS200, DS201) Communication Design 1, 2;

3 hrs. each sem.

Fundamentals of communication design are introduced to the student with theoretical and applied studies in design, problem solving, communication, and verbal and visual presentation. *FIAR004 is a prerequisite for FIAR 073. FIAR 073 is a prerequisite for FIAR074. Fee paid to MIAD.*

FIAR 075 (FA280). Principles of Photography 3 sem. hrs.

An introduction to 35mm photography. This course covers basic principles of all forms of photography, with an emphasis on black and white photography. Projects encompass camera handling, film exposure and development, darkroom procedures, print finishing, and evaluation. Students investigate depth of field, motion, burning, dodging, spotting and print presentation. Students must have a 35mm camera with adjustable aperture and shutter speed controls and a light meter. *Fee paid to MIAD.*

FIAR 076 (FA281). Digital Imaging

3 sem. hrs.

FIAR 076 is a computer-based class for photographers. Beginning with the basics of image acquisition, manipulation and output, the course will progress to an in-depth exploration of image manipulation software and aesthetics specific to electronic photographs. The course provides essential skills for those anticipating a career in photography, and provides an opportunity to use the computer as a fine art tool. Individual creative pursuits are emphasized. *Prereq: FIAR 075. Fee paid to MIAD.*

FIAR 180 (AH213). History of Modern Design

3 sem. hrs.

The course outlines major trends in graphic design, illustration, industrial design and interior design from the beginning of industrialization to the present day. Divided into three sections, the course traces the philosophical, social and

cultural concerns of Victorian design, Art Nouveau, the Bauhaus, Art Deco, Pop Art and Post-Modernism within the context of the United States, Europe and Japan. *Prereq: HIST 007 and HIST008. Fee paid to MIAD.*

FIAR 182 (AH212). Art Since 1955 3 sem. hrs.

This course offers an in-depth study of contemporary art makers and movements, and the critical, cultural and social issues surrounding them. Through intensive reading, writing, research, and oral assignments, students have the opportunity to study key figures, movements and theories. The course reviews major trends in art following World War II and follows with a close examination of art from the 1950's through the present day. *Prereq: HIST007 and HIST008. Fee paid to MIAD.*

FIAR 183 (AH215). History of Photography 3 sem. hrs.

Students have the opportunity to study the origins and traditions of photography in both artistic and technological terms. The course will trace the evolution of photography from its beginnings in 1839 to the present. Major figures in photography will be studied and important critical and aesthetic issues examined. *Prereq: HIST007 and HIST008. Fee paid to MIAD.*

FIAR 184 (AH216). History of Sculpture 3 sem. hrs.

This course is an examination of three-dimensional art with emphasis on the past 200 years. Focus on issues such as form and space, materials, figurative and non-figurative expressions, installations and performance will be examined. Students will also have the opportunity to study in depth the work of key figures in the history of sculpture. *Prereq: HIST007 and HIST 008. Fee paid to MIAD.*

FIAR 191 (DS230). Computer Studio 1 3 sem. hrs.

This course introduces students to the general structure of the Macintosh computing platform and engages them in an intensive tool- and function-based experience with the current versions of QuarkXPress and Adobe Illustrator. Digital pre-press fundamentals are also introduced. *Prereq: Jr. stndg. Fee paid to MIAD.*

FIAR 192 (DS231). Computer Studio 2 3 sem. hrs.

An introduction to the fundamental workings of the tools and functions inherent in the current version of Adobe Photoshop. Additional challenges include interfacing between QuarkXpress, Adobe Illustrator and Adobe Photoshop to create more complex documents, and advanced aspects of the digital pre-press. *FIAR 191 is a prerequisite for FIAR 192. Prereq: Jr. stndg. Fee paid to MIAD.*

FOREIGN LANGUAGES AND LITERATURES

Chairperson and Associate Professor:
Castañeda

Professor: Soto-Ruiz (*Emeritus*),
González-Pérez, Velleman

Associate Professor: Aguilú de Murphy, Beall,
Benda, G.Carrillo, DaviesCordova, Jamison,
Kraemer, Lacy, Lafouge, Marquardt, Montante,
Pasero, Pustejovsky, SánchezdelaCalle,
S. Taylor

Assistant Professor: Afinoguénova, Borden,
Dale, Daneri, Joda

Adjunct Instructor: C. Carrillo, C. Coffey, Cobb,
Escudero, Fossier, Lencina, A. Tani

MAJOR IN CLASSICAL LANGUAGES:

Twenty-nine hours, including fifteen hours in reading Latin beyond 002, eight hours in Greek 001 and 002, and six additional hours in Latin and/or Greek. Three hours may be taken in a classical culture/civilization course.

MAJOR IN CLASSICAL STUDIES:

Thirty-six hours, including Latin 003 and 004 or Greek 003 and 004, History 007 and 131, Philosophy 112, and twenty-one elective hours in ancient languages, civilization or tradition.

MAJOR IN FRENCH:

Twenty-seven hours, excluding 001 through 010, and including courses FREN 040, 082, 100, 182, 185, and any one course elective in French or Francophone literatures, as well as nine credits in one of the two tracks described below. A maximum of one course may be taken in English (FREN 148).

Track I: French and Francophone Literatures, Cultures and Language

Three upper division courses chosen from FREN 102, 115-130, 134, 142, 148, and 198.

Track II: Business and Culture

Two required upper division courses in French for the Professions, FREN 152 and 153; and one elective chosen from FREN 102 and ** FREN 148 or 198 (**when dealing with business related topics).

MAJOR IN GERMAN:

Twenty-seven hours, excluding courses 001 through 010, and including courses 040, 065, 082, 165, 182, and 12 additional hours in upper division courses. One course (101 or 148) in English may be counted toward the major.

MAJOR IN SPANISH: SPANISH LANGUAGE AND LITERATURE:

Twenty-seven hours, excluding courses 001 through 010, and including courses 050, 055, 056, 082, 100 or 102, 182, 193 or 194, and six additional hours in upper division Spanish courses, excluding 101, 148 and 158.

Bilingual students are excluded from Spanish courses 001-082 and must complete SPAN 183, 184, 100 or 102, 193 or 194, for a total of 12 hours. Commonly students will take both 100 and 102, as well as 193 and 194. This still leaves three upper division courses (9 credit hours) to reach the required number. These can be fulfilled by any upper division courses, excluding 101, 148, 152, 158, and 182.

MAJOR IN SPANISH: SPANISH FOR THE PROFESSIONS:

Twenty-seven hours, excluding 001 through 010, and including courses SPAN 050, 082, 102, 103, 182, and SPAN 152 and 153 or SPAN 154 and 155, and six additional hours in Spanish courses, excluding SPAN 101, 148 and 158.

Bilingual students are excluded from Spanish courses 001-082 and must complete SPAN 102, 103, 153 or 155, 183 and 184. The remaining hours may be fulfilled with any upper division language or literature courses, excluding 101, 148, 152 or 154, 158 and 182.

MINOR IN CLASSICAL LANGUAGES:

Eighteen to twenty hours, including six hours in reading Latin or Greek beyond 002, six to eight hours in the elementary or intermediate level of the other language, and six hours in further reading of Latin and/or Greek authors.

MINOR IN CLASSICAL STUDIES:

Twenty-four hours, including Latin 003 and 004 or Greek 003 and 004, History 007 and 131, Philosophy 112, and nine elective hours in ancient languages, civilization, or tradition.

MINOR IN FRENCH:

Eighteen hours, excluding courses 001 through 010, and including courses FREN 040, 082, 182, any one course elective in Francophone literatures and cultures, and two open electives. A maximum of one course may be taken in English (FREN 101 or 148).

MINOR IN GERMAN:

Fifteen hours, excluding courses 001 through 010, and including courses 040, 065, 082, and six additional hours in upper division courses. One course (101 or 148) in English may be counted toward the minor.

MINOR IN SPANISH:

SPANISH LANGUAGE AND LITERATURE

Fifteen hours, excluding courses 001 through 010, and including courses 050, 055 or 056, 082, 100 or 102, and three additional hours in 100 level Spanish courses, excluding 101, 148 and 158.

Bilingual students are excluded from Spanish courses 001-082 and must complete one civilization course (100, 102, 103), 183, 184, and six additional hours of upper division courses, excluding 101, 148, 152, 154, 158, and 182.

SPANISH FOR THE PROFESSIONS:

Fifteen hours, excluding courses 001 through 010, and including courses SPAN 050, 082, 102, 152 and 153, or 154 and 155.

Bilingual students are excluded from Spanish courses 001-082 and must complete SPAN 102, 153 or 155, 183 and 184. The remaining hours may be fulfilled with any upper division language or literature courses, excluding 101, 148, 152 or 154, 158 and 182.

TEACHING MAJORS:

Students should see the specific language adviser for middle school/secondary teaching majors or minors to consult about the appropriate sequence of courses. It is also important that prospective teachers see the School of Education adviser and study carefully the School of Education section of this bulletin regarding university and state requirements (in addition to department requirements) for teacher certification.

Please refer to "Core Curriculum requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this Bulletin.

NOTE: Students wishing state certification in French, German, or Spanish also need the regular teacher education sequence: 27 hours, including the special methods course (FOLA 162), and student teaching. Teaching Majors in French, German, or Spanish must also meet the following requirements:

1. Maintenance of a minimum B average in the language skill courses (082, 142, 182, 185).
2. Recommendation by the department before being permitted to student teach. Passing a competency examination is the normal requirement for recommendation.

Students should consult their advisers and be familiar with the requirements of the School of Education.

The state also requires a period of residence in a country in which the foreign language is spoken or participation in an intensive program approved by the Department of Foreign Languages and Literatures.

TEACHING MAJOR IN FRENCH:

Residence and study in French-speaking country in addition to 34 hours, including courses FREN 040, 082, 100, 142, 182, 185, any one course elective in Francophone literatures, as well as nine credits in Track I as described above. Work done in French prior to commencement of the academic major may be counted toward fulfillment of the remaining four hours required for the state certification upon the expressed approval of the department. (For additional requirements please refer to Department of Foreign Languages and Literatures Teaching Majors section above.)

TEACHING MAJOR IN GERMAN:

Thirty-four hours, including courses 040, 065, 082, 100, 142, 165, 182, 185, and three additional hours in other upper division courses excluding 148. Work done in German prior to commencement of the academic major may be counted toward fulfillment of the remaining seven hours required for state certification upon the expressed approval of the department.

Candidates for student teaching must demonstrate competence in German before being allowed to register for EDUC 176. Since such competence is not necessarily demonstrated by performance in course work, the German section gives a competency test in the term preceding the planned student teaching. The purpose of this test is to obtain a final evaluation of the candidate's ability to understand and produce German, to read and write the language, and to understand the structure of the language. Additionally an evaluation is made of

the candidate's familiarity with current German culture.

To prepare students for this test, the German section will be offering a colloquium on a monthly basis. This colloquium will undertake an on-going evaluation of the candidates' abilities in the above areas, and provide practice and help in developing these areas. Students should inquire about this colloquium as soon as they decide to work for a Teaching Major in German. This will be required even of those students who have spent an extended period in a German-speaking country.

TEACHING MAJOR IN LATIN:

Thirty-four hours, including courses 055, 056, 121, 182, and 12 hours in other upper division courses. Work done prior to commencement of the academic major may be counted toward fulfillment of the remaining 10 hours required for state certification upon the expressed approval of the department.

TEACHING MAJOR IN SPANISH:

Thirty-four hours, including courses 050; 055; 056; 082; 100 or 102; 142; 182; 185; 193 or 194, and three additional hours in upper division Spanish literature courses. These three hours should be taken in the following areas: literature of the 17th century or earlier, literature of either the 19th or 20th century. Work done prior to the commencement of the academic major may be counted toward fulfillment of the remaining four hours required for state certification upon expressed approval of the department.

Students with an exceptionally strong background in literary study may, with consent of the Chair, substitute a 100 level course for SPAN 050. (Students who are bilingual or native speakers take SPAN183 and 184 instead of SPAN082 and 182.)

Bilingual students are excluded from Spanish courses 001-082 and must complete thirty-four hours, including courses 100 or 102, 142, 183, 184, 185, 193 or 194, and twelve additional hours in upper-division Spanish literature courses, of which nine hours should be taken in the following areas: literature of the 17th century or earlier, literature of either the 19th or 20th century. Work done prior to the commencement of the academic major may be counted toward fulfillment of the remaining hours required for state certification upon expressed approval of the department.

TEACHING MINOR IN LATIN:

Twenty-two hours, including courses 055, 056, 182, and six hours in other upper division courses exclusive of courses in translation. Intermediate courses or their equivalents may be counted as part of the remaining seven hours required for state certification.

Foreign Language (FOLA)

FOLA098. Topics in Foreign Language or Culture 1-3 sem. hrs.

An umbrella course to offer occasional additional lower division topics in those languages which have limited offerings (Italian, Japanese) or for occasions where a specific subject matter fits under none of the languages presently

offered, either because it is cross-language or the language/culture is not a regular part of our curriculum. Offered occasionally.

FOLA148. Special Topics in Women's Literature* 3 sem. hrs.

Offers instruction in a major area of literary study concerned with women writers and/or women's issues in foreign literatures. Offered occasionally. *Comment: Counts toward Women's Studies Minor.*

*May be counted as part of the literature core curriculum requirement but not as part of the foreign language requirement.

FOLA162. Methods of Teaching a Second Language 3 sem. hrs.

Theory and technique of classroom presentation, in addition to clinical experience in high school or college setting. Required of all foreign language teaching majors and minors. Clinical experience requirement: three hours per week for a total of 40 hours. Offered alternate years. *Prereq: Either EDUC 079 or EDUC 095 ; Admission to School of Education required.*

FOLA195. Independent Study 1-3 sem. hrs.

Offered every term. *Prereq: Cons. of dept.ch.*

FOLA196. Undergraduate Seminar 1-3 sem. hrs.

Designed to initiate qualified undergraduates in the techniques and discipline of scholarly literary or linguistic research by concentrated work in an interdisciplinary field. Emphasis on the critical reading and analysis of primary and/or secondary sources in English translation. Specific subjects of seminar to be announced in the *Timetable of Classes*. Does not count toward fulfillment of academic or teaching major or minor. Offered occasionally. *Prereq: Jr. stndg. or cons. of dept. ch.*

French (FREN)

FREN 001. Elementary 1 4 sem. hrs.

Introduction to the French language. Fundamentals of comprehension, speaking, reading and writing. No previous study of French or by departmental placement. Offered annually.

FREN 002. Elementary 2 4 sem. hrs.

Continuation of FREN 001, plus supplementary reading. Offered annually. *Prereq: FREN 001.*

FREN 003. Intermediate 1 3 sem. hrs.

Grammar review, oral and written practice, and more intensive reading. Offered annually. *Prereq: FREN 002 or by departmental placement.*

FREN 004. Intermediate 2 3 sem. hrs.

Continuation of French 003. Offered annually. *Prereq: FREN 003.*

FREN 005. French Placement Credit 3 or 6 sem. hrs.

A student who places at FREN 010 and completes FREN 010 with a grade of B or better will be eligible for three additional credit hours at a grade of S to be designated as FREN 005. Students exempted from the foreign language requirement will be eligible for six additional credit hours at a grade of S to be designated as FREN 005 upon completion with a grade of B or better of a third year course to be designated

by the department. For details see Foreign Language Requirement under Arts and Sciences Degree Requirements. Credit earned for FREN 005 cannot be used toward the major or minor.

FREN 009. Intensive Elementary French 4 sem. hrs.

A single-semester first-year intensive French course designed for students who have had two or more years of high school French and who do not place in an intermediate second-year college level course. Emphasis is placed on acquisition of key features of French vocabulary and structure through participation in communicative activities and interaction with a variety of authentic texts. The course consists of four class hours and one hour of associated lab. Offered annually. *Prereq: Two or more years of high school French and departmental placement.*

FREN 010. Concentrated Intermediate French 4 sem. hrs.

Selective grammar review with conversation and extensive reading. Aimed to give qualified students the opportunity to complete their foreign language requirement in one term. Offered annually. *Prereq: AB grade or better in FREN 002 or by departmental placement.*

FREN 040. Developing Critical Reading Skills in French 3 sem. hrs.

Intensive practice in reading comprehension of authentic contemporary French texts. Vocabulary enrichment. May not be counted as part of the Arts and Sciences literature core requirement. Offered every term. *Prereq: FREN 004 or FREN 010 or by departmental placement.*

FREN 082. Composition and Conversation 1 3 sem. hrs.

Practice in the oral and written use of the French language. Systematic review of grammatical structure and idiomatic expression. Offered every term. *Prereq: FREN 004 or 010 or by departmental placement.*

FREN 083. Conversational French 1 sem. hr.

Students meet twice weekly. Guided conversation on contemporary topics. S/U grading only. May be taken up to three times. Does not count toward French major or minor or teaching major. Offered every term. *Prereq: FREN 082.*

FREN 100. French Civilization† 3 sem. hrs.

Historical development of the social, institutional, intellectual, and artistic life of France from inception to the present. Duplicate credit will not be given for FREN 100 and FREN 101. Offered annually. *Prereq: FREN 040 or by departmental placement.*

FREN 101. French Contributions to Western Civilization† 3 sem. hrs.

Historical development of the social, institutional, intellectual and artistic life of France from inception to the present. In English. Duplicate credit will not be given for FREN 100 and FREN 101. May not be counted toward fulfillment of teaching major. Offered occasionally.

FREN 102. Francophone Civilizations and Cultures† 3 sem. hrs.

Historical, social, institutional, intellectual and artistic contributions of Francophone cultures throughout the world including Europe, Africa, North America, the Caribbean and Asia. Offered occasionally. *Prereq: FREN 040 or by departmental placement.*

FREN 115. The Middle Ages (1050-1450) 3 sem. hrs.

Major aspects of the period through literature, the arts and film (in modern French). Offered occasionally. *Prereq: FREN 040 and 082 (FREN 082 may be taken concurrently).*

FREN 116. Sixteenth Century Literature 3 sem. hrs.

Major aspects of the Renaissance through literature, the arts and film. Offered occasionally. *Prereq: FREN 040 and 082 (FREN 082 may be taken concurrently).*

FREN 117. Seventeenth Century Literature 3 sem. hrs.

Major aspects of French Classicism through literature, the arts and film. Offered occasionally. *Prereq: FREN 040 and 082 (FREN 082 may be taken concurrently).*

FREN 118. Eighteenth Century Literature 3 sem. hrs.

Major aspects of the Enlightenment through literature, the arts and film. Offered occasionally. *Prereq: FREN 040 and 082 (FREN 082 may be taken concurrently).*

FREN 119. Nineteenth Century Literature 3 sem. hrs.

Major aspects of the period through literature, the arts and film. Offered occasionally. *Prereq: FREN 040 and 082 (FREN 082 may be taken concurrently).*

FREN 120. Twentieth Century Literature 3 sem. hrs.

Major aspects of the period through literature, the arts and film. Offered occasionally. *Prereq: FREN 040 and 082 (FREN 082 may be taken concurrently).*

FREN 129. Film as Genre 3 sem. hrs.
The examination and analysis of French cinema as it relates to literary genres and thematic motifs. Offered occasionally. *Prereq: FREN 040 and 082 (082 may be taken concurrently.)*

FREN 130. French Canadian Culture through Literature 3 sem. hrs.
"Quebecois" and "Acadian" cultures in the Americas as interpreted by their histories, languages, literatures and arts. Offered occasionally. *Prereq: FREN 040 and 082 (FREN 082 may be taken concurrently).*

FREN 134. Practicum in French/Francophone Theatre 3 sem. hrs.
Study of a French/Francophone dramatist and production of a play. Offered occasionally. *Prereq: FREN 182.*

FREN 142. Phonetics 3 sem. hrs.
Articulation of French individual sounds and speech patterns. Offered alternate years. *Prereq: FREN 082.*

FREN 148. French Literature in English Translation* 3 sem. hrs.
Readings in English translation of selected masterpieces of French and Francophone literature. May not be counted toward fulfillment of teaching major. Offered occasionally.

FREN 152. French for the Professions 3 sem. hrs.
An introduction to French terminology and practice in such fields as business, journalism, communications, etc. Offered occasionally. *Prereq: FREN 082.*

FREN 153. Advanced French for the Professions 3 sem. hrs.
Advanced French for international business in the French-speaking world. Offered occasionally. *Prereq: FREN 152.*

FREN 182. Composition and Conversation 2 3 sem. hrs.
Advanced study of oral and written French. Emphasis on idiomatic fluency. Offered annually. *Prereq: FREN 082 or by departmental placement.*

FREN 185. Advanced Grammar 3 sem. hrs.
Intense review of the morphology and syntax of written and oral standard French. Offered annually. *Prereq: FREN 182.*

FREN 195. Independent Study 1-3 sem. hrs.
Offered every term. *Prereq: Cons. of dept.ch.*

FREN 198. Topics in Language and Literature 1-3 sem. hrs.
Subject to be announced. Offered occasionally. *Prereq: FREN 040 and at least one literature course; or cons. of instr.*

FREN 199. Senior Thesis 2 sem. hrs.
Introductory thesis guidance for approved students under the direction of a departmental adviser. Offered occasionally. *Prereq: Cons. of dept. ch.*

†May be counted toward the core curriculum requirement in Fine Arts.

*May be counted as part of the literature core curriculum requirement but not as part of the foreign language requirement.

German (GERM)

GERM001. Elementary 1 4 sem. hrs.
Introduction to the German language. Fundamentals of comprehension, speaking, reading and writing. Open to students with no previous study of German or by departmental placement. Offered fall term.

GERM002. Elementary 2 4 sem. hrs.
Continuation of GERM 001, plus supplementary reading. Offered spring term. *Prereq: GERM 001.*

GERM003. Intermediate 1 3 sem. hrs.
Grammar review, oral and written practice, and more intensive reading. Offered fall term. *Prereq: GERM 002 or by departmental placement.*

GERM004. Intermediate 2 3 sem. hrs.
Continuation of GERM 003. Offered spring term. *Prereq: GERM 003.*

GERM005. German Placement Credit 3 or 6 sem. hrs.
A student who places at GERM 010 and completes GERM 010 with a grade of B or better will be eligible for three additional credit hours at a grade of S to be designated as GERM 005. Students exempted from the foreign language requirement will be eligible for six additional credit hours at a grade of S to be designated as GERM 005 upon completion with a grade of B or better of a third year course to be designated by the department. For details see Foreign Language Requirement under Arts and Sciences Degree Requirements. Credit earned for GERM 005 cannot be used toward the major or minor.

GERM009. Intensive Elementary German 4 sem. hrs.
A single-semester first-year intensive German course designed for students who have had two or more years of high school German and who do not place in an intermediate second-year college level course. Emphasis is placed on acquisition of key features of German vocabulary and structure through participation in communicative activities and interaction with a variety of authentic texts. The course consists of four class hours and one hour of associated lab. Offered annually. *Prereq: Two or more years of high school German and departmental placement.*

GERM010. Concentrated Intermediate German 4 sem. hrs.
Selective grammar review with conversation and extensive reading. Aimed to give qualified students the opportunity to complete their foreign language requirement in one term. Offered annually. *Prereq: AB grade or better in GERM 002 or by departmental placement.*

GERM040. Intensive Critical Reading in German 3 sem. hrs.
Intensive practice in comprehending unedited German prose, with primary emphasis on texts since the Enlightenment. Vocabulary enhancement. May not be counted as part of the Arts and Sciences literature core requirement. Offered occasionally. *Prereq: GERM 004 or 010 or by departmental placement.*

GERM065. The Modern German Short Story 3 sem. hrs.
An introduction to textual analysis and interpretation concentrating on the post-World War II German short story in historical and cultural context. Offered annually. *Prereq: GERM 040, which may be taken concurrently, or cons. of dept. ch.*

GERM082. Composition and Conversation 1 3 sem. hrs.
Practice in the oral and written use of the German language. Offered every term. *Prereq: GERM 004 or 010, or cons. of dept. ch. or by departmental placement.*

GERM083. Conversational German 1 sem. hr.
Students meet once weekly for guided conversation on contemporary topics. S/U grading only. May be taken up to three times. Does not count toward the German major, minor, or teaching major. Offered occasionally. *Prereq: GERM 004 or GERM 010 or equivalent.*

GERM100. Culture and Civilization†

3 sem. hrs.

Historical development of the social, intellectual and artistic life of the German speaking nations. Duplicate credit will not be given for GERM 100 and GERM 101. Offered occasionally. *Prereq: GERM 004 or 010 or by departmental placement.*

GERM101. German Contributions to Western Civilization†

3 sem. hrs.

Readings in English translation dealing with the culture and civilization of German speaking countries. Duplicate credit will not be given for GERM 100 and GERM 101. Offered occasionally.

GERM126. German Drama

3 sem. hrs.

Significant German drama from Lessing to the present. Offered occasionally. *Prereq: GERM 065.*

GERM135. The German Novelle

3 sem. hrs.

Novelle: The genre and representative works. Offered occasionally. *Prereq: GERM 065.*

GERM142. Phonetics and Advanced Speaking Practice

3 sem. hrs.

German sounds and speech patterns. Offered alternate years. *Prereq: GERM 082.*

GERM148. German Literature in English Translation*

3 sem. hrs.

Readings in English translation of principal authors from the Middle Ages to the present day. Offered occasionally.

GERM 152. German for the Professions

3 sem. hrs.

An introduction to German terminology and practice in such fields as business, journalism, communications, etc. Offered occasionally. *Prereq: GERM 082, or cons. of dept. ch.*

GERM165. Special Topics in German Literature

3 sem. hrs.

Survey of selected themes, forms or periods in German literature. Subject to be announced. Offered annually. *Prereq: GERM065 and Jr. stndg.*

GERM172. Workshop in Translation

1 sem. hr.

A practical workshop to familiarize advanced students with the problems of and processes required in translating from German to English. Different non-literary texts supplied by outside sources will be assigned to each student. Discussions will involve general principles of translating, as well as text-specific problems. *Prereq: Cons. of instr.*

GERM182. Composition and Conversation 2

3 sem. hrs.

Continuation of GERM 082. Offered annually. *Prereq: GERM 082 or by departmental placement.*

GERM185. Advanced Grammar

3 sem. hrs.

Grammatical structure of the German language in context with other linguistic areas. Offered annually. *Prereq: GERM 082.*

GERM190. German Literature from the Twelfth to the Eighteenth Centuries

3 sem. hrs.

Principal works of the Medieval, Renaissance, and Baroque periods. Offered occasionally. *Prereq: GERM 065.*

GERM191. Eighteenth Century Literature

3 sem. hrs.

Authors and works of the Enlightenment, Storm and Stress, and Classicism, including Goethe's late works. Offered occasionally. *Prereq: GERM 065.*

GERM192. Nineteenth Century Literature

3 sem. hrs.

Romanticism and Realism. Offered occasionally. *Prereq: GERM 065.*

GERM193. Modern Literary Trends 1

3 sem. hrs.

Naturalism, Neo-Romanticism and Expressionism Offered occasionally *Prereq: GERM 065.*

GERM194. Modern Literary Trends 2

3 sem. hrs.

German literature since World War I. Offered occasionally. *Prereq: GERM 065.*

GERM195. Independent Study

1-3 sem. hrs.

Offered every term. *Prereq: Cons of dept ch.*

GERM198. Topics in Language or Literature

1-3 sem. hrs.

Subject to be announced. Offered occasionally. *Prereq: Sr. stndg. or cons. of dept. ch.*

GERM199. Senior Thesis

2 sem. hrs.

Introductory thesis guidance for approved students under the direction of a departmental adviser. Offered occasionally. *Prereq: Cons. of dept. ch.*

†May be counted toward the core curriculum requirement in Fine Arts.

*May be counted as part of the literature core curriculum requirement, but not as part of the foreign language requirement.

Greek (GREE)

GREE001. Elementary 1

4 sem. hrs.

Classical Greek. Morphology and syntax. Readings. No previous study of Greek or by departmental placement. Offered annually.

GREE002. Elementary 2

4 sem. hrs.

Continuation of GREE 001. Offered annually. *Prereq: GREE 001.*

GREE003. Intermediate 1

3 sem. hrs.

Review of morphology and syntax. Extensive reading. Offered annually. *Prereq: GREE 002 or by departmental placement.*

GREE004. Intermediate 2

3 sem. hrs.

Continuation of GREE 003. Offered annually. *Prereq: GREE 003 or by departmental placement.*

GREE 005. Greek Placement Credit

3 sem. hrs.

A student who places at GREE 004 and completes GREE 004 with a grade of B or better will be eligible for three additional credit hours at a grade of S to be designated as GREE 005. For details see Foreign Language Requirement under Arts and Sciences Degree Requirements.

GREE009. Greek and Latin Origins of Medical and Specialized Terminology

2 sem. hrs.

Systematic presentation of the most common Greek and Latin words whose derivations are important in medical, scientific, and specialized

terminology, such as that of psychology and law. Exercises in word-building and analysis of definitions Study of prefixes, suffixes, and word roots. Knowledge of Greek or Latin not required. Does not fulfill any core curriculum requirements. Offered occasionally.

GREE108. Greek and Roman Epic Poetry*

3 sem. hrs.

Origins and development, with readings in translation of the individual works of Homer, Apollonius of Rhodes and Vergil. Knowledge of Greek not required. Offered occasionally.

GREE 118. Classical Foundations of European Literature*

3 sem. hrs.

Greek and Latin literary masterpieces in translation. The classical tradition in European literature. Knowledge of Greek not required. Offered occasionally.

GREE138. Greek and Roman Literature in English Translation*

3 sem. hrs.

Readings in English translation from Greek and Latin authors. Knowledge of Greek not required. Offered occasionally.

GREE 148. Greek and Roman Tragedy*

3 sem. hrs.

Origins and development, with readings in translation of individual plays of Aeschylus, Sophocles, Euripides, and Seneca. Knowledge of Greek not required. Offered occasionally.

GREE 158. Greek and Roman Comedy*

3 sem. hrs.

Origins and development, with readings in translation of the individual plays of Aristophanes, Menander, Plautus and Terence. Knowledge of Greek not required. Offered occasionally.

GREE 170. Greek Civilization and Art†

3 sem. hrs.

Life in ancient Greece. Major achievements of the Greeks in the creative arts. Knowledge of Greek not required. Offered occasionally.

GREE175. Mythology*

3 sem. hrs.

Classical myths and legends in ancient literature and religion. Knowledge of Greek not required. Offered occasionally.

GREE 178. Greek and Roman Rhetoric*

3 sem. hrs.

Origins and development, with readings in translation of the individual works of Aristotle, Cicero, Seneca Rhetor, Antiphon, Lysias, Demosthenes and others. Knowledge of Greek not required. Offered occasionally.

GREE195. Independent Study

1-3 sem. hrs.

Offered every term. *Prereq: Cons. of dept.ch.*

GREE198. Topics in Language and Literature

1-3 sem. hrs.

Subject to be announced. Offered occasionally. *Prereq: Sr. stndg. or cons. of dept.ch.*

†May be counted toward the core curriculum requirement in Fine Arts.

*May be counted as part of the literature core curriculum requirement, but not as part of the foreign language requirement.

Hebrew (HEBR)

HEBR 001. Elementary 1 4 sem. hrs.
Biblical Hebrew. Morphology and syntax, readings. No previous study of Hebrew or by department placement. Offered annually.

HEBR 002. Elementary 2 4 sem. hrs.
Continuation of Hebrew 001. Offered annually. *Prereq: HEBR 001, or by departmental placement.*

HEBR 003. Intermediate 1 3 sem. hrs.
Review of morphology and syntax. Extensive reading. Offered annually. *Prereq: HEBR 002, or by departmental placement.*

HEBR 004. Intermediate 2 3 sem. hrs.
Continuation of Hebrew 003. Offered annually. *Prereq: HEBR 003, or by departmental placement.*

Italian (ITAL)

ITAL001. Elementary 1 4 sem. hrs.
Introduction to the Italian language Fundamentals of comprehension, speaking, reading and writing. No previous study of Italian or by departmental placement. Offered annually.

ITAL002. Elementary 2 4 sem. hrs.
Continuation of ITAL001 plus supplementary reading. Offered annually. *Prereq: ITAL001.*

ITAL003. Intermediate 1 3 sem. hrs.
Grammar review, oral and written practice, and more intensive reading. Offered annually. *Prereq: ITAL002 or by departmental placement.*

ITAL004. Intermediate 2 3 sem. hrs.
Continuation of ITAL 003. Offered annually. *Prereq: ITAL 003 or by departmental placement.*

ITAL005. Italian Placement Credit
3 or 6 sem. hrs.
A student who places at ITAL004 and completes ITAL004 with a grade of B or better will be eligible for three additional credit hours at a grade of S to be designated as ITAL005. Students exempted from the foreign language requirement will be eligible for six additional credit hours at a grade of S to be designated as ITAL005 upon completion with a grade of B or better of a third year course to be designated by the department. For details see Foreign Language Requirement under Arts and Sciences Degree Requirements.

ITAL055. Italian Literature 1 3 sem. hrs.
Italian literature from its origin to the end of the 17th century. The course will focus mainly on the Italian great "trecentisti": Dante, Petrarch, and Boccaccio. Offered occasionally. *Prereq: ITAL004 or by departmental placement.*

ITAL056. Italian Literature 2 3 sem. hrs.
Continuation of ITAL055. Italian literature from the 18th century to the present Main focus on A. Manzoni, G. Verga, L. Pirandello, and I. Silone. Offered occasionally. *Prereq: ITAL 004 or by departmental placement.*

ITAL082. Composition and Conversation
3 sem. hrs.
Practice in the oral and written use of the Italian language. Offered occasionally. *Prereq: ITAL004 or by departmental placement.*

ITAL101. Italian Contributions to Western Civilization† 3 sem. hrs.
Readings and lectures in English dealing with the culture and civilization of Italy. Offered occasionally.

ITAL148. Italian Literature in English Translation* 3 sem. hrs.
Readings in English translation of selected masterpieces of Italian literature. Offered occasionally.

†May be counted toward the core curriculum requirement in Fine Arts.

*May be counted as part of the literature core curriculum requirement, but not as part of the foreign language requirement.

Japanese (JAPA)

JAPA 001. Elementary 1 4 sem. hrs.
Introduction to the Japanese language Fundamentals of comprehension, speaking, reading and writing. No previous study of Japanese or by departmental placement. Offered annually.

JAPA 002. Elementary 2 4 sem. hrs.
Continuation of JAPA 001. Offered annually. *Prereq: JAPA 001.*

JAPA 003. Intermediate 1 3 sem. hrs.
Grammar review, oral and written practice, and more intensive reading. Offered annually. *Prereq: JAPA 002 or by departmental placement.*

JAPA 004. Intermediate 2 3 sem. hrs.
Continuation of JAPA 003. Offered annually. *Prereq: JAPA 003 or by departmental placement.*

JAPA 005. Japanese Placement Credit
3 or 6 sem. hrs.
A student who places at JAPA 004 and completes JAPA 004 with a grade of B or better will be eligible for three additional credit hours at a grade of S to be designated as JAPA 005. Students exempted from the foreign language requirement will be eligible for six additional credit hours at a grade of S to be designated as JAPA 005 upon completion with a grade of B or better of a third year course to be designated by the department. For details see Foreign Language Requirement under Arts and Sciences Degree Requirements.

JAPA 082. Composition and Conversation 1
3 sem. hrs.
Practice in the oral and written use of the Japanese language. Offered occasionally. *Prereq: JAPA 004 or by departmental placement.*

JAPA 101. Japanese Culture and Civilization† 3 sem. hrs.
Readings and lectures in English dealing with the culture and civilization of Japan. Offered occasionally.

JAPA 148. Japanese Literature in English Translation* 3 sem. hrs.

Readings in English translation of selected masterpieces of Japanese literature. Offered occasionally.

JAPA 182. Composition and Conversation 2
3 sem. hrs.
Continuation of JAPA 082. Offered occasionally. *Prereq: JAPA 082 or by departmental placement.*

†May be counted toward the core curriculum requirement in Fine Arts.

*May be counted as part of the literature core curriculum requirement, but not as part of the foreign language requirement.

Latin (LATI)

LATI 001. Elementary 1 4 sem. hrs.
Classical Latin. Morphology and syntax. Readings. No previous study of Latin or by departmental placement. Offered annually.

LATI 002. Elementary 2 4 sem. hrs.
Continuation of LATI 001. Offered annually. *Prereq: LATI 001.*

LATI 003. Intermediate 1 3 sem. hrs.
Review of morphology and syntax. Extensive reading. Offered annually. *Prereq: LATI 002 or by departmental placement.*

LATI 004. Intermediate 2 3 sem. hrs.
Continuation of LATI 003. Offered annually. *Prereq: LATI 003 or by departmental placement.*

LATI 005. Latin Placement Credit
3 or 6 sem. hrs.
A student who places at LATI 004 and completes LATI 004 with a grade of B or better will be eligible for three additional credit hours at a grade of S to be designated as LATI 005. Students exempted from the foreign language requirement will be eligible for six additional credit hours at a grade of S to be designated as LATI 005 upon completion with a grade of B or better of a third year course to be designated by the department. For details see Foreign Language Requirement under Arts and Sciences Degree Requirements. Credit earned for LATI 005 cannot be used toward the major or minor.

LATI 009. Greek and Latin Origins of Medical and Specialized Terminology
2 sem. hrs.

Systematic presentation of the most common Greek and Latin words whose derivations are important in medical, scientific, and specialized terminology, such as that of psychology and law. Exercises in word-building and analysis of definitions. Study of prefixes, suffixes, and wordroots. Knowledge of Greek or Latin not required. Does not fulfill any core curriculum requirements. Offered occasionally.

LATI 055. Latin Literature 1 3 sem. hrs.
Latin literature from its origin to the end of the Republic. Offered annually. *Prereq: LATI 004 or by departmental placement.*

LATI 056. Latin Literature 2 3 sem. hrs.
Continuation of LATI 055: Latin literature in the Golden and Silver Ages. Offered annually. *Prereq: LATI 004 or by departmental placement.*

LATI 105. Cicero: De Senectute and De Amicitia 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 108. Greek and Roman Epic Poetry* 3 sem. hrs.
See GREE 108. Knowledge of Latin not required. Offered occasionally.

LATI 110. Vergil: Aeneid 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 112. Horace: Odes 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 113. Livy 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 118. Classical Foundations of European Literature* 3 sem. hrs.
See GREE 118. Knowledge of Latin not required. Offered occasionally.

LATI 121. Quintilian: Institutio Oratoria 3 sem. hrs.
Required for teaching majors. Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 133. Roman Letter Writers 3 sem. hrs.
Selections from the letters of Cicero, Seneca, and Pliny. Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 134. Elegiac Poetry 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 138. Greek and Roman Literature in English Translation* 3 sem. hrs.
Readings in English translation from Greek and Latin authors. Knowledge of Latin not required. Offered occasionally.

LATI 148. Greek and Roman Tragedy* 3 sem. hrs.
See GREE 148. Knowledge of Latin not required. Offered occasionally.

LATI 150. Roman Comedy: Plautus and Terence 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 155. Roman Satire: Juvenal 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 158. Greek and Roman Comedy* 3 sem. hrs.
See GREE 158. Knowledge of Latin not required. Offered occasionally.

LATI 160. Tacitus: Germania and Agricola 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 170. Roman Civilization and Art† 3 sem. hrs.
Life in ancient Rome. Major achievements of the Romans in the creative arts. Knowledge of Latin not required. Offered occasionally.

LATI 174. Cicero: Philosophical Writings 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 175. Mythology* 3 sem. hrs.
See GREE 175. Knowledge of Latin not required. Offered occasionally.

LATI 178. Greek and Roman Rhetoric* 3 sem. hrs.
See GREE 178. Knowledge of Latin not required. Offered occasionally.

LATI 182. Composition 3 sem. hrs.
Systematic review of Latin syntax. Exercises in writing Latin prose and analysis of prose of selected authors. Offered occasionally. *Prereq: LATI 055 and 056.*

LATI 185. Medieval Latin 3 sem. hrs.
Offered occasionally. *Prereq: LATI 055 or 056.*

LATI 195. Independent Study 1-3 sem. hrs.
Offered every term. *Prereq: Cons. of dept.ch.*

LATI 198. Topics in Language or Literature 1-3 sem. hrs.
Subject to be announced. Offered occasionally. *Prereq: Sr. strdg. or cons. of dept.ch.*

LATI 199. Senior Thesis 2 sem. hrs.
Introductory thesis guidance for approved students under the direction of a departmental adviser. Offered occasionally. *Prereq: Cons. of dept. ch.*

†May be counted toward the core curriculum requirement in Fine Arts.

*May be counted as part of the literature core curriculum requirement, but not as part of the foreign language requirement. Only one literature course in translation may be counted toward fulfillment of the academic or teaching major in Classical Languages and Latin.

Spanish (SPAN)

SPAN 001. Elementary 1** 4 sem. hrs.
Introduction to the Spanish language. Fundamentals of comprehension, speaking, reading and writing. No previous study of Spanish or by departmental placement. Offered every term.

SPAN 002. Elementary 2** 4 sem. hrs.
Continuation of SPAN 001 plus supplementary reading. Offered every term. *Prereq: SPAN001.*

SPAN 003. Intermediate 1** 3 sem. hrs.
Grammar review, oral and written practice, and more intensive reading. Offered every term. *Prereq: SPAN 002 or by departmental placement.*

SPAN 004. Intermediate 2** 3 sem. hrs.
Continuation of SPAN 003. Offered every term. *Prereq: SPAN 003.*

SPAN 005. Spanish Placement Credit 3 or 6 sem. hrs.
A student who places at SPAN 010 and completes SPAN 010 with a grade of B or better will be eligible for three additional credit hours at a grade of S to be designated as SPAN 005. Students exempted from the foreign language requirement will be eligible for six additional credit hours at a grade of S to be designated as SPAN 005 upon completion with a grade of B or better of a third year course to be designated by the department. For details see Foreign Language Requirement under Arts and Sciences Degree Requirements. Credit earned for SPAN 005 cannot be used toward the major or minor.

SPAN 009. Intensive Elementary Spanish 4 sem. hrs.
A single-semester first-year intensive Spanish course designed for students who have had two or more years of high school Spanish and who do not place in an intermediate second-

year college level course. Emphasis is placed on acquisition of key features of Spanish vocabulary and structure through participation in communicative activities and interaction with a variety of authentic texts. The course consists of four class hours and one hour of associated lab. Offered every semester. *Prereq: Two or more years of high school Spanish and departmental placement.*

SPAN 010. Concentrated Intermediate Spanish** 4 sem. hrs.

Selective grammar review with conversation and extensive reading. Aimed to give qualified students the opportunity to complete their foreign language requirement in one term. Offered every term. *Prereq: AB grade or better in SPAN 002 or by departmental placement.*

SPAN 050. Introduction to Hispanic Literature** 3 sem. hrs.

Basic literary concepts and analysis of the four genres, with intensive practice in reading and oral comprehension. Offered annually. Counts as part of the Arts and Sciences literature requirement. Not open to native speakers or bilingual Spanish speaking students. *Prereq: SPAN 004 or 010 or cons. of the dept. ch. or by departmental placement. SPAN 082 is strongly recommended.*

SPAN 055. Spanish Literature 1** 3 sem. hrs.
Spanish literature from its origin to the end of the 17th century. Not open to native speakers or bilingual Spanish speaking students. Offered annually. *Prereq: SPAN 050 or cons. of dept. ch.*

SPAN 056. Spanish Literature 2** 3 sem. hrs.
Continuation of SPAN 055: Spanish literature from the 18th century to the present. Not open to native speakers or bilingual Spanish speaking students. Offered annually. *Prereq: SPAN 050 or cons. of dept. ch.*

SPAN 082. Composition and Conversation 1** 3 sem. hrs.

Practice in the oral and written use of the Spanish language. Not open to native speakers or bilingual Spanish speaking students. Offered every term. *Prereq: SPAN 004 or 010 or by departmental placement.*

SPAN 100. Spanish Civilization† 3 sem. hrs.
Historical development of the culture and civilization of Spain from early times to the present. Duplicate credit will not be given for SPAN 100 and SPAN 101. Offered annually. *Prereq: SPAN 004 or 010 or by departmental placement.*

SPAN 101. Hispanic Contributions to Western Civilization† 3 sem. hrs.

Readings in English translation dealing with the culture and civilization of Spain and Spanish America. Duplicate credit will not be given for SPAN 100 and SPAN 101, or for SPAN 102 and SPAN 101. May not be counted toward fulfillment of academic or teaching major or minor. Offered occasionally.

SPAN 102. Spanish-American Civilization† 3 sem. hrs.

Historical development of the culture and civilization of Spanish America from early times to the present. Duplicate credit will not be given for SPAN 101 and SPAN 102. Offered annually.

Prereq: SPAN 004 or 010 or by departmental placement.

SPAN 103. Contemporary Issues in the Hispanic World 3 sem. hrs.

Lecture and discussion in Spanish at an advanced level of current Hispanic topics and issues pertaining to such areas as culture, business, education, politics and history. Offered annually. *Prereq: SPAN 100 or 102.*

SPAN 125. Golden Age Drama and Poetry 3 sem. hrs.

Selected readings in Spanish drama and poetry of the sixteenth and seventeenth centuries. Offered occasionally. *Prereq: SPAN 055 or 184 or cons. of dept. ch.*

SPAN 126. Modern Spanish Drama 3 sem. hrs.

Significant Spanish drama of the 19th and 20th centuries. Offered occasionally. *Prereq: SPAN 056, 184 or cons. of dept. ch.*

SPAN 135. Practicum in Hispanic Theatre† 2 sem. hrs.

Development of language skills through participation in Hispanic dramatic productions. Does not count toward Spanish major or minor. Subject to be announced. Offered occasionally. May be repeated for credit with cons. of dept. ch. S/U grade assessment. *Prereq: SPAN 004 or 010 or cons. of dept. ch.*

SPAN 142. Phonetics 3 sem. hrs.

Articulation of individual sounds and sound groupings, and patterns of tone and stress in the Spanish of Spain and Spanish America. Offered annually. *Prereq: SPAN 082 or cons. of dept. ch.*

SPAN 148. Spanish Literature in English Translation* 3 sem. hrs.

Major literary developments in Spanish literature with emphasis on outstanding literary works and figures. May not be counted toward fulfillment of academic or teaching major or minor. Offered occasionally.

SPAN 150. Twentieth Century Literature 3 sem. hrs.

Non-dramatic literature of the Generation of 1898 and subsequent literary developments in contemporary Spain. Offered occasionally. *Prereq: SPAN 056 or 184 or cons. of dept. ch.*

SPAN 152. Introduction to Spanish for International Business** 3 sem. hrs.

An overview to Spanish terminology and international business practices in the Hispanic world. Offered annually. Not open to students with native or near-native fluency. *Prereq: SPAN 082, or cons. of dept. ch.*

SPAN 153. Advanced Spanish for International Business: Commercial Spanish and Contracts 3 sem. hrs.

An advanced course in commercial Spanish to train students to deal successfully at all levels in the Hispanic business world. Offered annually. *Prereq: Non-native speakers must have completed SPAN 152.*

SPAN 154. Introduction to Spanish for the Health Professions 3 sem. hrs.

This course is designed to introduce the student to Spanish used in the health professions. Medical terminology, language skills, and cultural awareness and sensitivity are among the areas that will be developed in the course.

Offered annually. Not open to students with native or near-native fluency. *Prereq: SPAN 082 or cons. of dept. ch.*

SPAN 155. Advanced Spanish for the Health Professions 3 sem. hrs.

An advanced course in medical Spanish to train students who plan to work in a health-related area to communicate effectively in their field. Offered annually. *Prereq: SPAN 154 or cons. of dept. ch.*

SPAN 158. Spanish-American Literature in English Translation* 3 sem. hrs.

Major literary developments in Spanish-American literature with emphasis on outstanding literary works and figures. May not be counted toward fulfillment of academic or teaching major or minor. Offered occasionally.

SPAN 170. Spanish-American Novel 3 sem. hrs.

Evolution of the Spanish-American novel, with emphasis on significant fiction of the 20th century. Offered occasionally. *Prereq: SPAN 056 or 184; SPAN 193 or 194; or cons. of dept. ch.*

SPAN 175. Golden Age Prose 3 sem. hrs.

Selected reading from Don Quixote and other significant prose works of the Golden Age. Offered occasionally. *Prereq: SPAN 055 or 184; or cons. of dept. ch.*

SPAN 182. Composition and Conversation 2** 3 sem. hrs.

Advanced practice in the oral and written use of the Spanish language. Not open to native speakers or bilingual Spanish speaking students. Offered every term. *Prereq: SPAN 082 or by departmental placement.*

SPAN 183. Spanish for the Bilingual Student 3 sem. hrs.

Acquaints bilingual students with Spanish specifically in its written form by focusing on reading and lexical development, grammar review, orthographic practice and composition. Offered fall term.

SPAN 184. Literature for the Bilingual Student 3 sem. hrs.

Acquaints native and/or bilingual Spanish speaking students with the principal literary movements and representative authors in the Hispanic world. Offered spring term.

SPAN 185. Advanced Grammar 3 sem. hrs.

Grammatical structure of the Spanish language in context with other linguistic areas. Offered annually. *Prereq: SPAN 082 or cons. of dept. ch.*

SPAN 190. Spanish Literature Prior to the Golden Age 3 sem. hrs.

Significant literary texts from the Middle Ages to the 16th century. Offered occasionally. *Prereq: SPAN 055 or 184 or cons. of dept. ch.*

SPAN 192. Spanish Literature of the Eighteenth and Nineteenth Centuries 3 sem. hrs.

The major figures of the Neoclassic, Romantic, Realist and Naturalist movements in Spain. Offered occasionally. *Prereq: SPAN 056 or 184 or cons. of dept. ch.*

SPAN 193. Spanish-American Literature 1 3 sem. hrs.

Principal writers and trends of the Precolumbian period up to *modernismo*. Offered annually. *Prereq: SPAN 055 or 184 or cons. of dept. ch.*

SPAN 194. Spanish-American Literature 2 3 sem. hrs.

Continuation of SPAN 193 Literary developments from *modernismo* to the present. Offered annually. *Prereq: SPAN 056 or 184, or cons. of dept. ch.*

SPAN 195. Independent Study 1-3 sem. hrs.

Offered every term. *Prereq: Cons. of dept. ch.*

SPAN 198. Topics in Language or Literature 1-3 sem. hrs.

Subject to be announced. Offered occasionally. *Prereq: Sr. stndg. or cons. of dept. ch.*

SPAN 199. Senior Thesis 2 sem. hrs.

Introductory thesis guidance for approved students under the direction of a departmental adviser. Offered occasionally. *Prereq: Cons. of dept. ch.*

†May be counted toward the core curriculum requirement in Fine Arts.

*May be counted as part of the literature core curriculum requirement but not as part of the foreign language requirement.

**SPAN 001, 002, 003, 004, 010, 050, 055, 056, 082, 152, 182 not open for credit to native speakers of Spanish except by consent of Department Chairperson.

HISTORY (HIST)

Chairperson and Associate Professor: Grahm Professor: Bicha (*Emeritus*), Donnelly, Gardinier (*Emeritus*), Marten, Phayer, Prucha (*Emeritus*), Theocharis, Zupko
Associate Professor: Avella, Ball, C. Hay, R. Hay, Jablonsky, Krugler, Naylor, Ruff, Zeps
Assistant Professor: Meissner
Visiting Assistant Professor: Conley, Donson, McMahon, Sewell
Lecturer: Brazeau
Instructor: Hauser

MAJOR:

HIST001, 002, 004, 005, plus 18 hours of upper division history, which must include at least one course from each of the three groups listed below.

Group I	United States	Courses 101–129
Group II	Europe	Courses 130–170
Group III	Asia, Africa and Latin America	Courses 171–183

The 18 hours selected must also include one course from either HIST196 or 197.

MINOR:

HIST001, 002, 004, 005, plus nine hours of upper division history

TEACHING MAJOR:

Thirty-six hours including HIST001, 002, 004, 005 plus 24 hours of upper division history. The 24 hours must include at least one course from each of the three groups listed above, both an ancient/medieval (courses 130-138) and a modern (courses 139-170) course in

Group II, and one course from *either* HIST196 or 197.

Students should see the department adviser for middle school/secondary teaching majors or minors to consult about the appropriate sequence of courses. It is also important that prospective teachers study carefully the School of Education section of this bulletin regarding university and state requirements (in addition to department requirements) for teacher education.

Please refer to "Core Curriculum requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-four hours, including HIST001, 002, 004, 005, plus 12 hours of upper division history. The upper division courses must include at least one course from each of the three groups listed above. One of the upper division courses must be either HIST196 or 197.

Note: HIST195, 196, 197, and 198, courses whose content varies from term to term, will satisfy group distribution requirements according to their course title and content.

Note: At the discretion of the department, credit in history may be allowed in exceptional cases for courses taken in other departments of the university.

HIST 001–002. Growth of Western Civilization 1, 2 3 hrs. each sem.

An interpretation of the evolution of Western society beginning with the ancient Near Eastern experience. Second term begins 1715. Offered every term. HIST001 is a prerequisite for HIST 002.

HIST 004–005. Growth of the American Nation 1, 2 3 hrs. each sem.

The United States from colonial origins to the present, with consideration of political, cultural, and economic institutions and ideas. Second term begins with Reconstruction.

HIST 006. Introduction to American History 3 sem. hrs.

A survey of American history from the colonial origins to the present designed to give students the historical background necessary to teach history at the elementary level. Restricted to students in the elementary teacher preparation program. Offered every spring term. Enrollment limited to Elementary Education majors. *Prereq:* Cons. of program director.

HIST 007–008. History of Western Art, 1, 2 3 hrs. each sem.

Historical survey of painting, sculpture, architecture, and the minor arts representative of the main contributions of western civilization. Illustrated lectures and discussions. First term: Prehistory, the Ancient Near East, Greco-Roman Antiquity through the Middle Ages. Second term: Renaissance and Modern, to the present. Offered annually. Maybe counted as Fine Arts in the Arts and Sciences core curriculum but does not count toward the history major or minor.

GROUP I UNITED STATES

HIST 101. The British American Colonies to 1763 3 sem. hrs.

The founding of the mainland colonies, the growth of political and social institutions, the development of religious freedom, the Indian wars, and the rise of African slavery to 1763. *Prereq:* Soph. stndg.

HIST 102. The American Revolution and the New Nation 3 sem. hrs.

The development of an American nationality in the 18th century, the causes and consequences of the American Revolution, the Loyalist response, the Constitution and the establishment of the new government to 1800. *Prereq:* Soph. stndg.

HIST 103. Jeffersonian and Jacksonian Democracy 3 sem. hrs.

United States history, 1800 to 1836, emphasizing democratic movements and the emergence of nationalism. *Prereq:* Soph. stndg.

HIST 104. The Civil War Era 3 sem. hrs.

An examination of American history from 1831–1877, focusing on the political, social, economic, and cultural differences between the North and the South. Includes discussions of the black experience during the Civil War era, of military events during the War itself, and of the resolution or continuation of sectional tensions through Reconstruction. *Prereq:* Soph. stndg.

HIST 106. Gilded Age to the Progressive Era, 1876–1920 3 sem. hrs.

United States history from the end of the Civil War to World War I, emphasizing America's shift from an agrarian country to an urban, industrial, and imperial nation. *Prereq:* Soph. stndg.

HIST 107–108. United States in the Twentieth Century 1, 2 3 sem. hrs.

The United States since 1900, emphasizing the Progressive Movement, the New Deal, the role of the United States in world affairs, and the role of the presidency and intelligence community. Second term begins with World War II. *Prereq:* Soph. stndg.

HIST 109. The Westward Movement 3 sem. hrs.

American westward expansion from colonial days to the 20th century, emphasizing the impact of the frontier on the development of American culture and institutions. *Prereq:* Soph. stndg.

HIST 111–112. Social and Intellectual History of the United States 1, 2 3 hrs. each sem.

American thought and society from Puritan New England to recent times, emphasizing the principal idea patterns that have given character to American society. Second term begins 1865. *Prereq:* Soph. stndg.

HIST 113–114. American Foreign Relations 1, 2 3 hrs. each sem.

American foreign relations from the American Revolution to the emergence of the United States as a world power. This course gives equal emphasis to the conduct of American diplomacy by agents of the U.S. government and the social, economic, and cultural forces

that shape foreign policies. Second term begins with World War I. *Prereq:* Soph. stndg.

HIST 115–116. Religion and American Life 1, 2 3 hrs. each sem.

These courses survey the historical impact of religious belief and institutions on the intellectual, cultural, and public life of the United States. The second term considers these same themes through the challenges of the latter nineteenth century and the twentieth century. *Prereq:* Soph. stndg.

HIST 118. American Military History 3 sem. hrs.

The nature and history of the military in the United States from the American Revolution to the present, with emphasis on its role and significance in American life and foreign affairs. *Prereq:* Soph. stndg.

HIST 119. Constitutional History of the United States 3 sem. hrs.

Origin and development of the American constitutional system. Principles of the Constitution. Expansion of the Constitution through usage, amendment, and judicial interpretation. *Prereq:* Soph. stndg.

HIST 120. African American History 3 sem. hrs.

The role and response of the African-American in American society. Emphasis on the problems of slavery, exclusion, accommodation, migration, urbanization, and currents of protest. *Prereq:* Soph. stndg.

HIST 121. American Urban History 3 sem. hrs.

History of the American city from the colonial era to the present. Topics include the economic, political, and cultural effects of cities on American society, as well as America's philosophical and moral response to urbanization. *Prereq:* Soph. stndg.

HIST 123. Childhood in America 3 sem. hrs.

The history of children and childhood in the United States from colonial times to the present, with an emphasis on child rearing, race, gender, class and popular culture. *Prereq:* Jr. stndg. or cons. of instr.

HIST 125. History of Rock and Roll 3 sem. hrs.

Examination of rock and roll as a political, social and economic as well as a cultural allegory for twentieth-century American history. Special attention is given to artists who epitomized styles or genres. *Prereq:* Soph. stndg.

HIST 127. The Vietnam War Era 3 sem. hrs.
Examination of the political, social, cultural and military history of both the Vietnamese and American sides of the war in Vietnam. *Prereq:* Soph. stndg.

GROUP II EUROPE

HIST 131. Ancient Greece and Rome 3 sem. hrs.

The course traces Greek history from the Minoans and Mycenaeans to the Hellenistic world, with stress on politics, literature and art; the rise of Rome, the decay of the Roman republic, the high civilization of the Emperors, the rise of Christianity, and the Fall of the Empire. *Prereq: Soph. stndg. HIST 001, 002 recommended.*

HIST 134. The Crusades 3 sem. hrs.
Western European and Middle Eastern relations from the 11th through the 13th centuries; includes Arabic, Byzantine, Turkish, and Mongol areas. *Prereq: Soph. stndg. HIST 001, 002 recommended.*

HIST 135. Economic and Social History of the Middle Ages 3 sem. hrs.

The social, technological, industrial, and commercial growth of Europe in the Middle Ages, emphasizing the rise of towns, the shifting demographic patterns, and the Commercial Revolution. *Prereq: Soph. stndg. HIST 001, 002 recommended.*

HIST 136. Medieval England 3 sem. hrs.
A social, political, and military history of England from the Roman Empire to the rise of the Tudor Dynasty. *Prereq: Soph. stndg. HIST 001, 002 recommended.*

HIST 137. The Renaissance 3 sem. hrs.
Europe from the Black Death to Erasmus, with stress on Western Europe, especially Italy, and the intellectual and artistic achievements of the age. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 138. History of the Catholic Church 1, 100–1500 3 sem. hrs.

This course gives equal stress to the Church as an institution, the development of doctrine, and popular religion. It traces Catholicism from the Roman Period to the Renaissance. *Prereq: HIST 001, 002.*

HIST 139. History of the Catholic Church 2, 1500–Present 3 sem. hrs.

This course examines the effect of the Protestant and Catholic Reformations on Christianity in the West, the impact of Absolutism, and the challenges of modernity from the Enlightenment through Vatican II. *Prereq: HIST 001, 002.*

HIST 140. The Age of the Reformation, 1500–1648 3 sem. hrs.

The course, which stresses political and religious history, begins with the late medieval church, then studies Luther and Calvin and the rise of Protestantism, the Catholic Reformation, and the Wars of Religion. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 141. Pre-Revolutionary Europe, 1648–1789 3 sem. hrs.

The confrontation of aristocratic societies with the modernizing forces of absolute monarchy, Enlightenment ideology, demographic change, and economic development which produced social and political upheavals in France, Spain, Italy, the Netherlands, Germany and Sweden. *Prereq: Soph. stndg. HIST 001, 002 recommended.*

HIST 142. The French Revolution and Napoleon, 1787–1815 3 sem. hrs.

A survey of Revolutionary Europe with emphasis on the causes and consequences of the Revolution, the Reign of Terror, the counter-revolutionary movements, the conquest of Europe, and the relation between revolution and religion. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 143. Reaction, Revolution and Nationalism, 1814–1914 3 sem. hrs.

A survey of the political, economic and cultural institutions of the Western European States in the aftermath of the French Revolution and Napoleon. Principal states include Great Britain, France, Germany, Italy, the Low Countries and Spain. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 145. Twentieth Century Europe 3 sem. hrs.

Europe from 1914 to the present, including: World War I and the consequences of the peace settlement, the growth of totalitarianism, World War II, and the development of collective security. *Prereq: Soph. stndg. HIST 001, 002 recommended.*

HIST 149–150. Intellectual History of Modern Europe 1, 2 3 hrs. each sem.

European intellectual and religious developments since 1550. First term: the scientific revolution, the Age of Genius, the Enlightenment. Second term: romanticism, liberalism, nationalism, the Catholic revival and Marxian materialism. *Prereq: Soph. stndg. HIST 001, 002 recommended.*

HIST 151. History and Philosophy of Crime and Punishment 3 sem. hrs.

A study of crime and punishment from both the historical and philosophical perspectives. The course will emphasize the European experience as a foundation for understanding American developments. Emphasis will be placed on the interdisciplinary aspects of crime and punishment. May be counted toward the core curriculum requirement in philosophy or social-behavioral science. Same as PHIL 151 and CRLS 151. *Prereq: Soph. stndg., PHIL 050.*

HIST 152. Women in Western Civilization 3 sem. hrs.

Survey of women's experiences in western civilization from prehistory to the present. Focusing primarily on Europe and the United States, the course analyzes the changing roles and responsibilities of women in the family, in the work force, and in the community. Also, the impact of such phenomena as religion, science, technology, and democracy on the shifting perceptions and definitions of gender in western civilization. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 154. Tudor England, 1485–1603 3 sem. hrs.

The political, socio-economic, religious and cultural developments in Renaissance and Reformation England with particular attention to the personalities who dominate the Tudor court; the effects of the establishment of Caesaro-Papism by Henry VIII upon the art, architecture, literature and social life of the country. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 155. Stuart and Hanoverian Britain, 1603–1815 3 sem. hrs.

This course focuses on Britain's development as a constitutional monarchy and a commercial and imperial power. Particular attention is given to the Civil War, Glorious Revolution, American Revolution, and escalating rivalry with France climaxing in the Napoleonic Wars. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 156. Great Britain Since 1815 3 sem. hrs.

This course focuses on the democratization of Britain, the creation of the welfare state, and erosion of Victorian Britain's commercial and political global primacy reflected in the disintegration of the British empire and fragmentation of the United Kingdom. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 157. Constitutional and Legal History of England 3 sem. hrs.

Constitutional and legal developments from the Anglo-Saxon period to the present, emphasizing the evolution of parliamentary democracy and the Common Law system. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 158. The British Empire 3 sem. hrs.

Survey of the creation, expansion and dismantling of the world's largest empire from the 16th century to the present. Exploration of political, social, economic and cultural factors. Emphasis on contrasting the views and experiences of Britons and of natives of various colonized areas. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 160. Ireland Since 1780 3 sem. hrs.

A survey of the political and cultural history of Ireland since the Grattan parliament, focusing upon the dual legacy of constitutional and revolutionary nationalism in Irish life. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 162. France Since 1815 3 sem. hrs.

France from the fall of Napoleon into the 20th century, emphasizing the internal developments, with some attention to foreign affairs. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 163. Germany, 1648–1870 3 sem. hrs.

German-speaking Europe with emphasis on the great personalities, including Frederick the Great, Maria Theresa, Metternich, and Bismarck; the major social themes, including life in rural Germany and in German hometowns; and the principal movements, including the revolution of 1848 and German unification after the Franco-Prussian war. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 164. Germany Since 1870 3 sem. hrs.

The political, social, and intellectual development of Germany under the Empire, in the Weimar Republic, the Third Reich, and the post war period. Special attention is given to the Nazi era, including the personality and motivation of Adolf Hitler. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 165. "The Great War": World War I, 1914-1918 3 sem. hrs.

A survey of the causes, course and consequences of the First World War. Beginning with events and military operations in Europe, the course also will treat the war outside of Europe and at sea, as well as the political, social, economic and intellectual impact of the "war to end all wars." *Prereq: Soph. stndg.; HIST 001 and 002 recommended.*

HIST 166. World War II 3 sem. hrs.

A survey of the causes, course, and consequences of the Second World War. Focuses on the European theater including military developments, propaganda, the defeat of German and Japanese imperialism, the impact of the war on society, and the origins of the Cold War. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 167. Russia to 1861 3 sem. hrs.

The Slavs, the Kievan Rus Empire, the Mongol invasion, the rise of Muscovy, and the Russian empire of Peter the Great and his successors down to the emancipation of the serfs in 1861. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 168. The Russian Revolution and the Soviet Union 3 sem. hrs.

Pre-revolutionary Russia from 1861, the Revolution of 1917, Soviet economic growth and totalitarianism, and the emergence of the USSR as a world power and its subsequent collapse. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 170. The Cold War 3 sem. hrs.

The origins, nature and consequences of the Cold War, with emphasis on the 1945-1970 period. Topics will include the continuing effects of the Cold War, prospects for new international rivalries, and the domestic consequences of the Cold War. *Prereq: Soph. stndg., HIST 001, 002.*

GROUP III ASIA, AFRICA AND LATIN AMERICA**HIST 171. Latin America** 3 hrs. each sem.

Survey of Latin American history and culture from pre-Columbian times to the present, emphasizing the development of modern traditions such as multi-ethnic identities and political authoritarianism. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 173. The Caribbean 3 sem. hrs.

This course focuses on the contours of Caribbean history, 1400 to present. It examines Native American culture, colonialism, slavery, international trade, the politics of independence, economic development, national identity, and ethnicity. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 174. History of Mexico 3 sem. hrs.

Mexico from pre-Columbian times to the present, with emphasis on ancient civilizations, the conquest, colonial society, independence, nineteenth-century development, Porfirian dictatorship, the Revolution of 1910, and modern society since 1920. *Prereq: Soph. stndg., HIST001, 002 recommended.*

HIST 177. Africa 3 sem. hrs.

Survey of African peoples and cultures, including the Sudanic empires, Islamic influences, European colonialism, and national indepen-

dence. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 179. North Africa 3 sem. hrs.

North Africa from the 7th century to the present, emphasizing Islamic and European influences. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 181. Modern Middle East since 1500 3 sem. hrs.

A survey of the Arab, Turkish and Iranian peoples since 1500 emphasizing the Islamic backgrounds and the Middle East in world affairs, especially during the 20th century. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

HIST 182. East Asia 3 sem. hrs.

Survey of major political, social and economic themes in Chinese and Japanese cultures from ancient times to the present, emphasizing major cultural and historical events which have significantly influenced the development of Asian civilization. *Prereq: Soph. stndg., HIST 001, 002 recommended.*

SPECIAL COURSES**HIST 192. Public History** 3 sem. hrs.

An examination of the means by which the skills and methods of history are applied by professionals outside the classroom. Topics include public history as a sub-discipline of history, historic preservation, and the emergence of history museums and historical societies. *Prereq: Soph. stndg., HIST 004, 005.*

HIST 193. Internship in Public and Applied History 3 sem. hrs.

Practical experience related to history, museum, or archival studies involving work in an approved agency. Projects of a substantive nature are to be arranged by the student with the historical agency. Projects not involving remuneration should entail approximately 8-10 hours per week for undergraduates and 10-15 hours per week for graduate students at the agency. Other projects will include a substantive paper along with the work experience. Although performance in this course is assessed using S and U grades, the course counts toward the undergraduate major or minor. *Prereq: Cons. of dept. ch. for all students and Jr. stndg. required for undergraduates; HIST 190 recommended for undergraduates; HIST 210 (Historical Method) required for graduate students.*

HIST 195. Independent Study 1-3 sem. hrs.

Offered annually. *Prereq: Cons. of dept. ch., cons. of instr., and Jr. stndg.*

HIST 196. Undergraduate Seminar 3 sem. hrs.

Designed to initiate a small group of undergraduates in the techniques of scholarly historical study by concentrated work in a specialized field. *Prereq: Jr. stndg.*

HIST 197. Undergraduate Colloquium in History 3 sem. hrs.

Readings and discussion course designed to introduce a small group of undergraduates to topics, problems and methodologies in history which are not taught in the regular lecture courses. The topics to be treated in 197 courses will be designated in the *Timetable of Classes*. *Prereq: Jr. stndg.*

HIST 198. Special Topics in History 3 sem. hrs.

A lecture course on special areas and themes. The specific topics of 198 courses will be designated in the *Timetable of Classes*. Offered occasionally. *Prereq: Soph. stndg.*

HIST 199. Senior Thesis 3 sem. hrs.

Offered annually. *Prereq: Cons. of dept. ch. and 3.5 or above Q.P.A..*

MATHEMATICS, STATISTICS AND COMPUTER SCIENCE (MATH AND COSC)

Chairperson and Associate Professor: Simms
Assistant Chairperson and Professor: Lamon
Professor: Bankston, Bansal, Braunschweiger (*Emeritus*), Hamedani, Hanneken (*Emeritus*), Harris, P. Jones, Krenz, Lawrence (*Emeritus*), Merrill, Moyer, Pastijn, Ziegler (*Emeritus*)
Associate Professor: Brookshear, Byleen, Clough, Liu, Ruitenburg, Slattery
Assistant Professor: J. Factor, C.A. Struble, Wu
Adjunct Associate Professor: K. Factor
Adjunct Assistant Professor: Barnard, Shaw, Zrotowski
Research Associate Professor: Tonellato
Adjunct Instructor: Manyo, Schwerm, C.L. Struble, Utzerath
Lecturer: Freeman, Parker, Pflughoeft, Reddy, Shao
Instructor: Boelk, Laughlin

MATHEMATICS MAJOR:

Thirty-nine hours of mathematics courses, including MATH 080, 081, 082, 090, 121 and at least twenty-one additional hours of upper division MATH courses including at least three of the following: MATH 112, 124, 135, 140, 160, and 180. In addition, each student must complete at least one computer science course offered by the department.

MATHEMATICS MINOR:

Twenty-four hours of mathematics courses, including MATH 080, 081, 082, either 083 or 090, and at least nine additional hours of upper division MATH courses.

COMPUTER SCIENCE MAJOR:

Thirty-three hours of computer science courses, including COSC 051, 054, 055, 148, 149, 152, 157, and twelve additional hours of upper-division COSC courses. In addition, each student must complete the following fourteen hours of mathematics courses: MATH080, 081, 090, 147.

COMPUTER SCIENCE MINOR:

Eighteen hours of computer science courses consisting of COSC 051, 054, 055, 148, 149, 152.

COMPUTATIONAL MATHEMATICS MAJOR:

Forty-eight hours of mathematics and computer science courses, including MATH 080, 081, 082, 090, 121, 147, either 161 or 164; COSC 051, 054, 055, 146, 148; two of MATH 140, 142, 160, 166, 167, 180; and one of COSC 149, 152.

TEACHING MAJOR IN MATHEMATICS:

Thirty-nine hours of mathematics courses, including MATH 080, 081, 082, 090, 121, 124, 135, 138, 160, either 161 or 164, and six additional hours of upper division MATH courses. In addition to these thirty-nine hours, each student must complete at least one computer science course offered by the department and MATH 137 (Teaching of Mathematics), which is required as part of the state certification program. MATH 137 and a computer science course must be completed before student teaching.

From the beginning of their work toward a degree students should consult with both the department adviser for middle school/secondary teaching majors and the Director of Teacher Education in the School of Education about the appropriate sequence of courses. University and state requirements for teacher certification are described in the School of Education section of this bulletin.

Please refer to "Core Curriculum requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR IN MATHEMATICS:

Twenty-six hours of mathematics courses consisting of MATH 080, 081, 090, 121, 124, 135, 138, and 164. In addition to these twenty-six hours, MATH 137 (Teaching of Mathematics) is required as part of the state certification program. MATH 137 must be completed before student teaching. From the beginning of their work toward a degree students should consult with both the department adviser for middle school/secondary teaching majors and the Director of Teacher Education in the School of Education about the appropriate sequence of courses. University and state requirements for teacher certification are described in the School of Education section of this bulletin.

TEACHING MINOR IN COMPUTER SCIENCE:

Twenty-two hours consisting of COSC 051, 054, 055, 148, 149, 152 and MATH 080. From the beginning of their work toward a degree students should consult with both the department adviser for middle school/secondary teaching majors and the Director of Teacher Education in the School of Education about the appropriate sequence of courses. University and state requirements for teacher certification are described in the School of Education section of this bulletin.

Mathematics Courses (MATH)

MATH 010. Intermediate Algebra 2 sem. hrs. Designed for students with deficient mathematical backgrounds. Basic arithmetic and algebraic operations on integers, polynomials, rational numbers and expressions. Linear equations and inequalities, quadratic equations. Relations and functions. Not applicable to the total number of hours required for graduation. Offered occasionally. *Prereq: Cons. of dept. ch.*

MATH 020. College Algebra 3 sem. hrs. Precalculus mathematics including basic algebraic operations, equations, inequalities, complex numbers, graphs, functions, zeros of polynomials, systems of equations, and matrices. Offered every term. *Prereq: Two years of college preparatory mathematics including a year each of algebra and geometry. Does not count toward Math-Logic-Computer requirement in the Arts and Sciences core curriculum.*

MATH 021. Trigonometry and Analytic Geometry

3 sem. hrs. A continuation of MATH 020 covering precalculus mathematics including trigonometric functions and their properties, trigonometric identities and equations, applications of trigonometry, vectors, polar coordinates, exponential and logarithmic functions, and conic sections. Offered spring term. *Prereq: MATH 020 or its equivalent. Does not count toward Math-Logic-Computer requirement in the Arts and Sciences core curriculum.*

MATH 025. The Nature of Mathematics

3 sem. hrs. Concepts of mathematics for liberal arts students. Emphasis on understanding and appreciating concepts rather than developing computational skills. For example, such topics as the historical development of ideas, role of abstraction, and relationship between different areas of mathematics is given precedence over performance of arithmetic and algebraic manipulations. Offered occasionally. *Prereq: Two years of college preparatory mathematics.*

MATH 026. Applications of Mathematics

3 sem. hrs. Application of mathematics presented via case studies. Examples drawn from such areas as biology, engineering, and social sciences. Emphasis on the contributions of mathematics rather than computational skills. Offered occasionally. *Prereq: Two years of college preparatory mathematics.*

MATH 030. Early Arithmetic 3 sem. hrs. Prepares students to teach early elementary grades. Uses a problem solving approach. Integrates mathematics and science topics; content and methods; arithmetic, algebra, and geometry; classroom and field work. Includes NCTM standards, Constructivism, inductive and deductive reasoning, sets, sequences, numeration systems, the CGI method of teaching addition and subtraction, number theory, measurement, topology, LOGO, and various manipulatives. Restricted to students in the elementary and middle school teacher preparation programs. To be taken concurrently with EDUC 110. Field experience is required. *Prereq: Two years of college preparatory mathematics.*

MATH 031. Elementary School Mathematics

3 sem. hrs. Prepares students to teach mathematics in the elementary grades. Uses a problem solving approach. Integrates mathematics and science topics; content and methods; arithmetic, algebra, and geometry; classroom and field work. Includes whole numbers, exponents, fractions, ratios, percent, transformational geometry, spreadsheet, Geometric Supposers, and various fraction manipulatives. Restricted to students in the elementary and middle school

teacher preparation programs. To be taken concurrently with EDUC 120. Field experience is required. *Prereq: MATH 030.*

MATH 032. Pre-Algebra and Geometry

3 sem. hrs. Prepares students to teach mathematics in the upper elementary and middle school grades. Uses a problem solving approach. Integrates content and methods; arithmetic, algebra, and geometry; classroom and field work. Includes probability and statistics, integers, rational and irrational numbers, relations and functions, equations and inequalities, conjectures and deductions in geometry, algebra lab gear and other manipulatives. Restricted to students in the elementary and middle school teacher preparation programs. To be taken concurrently with EDUC 128. Field experience is required. *Prereq: MATH 031.*

MATH 060. Modern Elementary Statistics

3 sem. hrs. Fundamental theory and methods of statistics without calculus. Descriptive statistics, elements of probability theory, estimation, tests of hypotheses, regression, correlation, introduction to computer methods of statistical tabulation and analysis. This course is recommended for students seeking a general introduction to statistical concepts and is not intended to be a final course in statistics for students who need a thorough working knowledge of statistical methods. (May not be taken for credit by students who have received college credit for another probability or statistics course.) Offered every term. *Prereq: Two years of college preparatory mathematics or MATH 010.*

MATH 070. Finite Mathematics 3 sem. hrs. Mathematics of finance, including simple and compound interest, present and future value of ordinary annuities, sinking funds, and amortization schedules. Matrices, linear systems and linear programming. Combinatorics and elementary probability theory. Offered every term. *Prereq: Three years of college preparatory mathematics or MATH 020.*

MATH 071. Elements of Calculus 1

3 sem. hrs. The basic concepts and techniques of differential and integral calculus. Applications and examples chosen primarily from economics, biology, the social and behavioral sciences and business. Offered every term. *Prereq: Three years of college preparatory mathematics or MATH 020.*

MATH 072. Elements of Calculus 2

3 sem. hrs. Partial derivatives, multiple integration, differential equations, infinite series, numerical techniques. Applications and examples chosen primarily from business, economics, and the social and behavioral sciences. Offered occasionally. *Prereq: MATH 071.*

MATH 073. Calculus for the Biological Sciences

3 sem. hrs. Fundamental concepts and techniques of differential and integral calculus, logarithmic, exponential and trigonometric functions, examples and applications from biology and medicine. Offered every term. *Prereq: Three years of college preparatory mathematics or MATH 020.*

MATH 080. Calculus 1 4 sem. hrs.
Functions of one variable, limits and continuity. The derivative and the definite integral with applications. Offered every term. *Prereq: MATH 021 or three to four years of college preparatory mathematics including topics listed in description of MATH 021.*

MATH 081. Calculus 2 4 sem. hrs.
The transcendental functions. Techniques of integration including numerical methods. Elementary differential equations. Infinite sequences and series, Taylor Series. Offered every term. *Prereq: MATH 080.*

MATH 082. Calculus 3 4 sem. hrs.
Three-dimensional analytic geometry including parametric equations, vectors and vector functions. The differential and integral calculus of functions of several variables. Offered every term. *Prereq: MATH 081.*

MATH 083. Differential Equations 4 sem. hrs.
Methods and techniques applicable to first order, n th order, and systems of first order differential equations. Eigenvalues, eigenvectors, the Wronskian, Laplace transforms, linearization, and phase portraits. Offered every term. *Prereq: MATH 082.*

MATH 090. Discrete Mathematics 3 sem. hrs.
Introduction to abstract mathematics through the window of discrete mathematics. Algebraic systems. Sequences and generating functions. Sets and relations, including equivalences, congruences, and orderings. Elementary graph theory. (Credit will not be given for both MATH 090 and MATH 145.) Offered every term. *Prereq: MATH 081.*

MATH 099. Modern Logic 3 sem. hrs.
An introduction to deductive reasoning, which underlies philosophical, mathematical, scientific, legal, and everyday discourse. The precise formulation and sound construction of valid arguments in propositional and first-order logic. Logical connectives, quantifiers, proofs, theorems, and theories. Applications of symbolic logic to axiomatic systems. This course is equivalent to PHIL099, and counts toward the philosophy major and core curriculum logic or philosophy requirements. Offered spring term.

MATH 100. Problem Solving — Putnam Competition 1 sem. hr.
Students will study mathematical problems, examine their solutions and formulate general problem solving methods and techniques. The course is a preparation for the Putnam Mathematical Competition. S/U grade assessment. *Prereq: Cons. of instr.*

MATH 101. History of Mathematical Ideas 3 sem. hrs.
Topics selected from the following: development of the number system (need for irrational and complex numbers); development of geometry including the effects of the discovery of non-Euclidean geometry; limit concept; need for axiomatic structures; twentieth-century problems. Current mathematics research and place of mathematics in today's world. Offered alternate spring terms. *Prereq: Jr. stdng. or cons. of dept. ch.*

MATH 112. Topology 3 sem. hrs.
Topological spaces, mappings, metric spaces, product and quotient spaces. Separation axioms,

compactness, local compactness and connectedness. Offered occasionally. *Prereq: MATH 090.*

MATH 120. Theory of Numbers 3 sem. hrs.
Integers, unique factorization theorems, arithmetic functions, theory of congruences, quadratic residues, partition theory. Offered spring term. *Prereq: MATH 090.*

MATH 121. Linear Algebra and Matrix Theory 3 sem. hrs.
 N -dimensional vector spaces, bases and coordinate systems, linear transformations and matrices, systems of equations, characteristic values, applications to differential equations and geometry. Offered every term. *Prereq: MATH 083 or 090.*

MATH 124. Abstract Algebra 1 3 sem. hrs.
Sets, mappings, operations on sets, relations and partitions. A postulational approach to algebraic systems including semigroups, groups, rings and fields. Homomorphisms of groups and rings, number systems, polynomial rings. Offered fall term. *Prereq: MATH 090.*

MATH 125. Abstract Algebra 2 3 sem. hrs.
A continuation of MATH 124 with emphasis on groups, rings, fields, and modules. Offered occasionally. *Prereq: MATH 124.*

MATH 135. Foundations of Geometry 3 sem. hrs.
Modern postulational development of Euclidean and non-Euclidean geometries. Offered fall term. *Prereq: MATH 090.*

MATH 136. Geometric Transformations 3 sem. hrs.
Overview of transformation geometry including a study of congruence, similarity, affine, projective and topological transformation groups. Offered occasionally. *Prereq: MATH 090.*

MATH 137. The Teaching of Mathematics 3 sem. hrs.
Historical background, problems, curricular materials, and teaching procedures in the various areas of mathematics pertinent to the needs of a secondary school mathematics teacher. In addition, a three-hour time block on one day each week between 8 a.m. and 3 p.m. must be kept free for clinical experience. Offered alternate fall terms. *Prereq: Either EDUC 079 or EDUC 095; and MATH 124, 135, both which may be taken concurrently. Admission to School of Education required.*

MATH 138. Topics in Elementary Mathematics from an Advanced Standpoint 3 sem. hrs.
Topics closely related to the secondary mathematics program taught to deepen the student's understanding of these topics. Topics selected from such areas as set theory, number theory, elementary functions, theory of equations, and transformation geometry. Offered alternate spring terms. *Prereq: MATH 124, 135 and cons. of department's coordinator of teacher education.*

MATH 140. Theory of Differential Equations 3 sem. hrs.
Existence and uniqueness theorems, linear and non-linear systems, numerical techniques, stability. Offered spring term. *Prereq: MATH 083 or 121.*

MATH 142. Elementary Partial Differential Equations 3 sem. hrs.
Fourier series, method of separation of variables, eigenfunction expansions, application of eigenfunctions to partial differential equations, Green's functions and transform methods. Offered occasionally. *Prereq: MATH 083.*

MATH 144. Operational Methods in Physics and Engineering 3 sem. hrs.
Functions of a complex variable. Laplace and Fourier transforms and applications. Introduction to the calculus of variations. Offered occasionally. *Prereq: MATH 082.*

MATH 145. Discrete Mathematics for Engineers 3 sem. hrs.
Counting methods. The algebra of sequences, generating functions, and recurrences. The algebra of finite state machines and semigroups. Relations, graphs, posets, and trees. Path and flow problems. (Credit will not be given for both MATH 090 and MATH 145.) Offered occasionally. *Prereq: MATH 083.*

MATH 146. Numerical Analysis 3 sem. hrs.
Numerical solution of algebraic and transcendental equations, linear systems and the algebraic eigenvalue problem, interpolation and approximation, numerical integration, difference equations, numerical solution of differential equations, and finite difference methods. (Credit will not be given for both MATH 146 and COSC 146.) Offered fall term. *Prereq: MATH 081 and either COSC 051 or GEEN 021 or GEEN 051.*

MATH 147. Computational Models 3 sem. hrs.
Construction and analysis of mathematical models from biological, behavioral and physical sciences. Methodology of model building and problem solving. Offered every term. *Prereq: MATH 090 and COSC 051.*

MATH 150. Applied Combinatorial Mathematics 3 sem. hrs.
Permutations and combinations, recurrence relations, inclusions and exclusion, Polya's theory of counting, graph theory, transport networks, matching theory. Offered occasionally. *Prereq: MATH 090.*

MATH 160. Theory of Probability 3 sem. hrs.
Random variables, distributions, moment generating functions of random variables, various derived probabilistic models and applications. Recommended, with MATH 161, for students in mathematics, engineering, and the physical and behavioral sciences. Offered fall term. *Prereq: MATH 082.*

MATH 161. Mathematical Statistics 3 sem. hrs.
Sampling theory and distributions, estimation and hypothesis testing, regression, correlation, analysis of variance, non-parametric methods, Bayesian statistics. Offered spring term. *Prereq: MATH 160.*

MATH 162. Time Series Analysis 3 sem. hrs.
Basic concepts of probability. Stationary time series. Autocorrelation and spectrum. Descriptive methods for time series data. ARMA and ARIMA models: estimation and forecasting. Identification and diagnostic techniques. Periodogram and spectral analysis. Use of softwares for time series analysis. Offered occasionally. *Prereq: MATH 082 or equivalent.*

MATH 163. Regression Analysis 3 sem. hrs.
Basic concepts of statistical inference, simple linear regression, multiple linear regression, diagnostic analysis, selecting the best equation, stepwise methods, nonlinear regression, use of statistical software. Offered occasionally. *Prereq: MATH 164 or equivalent.*

MATH 164. Statistical Methods 3 sem. hrs.
Probability, discrete and continuous distributions. Treatment of data, point and interval estimation, hypothesis testing. Large and small sample methods, regression, time series, non-parametric methods. An introductory applications-oriented course recommended for students who wish to acquire a basic understanding of statistical methods. Offered every term. *Prereq: MATH 071 or MATH 073 or MATH 080. May not be taken for credit by those who have completed MATH 161.*

MATH 166. Biostatistical Methods and Models 3 sem. hrs.
Introduction to the statistics of life science and the use of mathematical models in biology. Data analysis and presentation, regression, analysis of variance, correlation, parameter estimation and curve fitting. Biological sequence analysis, discrete and continuous mathematical models and simulation. Credit will not normally be allowed for both MATH 164 and MATH 166. Offered spring term. *Prereq: One term of calculus.*

MATH 167. Theory of Optimization 3 sem. hrs.
Fundamental theorems describing the solution of linear programs and matrix games. Minimax, duality, saddle point property, simplex and specialized algorithms. Zero sum games, transportation and assignment problems., applications to economics. Offered occasionally. *Prereq: MATH 083 or 121.*

MATH 168. Computational Statistics 3 sem. hrs.
Analysis of raw data and selection of appropriate estimation and hypothesis testing techniques. Emphasis on exploratory analysis, model building, data transformations, multivariate and stepwise techniques, error analysis. Course will make extensive use of statistical computer packages. Offered occasionally. *Prereq: MATH 161 or 164.*

MATH 180. Intermediate Analysis I 3 sem. hrs.
Limits and continuity, differentiability, Riemann integration. Topology of N-dimensional spaces. Offered fall term. *Prereq: MATH 083 or 121.*

MATH 181. Intermediate Analysis II 3 sem. hrs.
Transformations of N-spaces, line and surface integrals, sequences and series, uniform convergence. Offered occasionally. *Prereq: MATH 180.*

MATH 182. Complex Variables 3 sem. hrs.
Complex numbers, analytic functions, differentiation, series expansion, line integrals, singularities, and residues. Offered spring term. *Prereq: MATH 082.*

MATH 192. Co-op Work Period No credit.
Students work full-time during fall or spring terms in a cooperative education program work assignment approved in advance by the department. Responsibilities include relevant academic content. Grading and credits are accomplished by registering for MATH 193 during the following term. Offered every term. *Prereq: Jr. stndg. Fee.*

MATH 193. Co-op Grading Period 1 sem. hr.
Grading for preceding co-op work assignment is accomplished by completing a report on the work assignment, a report on academic material related to the work assignment, and other materials as required. Grading is completed during the school term following the work assignment. May be taken more than once, but a maximum of two credits may be counted toward a major in the department. Offered every term. *Prereq: Jr. stndg. and MATH 192.*

MATH 195. Independent Study in Mathematics 1-3 sem. hrs.
Directed reading and/or research in Mathematics under a member of the staff. Offered every term. *Prereq: Cons. of dept. ch.*

MATH 196. Undergraduate Seminar 3 sem. hrs.
Designed to initiate a selected group of qualified undergraduates into the techniques and discipline of scholarly research by concentrated work in a restricted field. Emphasis on critical reading and analysis of sources. Specific subjects to be announced in the *Timetable of Classes*. Offered occasionally. *Prereq: Cons.ofdept. ch.*

MATH 198. Topics in Mathematics or Statistics 1-3 sem. hrs.
Special topics selected from one of the various branches of mathematics or statistics. Specific topics to be announced in the *Timetable of Classes*. Offered occasionally.

MATH 199. Senior Thesis 2 sem. hrs.
Preparation of a thesis by approved students under the direction of an adviser from the staff. Offered every term. *Prereq: Cons. of dept.ch.*

Computer Science (COSC)

COSC 050. Introduction to Computer Science

3 sem. hrs.
Introduction to the science behind today's computerized society. Emphasis placed on understanding the breadth and current status of computer science rather than the development of skills. Topics include machine architectures, operating systems, networking, algorithms and their development, programming languages, artificial intelligence, and data representation systems. (Previous computer experience is not required.) Offered every term. This course satisfies the computer option in the Arts and Sciences core curriculum. *Prereq: Two years of college preparatory mathematics.*

COSC 051. Structured Programming

3 sem. hrs.
An introduction to computer programming using JAVA. Designed for students seeking a rigorous foundation in programming skills. Includes data types, data structures, control structures, and design methodologies. Also includes a brief introduction to those features of the UNIX operating system that are used in the course (file system, editors, compilers, etc.). Offered every term. *Prereq: Two years of college preparatory mathematics.*

COSC 054. Principles of Computer Science

3 sem. hrs.
A survey of computer science that relates mathematical and theoretical foundations to the applied topics discussed. Covers topics such as development and implementation of algorithms, machine organization, operating systems structure, programming languages, data organization, and issues of computability. Includes programming projects of intermediate size and complexity that reinforce the topics presented. Offered every term. *Prereq: COSC 051.*

COSC 055. Data Structures 3 sem. hrs.
A study of the major data structures and the algorithms used to build, examine, and manipulate them. Assumes knowledge of the Java programming language. (Credit will not be given for both COSC 055 and COSC 154.) Offered every term. *Prereq: COSC 054.*

COSC 146. Numerical Analysis 3 sem. hrs.
Numerical solution of algebraic and transcendental equations, linear systems and the algebraic eigenvalue problem, interpolation and approximation, numerical integration, difference equations, numerical solution of differential equations, and finite difference methods. (Credit will not be given for both MATH 146 and COSC 146.) Offered fall term. *Prereq: MATH 081 and either COSC 051 or GEEN 021 or GEEN 051.*

COSC 148. Hardware Systems 3 sem. hrs.
Architecture of hardware systems and how their features affect the hardware/software interface. Topics include information representation, addressing techniques, communication protocols, polling vs. interrupt handling, microprogramming, assembly language programming, and hardware support for operating systems. Offered every term. *Prereq: COSC 054.*

COSC 149. Operating Systems 3 sem. hrs.
Fundamental concepts of operating systems including memory management, scheduling, concurrent processing, device management, file systems, networking, security, and system performance. Examples are drawn from legacy and modern operating systems. Offered every term. *Prereq: Either COSC 055 and 148, or COSC 154.*

COSC 151. Analysis of Algorithms

3 sem. hrs.
Computational complexity and types of algorithms such as divide-and-conquer, greedy, probabilistic, graph transversal, heuristic, and parallel algorithms. Offered occasionally. *Prereq: COSC055 and MATH 090.*

COSC 152. Programming Languages

3 sem. hrs.

A comparative study of programming paradigms and representative high-level programming languages. Topics include control of data, control of execution, operating environment, and the role of a language as an organizational tool. Offered fall term. *Prereq: Either COSC 055 and 148, or COSC 154.*

COSC 153. Principles of Database Systems

3 sem. hrs.

The internal, conceptual, and external levels of database systems as reflected in the relational, network, and hierarchical database models. Query languages. File organizations appropriate for database systems. Principles and methods for database design. Offered fall term. *Prereq: COSC 055 or COSC 154.*

COSC 154. Data Structures for Engineers

3 sem. hrs.

The study of popular data structures such as lists, stacks, queues and trees and their related algorithms. Knowledge of Java is a prerequisite. (Credit will not be given for both COSC 154 and COSC 055.) Does not carry graduate credit for MSCS graduate students. Offered every term. *Prereq: Either COSC 051 or GEEN 051.*

COSC 157. Formal Languages and Computability

3 sem. hrs.

The hierarchy of formal languages, automata, and grammars with application to parsing. Limitations of computational processes and their implications of the Church-Turing thesis. Offered fall term. *Prereq: Either COSC 055 and MATH 090, or COSC 154.*

COSC 158. Computer Systems Analysis

3 sem. hrs.

Large applications systems involve many people over a long life span. Assess and apply computing techniques in a cost-effective and usable way. Produce large software systems which are reliable, understandable, and which can be maintained. Software lifecycle (requirements, design, implementation, testing, maintenance), human factors analysis, project management. Projects help simulate the life of a working systems analyst. Offered spring term. *Prereq: COSC 149 and 152, or equivalent.*

COSC 159. Fundamentals of Artificial Intelligence

3 sem. hrs.

Survey of topics in the field of artificial intelligence with emphasis on the underlying concepts on which intelligent systems are developed (such as production systems, heuristics, the predicate calculus, and theorem proving techniques). Offered spring term. *Prereq: COSC 152.*

COSC 170. Compiler Construction

3 sem. hrs.

Techniques of lexical analysis, parsing, and code generation, including theoretical foundations and the practical concerns of implementation. Offered spring term. *Prereq: Either COSC 148 and 157, or COSC 154 and 157.*

COSC 172. Networks and Internets

3 sem. hrs.

Fundamentals of networking and internetworking including such topics as network and internet protocols, security, reliability, maintenance, support of internet applications and distributed systems, and domain setup and administration. Offered annually. *Prereq: COSC 148 and COSC 149.*

COSC 174. Programming Computer Games

3 sem. hrs.

Explore the algorithms, data structure and tricks used to program computer video games. Emphasis on arcade-style video games (new and classic) written in Java. Topics include 2D animation, sprites, interaction, music/sound, 3D worlds, network games. Underlying issues include Graphical User Interface programming, multi-threaded applications, real-time programming, use of sophisticated APIs and networked client-server applications. Offered annually. *Prereq: COSC 055 or COSC 154.*

COSC 192. Co-op Work Period

No credit. Students work full-time during fall or spring terms in a cooperative education program work assignment approved in advance by the department. Responsibilities include relevant academic content. Grading and credits are accomplished by registering for COSC 193 during the following term. Offered every term. *Prereq: Jr. stndg. Fee.*

COSC 193. Co-op Grading Period

1 sem. hr. Grading for preceding co-op work assignment is accomplished by completing a report on the work assignment, a report on academic material related to the work assignment, and other materials as required. Grading is completed during the school term following the work assignment. May be taken more than once, but a maximum of 2 credits may be counted toward a major in the department. Offered every term. *Prereq: Jr. stndg. and COSC 192.*

COSC 195. Independent Study in Computer Science

1-3 sem. hrs.

Directed reading and/or research in computer science under a member of the staff. Offered every term. *Prereq: Cons. of dept. ch.*

COSC 196. Undergraduate Seminar

3 sem. hrs.

Designed to initiate a selected group of qualified undergraduates into the techniques and discipline of scholarly research by concentrated work in a restricted field. Emphasis on critical reading and analysis of sources. Specific subjects to be announced in the *Timetable of Classes*. Offered occasionally. *Prereq: Cons. of dept. ch.*

COSC 198. Topics in Computer Science

1-3 sem. hrs.

Special topics selected from one of the various branches of computer science. Specific topics to be announced in the *Timetable of Classes*. Offered occasionally.

COSC 199. Senior Thesis

2 sem. hrs. Preparation of a thesis by approved students under the direction of an adviser from the staff. Offered every term. *Prereq: Cons. of dept. ch.*

PHILOSOPHY (PHIL)

Chairperson and Professor: J. Jones
Assistant Chairperson and Associate Professor: Starr
Professor: Anderson, Ashmore (Emeritus), Carter, Griesbach (Emeritus), Kainz, O'Malley (Emeritus), Tallon, Teske, Wreen
Associate Professor: P. Coffey (Emeritus), Dooley, Foster, Gibson, Goldin, Harrison, Ibáñez-Noé, Krettek, McNulty, Naus, Peressini, Prendergast, Rice, Rousseau (Emerita), Snow, South, R. Taylor, Twetten, Vater, Vandavelde
Assistant Professor: Landry, C. Schmidt
Adjunct Assistant Professor: Stohrer

MAJOR: History of Philosophy

Thirty hours, including either PHIL001 or 099, 050, 102, 104 and three courses on the history of philosophy (PHIL 112–119), plus 9 hours of electives.

MAJOR: Social Philosophy

Thirty hours, including PHIL001 or 099, 050, 104, one of the following: 105, 108, 191, 192 or approved courses from 190 or 196; three of the following: 102 or 142, 106, 107, 110; plus 9 hours of electives.

MINOR:

Twenty-one hours, including either PHIL001 or 099, 050, 102, and 104.

TEACHING MAJOR:

Thirty-six hours including either PHIL001 or 099, 050, 104, 105, 112 or 113, 114, 120, 180, and one of the following: 115, 117, 160, 185. Students should see the department adviser for middle school/secondary teaching majors or minors to consult about the appropriate sequence of courses. It is also important that prospective teachers study carefully the School of Education section in this bulletin regarding university and state requirements (in addition to department requirements) for teacher certification.

Please refer to "Core Curriculum requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-four hours including either PHIL 001 or 099, 050, 104, 105, and 180. Education requirements must be completed for certification.

INTRODUCTORY COURSES**PHIL001. Logic**

3 sem. hrs. The goal of the course is to provide the student with an understanding of correct reasoning as it is employed in ordinary discourse. To this end, the course will study topics such as: terms and propositions, definition, opposition, induction and deduction, reasoning and argumentation, fallacies in argument. Offered every term. Freshman standing recommended. May not be taken by engineering students to fulfill philosophy requirement.

PHIL050. Philosophy of Human Nature

3 sem. hrs.

Investigation into the meaning of rational life. The course deals with the following four problem areas: human choice, human cognition, the affective, social and spiritual dimensions of the human person, and the unity of the human being. A substantive treatment of classical and Christian philosophical approaches will be included. Offered every term. May not be taken by first term freshmen.

PHIL099. Modern Logic 3 sem. hrs.

Introduction to techniques of symbolic logic. Primary emphasis on practical problem-solving. Propositional calculus, monadic predicate logic, and first-order general predicate logic. Techniques of truth-functional analysis and natural deduction. This course is equivalent to MATH 099. Offered occasionally. May not be taken by engineering students to fulfill philosophy requirement.

COURSES FOR JUNIORS AND SENIORS**PHIL102. Metaphysics** 3 sem. hrs.

Investigation of such fundamental problems as the meaning and nature of reality as opposed to the unreal, the unity and diversity of real things, substance and accident; internal and external principles or causes which are necessary for an intelligible explanation of reality. Offered annually. *Prereq: Jr. stndg. and PHIL050.*

PHIL103. Philosophy of God 3 sem. hrs.

The idea of God; the proofs of God's existence. God's nature and attributes; foreknowledge and free will; divine action in the universe; providence and the problem of evil. An appraisal of agnosticism, atheism, pantheism. A discussion of the modern substitutions for the notion of God. Offered annually. *Prereq: Jr. stndg. and PHIL050.*

PHIL104. Theory of Ethics 3 sem. hrs.

An investigation into the moral dimension of human life. Among the topics to be considered are the norms of morality and the general process of moral decision-making. Traditional natural law will be one of the points of view included. Offered every term. *Prereq: Second term soph. stndg. (45 cr. hours) and PHIL050.*

PHIL105. Contemporary Ethical Problems 3 sem. hrs.

Ethical considerations such as human rights and responsibilities in social and racial justice, war and international relations, expression of dissent, and sexual conduct. Offered every term. *Prereq: Jr. stndg. and PHIL104.*

PHIL106. Philosophy of the State 3 sem. hrs.

Inquiry into the nature of political society. Writings of philosophers used toward understanding of political authority; the purpose of the State, human rights and responsibilities, and the relationships between the Church and State. Offered annually. *Prereq: Soph. stndg. and PHIL 050.*

PHIL 107. Philosophy of Law 3 sem. hrs.

An inquiry into the nature and foundation of law, with particular attention to natural law, legal positivism and rights-based theories of law, theories of punishment and responsibility, and the

relationship between law and morality. Offered annually. *Prereq: Jr. stndg. and PHIL 050.*

PHIL108. Business Ethics 3 sem. hrs.

An application of theories of ethics to the moral dimensions of business endeavors and their effects on individuals, organizations, and society. Selected topics may include issues of responsibility, discrimination and affirmative action in the workplace, whistle blowing, economic justice, environmental impact, and the effects of the "global economy." Offered every term. *Prereq: Jr. stndg. and PHIL 104.*

PHIL 110. Philosophy of Community 3 sem. hrs.

Community and communication, the individual and social dimensions of personal existence, the meaning and direction of human life and social interaction. Source works in both the American and Continental traditions. Offered annually. *Prereq: Soph. stndg. and PHIL050.*

PHIL 112. Ancient Philosophy 3 sem. hrs.

The main tendencies in the West, beginning with the early Greeks and continuing through the classical Roman philosophers. The philosophies of Plato, Aristotle, the Stoics, Plotinus. Selections read in translation. Offered every term. *Prereq: PHIL050 and first semester Soph. stndg.*

PHIL 113. Early Medieval Philosophy 3 sem. hrs.

Outstanding figures in Christian philosophy from Augustine in the 4th century to Thomas Aquinas in the 13th century. Medieval Jewish and Arabian philosophers in their relation to Christian thought. Selections read in translation. Offered annually. *Prereq: Jr. stndg. and PHIL050.*

PHIL 114. Modern Philosophy 3 sem. hrs.

Beginnings of modern philosophy studied in the social, scientific, religious, and literary movements of the 16th century. Descartes and the philosophers whom he influenced. Hume, Kant. Special emphasis on the reading of selections from the philosophers' own works. Offered annually. *Prereq: Soph. stndg. and PHIL050.*

PHIL 115. American Philosophy 3 sem. hrs.

Outstanding figures from the colonial period to present day with emphasis on two or more of the following: Pierce, James, Dewey and Royce. Offered annually. *Prereq: Jr. stndg. and PHIL 050.*

PHIL 117. 19th Century German Philosophy 3 sem. hrs.

A survey of some of the philosophical developments taking place in Germany from the post-Kantian idealism of Fichte, Schelling and Hegel to the thought of Nietzsche. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL 119. Late Medieval and Renaissance Philosophy 3 sem. hrs.

Outstanding figures and movements in late 13th and 14th centuries, and Renaissance. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL120. Philosophy of Art and Beauty 3 sem. hrs.

The relationship of art and nature. The artist's knowledge, which is practical and intuitive. The artist's work. Ethics and art. The objectivity and

criteria of beauty in art. Offered annually. *Prereq: Soph. stndg. and PHIL050.*

PHIL121. Philosophy of Language 3 sem. hrs.

An examination of philosophical approaches to language selected from these: logical syntax (Carnap), ordinary language (Austin), linguistic (Chomsky), phenomenological (Husserl). Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL122. Philosophy and Literature 3 sem. hrs.

The relationship between philosophy and literature. The course will treat the following: philosophy in literature as the search for philosophical insights embedded in literary texts; philosophy of literature as a branch of aesthetics peculiar to literature; philosophical texts as literary expression as, for example, in the Straussian and deconstructionist approaches. Offered occasionally. *Prereq: PHIL050 and Jr. stndg.*

PHIL130. Philosophy of Natural Science 3 sem. hrs.

Topics such as epistemological problems encountered in the natural sciences. The aim of science, the kind of knowledge it attains, and the role of hypotheses. Elaboration of a systematic cosmology. Offered occasionally. *Prereq: Two terms of science, Jr. stndg. and PHIL050.*

PHIL131. Technology and the Human Condition 3 sem. hrs.

This course attempts to understand the nature of technology and assess its role in human life. One of its goals is to evaluate various features of modern technology, including its positive and negative impact on human beings, their physical environment and their social institutions. Offered occasionally. *Prereq: Jr. stndg. and PHIL 050.*

PHIL132. Environmental Philosophy 3 sem. hrs.

Philosophical inquiry into the relationship between humans and nature. Moral, scientific, and social problems posed by global environmental crises. Selected issues in value theory, ethics and aesthetics such as the value standing of natural objects and systems, the morality of trade-offs between species and the ethics of limiting consumption and population. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL135. Philosophy of History 3 sem. hrs.

Meaning of history. Relation to philosophy and other disciplines. Possibility of a philosophy and theology of history. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL142. Philosophy of Knowledge 3 sem. hrs.

Knowledge in general and of the cognitive acts—sensory and intellectual. The meaning of truth and man's attainment of it, the cause of error, the nature of science, and the diversity of human knowledge. Offered annually. *Prereq: Jr. stndg. and PHIL050.*

PHIL143. Feminist Philosophy 3 sem. hrs.

The history of philosophical views of women and a critical introduction to different types of feminism, e.g., liberal, existentialist, radical, Marxist, and socialist feminism. Includes such topics as feminist theory of knowledge, political

theory, and ethics. Offered occasionally.
Prereq: PHIL050 and Jr. stndg.

PHIL 150. Marx and Marxism 3 sem. hrs.
Marx's intellectual transition from "leftist" Hegelianism to dialectical materialism; and thence, from his study of political economics to *Das Kapital*. Developments and adaptations of Marx's thought as found in thinkers representative of various schools of Marx interpretation. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL 151. Philosophy and History of Crime and Punishment 3 sem. hrs.

A study of crime and punishment from philosophical and historical perspectives. Crime and punishment from both the European and the American experience will be discussed. Emphasis will be placed on the interdisciplinary nature (philosophical/historical institutions) of crime and punishment. May be counted toward the core curriculum requirement in Philosophy or social-behavioral science. Offered annually. Same as HIST151 and CRLS 151. *Prereq: Soph. stndg. and PHIL050.*

PHIL158. Philosophy of Education
3 sem. hrs.

Critical examination of important principles, methods and conclusions of various philosophies and their implications for education. Attention to professional ethics and students' development of their own philosophies of education. This course is equivalent to EDUC 158. EDUC 158 must be taken by students enrolled in and completing a teacher education program. All others must take PHIL158. Offered every term. *Prereq: Jr. stndg., and PHIL050.*

PHIL160. Existentialism 3 sem. hrs.
Writings of major 19th and 20th century Existentialists, including several of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Marcel, and Sartre. Offered annually. *Prereq: Jr. stndg. and PHIL050.*

PHIL173. Philosophy of Religion 3 sem. hrs.
Philosophical reflections on religious activity and commitment. One or more of the following will be examined; religious experience, faith and understanding, religious use of language, the meaning of transcendence, prayer and worship, belief and unbelief. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL180. Special Methods of Teaching Philosophy in the Secondary School
3 sem. hrs.

Problems, curricular materials, procedures, and sources in the teaching of philosophy; with special emphasis upon contemporary pilot programs in philosophy at the secondary level. Restricted to students pursuing the teaching major or minor. This course is equivalent to EDUC 145. Offered occasionally. *Prereq: Either EDUC 079 or EDUC 095, Jr. stndg., PHIL050, cons. of instr., admission to School of Education required.*

PHIL185. Twentieth-Century Anglo-American Philosophy 3 sem. hrs.

A critical examination of a number of 20th century Anglo-American philosophers and philosophic movements. Movements considered will include some of the following: "Common Sense" Philosophy, Logical Atomism,

Logical Positivism, and Ordinary Language Philosophy. Philosophers treated may include G.E. Moore, Bertrand Russell, Ludwig Wittgenstein, J.L. Austin, Elizabeth Anscombe, Willard Quine, Thomas Nagel, and Saul Kripke. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL 188. Eastern Philosophy 3 sem. hrs.
The major systems of philosophy of India and China; early Vedic and Upanishadic systems, Buddhism, Brahmanism, Hinduism, Confucianism, Taoism, and Zen. Emphasis on the key ideas in Eastern philosophy. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL 189. African-American Philosophy
3 sem. hrs.

Historical and contemporary philosophical writings by African-Americans such as W.E.B. DuBois, Malcolm X, Cornel West, and Angela Davis. Perennial issues in philosophy of human nature and social/political philosophy from an African-American perspective, including some of the following topics: the nature of racism, race and self-consciousness, contemporary race relations, African Philosophy and its relation to African-American philosophy, and feminism. Offered occasionally. *Prereq: Jr. stndg. and PHIL050.*

PHIL 190. Special Questions in Philosophy
3 sem. hrs.
Offered every term. *Prereq: Jr. stndg. and PHIL 050.*

PHIL191. Medical Ethics 3 sem. hrs.
An introduction to medical ethics which examines several approaches to ethics within the inter-related contexts of medicine, health care and the law. Topics investigated may include: professional-patient relationships, patient competence and informed consent, confidentiality, truth telling, abortion, death and dying, and resource allocation. Offered every term. *Prereq: Jr. stndg., and PHIL104.*

PHIL192. Health Care Ethics 3 sem. hrs.
Approaches to ethics, moral deliberation and decision making in the context of clinically-based health care. Topics may include: professional-client relationship, professional socialization, institutional and social settings of health care delivery, care of selected populations, and justice in the allocation of health care resources. Prior clinical experience required. Offered every term. *Prereq: Sr. stndg., and PHIL104, NURS major or Sr. stndg., and PHIL104, cons. of instr.*

PHIL195. Independent Study 1-3 sem. hrs.
Offered every term. *Prereq: Cons. of dept. ch., Jr. stndg. and PHIL 050.*

PHIL 196. Undergraduate Seminar
3 sem. hrs.

Designed to initiate a selected group of qualified undergraduates in the technique and discipline of scholarly research by concentrated work in a restricted field. Critical reading and analysis of sources. Specific subjects of seminars to be announced in the *Timetable of Classes*. Offered every term. *Prereq: Jr. stndg. and cons. of instr. and PHIL050.*

PHIL 199. Senior Thesis 3 sem. hrs.
Preparation of a thesis by approved students under direction of an adviser. Offered every term. *Prereq: Cons. of dept. ch.*

PHYSICS (PHYS)

Chairperson and Professor: Karkheck
Professor: Burch, Day, Matthys, Mendelson (Emeritus), S. Tani (Emeritus)
Associate Professor: Collins
Visiting Assistant Professor: Dixon, Sirola
Research Professor: Lee
Research Associate Professor: Sorbjan
Lecturer: Buxton, Joseph
Laboratory Supervisor: Vigil
Adjunct Instructor: Human

MAJOR:

The following forms a common physics core and specifies the minimum technical course requirements for a bachelor of science in physics for students with diverse career interests: PHYS 013, 014 (or 001, 002, or 003, 004), 104, 105, 111, 131, 155, plus eight additional hours in upper division physics courses (30 hours); MATH 080, 081, 082, 083 (16 hours); and CHEM 001 and 002 (8 hours).

MINOR

Twenty hours, including PHYS 001 and 002, or 003 and 004, or PHYS 013 and 014.

AREAS OF CONCENTRATION:

Students may use their electives to develop concentrations that prepare them for specific careers. Several possible concentrations are outlined below.

To meet admission expectations for graduate study in physics, students should follow the traditional concentration. This consists of the common physics core plus PHYS 112, 124, 132, 156, 157, and 162 (for a total of 38 hours in physics), MATH 182 (for a total of 19 hours in mathematics), and either three additional hours in upper division mathematics, or PHYS 148.

To pursue medical or dental professional studies, students should follow the premed-preudent concentration or the physics in medicine concentration. They should also consult with their pre-professional adviser for specifics regarding the various medical and dental school admission requirements. The premed-preudent concentration consists of the common physics core plus BIOL001, 004, 090, and CHEM 123, 124. The physics in medicine concentration, which is also recommended for students interested in biomedical research, consists of the common physics core plus BIOL 001, 004, 090, CHEM 123, 124 (for a total of 16 hours in chemistry), MATH 164 (for a total of 19 hours in mathematics), and PHYS 193. The physics electives should include PHYS 112 and 132.

The computational physics concentration serves to develop competence in using the computer as a scientific tool. It consists of the common physics core plus MATH 121, COSC 051, 054, 055, 146 and two additional upper level COSC courses (for a total of 37 hours of mathematics and computer science). One of the physics electives should be PHYS 149. The mathematical physics concentration develops the mathematical aspects of physics. It consists

of the common physics core plus MATH 121, 124, and 182 (for a total of 25 hours of mathematics). Two of the physics electives should be PHYS 112 and PHYS 162. Students pursuing the computational physics or mathematical physics concentrations may request from the physics department a waiver of the CHEM 001, 002 requirements, to substitute additional COSC or MATH courses.

Suggested course sequences for these concentrations are available from the physics department.

TEACHING MAJOR/MINOR:

Students interested in becoming elementary or secondary school teachers should contact the School of Education early in their Marquette careers. The physics teaching major is the physics major plus PHYS 009 (4 sem. hrs.) and BIOL001 or ARSC 010, 011, plus one COSC course. The physics teaching minor is twenty-two hours including: PHYS 001 and 002, or PHYS 003 and 004, or PHYS 013 and 014 and PHYS 009 (4 sem. hrs.), 104, and 105.

Please refer to the "Core Curriculum Requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

PHYS 001. General Physics 1

3 hrs. lec., 2 hrs. lab., 1 hr. quiz, 4 sem. hrs.

Newton's laws, linear motion, circular and harmonic motion, fluids, heat, kinetic theory, wave motion and sound. Offered fall term. *Prereq: High school algebra, geometry and trigonometry or equivalent.*

PHYS 002. General Physics 2

3 hrs. lec., 2 hrs. lab., 1 hr. quiz, 4 sem. hrs.

Continuation of PHYS 001. Electrostatics, DC circuits, magnetism, electromagnetic induction, light, optical instruments, interference and diffraction of light, modern physics. Offered spring term. *Prereq: PHYS 001.*

PHYS 003. General Physics with Introductory Calculus 1

3 hrs. lec., 2 hrs. lab., 1 hr. quiz, 4 sem. hrs.

Survey of classical physics for science majors and engineering majors. Kinematics in one and two dimensions. Newton's laws of motion and dynamics, including rotation of rigid bodies. Energy concepts in physical systems. Newton's law of universal gravitation. Applications of these principles to simple harmonic motion, wave motion, and fluids. Thermodynamics. A command of high school algebra, geometry and trigonometry is assumed. Requires the use of introductory calculus. Offered fall term. *Coreq: MATH 080.*

PHYS 004. General Physics with Introductory Calculus 2

3 hrs. lec., 2 hrs. lab., 1 hr. quiz, 4 sem. hrs.

A continuation of PHYS 003. A survey of classical electromagnetic theory and optics, with a brief introduction to modern physics. Electricity and magnetism: Coulomb's law, Gauss's law, the electric field and the electric potential, DC circuits, Ampere's law, Faraday's law, electromagnetic waves. Optics: geometric optics, including lenses and mirrors; physical optics,

including interference and diffraction phenomena. Modern physics: the origins of quantum mechanics and models of the atom. Offered spring term. *Coreq: MATH 081. Prereq: PHYS 003 and MATH 080.*

PHYS 005. Perspectives in Physical Sciences 1 3 sem. hrs.

Basic concepts in the physical sciences and their impact on technology, the humanities and the world. Course designed for non-science majors. This course satisfies the Arts and Sciences core curriculum requirement. Offered occasionally.

PHYS 006. Perspectives in Physical Sciences 2 3 sem. hrs.

Continuation of PHYS 005. Course designed for non-science majors. This course satisfies the Arts and Sciences core curriculum requirement. Offered occasionally. *Prereq: PHYS 005.*

PHYS 007. Survey of Meteorology 3 sem. hrs.

An introduction to the science of the atmosphere as it relates to the weather of the earth. Topics will include the gas laws, heat transfer, causes of the seasons, atmospheric optics, humidity, clouds, atmospheric stability, causes of precipitation, atmospheric motions, air masses, fronts and pressure systems, thunderstorms, tornados, and hurricanes. Emphasis will be put on how weather is forecast and how it relates to everyone's life. Satisfies Arts and Sciences core curriculum requirement. Offered fall term.

PHYS 008. Astronomy and Space Physics

3 hrs. lec./3 sem. hrs., or 3 hrs. lec. 1 hr. rec./ 4 sem. hrs.

Physics of the solar system, stars, galaxies and the universe. Experimental methods of observational astronomy, telescopes, and space probes. Special topics such as black holes, neutron stars, and quasars. Course satisfies the Arts and Sciences core curriculum requirement. *Note: The 4 sem. hrs. option is only for Broad Field Science majors, for whom it is required. Prereq: Cons. of dept. ch.*

PHYS 009. Earth and Environmental Physics

3 hrs. lec./3 sem. hrs., or 3 hrs. lec. 1 hr. rec./ 4 sem. hrs.

Impact of human activities on the terrestrial environment. Population distribution and growth. Energy balance of the earth. Energy, land and water use, the water cycle. Effects of chemical and physical pollutants on water and the atmosphere. Course designed for non-science majors. Course satisfies the Arts and Sciences core curriculum requirement. *Note: The 4 sem. hrs. option is only for Broad Field Science majors and for physics teaching majors and minors, for whom it is required. Prereq: Cons. of dept. ch.*

PHYS 013. Classical Physics With Calculus 1: Mechanics and Waves

3 hrs. lec., 2 hrs. lab., 1 hr. quiz, 4 sem. hrs.

A study of motion in its various forms, translational, rotational, vibrational, and wave, that emphasizes their underlying unity, especially the centrality of energy and momentum, and their basis in the fundamental Newtonian laws of motion. A command of high school algebra, geometry, and trigonometry is assumed. Requires the use of introductory calculus.

Offered fall term. Students cannot receive credit for both PHYS 003 and PHYS 013.

Prereq: MATH 080 which may be taken concurrently.

PHYS 014. Classical Physics With Calculus 2: Heat, Electromagnetism, and Optics

3 hrs. lec., 2 hrs. lab., 1 hr. quiz, 4 sem. hrs.

This course continues the development of energy as a fundamental concept, exploring its role in thermal processes, in the definition of temperature, and its extension to electromagnetic fields. A study of electric and magnetic phenomena, and their unification in the theory of electromagnetism, with applications to geometric and physical optics. Offered spring term. Students cannot receive credit for both PHYS 004 and PHYS 014. *Prereq: PHYS 013, MATH 080 and 081. Math 081 may be taken concurrently.*

PHYS 018. Introduction to Research 0 sem. hrs.

An overview of research activity, specialties, and opportunities for undergraduate research, is provided through an in-depth visit each week to a different research laboratory at Marquette University and the Medical College of Wisconsin. All science students interested in learning about research are encouraged to take this course. Offered spring term.

PHYS 104. Modern Physics:

Atoms, Particles and Quanta 3 sem. hrs.

A survey of 20th century physics concentrating on atoms and particles. Quantum mechanics: origins, the Schrödinger equation, the hydrogen atom, many-electron atoms and angular momentum. Introduction to special relativity. Nuclear structure, radioactivity, nuclear reactions, fission and fusion. Elementary particles, conservation laws, reactions, the Standard Model, and cosmology. Offered fall term. *Coreq: MATH 082. Prereq: PHYS 002 or 004.*

PHYS 105. Modern Physics:

The States of Matter 3 sem. hrs.

A survey of the physics of matter and materials. Atoms and the forces between them, molecules, the states of matter, kinetic theory, perfect and imperfect gases. Statistical physics: classical statistics and the Boltzmann factor, quantum statistics. The solid state: cohesion and structure, electrical, magnetic, thermal and elastic properties. The liquid state: cohesion and structure, latent heat and melting, flow in ideal and real liquids. Offered spring term. *Coreq: MATH 082. Prereq: PHYS 002 or 004.*

PHYS 111. Classical Mechanics 3 sem. hrs.

Three-dimensional motion of a particle in both Cartesian and spherical coordinate systems. Newtonian dynamics, the classical harmonic oscillator, central forces. Lagrange and Hamilton's formulations of analytical mechanics, angular momentum, Kepler's problem, and the dynamics of a rigid body. Coupled oscillators. Offered fall term. *Prereq: PHYS 002 or PHYS 004, and MATH 083.*

PHYS 112. Quantum Mechanics 3 sem. hrs.

Quantum states, state vectors, observables and operators. The formal structure of quantum mechanics. Time evolution of the state vector. The Hamiltonian. Position and momentum representations, and the wave function. One-

dimensional wave mechanics and the harmonic oscillator. Three-dimensional wave mechanics. Symmetry, angular momentum, and the hydrogen atom. Fermions, and bosons. Perturbation methods. Offered spring term. *Prereq: PHYS 104 and MATH 083.*

PHYS 124. Modern Optics 3 sem. hrs.
Geometric optics, classical wave theory of optics, interference, diffraction, polarization, electromagnetic theory of light, interaction of light and matter, lasers and coherence. Offered spring term. *Prereq: PHYS 002 or 004, and MATH 081.*

PHYS 131. Electricity and Magnetism 1
3 sem. hrs.
Electro statics: Coulomb's law and Gauss' law. The electric field in dielectric materials. Microscopic theory of Ohm's law and steady state currents. The magnetic field, Biot-Savart law, Ampere's law, the vector potential. Magnetic materials. Electromagnetic induction, Faraday's law. Maxwell's equations and electromagnetic waves. Offered fall term. *Prereq: PHYS 002 or 004, and MATH 082.*

PHYS 132. Electricity and Magnetism 2
3 sem. hrs.
Boundary value problems: The solution of electrostatic and magnetostatic problems in continuous media. Microscopic theories of the dielectric and magnetic properties of materials. Electromagnetic waves in bounded regions. Reflection, refraction and dispersion. Radiation from accelerated charges. Antennae. Electrodynamics and the theory of special relativity. Offered spring term. *Prereq: PHYS 131.*

PHYS 145. Introduction to Biophysics
3 sem. hrs.
Laws of physics applied to biological organisms: Biomechanics, fluids and blood circulation, nerve cells and cell-cell communication, acoustics (hearing), and optics (vision). Discussion of some of the experimental techniques used to investigate the biological structure of organisms. Offered occasionally. *Prereq: PHYS 002 or 004.*

PHYS 148. Mathematical Methods for Physicists 3 sem. hrs.
This course presents mathematical methods applied to physical problems including Fourier Analysis, special functions, eigenvalue problems, the calculus of variations, probability and statistics. Offered occasionally. *Prereq: MATH 083, and PHYS 003 and 004.*

PHYS 149. Computational Physics
3 sem. hrs.
Computational techniques applied to problems in the physical sciences. Construction of models of physical systems. Generation and analysis of data. The role of models in developing physical theories. Course assignments will use a variety of programming environments and commercial software. Offered occasionally. *Prereq: PHYS 111, and either PHYS 131 or EECE 121; or cons. of instr.*

PHYS 155. Electronics Lab
1 hr. lec., 3 hrs. lab, 2 sem. hrs.
Introduction to electronic measuring equipment and circuits. Voltmeters, ammeters, ohmmeters, oscilloscopes, DC and AC circuits, resistance, impedance, passive and active filters, power

supplies, op-amps, amplifiers, and analog-digital conversion. An introduction to error analysis and precision of measurement. Offered fall term. *Prereq: PHYS 004.*

PHYS 156. Contemporary Physics Lab 1
1 hr. lec., 3 hrs. lab, 2 sem. hrs.
Experiments in molecular, nuclear, atomic, solid state physics, and in geometrical and physical optics. Application of error analysis, precision of measurement, and propagation of errors. Offered spring term. *Prereq: PHYS 155.*

PHYS 157. Contemporary Physics Lab 2
1 hr. lec., 3 hrs. lab, 2 sem. hrs.
Continuation of the experiments in PHYS 156. Measurement and propagation of uncertainty, curve fitting, automated data collection and experiment control. Offered spring term. *Prereq: PHYS 156.*

PHYS 162. Introduction to Thermodynamics
3 sem. hrs.
Fundamental concepts of thermodynamics: temperature, internal energy, entropy and thermodynamic potentials. Laws of thermodynamics, their consequences and applications. Introduction to statistical thermodynamics. Offered fall term. *Prereq: MATH 082 and PHYS 105.*

PHYS 171. Atomic Physics 3 sem. hrs.
Quantum mechanics of one and many electron atoms. Spin, orbital, and total angular momentum. Atoms in electric and magnetic fields, the Stark effect and the Zeeman effect. Atomic transitions, symmetry and selection rules. The periodic table and shell structure. Modern spectroscopy. Offered occasionally. *Prereq: PHYS 112 and 131.*

PHYS 172. Introduction to Nuclear and Elementary Particle Physics 3 sem. hrs.
Experimental methods in nuclear and particle physics. Theories of nuclear structure, radioactivity, decay schemes, fission and fusion models, conservation laws. Elementary particle classifications and the Standard Model. Offered occasionally. *Prereq: PHYS 112.*

PHYS 175. Introduction to Solid State Physics 3 sem. hrs.
Crystal structure of solids, the reciprocal lattice and diffraction. Lattice vibrations and thermal properties. Electrons in metals, band structure and semiconductors. The Fermi surface. Dielectric and magnetic properties of solids. Superconductivity. Offered occasionally. *Prereq: PHYS 105 and 112.*

PHYS 193. Biophysics Seminar 1 sem. hr.
The frontiers of research in biophysics, and the techniques employed, are explored through attending the weekly Biophysics Seminar at the Medical College of Wisconsin and participating in a follow-on discussion after each seminar. Offered both fall and spring terms. May be taken more than once for credit. This course may not be used to satisfy the 30 cr. hr. minimum requirements for a bachelor's degree in physics. *Prereq: Jr. stndg.*

PHYS 195. Independent Study 1-3 sem. hrs.
Independent study of special topics in physics under faculty supervision. Topics selected by students. This course may not be used to satisfy the 30 cr. hr. minimum requirements for a

bachelor of science in physics. Offered every term. *Prereq: Cons. of dept. ch.*

PHYS 196. Seminar in Physics 1 sem. hr.
Critical analysis of the original works of scientists who have made significant contributions to Physics. This course may not be used to satisfy the 30 cr. hr. minimum requirements for a bachelor of science in physics. Offered occasionally. *Prereq: Cons. of dept. ch.*

PHYS 197. Undergraduate Research
1-3 sem. hrs.
Experimental or theoretical research in an area of contemporary physics under the guidance of a physics faculty member who has expertise in that area. Successful completion of the course includes a summary paper and an oral presentation to the regular physics faculty. This course may not be used to satisfy the 30 cr. hr. minimum requirements for a bachelor of science in physics. *Prereq: Cons. of a regular physics faculty member and Jr. stndg.*

PHYS 198. Topics of Special Interest in Contemporary Physics 3 sem. hrs.
Topics drawn from areas of current interest such as astrophysics, atmospheric physics, condensed matter physics or particle physics. This course may not be used to satisfy the 30 cr. hr. minimum requirements for a bachelor of science in physics. Offered occasionally. *Prereq: Cons. of dept. ch.*

PHYS 199. Senior Thesis 2 sem. hrs.
Independent research under the guidance of physics faculty. The topic may be chosen from any area of physics. Successful completion of the course includes a written thesis on the research and an oral presentation. This course may not be used to satisfy the 30 cr. hr. minimum requirements for a bachelor of science in physics. *Prereq: Cons. of a regular physics faculty member and Sr. stndg.*

POLITICAL SCIENCE (POSC)

Chairperson and Professor: Friman
Assistant Chairperson and Associate Professor: McCormick
Professor: Boles, Dobbs, Fleet, LeBlanc, Rhodes, Thomas, Wolfe
Francis X. Wade Visiting Professor: Dierickx
Associate Professor: McAdams, Swank
Assistant Professor: Barrett, Barrington
Adjunct Professor of American Government; Director, Marquette University Les Aspin Center for Government: O'Brien

MAJOR:

Thirty-three hours of political science courses, in one of the three tracks described below, including six credits in major writing development classes (specified in each term's *Timetable of Classes*); and six credits from the lists of cognate courses. Students with more than one major must have at least fifteen hours of political science that is not counted for another major. Students majoring in political science will choose one of the following three options:

Track I: Politics

POSC 020, 040, 060, and 080, and seven upper division courses chosen from at least

three of Groups I-IV. Six credits from the following cognate courses: ECON 043, ECON 044, ENGL104, MATH 026, MATH 070, and any foreign language 082 or 182. Recommended major course: POSC 193.

Track II: Law and Politics

POSC 020 and 080, and either POSC 040 or 060; eight additional courses, including: POSC 133 and 134; POSC 165; POSC129 or 135; one other course from Group I; and one course from Group II. Six credits from the following cognate courses: ECON 043, ECON 044, MATH 026, MATH 070, and ENGL104. Recommended major courses: POSC 191 and 193.

Track III: Global Politics

POSC 020, 040, and 060; eight additional courses, including: POSC 165 or 167; POSC 177 or 178; one of: POSC 170, 173, 174, 175, 176, 179; one of: POSC128, 129, 130, 135; and two courses from Group III. Six credits of cognate courses: either a third year of foreign language, or ECON 043 and 044.

Recommended major courses: additional upper division courses from Groups III and IV.

Note: Students enrolled in the Les Aspin Washington Center for Government program may count a maximum of nine credit hours in political science taken in the program toward the major.

MINOR:

Eighteen hours, including POSC 020, 040, 060 and 080.

TEACHING MAJOR:

Thirty-six hours, including POSC 020, 040, 060 and 080, and also including a second, upper division course from each of Groups I-IV. The department also recommends that teaching majors select cognate courses from those listed in the various tracks above. Persons holding Wisconsin's Broad Field Social Studies license will be qualified to teach political science if they complete nine semester hours in the discipline.

Students should see the department adviser for middle school/secondary teaching majors or minors to consult about the appropriate sequence of courses. It is also important that prospective teachers study carefully the School of Education section of this bulletin regarding university and state requirements (in addition to department requirements) for teacher certification.

Please refer to "Core Curriculum Requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-four hours, including POSC 020, 040, 060 and 080, and also including a second, upper division course from each of Groups I-IV.

5-YEAR BA/MA PROGRAM:

The Department of Political Science offers a special program enabling students to earn an undergraduate degree and a Master of Arts degree in political science or international affairs in five years. For information, consult the *Graduate Bulletin* or contact the Department of Political Science.

INTRODUCTORY COURSES

POSC 020. American Politics 3 sem. hrs.

Problems of organizing and using governmental power at the national level. The principles of the U.S. Constitution. The Presidency, Congress and the federal judiciary. Public opinion, elections, political parties and interest groups. Issues of public policy. Offered every term.

POSC 040. Comparative Politics 3 sem. hrs.

Types of government, ranging from democratic to totalitarian. The parliamentary alternative to presidential democracy. Political modernization and revolution. Offered every term.

POSC 060. International Politics 3 sem. hrs.

Patterns of interaction among nations and sub-national and supranational entities. Cooperation and conflict. National interest, elements of power and war. Morality and human rights issues; economic, environmental, and resource issues in world politics. Recent developments and their impact. Offered every term.

POSC 080. Justice and Power 3 sem. hrs.

The debate between ancients and moderns about the fundamental elements of political life; as seen in works by Plato, Aristotle, Machiavelli, and Hobbes. Should be taken by POSC majors during sophomore year. Offered every term.

GROUP I: POLITICAL THEORY

POSC 080. Justice and Power 3 sem. hrs.

Course description listed under Introductory Courses.

POSC 100. Citizens, Beasts or Gods? 3 sem. hrs.

Are humans made for citizenship, for apolitical states of nature, or for self-transcendence into higher, suprapolitical beings? Authors such as Plato, Aristotle, Sophocles, Rousseau, Marx, Mill, and Nietzsche. Offered annually. *Prereq:* POSC 080 or Jr. stndg.

POSC 101. The Best Constitution 3 sem. hrs.

What is the best constitution? The purposes, organizational principles, social bases, problems, and relative merits of ancient and modern types of kingship, tyranny, aristocracy, oligarchy, and democracy. Authors such as Xenophon, Aristotle, Locke, Montesquieu, and Rousseau. Offered annually. *Prereq:* POSC 080 or Jr. stndg.

POSC 102. Democracy and Its Problems 3 sem. hrs.

Do democracies inevitably destroy themselves after a few decades or centuries, or can measures be taken to preserve them for longer periods? What factors affect their stability? Authors such as Thucydides, Machiavelli, "Publius," Tocqueville, and selected contemporaries. Offered annually. *Prereq:* POSC 080 or Jr. stndg.

POSC 104. Politics and the Kingdom of God 3 sem. hrs.

Do the messianic prophecies and events of the Hebrew and Christian scriptures imply or demand the transformation of politics into embodiments of the divine Kingdom? What are the implications of revelation for politics? Biblical texts, patristic, medieval and modern

theories. Offered occasionally. *Prereq:* POSC 080 or Jr. stndg.

POSC 105. Karl Marx 3 sem. hrs.

Primary works on freedom and alienation, history, capitalism, revolution, and socialism that have inspired Marxist movements. Offered every two years. *Prereq:* POSC 080 or Jr. stndg.

POSC 107. Political Novels 3 sem. hrs.

Great novelists of the past two centuries have offered important analyses of the grounds of order and the causes of disorder in human affairs. Achebe, Bellow, Conrad, Dostoyevsky, Mann, and Solzhenitsyn are among the writers selected for study. Offered annually. *Prereq:* POSC 080 or Jr. stndg.

POSC 108. Postmodern Politics 3 sem. hrs.

Nietzsche and the thinkers following in his wake who have tried to create a postmodern world. Offered every two years. *Prereq:* POSC 080 or Jr. stndg.

GROUP II: AMERICAN POLITICS

POSC 020. American Politics 3 sem. hrs.

Course description listed under Introductory Courses.

POSC 117. Urban Public Policy 3 sem. hrs.

Conditions in American cities and the extent to which they can be improved by political activity. Race relations, ethnicity and class and their effects on housing, education and income. Offered every two years. *Prereq:* POSC 020 or Jr. stndg.

POSC 118. Urban Politics 3 sem. hrs.

Urban governmental structures and techniques of gaining power in urban areas. The role of elected and appointed officials, political parties, economic elites, neighborhood organizations, and ethnic groups in urban politics. Offered every two years. *Prereq:* POSC 020 or Jr. stndg.

POSC 119. Politics of Race, Ethnicity, and Gender 3 sem. hrs.

The role of African-Americans, Asian Americans, Hispanics, white ethnics, American Indians, and women in shaping American politics through elections, political parties, and public office. The nature and impact of political organizations representing these groups. Offered every two years. *Prereq:* POSC 020 or Jr. stndg.

POSC 121. Interest Group Politics 3 sem. hrs.

How groups are organized around particular economic interests and political preferences in order to influence policy-making institutions. The internal incentive structure of political organizations, including business, professional, trade union, and "public interest" groups. Functions of, and biases inherent in, the group process. Offered annually. *Prereq:* POSC 020 or Jr. stndg.

POSC 122. Religion and Politics 3 sem. hrs.

Religion and politics in contemporary America. The historic patterns and current interactions of religious movements, denominations, and individuals involved in American politics. Specific attention given to the rationales used for religious involvement in politics, the types of political behavior employed, and the conse-

quences of that behavior. Offered occasionally. *Prereq: POSC 020 or Jr. stndg.*

POSC 124. Elections, Parties and Political Opinion 3 sem. hrs.

The development, functions, and membership of political parties in the United States. The opinions Americans hold on various issues, and how these opinions are influenced by institutions, including the family, schools, and the media. Why Americans vote as they do, including the effect of political parties and issues. Voter apathy and alienation and their sources. Offered every two years. *Prereq: POSC 020 or Jr. stndg.*

POSC 128. The United States Congress 3 sem. hrs.

Membership, legislative process, and internal distribution of power in the U.S. Congress. Congressional relationships with the presidency, executive bureaucracy, interest groups, and public. Offered annually. *Prereq: POSC 020 or Jr. stndg.*

POSC 129. National Security Policy 3 sem. hrs.

Defense policy processes in the United States; issues in defense decision-making, including the roles of the public, interest groups, Congress, the President, and executive agencies, with emphasis on the defense establishment; U.S. strategic doctrines since World War II; budgeting; civil-military relations. Offered every two years. *Prereq: POSC 020 or Jr. stndg.*

POSC 130. The United States Presidency 3 sem. hrs.

The evolution and contemporary status of the American presidency. Presidential elections, policy-making, advisory systems, and relationships with Congress, the bureaucracy, and the courts. Problems and techniques of decision-making. Offered occasionally. *Prereq: POSC 020 or Jr. stndg.*

POSC 133. Constitutional Law 3 sem. hrs.
Development of American constitutional law in the areas of judicial power, separation of powers, the presidency, state and national regulation of commerce, the taxing and spending power, and the rise and decline of due-process property rights. Same as CRLS133. Offered occasionally. *Prereq: POSC 020 or Jr. stndg.*

POSC 134. Civil Liberties 3 sem. hrs.
Development of American constitutional law in the areas of criminal defendants' rights, freedom of speech and religion, equal protection of the laws, and noneconomic due-process rights. Offered annually. *Prereq: POSC 020 or Jr. stndg.*

POSC 135. American Public Policy 3 sem. hrs.

U.S. domestic policy with special attention to the politics of national policy in the areas of the economy, social welfare, and the environment. The stages of the policy process: agenda-building, formation, budgeting, implementation, and evaluation. Offered every two years. *Prereq: POSC 020 or Jr. stndg.*

GROUP III: COMPARATIVE POLITICS

POSC 040. Comparative Politics 3 sem. hrs.
Course description listed under Introductory Courses.

POSC 141. Public Policy in Industrial Democracies 3 sem. hrs.

Politics of public policies in democratic political systems, with special attention to North America, Western Europe, and Japan. Alternative theoretical perspectives on the problem of social choice in democracies. Problems and policies in the areas of the economy, education, health, welfare, and the environment. Offered annually. *Prereq: POSC040 or Jr. stndg.*

POSC 142. European Politics 3 sem. hrs.
Nationalism and European identity; evolution of executive and legislative institutions; political parties; ongoing changes in the welfare state and state socialism; transformation of class structure; the challenge of post-industrial society. Include both Eastern and Western Europe. Offered annually. *Prereq: POSC 040 or Jr. stndg.*

POSC 145. Democracy, Authoritarianism and Totalitarianism 3 sem. hrs.

Three "ideal types" of political systems, and their manifestations in countries at different points in time. Topics include power, legitimacy, ruling elites, institution and economics. Examination of political system change through coup, revolution and peaceful transition. Offered occasionally. *Prereq: POSC 040 or Jr. stndg.*

POSC 148. Modern Revolutions 3 sem. hrs.
Types and causes of revolutions. Modern case studies. The American, French, Russian, German and selected "Third World" revolutions, with attention to ideas, institutions, socio-economic conditions, and the nature of actual changes. Offered every two years. *Prereq: POSC 040 or Jr. stndg.*

POSC 152. Russian and Post-Soviet Politics 3 sem. hrs.

Developments in Russia and the other countries which emerge from the collapse of the Soviet Union. Brief coverage of tsarist and Soviet politics, with a particular emphasis on reasons for the USSR's collapse and Soviet legacies, followed by an overview of domestic and international politics in the region. Offered every two years. *Prereq: POSC 040 or Jr. stndg.*

POSC 154. Chinese Politics 3 sem. hrs.
Origins of the Chinese Revolution, political change and conflict in post-1949 China, and the contemporary political system and political developments. Offered annually. *Prereq: POSC 040 or Jr. stndg.*

POSC 155. Japanese and Korean Politics 3 sem. hrs.

Political culture, unique patterns of modernization, and the contemporary political system in Japan and the two Koreas. Offered occasionally. *Prereq: POSC 040 or Jr. stndg.*

POSC 156. Latin American Politics 3 sem. hrs.

Government and politics in major Latin American countries. The politics of social change and development, seizures of power

and rule by the military, and the role of external factors. Offered every two years. *Prereq: POSC 040 or Jr. stndg.*

POSC 158. Politics of the Indian Subcontinent 3 sem. hrs.

The British in India; the Indian nationalist movement and the Hindu-Muslim struggle; political systems in India and Pakistan; the creation of Bangladesh; linguistic, economic, and social issues in South Asia. Offered every two years. *Prereq: POSC 040 or Jr. stndg.*

POSC 159. Third World Politics 3 sem. hrs.
Politics of agricultural development, industrialization, military intervention, and social and cultural conflict in Third World Countries. Offered every two years. *Prereq: POSC 040 or Jr. stndg.*

GROUP IV: INTERNATIONAL POLITICS

POSC 060. International Politics 3 sem. hrs.
Course description listed under Introductory Courses.

POSC 165. International Law 3 sem. hrs.
Law among states in peace and war. Historical background and political foundations of international law. The influence of judicial decisions, international courts and organizations, treaties, and practices of states upon the growing body of international law. Offered annually. *Prereq: POSC 060 or Jr. stndg.*

POSC 167. International Organization 3 sem. hrs.

Development and characteristics of international organizations. Functions of the League of Nations, the United Nations, and other organizations. Major contributions to international peace. Main political and legal problems. Offered annually. *Prereq: POSC 060 or Jr. stndg.*

POSC 170. United States Foreign Policy 3 sem. hrs.

Objectives of American foreign policy. Problems facing the United States in its relations with other countries. Trade, aid, propaganda and alliances as instruments of foreign policy. Offered annually. *Prereq: POSC 060 or Jr. stndg.*

POSC 173. International Politics of Europe 3 sem. hrs.

Evolution of the post-war settlement in Europe. Western European and Eastern European integration, relations between Western and Eastern Europe, Europe and the superpowers, French-German and intra-German relations, Europe and the Third World, European security issues. Offered occasionally. *Prereq: POSC 060 or Jr. stndg.*

POSC 174. International Politics of the Middle East 3 sem. hrs.

Historical and religious background of Middle East politics; comparative ideologies and political systems in the Middle East; Arab-Israeli relations; Persian Gulf politics; politics in the Maghreb; great power interests in the region. Offered occasionally. *Prereq: POSC 060 or Jr. stndg.*

POSC 175. International Politics of Asia 3 sem. hrs.

Principal patterns and problems of international politics in Asia, including international political

economy, development and security issues, and the impact of global trends. Regional focus varies with instructor. Offered occasionally. *Prereq: POSC 040 or 060 or Jr. stndg.*

POSC 176. United States-Latin American Relations 3 sem. hrs.

United States response to reform and revolutionary movements and governments in Latin America. The politics of trade, foreign investment, foreign assistance, and human rights. Offered every two years. *Prereq: POSC 060 or Jr. stndg.*

POSC 177. Politics of the World Economy 3 sem. hrs.

Political and economic dynamics of the world economy; historical and theoretical roots; international trade and monetary relations and the impact of hegemony, interdependence, regimes, and domestic politics; trade, debt, multinational corporations, and the dynamics of dependency and development; communism, capitalism, and change. Offered annually. *Prereq: POSC 060 or Jr. stndg.*

POSC 178. World Conflict and Security 3 sem. hrs.

Classical and contemporary theories of war and peace; just and unjust wars; principles of strategic analysis, arms control, and security policy-making; the proliferation of nuclear, chemical, and biological weapons. The international trade in arms; nationalism, ethnic conflict, and wars of secession. Offered annually. *Prereq: POSC 060 or Jr. stndg.*

POSC 179. Politics of the Illicit Global Economy 3 sem. hrs.

Political and economic dynamics of the illicit dimension of the global economy; historical and theoretical roots; state efforts to control illicit flows of goods and services including drug trafficking, arms smuggling, illegal migration, traffic in women and children, money laundering; exploration of transnational organized crime as a challenge to state power. Offered occasionally. *Prereq: POSC 060 or Jr. stndg.*

SPECIAL COURSES

POSC 182. Politics of the Internet 3 sem. hrs.

The origins and growth of the Internet. Legal and regulatory dilemmas posed by the Internet. The impact of the Internet on politics, society and economics. Offered occasionally. *Prereq: POSC 020 or 040 or 060 or 080 or Jr. stndg.*

POSC 191. The Logic of Social Inquiry: The Kennedy Assassination 3 sem. hrs.

The Kennedy Assassination. The question of who killed President John F. Kennedy, and whether there was a conspiracy. The physical evidence; eyewitness testimony; Lee Harvey Oswald, Jack Ruby, and suspected conspirators. The logic of social inquiry, and how we can approach "conspiracy" as an hypothesis to be tested. Offered annually. *Prereq: POSC 020 or Jr. stndg.*

POSC 193. Internship in Politics 1-4 sem. hrs.

Practical learning experience in politics. Evaluation will require the student to relate the experience to literature on the subject. Arrangements to be worked out by student, faculty member and agency concerned. Normally may be taken once.

A second internship may be taken in Washington, with permission of department chair or director of Les Aspin Center for Government. Second internships will count toward university elective credit, but not toward the political science major or minor. The 4-credit section is limited to students in the Washington Program. Offered every term. *Prereq: POSC 020 or Jr. stndg; 2.5 MU Q.P.A.; and cons. of dept. ch. and cons. of instr.*

POSC 195. Independent Study 1-3 sem. hrs. Offered every term. *Prereq: Jr. or Sr. stndg. and cons. of dept. ch. and cons. of instr.*

POSC 196. Undergraduate Seminar 3 sem. hrs.

Designed to initiate a selected group of qualified undergraduates in the techniques and discipline of scholarly research by concentrated work in a restricted field. Students pursue course reading in preparation of reports, while working under close supervision of a professor. Course intended primarily for Political Science majors, but other qualified students may apply. Specific subjects of seminars to be announced in the *Timetable of Classes*. Offered occasionally. *Prereq: Jr. stndg. and cons. of instr.*

POSC 198. Topics in Political Science 2-3 sem. hrs.

Lectures and discussion in a broad area which, because of its topicality, is not the subject of a regular course. May be taken a maximum of three times. Offered occasionally. *Prereq: Jr. stndg.*

POSC 199. Senior Thesis 3 sem. hrs. Preparation of a thesis by approved students under the direction of an adviser. Offered every term. *Prereq: Sr. stndg., cons. of dept. ch., and three sem. hrs. of POSC 195 (may be taken concurrently).*

PSYCHOLOGY (PSYC)

Chairperson and Professor: Lueger
Professor: Quereshi, Sheikh
Associate Professor: Czech, Franzoi, Grych, Guastello, McDonald (*Emeritus*), Nash, Saunders, Wierzbicki
Assistant Professor: de St. Aubin, Nielson, Siderits, Wandrei
Lecturer: Catz, Norden

MAJOR:

Thirty-five hours including PSYC 001, 060 and 090, and at least one course from at least five of the following eight content areas: Developmental (101 or 103); Social (111 or 104); Learning (121 or 122); Assessment (127 or 131); History and Systems (128); Personality Theories (132); Physiological (129 or 135); and Abnormal (137).

MINOR:

Six courses in psychology, including PSYC 001.

TEACHING MAJOR:

Thirty-five hours including PSYC 001, 060, 090, 101, 121 or 122, 128, 131, 132, 137 and any two upper division courses.

Students should see the department adviser for middle school/secondary teaching majors or minors to consult about the appropriate sequence of courses. It is also important

that prospective teachers study carefully the School of Education section of this bulletin regarding university and state requirements (in addition to department requirements) for teacher certification.

Please refer to Core Curriculum Requirements for Education Majors under Graduation Requirements in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-six hours including PSYC 001, 060, 090, 101, 128, 131, and 132.

NURSING/PSYCHOLOGY MAJOR

Thirty-five hours including PSYC 001, 060 and 090, and at least one course from at least five of the following eight content areas: Developmental (078); Social (111 or 104); Learning (121 or 122); Assessment (127 or 131); History and Systems (128); Personality Theories (132); Physiological (129 or 135); and Abnormal (NURS 142, 143).

EDUCATION COURSES FOR TEACHING MAJOR AND TEACHING MINOR:

Teaching majors and minors are also required to take 36 semester hours of courses in education including EDUC 008, 048, 078, 088, 095, 125, 135, 145, 158 and 175 or 176.

PSYC001. General Psychology 3 sem. hrs. Introduction to scientific psychology: biological bases of behavior; perception; principles of learning; intelligence and personality testing; current theories of personality; conflict, adjustment and mental health; interpersonal relations; social processes; applications of psychological principles to human affairs. Three hours of classroom instruction and one optional discussion hour for review of exams and special assistance with selected areas of course content. Offered every term.

PSYC060. Psychological Measurements and Statistics 3 hrs. lec., 1 hr. lab., 4 sem. hrs.

Logic and rationale of psychological measurement. Scales of measurement and statistical techniques. Descriptive statistics, the normal distribution and sampling theory, introduction to statistical inference. T-test, simple analysis of variance, chi square, measures of correlation. Offered every term. *Prereq: PSYC 001; and either three years of high school mathematics or MATH 020 or its equivalent.*

PSYC078. Introduction to Life-span Developmental Psychology 3 sem. hrs.

Principles, theories, and research in development. The entire life-span from conception to death will be studied with emphasis on theoretical approaches and empirically obtained data. The effects of genetic, social, and environmental factors on typical development patterns. Offered every term. *Prereq: PSYC 001 or equivalent.*

PSYC090. Research Methods and Designs in Psychology 3 hrs. lec., 2 hrs. lab., 4 sem. hrs.

Scientific methods and their application in psychology with emphasis on the experimental method. May include experimental, quasi

experimental, correlational and survey designs, as well as selection and implementation of descriptive and statistical analyses, individual laboratory projects, and preparation of scientific reports. Offered every term. *Prereq: PSYC 001 or equivalent; and PSYC 060.*

PSYC101. Developmental Psychology: Conception through Adolescence
3 sem. hrs.

Examines the developing human being from conception through adolescence. The concepts, methods, and theories relevant to the study of the developing child and adolescent will be considered. Investigates the major physical, cognitive, social and emotional changes during the phase of the life course, as well as the genetic and contextual influences on development. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC103. Developmental Psychology 3: Adulthood and Aging 3 sem. hrs.

Survey of theory and research in adulthood. Emphasis on adulthood, middle age, and old age. Typical developmental patterns will be analyzed, as will genetic, social, and environmental determinants. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC104. Industrial Psychology 3 sem. hrs.
Psychology applied to basic problems of industry: personnel selection, motivation, training, job satisfaction, job safety, leadership, performance appraisal, job analysis, and pertinent legal issues. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC107. The Psychology of the Exceptional Child 3 sem. hrs.

Description and psychological implications of various forms of physical and mental deviations. Educational, vocational, therapeutic and social facilities for exceptional children. May be taken for credit in special education by minors in special education-speech therapy. Offered annually. *Prereq: PSYC 101 or equivalent; or cons. of instr.*

PSYC 111. Introductory Social Psychology
3 sem. hrs.

The scientific study of how the person's thoughts, feelings and behavior are influenced by others. Areas of study include the self, social cognition, attitudes, conformity, friendship, romance, prejudice, helping, aggression and group behavior. Situational, cultural, biological and evolutionary factors will be examined. Offered every term. *Prereq: PSYC 001 or equivalent.*

PSYC 112. The Psychology of Prejudice
3 sem. hrs.

An overview of theory and research on the psychological underpinnings of intergroup intolerance, with emphasis given to racism, sexism, and heterosexism. *Prereq: PSYC 001.*

PSYC 114. Human Factors Engineering
3 sem. hrs.

Person-machine interactions, including sensory and motor phenomena and human limitations, controls and displays for computer-based and conventional machines, human information processing and artificial intelligence, workspace and environmental factors that influence optimal performance, relevant legal issues and human functioning in outer space. Offered

annually. *Prereq: PSYC 001 or equivalent and Jr. stdng.; or cons. of instr.*

PSYC121. Learning and Behavior
3 sem. hrs.

A comprehensive survey of methods and findings of classical and operant conditioning. Some introduction to theories of learning. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC122. Cognition 3 sem. hrs.

A systematic survey of classical and contemporary research topics in human learning; information processing, concept formation, problem-solving, verbal and motor learning. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC127. Principles of Psychological Testing 3 sem. hrs.

The nature of psychological measurement. Principles of evaluation, construction and analysis of tests. Uses and classification of tests. Standards of ethical conduct in using tests. Individual and group tests of aptitude, achievement, interests, attitudes, values and personality adjustment. Offered annually. *Prereq: PSYC 001 or equivalent; and PSYC 060.*

PSYC128. History and Systems of Psychology 3 sem. hrs.

The development of psychological thinking from the 17th century to the present. The contributions of Descartes and Newton to Locke and the other British empiricists and, through them, to German mechanism and physiological psychology. The influence of Darwin, Freud, behaviorism and Gestalt psychology. The phenomenological and humanistic movement after World War II. Offered annually. *Prereq: PSYC 090 or Sr. stdng.*

PSYC129. Sensory Processes and Perception 3 sem. hrs.

The physiological processes underlying the various sensory systems with special emphasis on visual and auditory sensory and perceptual phenomena. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC130. Motivation and Emotion
3 sem. hrs.

Theoretical and empirical concepts of motivation and emotion. How motivation affects the initiation, persistence or change, goal-directedness, and termination of behavior. Why behavior varies in intensity, and how individuals differ in motivation. The cognitive, physiological, motivational, and social aspects of emotions. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC131. The Psychology of Individual Differences 3 sem. hrs.

Problems and methods in the study of human differences. Physical, mental, racial, social and cultural variability. Offered annually. *Prereq: PSYC 001 or equivalent; and PSYC 060.*

PSYC132. Theories of Personality
3 sem. hrs.

The formulation of personality theory, its purpose and problems. Psychoanalytic, behavioral, humanistic, and other theories of personality and their various applications to human behavior. Review of relevant research findings. Offered every term. *Prereq: PSYC 001 or equivalent.*

PSYC135. Biopsychology 3 sem. hrs.
Biological foundations of behavior with emphasis on the nervous system. Physiological mechanism in sensation, perception, motivation, emotion and learning. Functional neuroanatomy. Offered without a laboratory component. Offered annually. *Prereq: PSYC 090 or cons. of instr.*

PSYC136. Animal Behavior 3 sem. hrs.
Animal behavior, both in natural and experimental situations, emphasizing early experience, motivation, physiological mechanisms, adaptiveness and the evolution of behavior. Offered occasionally. *Prereq: PSYC 001 or equivalent.*

PSYC137. Abnormal Psychology 3 sem. hrs.
The nature of normality-abnormality. Defense mechanisms and neurotic symptomatology. Functional psychoses and the personality pattern disturbances. Character disorders including sociopathy and passive-aggression, the addictions and sex deviations. Organic and psychosomatic disorders. Offered every term. *Prereq: PSYC 001 or equivalent.*

PSYC138. Childhood Psychopathology
3 sem. hrs.

The major types of psychological disturbances in children viewed as deviations from normal development. Causative factors in the genesis of behavior problems, with emphasis on social learning. Behavior modification techniques used with children. Offered annually. *Prereq: PSYC 101 or cons. of instr.*

PSYC139. Introduction to Clinical Psychology 3 sem. hrs.

Clinical psychology as a science and profession is discussed. Topics include the history, ethics, theories, roles and methods of clinical psychology. Also addressed are current issues concerning the practice of clinical psychology. Offered occasionally. *Prereq: PSYC 132 and 137.*

PSYC145. Psychology of Language
3 sem. hrs.

Survey of methods and results of research on language development and function; verbal behavior; language learning and bilingualism; speech perception; language disorders. Offered occasionally. *Prereq: PSYC 001.*

PSYC157. Psychology of Marriage and Family 3 sem. hrs.

Psychological theory and research pertinent to understanding marital and family functioning. Topics vary, but include the development of intimate relationships, the transition to parenthood, divorce, and family violence. Offered occasionally. *Prereq: PSYC 001 and sr. stdng.*

PSYC160. Psychology of Religion
3 sem. hrs.

Empirical research and findings pertinent to religion and religious experiences; psychological theories regarding religion; religious prac-

tices and experiences, religious orientation and awareness. Offered occasionally. *Prereq: PSYC 001.*

PSYC165. Human Sexuality 3 sem. hrs.
The scientific study of human sexuality from both a biological and behavioral perspective. Topics include: male and female sexual anatomy and sexual functioning, conception, pregnancy, childbirth, sexual variations, and sexually transmitted diseases. Offered annually. *Prereq: PSYC 001 or equivalent or cons. of instr.*

PSYC166. Psychology of Gender Roles 3 sem. hrs.

Biological and cultural bases of gender roles; the psychology of women and men and the consequent relationships between the sexes; the pressures of gender stereotype and the bases of non-stereotypic childrearing; implications of anthropological investigations for an understanding of sex role ascriptions; relationship between gender role and responses to sexuality; remedial education for personhood. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC170. The Psychology of Death and Dying 3 sem. hrs.

Review of the psychological literature on death. Social and individual attitudes toward death. Reactions to the anticipation of the death of self and of significant others. Ways of responding to loss and death including grief, mourning, and bereavement. A survey of the various theories of death and suicide. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC175. Health Psychology 3 sem. hrs.
This course examines the psychological aspects of health and illness. Topics include health promotion, stress and coping, prevention, lifestyle and health, psychological adaptation to chronic illness and pain, rehabilitation, and health service delivery. Offered occasionally. *Prereq: PSYC 001.*

PSYC180. The Psychology of Fantasy and Imagination 3 sem. hrs.

Review of theoretical, experimental, and clinical literature on fantasy and imagination; development of imaginal processes; types of imagery; cerebral asymmetries and the imaging process; physiology of imagination; imagery and learning; imagery and verbal communication; role of fantasy and imagination in creativity; imagination and make believe play; function of fantasy in sexual behavior; diagnostic and therapeutic uses of fantasy and imagination; role of imagination in hypnosis. Offered annually. *Prereq: PSYC 001 or equivalent.*

PSYC194. Field Experience in Psychology 3 sem. hrs.

Placement in an applied setting in which the student has the opportunity to observe psychological knowledge, skills, and values demonstrated in one or more professional roles. Requires supervision in the setting. Placement must be directed by a psychology faculty member. Accompanied by seminar, readings, and demonstrated knowledge of appropriate ethical principles. Offered annually. S/U grade assessment. *Prereq: Sr. stndg. and cons. of dept. ch.*

PSYC195. Independent Study 1-3 sem. hrs.
Independent study and research under the direction of a faculty member. Offered every term. *Prereq: Cons. of dept. ch.*

PSYC196. Advanced Undergraduate Seminar 3 sem. hrs.

Readings and discussion course designed to provide a high level overview of psychology with an emphasis on selected current topics. Each student will be expected to design and propose, but not necessarily conduct, a specific scholarly project. Offered annually. *Prereq: Cons. of instr.*

PSYC198. Selected Topics in Psychology 3 sem. hrs.

Contemporary theoretical and research trends in selected contemporary areas of psychology. Topics to be announced. Offered occasionally. *Prereq: Cons. of instr.*

PSYC199. Senior Thesis 3 sem. hrs.

Conduct empirical research involving an original research question under the direction of a psychology faculty adviser. Open to psychology majors. Offered every term. *Prereq: PSYC 090 or sr. stndg.; and grade point average of at least 3.500 in psychology, and 3.000 overall; and cons. of dept. ch. Maximum of six credits available for 199 alone or 195 and 199 combined.*

RESERVE OFFICERS' TRAINING CORPS

Air Force Aerospace Studies (AFAS)

Chairperson and Professor: Copsey
Associate Professor: De Muth, Fudge, Paton
AFAS courses are available to all Marquette University students, and especially intended for those enrolled in the Air Force ROTC Program. For information on the AFROTC Program see the University section of this bulletin.

Note: AFROTC students should note that most programs will probably entail more than the 128 hours normally required for graduation.

MINOR

AFAS011, 012, 021, 022, 131, 132, 141 and 142; plus 051 taken each term; for a total of 16 credits. In addition the student must complete 6 credits to obtain breadth of knowledge and a basis for understanding Joint Military Doctrine. Political Science (choose 1): 128 Congress and the President or 129 National Security Policy. Military Science/Army (choose 1): 010 Intro to Military Science or 011 Intro to Military Leadership. Naval Science/Navy (choose 1): 009 Intro to Naval Science or 022 Seminar in Sea Power.

Note: The courses in Army and Navy may not be taken until completing the Air Force required summer camp (usually taken between sophomore and junior year).

AFAS 011. Foundations of the Air Force Today 1 sem. hr.

Introduction to the organizational structure and missions of Air Force organizations; officership and professionalism; and includes an introduc-

tion to communicative skills. Open to all students. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 012. Foundations of the Air Force Today 2 sem. hr.

Continuation of AFAS 011. Open to all students. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 021. Evolution of the Air Force/Air and Space Power 1 sem. hr.

Focuses on factors contributing to the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; and an assessment of communicative skills. Open to all students. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 022. Evolution of the Air Force/Air and Space Power 2 sem. hr.

Continuation of AFAS 021. Open to all students. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 051. Leadership Laboratory 0 sem. hrs.

An average of two hours per week throughout the student's enrollment in AFROTC. Supervised instruction is conducted within the framework of organized cadet corps activities designed to develop each student's leadership potential. Also Air Force customs and courtesies, drill and ceremonies, career opportunities, and the life and work of an Air Force junior officer. All students pursuing Air Force commission must register for this course.

AFAS 131. Air Force Leadership Studies 1 sem. hr.

A study of leadership and quality management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 132. Air Force Leadership Studies 2 sem. hrs.

Continuation of AFAS 131. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 141. National Security Affairs/Preparation for Active Duty 1 sem. hr.

Examines the need for national security, analyzes the evolution and formulation of the American defense policy, strategy, and joint doctrine; investigates the methods for managing conflict; and overviews regional security, arms control, and terrorism. Special topics of interest focus on the military as a profession, officership, the military justice system, and current issues affecting military professionalism. Within this structure, continued emphasis is given to the refinement of communicative skills. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 142. National Security Affairs/ Preparation for Active Duty 2

3 sem. hrs.

Continuation of AFAS141. Students pursuing an Air Force commission must register for AFAS 051.

AFAS 193. Air Force Field Training

1-4 sem. hrs.

Off campus summer program offered at Tyndall Air Force Base (AFB), Panama City, Florida; Ellsworth AFB, Rapid City, South Dakota; and Lackland AFB, San Antonio, Texas. This course counts as completion of the General Military Course. This program is offered in lieu of AFAS 011, 012, 021, and 022. The five-week program provides the student with practical leadership experience and extensive practical training in fundamental leadership and military skills. Students do not incur military obligation, do not pay expenses, but do receive pay for this training. Offered only during the summer. S/U grading. *Prereq: Cons. of dept. ch.*

AFAS195. Independent Study 1-3 sem. hrs. Independent study of special topics in Aerospace Studies under faculty supervision. Topics selected by student/faculty conference. Offered every term. *Prereq: Cons. of dept. ch.*

Military Science and Leadership (MISL)

Chairperson and Professor: Hartmayer

Assistant Professor: Hunt, Stehle

Lecturer: Cleary, Sarte

MINOR:

MISL001-008, 010, 011, 024, 025, 135, 136, 137, 138, 144, 146, 147, 148, and HIST 118. In addition, the student must complete one term of written communication and one term of computer literacy.

Note: For a general discussion of the Army Reserve Officer Training Corps Program see the section entitled Military Science and Leadership in the University section of this bulletin.

Note: The required history for senior AROTC students is HIST 118, offered fall term.

Note: In addition to Military Science and Leadership courses listed here, Army Reserve Officers' Training Corps students are encouraged to complete a course in national security policy (POSC 129) and in management.

Note: Army Reserve Officers' Training Corps students should note that when most majors are combined with the Military Science and Leadership Program, graduation and commissioning requirements will exceed the 128-134 semester hours normally required for graduation.

MISL001, 003, 005, 007 Physical Training Laboratory 1 sem. hr.

Goal-oriented, small unit approach to physical conditioning and military drill. The physical conditioning phase is conducted two times per week. Conditioning is oriented towards strength development, cardiorespiratory endurance, and flexibility. Physical development and the ability to master principles of small unit leadership are stressed. Cadet physical development is measured by the Army Physical Fitness Test, con-

sisting of pushups, situps, and a timed two-mile run. Drill instruction is conducted on Fridays, and stresses fundamentals of unit organization, wear of the uniform, and practical application of small unit leadership techniques. The Physical Training Laboratory is required for all cadets who are enrolled in Military Science and Leadership courses. Non-military Science and Leadership students may elect to take only the physical conditioning portion of the Laboratory. Offered fall term.

MISL 002, 004, 006, 008. Physical Training Laboratory 1 sem. hr.

Goal-oriented, small unit approach to physical conditioning and military drill. The physical conditioning phase is conducted two times per week. Conditioning is oriented towards strength development, cardiorespiratory endurance, and flexibility. Physical development and the ability to master principles of small unit leadership are stressed. Cadet physical development is measured by the Army Physical Fitness Test, consisting of pushups, situps, and a timed two-mile run. Drill instruction is conducted on Fridays, and stresses fundamentals of unit organization, wear of the uniform, and practical application of small unit leadership techniques. The Physical Training Laboratory is required for all cadets who are enrolled in Military Science and Leadership courses. Non-Military Science and Leadership students may elect to take only the physical conditioning portion of the Laboratory. Offered spring term.

MISL010. Introduction to Military Science 1 sem. hr.

Introduction to the national security structure with emphasis on today's Army. Role of the Reserve Officers' Training Corps in providing leaders for the Army. Roles of active and reserve components to include basic Army organizations, missions and chain of command. Customs, courtesies, and traditions of the U.S. Army. Introduction to branches of the Army, their missions and relationships to students' academic majors. Offered fall term.

MISL011. Introduction to Military Leadership 1 sem. hr.

Introduction to the principles of leadership and their application to the military. An in-depth examination of the concept of leadership, the character of a leader and the knowledge he/she must possess. A practical application of basic individual skills necessary for small unit leaders. Students learn fundamentals in leadership, military map reading, first aid, written and oral communications and physical fitness. Offered spring term.

MISL 024. Basic Military Skills 2 sem. hrs. Practical application of basic individual skills necessary for all future military leaders: proper movement techniques, land navigation, and targeting with various weapons systems. Students will prepare and issue operations orders and, by assuming positions of authority, develop leadership abilities. Offered fall term. *Prereq: MISL010 and 011; or cons. of instr.*

MISL025. Military Skills 2 sem. hrs. Practical application of basic individual skills necessary for small unit leaders. Students learn fundamentals in map reading, seven life saving first aid steps. Students will conduct briefings

and participate in practical exercises as a small unit leader. Offered spring term. *Prereq: MISL 010 and MISL011; or cons. of instr.*

MISL135. Applied Leadership 1 2 sem. hrs. Advanced study and application of the principles of leadership, management, team building and motivation theory. Cadets must develop and demonstrate skills in planning, decision making and presentation techniques in a series of practical opportunities to lead small groups. Students identify training requirements, coordinate resources and conduct training. Experiential learning through case studies, simulations and exercises. Offered fall term. *Prereq: MISL010, 011, 024, and 025; or cons. of instr. Coreq: MISL137.*

MISL 136. Applied Leadership 2 2 sem. hrs. Study of organization, composition and mission of operational elements. Cadets must apply the principles of offensive and defensive operations with emphasis on squad and platoon level. Topics include troop-leading procedures, tactical orders, movement to contact, combat patrolling, reconnaissance and tactical intelligence and tactical leadership. Offered spring term. *Prereq: MISL135. Coreq: MISL138.*

MISL137. Applied Leadership Laboratory 1 1 sem. hr.

Practical exercises and evaluations in military leadership skills including operational planning, quality management and inspections, and controlling small groups in realistic settings. Students develop training programs, plan training sessions, and present classes for this and other Military Science Leadership labs. Topics include individual and small unit movement techniques, communicating by tactical radio, water survival (drownproofing), drill and ceremony, and land navigation skills. Offered fall term. *Coreq: MISL135.*

MISL138. Applied Leadership Laboratory 2 1 sem. hr.

Practical exercises and evaluations in military leadership skills including operational planning, quality management and inspections, and controlling small groups in realistic settings. Students develop training programs, plan training sessions, and present classes for Military Science Leadership labs. Topics include field training exercises, tactical leadership, decision making and squad level offensive and defensive battle drills. *Coreq: MISL136.*

MISL144. Organizational Leadership 2 sem. hrs.

Introduction to planning, organizing and directing military staff and command activities. Study of logistics and maintenance management at the small unit level. Description of personnel management and training, and training management. Thorough discussion of practical situations facing junior officers upon entering military service. Offered spring term. *Prereq: MISL135 and 136. Coreq: MISL148.*

MISL146. Military Law, Professionalism and Ethics 2 sem. hrs.

Introduction to the Uniform Code of Military Justice, the Manual for Courts Martial, personal

affairs/legal assistance and international law. Discussion of the Army officer's responsibilities focusing on the requirement to develop awareness of and sensitivity to ethical issues. Real world case studies emphasize the pragmatic and ethical decision making process. Offered fall term. *Prereq: MISL135 and 136. Coreq: MISL147.*

MISL147. Advanced Leadership Laboratory 1 No credit.

Weekly practical exercises and preparatory periods for command staff functions, drill and ceremonies, assistant instructor roles and field training exercises. Students perform roles of cadet officers in assigned positions or tasks. Offered fall term. *Coreq: MISL146.*

MISL148. Advanced Leadership Laboratory 2 No credit.

Weekly practical exercises and preparatory periods for command staff functions, drill and ceremonies, assistant instructor roles and field training exercises. Students perform roles of cadet officers in assigned positions or tasks. Offered spring term. *Coreq: MISL144.*

MISL 193. Military Science Practicum 6 sem. hrs.

Off-campus summer program offered at the U.S. Army Reserve Officers' Training Corps Basic Camp, Fort Knox, Kentucky. This program counts as completion of the Basic Course. The six-week program provides the student with practical leadership experience and extensive practical training in fundamental leadership and military skills. Students do not incur military obligation, do not pay expenses, but do receive pay for this training. The program is offered in lieu of MISL010, 011, 024, and 025. Offered only during the summer. *Prereq: Cons. of dept. ch. S/U grading.*

MISL195. Independent Study 1-3 sem. hrs. Independent study of special topics in Military Science under faculty supervision. Topics selected by student/faculty conference. Offered every term. *Prereq: Cons. of dept. ch.*

Naval Science (NASC)

Chairperson and Professor: Kaser
Associate Professor: Henn
Assistant Professor: Lara, Petschler, Rossow, Moller

Note: NROTC students should note that most programs will probably entail more than the 128 hours normally required for graduation.

MINOR:

Twenty hours of Naval Science courses from the following: NASC 009, 022, 142, 151, 152, 162, 185, 186 and/or 195. Marine Option students substitute NASC 161, 181, and 193 for 151, 152, 185 and 186.

Additional requirements: All NROTC Navy Option scholarship students are required to complete two terms of calculus by the end of the sophomore year: (MATH 080 and 081). Core and major requirements may dictate what combination of calculus courses must be taken. In addition, Navy Option scholarship students must complete two terms of calculus-based physics (PHYS 003 and 004) by the end of the junior year. Navy Option scholarship students

must also complete HIST 118 or POSC 129, one term of computer science, and two terms of English. To be competitive for selection for a scholarship, non-scholarship students should plan on completing two terms of calculus (MATH 080 and 081) by the end of the freshman year and two terms of Physics (PHYS 003 and 004) by the end of the sophomore year. For specific details, contact the Professor of Naval Science.

NASC 001. Drill and Information Briefing 0 sem. hrs.

Weekly formations focusing on Marine Corps and Navy drill, ceremonies, and inspections. Classroom instruction on special interest areas to the prospective naval officer such as financial responsibilities, career opportunities, leadership, maritime strategy, national security and sailing. Instruction and application of the fundamentals of unit organization, the chain of command, and how to properly wear and inspect uniforms. Designed to develop teamwork, leadership, management, and initiative. Required of all NROTC midshipmen every term. Offered every term.

NASC 009. Introduction to Naval Science 2 sem. hrs.

General introduction to seapower and the naval service. The instruction places particular emphasis on the mission, organization, regulations and broad warfare components of the Navy. Included is an overview of officer and enlisted rank and rating structures, procurement and recruitment, training and education, promotion and advancement and retirement policies. Offered fall term.

NASC 022. Seminar in Sea Power and Maritime Affairs 3 sem. hrs.

Influence of U.S. Sea Power and Maritime Affairs on international economic and political relationships. Classroom discussions based on independent reading. Offered spring term. *Prereq: Non-NROTC students require cons. of dept. ch.*

NASC 142. Naval Ship Systems 1 3 sem. hrs. Ship design, construction, types and missions. Ship compartmentation, interior communications; propulsion, auxiliary power and ship control systems. Elements of ship design for safe operation. Ship stability characteristics. Offered spring term.

NASC 151. Navigation and Naval Operations 1 3 sem. hrs.

Theory, principles and procedures of ship navigation and movements. Nautical astronomy, oceanographic factors, piloting, celestial navigation, celestial sights, sextants, charts, publications, electronics aids and inertial navigation systems. Rules of the nautical road, lights, signals, and navigational aids. Offered fall term. *Prereq: Non-NROTC students require cons. of dept. ch.*

NASC 152. Navigation and Naval Operations 2 3 sem. hrs.

Theory, principles and procedures of ship navigation, movements and employment. Tactical formations and dispositions, relative motion and maneuvering board solutions. Analysis of tactical plots for force effectiveness. Offered spring term. *Prereq: Non-NROTC students require cons. of dept. ch.*

NASC 161. Evolution of the Art of War 3 sem. hrs.

Military principles and concepts throughout history. Tactical and strategic applications in selected engagements. Offered alternate fall terms.

NASC 162. Naval Ship Systems 2 3 sem. hrs. Theory and principles of operations of naval weapons systems including types, capabilities, limitations. Theory of target detection, acquisition, identification and tracking. Principles of trajectories. Offered fall term. *Prereq: NASC 142.*

NASC 181. Amphibious Warfare 3 sem. hrs. Application of amphibious doctrine to battles of World War II and the Korean conflict. Offered alternate fall terms. *Prereq: Non-NROTC students require cons. of dept. ch.*

NASC 185. Leadership and Management 3 sem. hrs.

Stress on experiential approach to leadership and management with military emphasis. Motivation and communication theory and practice. Group dynamics decision making techniques. Lines of control and organizational structure. Case studies, experiential exercises and situational problems will be used. Offered fall term. *Prereq: Non-NROTC students require cons. of dept. ch.*

NASC 186. Leadership and Ethics 3 sem. hrs.

Applied techniques and theories learned in NASC 185. Practical application of sound leadership and ethics to Navy situations. Counseling, discipline, and administration are explored. Offered spring term. *Prereq: NASC 185, and Non-NROTC students require cons. of dept. ch.*

NASC 193. Practicum in U.S. Marine Corps Leadership and Management 4 sem. hrs.

Provides instruction and practical application of Leadership and Management Technique used in the Marine Corps and Naval Service. The course is held at the Officer Candidate School at Quantico, Virginia. S/U grades only. *Prereq: Jr. stndg. in USMC option.*

NASC 195. Independent Study 1-3 sem. hrs. Independent study of special topics in Military Science under faculty supervision. Topics selected by student/faculty conference. Offered every term. *Prereq: Cons. of dept. ch.*

SOCIAL AND CULTURAL SCIENCES

Chairperson and Professor: Miller
Professor: Buckholdt, Holstein, Metz, Moberg (Emeritus)
Associate Professor: Farkas, R. Jones, Sullivan, Zevitz
Assistant Professor: Archbold, Coles, Peterson, Staral, Stichman, W. Thomas

Adjunct Professor and Director of the
Archaeological Resource Center: Overstreet
Adjunct Assistant Professor: Johnstone

The Department of Social and Cultural Sciences is a multidisciplinary department. The department offers students the opportunity to expand their educational horizons by pursuing two majors within the department. Identified courses within the Department of Social and Cultural Sciences may be counted toward the completion of both majors. Consult your faculty adviser and handbook for details.

Anthropology (ANTH)

Courses are grouped according to the main streams of emphasis: Linguistics is covered by ANTH 109 which is grouped with courses in method and theory; 120–129 covers cultural anthropology; 140–149 represents archaeology; and 150–159 lists physical anthropology.

MAJOR:

Thirty hours, including ANTH 001, 101, 105, 106, 109, 191, and 12 additional hours in upper division courses.

MINOR:

Eighteen hours, including ANTH 001.

TEACHING MAJOR:

Thirty-four hours, including ANTH 001, 002, 101, 105, 109, 191 and at least one course in the Peoples and Cultures series (ANTH121–128).

Students should see the department adviser for middle school/secondary teaching majors or minors to consult about the appropriate sequence of courses. It is also important that prospective teachers study carefully the School of Education section of this bulletin regarding university and state requirements (in addition to department requirements) for teacher certification.

Please refer to "Core Curriculum Requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-two hours, including ANTH 001, 002, 101, 105, 109, 121, with a minimum quality point average of 2.700 in Anthropology.

PREREQUISITES:

The designation "Recommended prerequisite" that follows most courses has two implications: (1) The instructor will teach the course as if all students enrolled had completed satisfactory work in the prerequisite. (2) Any student who seeks a challenging intellectual experience, particularly an advanced major in some field other than anthropology, may enroll without the prerequisites, but in so doing assumes full responsibility to obtain independently an adequate background which is the equivalent of the listed prerequisites.

ANTH 001. Introductory Anthropology

3 sem. hrs.

Introduction to human social and cultural variation. Prehistory as reflected in archaeology. Human biological evolution as manifest in paleontology. Human biological variation in the contemporary world. Offered every term.

ANTH 002. Introduction to Biological

Anthropology 3 sem. hrs.

The evolution of humans and history of evolutionary concepts. Evolutionary process documented in genetic principles, primate behavior, human ancestors and ongoing evolution in the human species. Cannot be taken for core curriculum natural science credit by students who have received natural science credit in ANTH106. Credit will be given toward fulfillment of the science requirement in the Arts and Sciences core curriculum.

ANTH 101. Cultural Anthropology 3 sem. hrs.

Fundamentals of ethnology, the comparative study of cultures, through a survey of anthropological community studies that represent a variety of world areas. Examines localized responses to universal human challenges such as meeting subsistence needs, resolving conflict, and coping with change. Traditional approaches to ethnographic fieldwork are reviewed as basis for considering innovations in method and theory. Offered annually.

ANTH 105. Archaeology and Prehistoric Cultures 3 sem. hrs.

Development of human cultures from earliest evidence to literate urban societies in Europe, Asia, Africa, and the Americas. Examination of principal influences on prehistoric culture change. Offered annually.

ANTH 106. Human Evolutionary Process 3 sem. hrs.

Darwinian models of evolutionary process. Critiques of the Darwinian model with reference to macroevolutionary process in the order Primates and microevolutionary events in the species sapiens. Cannot be taken for Arts and Sciences natural science credit by students who have taken ANTH002. Offered annually. Credit will be given toward fulfillment of the science requirement in the Arts and Sciences core curriculum.

ANTH 109. Language and Culture 3 sem. hrs.

The role of language in human life. Comparative linguistic analysis. Interdependence of language and culture. Offered annually.

ANTH 110. Human Geography 3 sem. hrs.

Description and world distribution of landscapes with (1) an analysis of past and present interplay among land forms, biota, and human activity; (2) an investigation into the manner in which culture is both restricted and stimulated by different habitats; and (3) a critique of the ecological problems resulting from modifying the landscape. Offered annually. Fulfills geography requirement for social studies teaching certification.

ANTH 111. Economic Anthropology

3 sem. hrs.

The distributive aspects of nonliterate societies. Inter-relations of distribution with productive organization, division of labor, etc. Consideration of the problem and strategies of economic development. Offered occasionally. *Recommended prereq: ANTH 001.*

ANTH 112. Anthropology of Religion

3 sem. hrs.

Cross-cultural perspective on religion in human societies. Examples from Western and non-Western societies, rituals, healing, revitalization, role of religion. Offered occasionally.

ANTH 116. Culture Change and

Development 3 sem. hrs.

Societal changes analyzed from holistic anthropological perspective. Recognizing factors of long-term cultural change; modernization of the West and Third World countries; ecological and social problems related to development in the contemporary world. Offered occasionally. *Prereq: ANTH 001 and 101 recommended.*

ANTH 121. Native Peoples of North America 3 sem. hrs.

Ethnology of native peoples of North America: culture areas, major cultural patterns, history, and present conditions. Importance of American Indian studies to anthropological theory. Offered alternate years.

ANTH 125. People and Cultures of the Middle East 3 sem. hrs.

This course explores the variety of Middle Eastern cultures with reference to topics of central concern to cultural anthropology: environment, economics, social structure, political systems, religion, and culture change. Nomadic, rural agricultural, and urban groups are discussed. Offered occasionally. *Recommended Prereq: ANTH 001 or ANTH101.*

ANTH 126. European Cultures and Peoples 3 sem. hrs.

Cultural traditions and contemporary ethnic issues of European nations; heritage of ethnic European descendants in the United States. Offered occasionally.

ANTH 129. Urban Anthropology 3 sem. hrs.

The anthropological analysis of social and cultural institutions in contemporary, pluralistic, industrial based, urban societies. The course emphasizes the contribution made to understanding such societies by use of the traditional analytic techniques developed by anthropologists for studying the institutions of simpler, smaller communities, techniques that complement those used by other social sciences. Offered occasionally. *Recommended Prereq: ANTH 001 or 101.*

ANTH 130. Women and Men in Cross-Cultural Perspective 3 sem. hrs.

Examination of roles and statuses of men and women, and of ideology of the nature of men and women, in selected societies around the world, including contemporary American society. The effects of political and economic conditions and policy initiatives on men and women. Offered annually.

ANTH 141. Prehistory of North America 3 sem. hrs.

Archaeology of North America, including Mexico, from earliest migrations to European contact; background for historic Indian peoples. Archaeological methods and controversies. Offered occasionally. *Recommended Prereq: ANTH 105.*

ANTH 142. Prehistory of South America 3 sem. hrs.

Primitive and civilized peoples of ancient Middle and South America from Paleo-Indian period to Aztecs, Mayas, and Incas. Development of the great Indian nations and discussion of marginal areas. Offered occasionally. *Recommended Prereq: ANTH 105.*

ANTH 144. The Rise of Agriculture

3 sem. hrs.

Process and variation in the development of farming and herding societies. Archaeological record pertaining to domestication of plants and animals in North and South America, Near East, Africa, and East Asia. Offered alternate years. *Prereq: ANTH 105 or cons. of instr.*

ANTH 145. The Rise of Civilization

3 sem. hrs.

Patterns of processes involved in the development of complex social systems. Archaeological records of state formation and urbanization in Egypt, Mesopotamia, and Mesoamerica. Offered alternate years. *Prereq: ANTH 105.*

ANTH 146. Ethnoarchaeology 3 sem. hrs.

This course introduces students to the theories and methods of ethnoarchaeology; that is, how archaeologists understand material culture patterns and cultural content through the study of living groups. Case studies highlight the historical development of the field and the variety of approaches that are used. Offered alternate years. *Recommended Prereq: ANTH 105.*

ANTH 147. Bioarchaeology 3 sem. hrs.

Reconstruct patterns of human behavior from integrated biological data sets. Archaeological evidence drawn from human skeletal, plant, and faunal remains. Address questions of nutrition, pathology, occupation, and mortuary ritual. Offered alternate years. *Prereq: ANTH 105, or cons. of instr.*

ANTH 148. Archaeological Fieldwork

3 sem. hrs.

An introduction to methods used in the excavation and analysis of prehistoric sites. Surveying techniques, stratigraphy, analyses of soils and landforms, analytical fundamentals of prehistoric material remains. Offered summer. *Prereq: ANTH 105, and SOCI 060 or equivalent statistics course.*

ANTH 151. Human Osteology and Odontology 3 sem. hrs.

The anatomy of the skeleton and teeth. Methods of analysis of biological dynamics of past populations including reconstruction of population structure and patterns of disease. Offered alternate years. *Prereq: ANTH 106.*

ANTH 152. Origins of the Human Species 3 sem. hrs.

The biological past of the species sapiens. The biological legacy of the non-human primate past and the fossils which exemplify the evolutionary trends of our species. Offered alternate years. *Prereq: ANTH 106.*

ANTH 153. Demography 3 sem. hrs.

Methods of analyzing population structure in small-scale societies, including studies of mortality and fertility patterns in bio-social and environmental contexts. Offered occasionally. *Prereq: ANTH 001.*

ANTH 155. Sex and Evolution 3 sem. hrs.

The evolutionary significance of sex. Mechanisms of reproduction and sexual reproduction as a source of variation. Reproductive anatomy, sexual strategies and adaptation as well as sexual selection in the order Primates. Offered occasionally. *Prereq: ANTH 106.*

ANTH 191. Development of Anthropological Theory 3 sem. hrs.

Major theoretical concepts and issues of Anthropology from 19th century beginnings to present. An overview of the development of the science with study of key figures and critiques of current work. Offered annually. *Prereq: 12hrs. of Anthropology and Sr. stndg.*

ANTH 193. Internship in Anthropology

3 sem. hrs.

Supervised placement for pre-professional experience in applying anthropological concepts, principles, and methods in a museum, school, hospital, business, or other appropriate institutional setting. Minimum of 8 hours per week in the agency. Mid-term and final reports summarizing activities and integrating experiences with relevant anthropological literature. Offered every term. *Prereq: 9 credits in Anthropology including 001 and one or more of the following: 101, 105, 106, 109; Jr. stndg; Q.P.A. of 3.0 in ANTH courses; arrangements formalized during prior term with cons. and assistance of instructor.*

ANTH 195. Independent Study 1-3 sem. hrs.

Supervised study of a specific area or topic in anthropology. Offered every term including summer. *Prereq: Cons. of instr. and cons. of dept. ch.*

ANTH 196. Seminar in Anthropology

3 sem. hrs.

Exploration of selected problems in Anthropology through directed student research and group discussion. Variable topics. Offered occasionally. *Prereq: 12 hrs. of Anthropology.*

ANTH 198. Special Topics in Anthropology

3 sem. hrs.

The special topics of 198 will be designated in the *Timetable of Classes*. Offered occasionally. May be taken a maximum of two times. *Prereq: No prerequisites unless announced in the Timetable of Classes.*

ANTH 199. Senior Thesis 1-3 sem. hrs.

For majors in Anthropology. Research project and paper prepared under faculty supervision. Strongly recommended for students planning to enter graduate programs. Offered every term. *Prereq: Sr. stndg., cons. of instr. and cons. of dept. ch.*

Criminology and Law Studies (CRLS)

The Criminology and Law Studies major is designed to provide a broad based liberal arts education for undergraduates interested in careers in criminal justice and law. The major also provides preparation for professional and graduate study in law, criminology, and public administration. Students in other major fields of study interested in expanding their knowledge of the legal system may elect Criminology and Law Studies courses.

Courses in the Criminology and Law Studies Program are taught by faculty from both the College of Arts and Sciences and criminal justice practitioners.

MAJOR:

Thirty hours, including CRLS 051, 104 (or SOCI 104), 156, 157 or 159, 186, and 187,

plus twelve hours selected from other CRLS courses.

Majors must fulfill half of their core curriculum mathematics-logic-computer requirement with SOCI 060 (Social Statistics).

The department encourages students to expand their intellectual and professional horizons by pursuing a second major within the department. Students majoring in Criminology and Law Studies may complete a second major in Sociology by taking the required courses for the Sociology major plus 5 elective courses. Up to two courses from the following list may be counted for credit towards both the CRLS and SOCI majors: CRLS 152, CRLS 155, CRLS 167, CRLS 168, SOCI 104, SOCI 153, SOCI 154, SOCI 159. Students choosing to take SOCI 104 in place of CRLS 104 are required to take an additional elective in CRLS. A total of 54 credit hours from CRLS and SOCI is required.

MINOR:

Eighteen hours, including CRLS 051 and fifteen hours of electives in CRLS courses (with the exception of 193).

CRLS 051. Introduction to Criminology

3 sem. hrs.

Survey of recent trends in crime and delinquency. The nature of and societal reaction to criminal behavior. Personal and social factors in crime causation. Critical analysis of criminological theories as well as the operation of criminal justice agencies. Offered every term.

CRLS 083. Introduction to the Law

3 sem. hrs.

Legal concepts and classifications; legal philosophy, including the sources and nature and functions of law; legal methods; legal research; legal ethics; basic processes and judicial processes and procedures; the court system, state and federal. Offered occasionally.

CRLS 104. Methods of Criminological Research 3 sem. hrs.

Basic methodological issues in the study of crime, criminals, and the law; principles, purposes, and limits of research; introduction to empirical research design and methods of inquiry, including formulating and testing hypotheses, sampling procedures, data collection techniques, and ethical issues in preparation of research reports. Offered every term. *Prereq: SOCI 060 or equivalent, or cons. of instr.*

CRLS 133. Constitutional Law 3 sem. hrs.

Development of American constitutional law in the areas of judicial power, separation of powers, the presidency, state and national regulation of commerce, the taxing and spending power, and the rise and decline of due-process property rights. Same as POSC 133. Offered occasionally. *Prereq: POSC 020 or Jr. stndg.*

CRLS 151. History and Philosophy of Crime and Punishment 3 sem. hrs.

A study of crime and punishment from both the historical and philosophical perspectives. The course will emphasize the European experiences as a foundation for understanding American developments. Emphasis will be placed on the interdisciplinary aspects of crime and punishment. May be counted toward the core curriculum requirement in either philosophy or social-behavioral science. Same as

HIST 151 and PHIL151. Offered annually.
Prereq: Soph. stndg. and PHIL050.

CRLS 152. Juvenile Delinquency/Juvenile Justice 3 sem. hrs.

Definitions of delinquent behavior. Nature, etiology, and extent of juvenile delinquency; contributing social problems; adolescence as a subculture. The adjudication process for juveniles: philosophy, development, and organization. Diversion, detention, and treatment of the juvenile offender. Offered occasionally.

CRLS 155. Criminological Theory 3 sem. hrs.
Analysis of the nature and consequences of delinquency and crime. Classical and contemporary examinations of criminal behavior. The effects of social interaction, social class, social organization, small groups, and other variables on crime patterns and efforts to cope with crime. Relationship of criminological theory to social policy issues. Offered occasionally.

CRLS 156. Corrections: Prisons, Probation, and Parole 3 sem. hrs.

Analysis of the organization of correctional agencies and the role of corrections in the criminal justice system. Review of relevant theories, practices, systems, and treatment methods. Offered every term.

CRLS 157. Police and Society 3 sem. hrs.

Social and historical origins of the police; police organization; police culture, roles and careers; police in the legal system, police discretion in practice, police and the community. Offered every term.

CRLS 158. Victimology 3 sem. hrs.

Examination of the roles and functions of the victim within the civil and criminal justice systems. An investigation into victim attitudes, beliefs, problems, and needs; theories of victimization; experiences of victims within the legal system; victim assistance programs; and public policy and victimology. Offered occasionally.

CRLS 159. Police Organization and Administration 3 sem. hrs.

Organization and administration of police agencies. Principles of planning, personnel management, line operations, staff and auxiliary services. Organizational models and leadership styles. Internal control and policy formation. Evaluation of effectiveness. Offered occasionally.

CRLS 160. Ultimate Penalties in the Criminal Justice System 3 sem. hrs.

A critical look at the rationales and history of corporal punishment, capital punishment, and life imprisonment without possibility of parole in order to understand the endurance of these types of sanctions in modern society. The focus will be on the philosophical, legal, social, and political aspects of the punishments. Research on ultimate punishments, such as frequency of use, characteristics of offenses and offenders, will also be presented. In addition, the course will examine the experience of sentenced offenders and their families, and correctional staff in implementing the punishments. Offered occasionally.

CRLS 162. White Collar Crime 3 sem. hrs.

Survey of current theoretical, research and public policy issues regarding white collar

crime. Definitions of white collar crime as well as various typologies of white collar crime activity. The nature, extent, and consequences of white collar crime in the U.S. Strategies for combatting white collar crime as well as prospects of alternative systems of control, such as civil litigation, will be assessed. Offered occasionally.

CRLS 163. Criminal Violence in America 3 sem. hrs.

Analysis of violent crime in American society and ways in which the criminal justice system responds to it. Examination of the causes of violent crime, its prevention, treatment and public policy ramifications. Historical and contemporary understanding of the significance of violence in American culture. Critical evaluation of methods utilized to deal with violent offenders. Offered occasionally.

CRLS 164. Organized Crime 3 sem. hrs.

Examination of the political, social, and economic conditions involved in the appearance and expansion of organized crime in the United States. Descriptions of structures as well as internal and external dynamics, including incentives and penalties employed by criminal groups. Explanation of investigative techniques and impact of police, courts, and correctional agencies. Offered occasionally.

CRLS 165. Comparative Justice Systems 3 sem. hrs.

The nature and character of police, prosecutorial, court, and correctional activity and operations in world legal systems. An examination of common law, civil law, socialist, and Islamic systems of law and social control. Offered occasionally.

CRLS 166. Clinical Criminology 3 sem. hrs.

The theory, research and practice dimensions of clinical criminology, with a focus on sociological, psychiatric, biological, biosocial learning, cognitive, psychoanalytic theory. Examination of deviant and/or criminal interactions and their consequences. Topics for possible inclusion: substance abusers, psychopathic and violent offenders, spouse and child abusers, sex offenders, juvenile offenders, female offenders. Orientation to clinical techniques and therapy as they apply to intervention, decision-making, incarceration and sentencing, and modifications of behavior. Offered occasionally.

CRLS 167. Women, Crime, and Criminal Justice 3 sem. hrs.

Examination of the roles of women in the criminal justice system. Critical analysis of the relationship of women as offenders, as victims, and as agents of social control. Review of relevant theories and practices and both historical and contemporary issues. Offered occasionally.

CRLS 168. Family Violence and Public Intervention 3 sem. hrs.

Analysis of maltreatment of children, youth, spouses, and seniors within the family. Examination of causes and intervention methods emphasizing the response of actors and government agencies. Offered annually. Same as SOWO 168. SOWO majors register for SOWO 168.

CRLS 181. Ethics in Criminal Justice

3 sem. hrs.

An introduction to prevailing ethical controversies confronting the process and agencies of contemporary criminal justice. Special attention given to concrete ethical issues and dilemmas which are encountered regularly by participants in the major components of the criminal justice system police, courts, and corrections. Offered occasionally.

CRLS 182. Criminal Court Process

3 sem. hrs.

Consideration of the criminal adjudication process, with emphasis on the organization of discretion. Topics include bail setting, prosecutorial and defense decision-making, plea bargaining, trial operations, sentencing and post-conviction remedies. Offered annually.

CRLS 185. Financial Crime Investigation

3 sem. hrs.

This course will introduce current perspectives and procedures used by the financial investigator in detecting and resolving financial crimes. Included will be the specific study of: methods of tracing funds, financial recordkeeping, accounting, interviewing techniques, and law and evidence as they relate to financial investigations. Offered occasionally.

CRLS 186. Criminal Law 3 sem. hrs.

Substantive law crimes; the theory, sources and purposes of criminal law; definition and classification of crimes; legal elements of crimes; meaning of criminal responsibility; defenses and mitigating circumstances. Offered annually.

CRLS 187. Criminal Procedure 3 sem. hrs.

Criminal procedure; arrest, search and seizure; interrogation; court procedure; constitutional limitations on state and federal rules of criminal procedure. Offered annually.

CRLS 188. Criminal Investigation 3 sem. hrs.

Fundamental principles and procedures of criminal investigation. Crime scene search and recording. Collection and preservation of physical evidence. Obtaining testimonial evidence. Offered occasionally.

CRLS 189. Evidence 3 sem. hrs.

Basic principles of the law of evidence. Presentation of oral and demonstrative evidence in the trial process. The quantum of proof in criminal proceedings. Offered occasionally.

CRLS 193. Internship in Criminology and Law Studies 3 or 6 sem. hrs.

Field experience in a federal, state, county or municipal criminal justice or administrative law agency for the purpose of furthering the student's integration of theory and practice. Placement and participation in law enforcement agencies, correctional settings, judiciary and court related offices, or legal research bureaus. Based upon agency agreement, minimum of either eight (3 credits) or sixteen (6 credits) field hours per week under direct supervision of instructor and agency personnel. Offered every term. S/U grade assessment. Only three credit hours may be counted toward the 30 credit hours required for the major. *Prereq: 18hrs. of course work in CRLS, a cumulative quality point average of 2.500 in all degree course work, Sr. stndg., cons. of internship coordinator; limited enrollment.*

CRLS 195. Independent Study 1-3 sem. hrs. Readings and research on a particular problem or subject of interest to the student. Offered every term. *Prereq: Cons. of dept. ch. and instr.*

CRLS 198. Special Topics in Criminology and Law 3 sem. hrs.

Lectures and discussions in a broad area which, because of its topicality, is not the subject of a regular course. The special topics will be designated in the *Timetable of Classes*. Maybe taken a maximum of two times. Offered occasionally.

Social Welfare and Justice (SOWJ)

The Social Welfare and Justice major will be phased into operation over the next two years. Students may declare a major in this area and begin work toward the major in academic year 2002-2003. All of the courses that will eventually be part of the Social Welfare and Justice major will not be offered during the first year of operation (2002-2003). All courses that contribute to the Social Welfare and Justice major will be listed in the *Undergraduate Bulletin* for 2003-2004.

The Social Welfare and Justice major is designed to provide students with the knowledge and experiences needed in pursuing successful careers in social services, victim services and social welfare policy. Students who complete this major will be familiar with the area of victim services as well as the roles, values, and history of the social work profession. They will be knowledgeable about social welfare policies and problems, and will develop the analytic skills needed to evaluate and reform social welfare policies and services. Graduates of the major will have the skills needed to work with culturally diverse groups, and will be familiar with the justice issues that affect these groups. Students taking the major will develop skills in political advocacy and social change, skills that will make them leaders in creating positive justice outcomes.

Students may take a general major in Social Welfare and Justice or they may concentrate their studies in one of two areas: Pre-MSW (Masters in Social Work) Concentration or Victim Services Concentration

MAJOR:

Requirements: Thirty hours including SOWJ 080, 182, 184, SOCI 104 or CRLS 104 (students also majoring in psychology may take PSYC 090 in place of SOCI 104 OR CRLS 104), plus eighteen hours of electives. Majors must fulfill part of their core curriculum math-logic-computer requirement by taking SOCI 060 (students also majoring in psychology may take PSYC 060 in place of SOCI 060), and must fulfill part of their core curriculum philosophy requirement by taking PHIL105.

Electives: All courses designated as SOWJ classes, plus ANTH 116, 121, 130; CRLS 152, 155, 156, 158, 163, 166, 167, 168, 181, 198; SOCI 121, 125, 128, 153, 162, 163, 164, 165, 166, 186.

The **Pre-MSW Concentration** addresses the goals of the Social Welfare and Justice major. While this concentration does not guarantee admission into graduate school, the concentration provides students with the back-

ground knowledge and skills needed to pursue graduate study leading to the Masters in Social Work degree. The concentration also provides students with the knowledge and skills needed to obtain and be successful at entry-level positions in the social service agencies.

Requirements: Thirty hours including SOWJ 080, 182, 184, 185, 187, 189, 190, SOCI 104 or CRLS 104 (students also majoring in psychology may take PSYC 090 in place of SOCI 104 OR CRLS 104), plus six hours of electives. Majors must fulfill part of their core curriculum math-logic-computer requirement by taking SOCI 060 (students also majoring in psychology may take PSYC 060 in place of SOCI 060), and must fulfill part of their core curriculum philosophy requirement by taking PHIL105.

Electives: All courses designated as SOWJ classes, plus ANTH 116, 121, 130; CRLS 152, 155, 156, 158, 163, 166, 167, 168, 181, 198; SOCI 121, 125, 128, 153, 162, 163, 164, 165, 166, 186.

The **Victim Services Concentration** addresses the goals of the Social Welfare and Justice major. It is also designed to provide students with a fundamental understanding of the issues and concerns of crime victims and knowledge about laws, policies and practices that impact crime victims. Graduates of the Victim Services Concentration within the Social Welfare and Justice major will also possess the practical skills needed to assist and advocate for crime victims.

Requirements: Thirty hours including SOWJ 080, 182, 184, 187, 189, CRLS 158, 198, SOCI 104 or CRLS 104 (students also majoring in psychology may take PSYC 090 in place of SOCI 104 OR CRLS 104), plus eighteen hours of electives. Majors must fulfill part of their core curriculum Math-Logic-Computer requirement by taking SOCI 060 (students also majoring in psychology may take PSYC 060 in place of SOCI 060), and must fulfill part of their core curriculum philosophy requirement by taking PHIL105.

Electives: CRLS 152, 155, 156, 163, 167, 168; SOCI 121, 165, 166.

SOWJ 080. Introduction to Social Welfare and Justice 3 sem. hrs.

Introduction to social work, social welfare, victim services and justice, exploring the ethics, values and goals of social welfare and justice. Examination of historical and contemporary social problems and their relationship to social welfare policies, social work and justice. Observational assignments and service learning link the experiential to the theoretical.

SOWJ 170. Family Counseling and Therapy 3 sem. hrs.

Introduction to family counseling and therapy primarily examining communication and structural models. Various theories of family intervention. Exploration of the process of therapy from initial problem assessment through intervention planning, implementation, evaluation, and termination. Simulations, role play and other classroom exercises help students understand how theories and techniques of counseling are applied in practice. Offered occasionally.

SOWJ 182. Social Welfare Policy and Programs 3 sem. hrs.

Examination of historical, political, and economic influences in the development of social welfare policy. The policy making process, and appropriate professional roles for human services workers. Discusses how social work values and societal priorities affect the formulation and evaluation of social welfare policies and services. Description and analysis of contemporary social welfare programs, public and private.

SOWJ 184. Practice Skills with Individuals, Families, and Groups 3 sem. hrs.

Introduction to practice skills with individual, families, and groups. Students begin to develop skills in supportive listening, observing, nonverbal communication, developing positive relationships, interviewing, establishing, and maintaining professional relationships, termination, and evaluation. Specific considerations for groups and families are discussed. Experiential learning is linked to service learning and other methods. *Prereq: SOWJ 080.*

SOWJ 185. Human Behavior in the Social Environment 3 sem. hrs.

Provides a systems framework for understanding and assessing human behavior at the individual, group, family, organizational and community levels. The student learns how the various systems affect one another and why consideration of all systems and their interrelationships is necessary for effective human services practice. Special attention is paid to cultural diversity, social justice issues, and populations at risk.

SOWJ 186. Advanced Practice 3 sem. hrs.

Continuation of the study of generalist practice theory. Students strengthen their skills in interviewing, data collection, problem appraisal, and the development of contracts for planned change. Competence is developed in carrying out contract plans, evaluating results, renegotiating contracts where appropriate, and terminating. Working with families and groups is further examined. *Prereq: SOWJ 080.*

SOWJ 187. Internship: Seminar in Social Welfare and Justice 3-4 sem. hrs.

Participation in a community social service agency for 10-20 hours per week throughout the semester with professional supervision. Settings include hospitals, nursing homes, correctional agencies, neighborhood centers, schools, counseling services, consumer advocacy agencies and others. Includes 2-hour weekly seminar. S/U grading. *Prereq: SOWJ majors only.*

SOWJ 189. Advocacy and Social Change: Theory and Practice 3 sem. hrs.

Review various theoretical and historical perspectives on injustice and oppression, within the context of social change strategies. Examination of traditional and nontraditional social action strategies, including community organizing/development. Learn agency and legislative advocacy skills with a specific focus on victim advocacy and at-risk populations. Analyze values and ethical perspectives related to social change.

SOWJ 190. Advanced Internship: Seminar in Social Welfare and Justice 3-4 sem. hrs.

Continuation of the internship experience. 10-20 hours per week of supervised instruction at the same agency of previous semester. Includes 2-hour weekly seminar. S/U grading. *Prereq: SOWJ majors only and SOWJ 187.*

SOWJ 195. Readings in Social Welfare and Justice 1-3 sem. hrs.

Supervised study in a specific area of SOWJ, such as in-depth library of field research, or a focused community project. *Prereq: 9 hours with a 2.5 Q.P.A. in SOWJ courses plus cons. of dept. ch.*

SOWJ 196. Ethics in Social Welfare and Justice 3 sem. hrs.

An in-depth consideration of ethical issues in SOWJ and values; their relationship to social work as a profession and social welfare policy. Exploration of value dilemmas and other frustrations which may confront the professional human services worker working in organizations, and how they may relate to the development of professional identity. The role of professional human services organizations. *Prereq: SOWJ majors only.*

SOWJ 198. Selected Topics in Social Welfare and Justice 3 sem. hrs.

A lecture course on special areas and themes. The specific topics of 198 will be designated in the *Timetable of Classes*. Offered occasionally.

SOWJ 199. Senior Thesis 1-3 sem. hrs.

SOWJ majors with a quality point average of 3.000 or higher may write a thesis under the direction of an adviser. Offered every term. *Prereq: SOWJ major, sr. stndg., and cons. of dept. ch. and SOWJ adviser.*

Sociology (SOCI)

MAJOR:

Thirty hours, including SOCI 001, 060, 100, 104 (or CRLS 104), 196. Twenty-one hours must be taken from classes numbered 100 or above. SOCI 196 will ordinarily be taken in the final year of the major or after 21 Sociology credit hours have been earned. An elementary course in statistics from another department may substitute for SOCI 060 with the approval of the Department Chair, but 30 hours in Sociology will still be required. SOCI 060 may be used simultaneously to satisfy the Sociology requirement and to contribute toward the six hour Arts and Sciences core requirement for mathematics-logic-computer.

The department encourages students to expand their intellectual and professional horizons by pursuing a second major within the department. Students majoring in Sociology may complete a second major in Criminology and Law Studies by taking the required courses for the Criminology and Law Studies major plus 5 elective courses. Up to two courses from the following list may be counted for credit towards both the CRLS and SOCI majors: CRLS 152, CRLS 155, CRLS 167, CRLS 168, SOCI 104, SOCI 153, SOCI 154, SOCI 159. Students choosing to take CRLS 104 in place of SOCI 104 are required to take an additional elective

in SOCI. A total of 54 credit hours from SOCI and CRLS is required.

MINOR:

Eighteen credit hours, including SOCI 001 and either 100 or 104 (preferably both).

TEACHING MAJOR:

Thirty-four hours, including ANTH 001, SOCI 001, 060, 100, 104, 196. Twenty-one hours must be taken from classes numbered 100 or above. SOCI 196 will ordinarily be taken in the final year of the major or after 21 Sociology credit hours have been earned. An elementary course in statistics from another department may substitute for SOCI 060 with the approval of the Department Chair, but 30 hours in Sociology will still be required. SOCI 060 may be used simultaneously to satisfy the Sociology requirement and to contribute toward the six hour Arts and Sciences core requirement for mathematics-logic-computer.

Students should see the department adviser for middle school/secondary teaching majors and minors to consult about the appropriate sequence of courses. It is also important that prospective teachers study carefully the School of Education section of this bulletin regarding university and state requirements (in addition to department requirements) for teacher certification.

Please refer to "Core Curriculum Requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR:

Twenty-two hours, including ANTH 001, SOCI 001, 100, 104, and 10 additional hours in sociology and anthropology, of which not more than three may be in anthropology.

PREREQUISITES:

The department recommends SOCI 001 — Principles of Sociology — as the beginning course in Sociology. Most upper-division courses have a recommended prerequisite of SOCI 001. This means that the instructor will teach the course as if all students enrolled have completed satisfactory work in the prerequisite. Students who have not taken SOCI 001 may enroll in most upper-division courses, but they should be prepared to take full responsibility for independently obtaining an adequate background should they or the instructor feel that it is necessary.

SOCI 001. Principles of Sociology

3 sem. hrs.

An introductory survey of the discipline including social structures, social institutions, social differentiation and stratification, social power, the processes of human interactions, and methods of sociological investigation. Offered every term.

SOCI 021. The Family 3 sem. hrs.

The structure and function of family types including analysis of marital and parent-child relationships. The relation of the family to other social institutions. Changing patterns of relationships and structure in the family. Offered every term.

SOCI 060. Social Statistics 3 sem. hrs.

Logic and application of statistical reasoning in sociological research. Descriptive statistics, ele-

ments of probability theory, estimation, hypothesis testing, contingency tables, correlation, regression, sampling, questionnaire construction, and measurement. Introduction to the use of the computer in statistical analysis. Not open to students who have taken another elementary statistics course. Offered annually. *Prereq: Three years of high school preparatory mathematics or MATH 010 or equivalent. Sociology, Social Work, or Criminology and Law Studies major or cons. of instr.*

SOCI 100. Sociological Theory 3 sem. hrs.

Currents of thought about society, social structures and processes. Background and development of key concepts and theories in sociology. Techniques of theory construction and unification. May be taken concurrently or sequentially with SOCI 104. Offered annually. *Prereq: SOCI 001 or cons. of instr.*

SOCI 104. Methods of Social Research 3 sem. hrs.

Comparison and critique of the predominant methods of social research. Theoretical foundations, logic and language of science, ethical problems of collecting and reporting research data. Application of methods in research project. Contribution of alternative methods of theory building, program evaluation, policy formulation, and direction of subsequent research. Offered annually. *Prereq: SOCI 001, and 060; or cons. of instr.*

SOCI 121. Social Problems in Urban Society 3 sem. hrs.

Analysis of selected social problems within the framework of modern American society from the viewpoint of their nature, extent, contributing factors, and programs of prevention and treatment. Concepts and theories related to the analysis of social problems and deviant behavior. Offered occasionally.

SOCI 122. Sociology of the Life Course 3 sem. hrs.

The study of socialization, the influence of family, peers, schooling, mass media, occupational groups and community on human development. Reciprocity between the concept of self and institutional influences throughout the course of life from infancy through old age. Various sociological perspectives, developmental theories and critiques. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 123. Self, Language, and Social Interaction 3 sem. hrs.

Exploration of the everyday relations and worlds of people in social interaction. The working languages of self and society are discussed as practical features of circumstance. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 124. Behavior Patterns of Youth 3 sem. hrs.

The position of youth in modern society. Origin and implications of the generation gap, status ambiguity and its consequences, dependency and independence, prolonged aspiration and the pursuit of identity, youth in rebellion, the youth culture. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 125. Sociology of Aging 3 sem. hrs.
The place of the aged in contemporary society. Disengagement and the social integration of older persons. Roles linking older persons to society and roles in hospitals, nursing homes and homes for the aged. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 126. Urban Life 3 sem. hrs.
Social psychological aspects of urban life and experience. Implications of urbanization for individuals and groups. Ecological, cultural, and institutional influences. Interpersonal and inter-group relations in urban settings. Topics may include conflict, alienation, diversity. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 127. Sociology of Community
3 sem. hrs.
Discussion of contemporary problems of rural, urban and suburban communities including ecological and communication patterns, problems of identity, organization and motivation. May not be taken for credit by students who have received credit for SOCI 132. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 128. Sociology of Human Values
3 sem. hrs.
Definitions of values in economics, linguistics, communication and sociology. The value system of selected sociologists. Values and sociocultural pluralism. May not be taken for credit by students who have received credit for SOCI 143. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 129. Topics on the Individual, Culture, and Society 3 sem. hrs.
Course on a special topic and theme involving the individual, culture, and society. May be taken twice, provided the topics differ. The specific topic of each offering will be designated in the *Timetable of Classes*. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 131. Urban Sociology 3 sem. hrs.
Urban society with special consideration of the problems of dealing with the structures, institutions, agencies and decision-making units in a metropolitan area. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 132. Health Care Systems 3 sem. hrs.
Comparison of social and cultural arrangements for handling health care. Variations in definitions of health. Systems of care at different levels of complexity—interpersonal networks, organizations, communities, and nation states. Policy making and ethical aspects of health care decisions. Offered annually. *Recommended Prereq: SOCI 001.*

SOCI 133. Medical Sociology 3 sem. hrs.
Social and cultural factors in the disease process, the distribution of disease, the meaning of health, the response to illness, and approaches to healing. Structure and operation of health-related professions and facilities. Current trends in medicine. Value conflicts. May not be taken for credit by students who have received credit for SOCI 179. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 134. Sociology of Religion 3 sem. hrs.
The sociological study of religious groups, institutions and behavior, including relationships between religion and other areas of social life. May not be taken for credit by students who have received credit for SOCI 144. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 135. Sociology of Work and Occupations 3 sem. hrs.
The diverse ways in which human beings make their livings in both industrialized and nonindustrialized societies. Career patterns and work problems. Theories about work and workers. Proposals for improving the quality of modern work. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 136. Sociology of Education
3 sem. hrs.
Sociological analysis of educational institutions with primary emphasis on contemporary U.S. urban education, student subcultures, school-community relations and innovations. May not be taken for credit by students who have received credit for SOCI 176. Offered annually. *Recommended Prereq: SOCI 001.*

SOCI 137. Complex Organizations
3 sem. hrs.
Theories and research on the sociology of organization. The social functions, structures and processes of formal and informal organizational systems in modern society and their relationships to social behavior. The nature and place of bureaucracies in complex societies. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 139. Sport and Society 3 sem. hrs.
The symbiotic relationship between sport and society. Topics that will be examined include the connections between sports and social mobility; sports and race; sports and gender; sports and community identification. The course will show how sports is a pervasive feature of everyday urban life. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 151. Sociology of Mental Illness
3 sem. hrs.
Review of major sociological and social psychological models of madness. Analysis of definitions and responses to mental illness. Study of the social processing involved in the production, recognition and treatment of mental illness. May not be taken for credit by students who have received credit for SOCI 181. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 153. Deviance and Social Control
3 sem. hrs.
Sociological analysis of deviance and society's response to it. Issues in defining and identifying deviance, the emergence of deviant behavior and identity, informal and formal reactions to deviance, and organizational and institutional efforts to remedy and control it. Topics may include crime, delinquency, and mental illness. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 154. Sociology of Law 3 sem. hrs.
The social components of legal organizations and procedural systems. The role of law as an

instrument of social control and social change. May not be taken for credit by students who have received credit for SOCI 178. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 159. The Social Reality of Crime and Justice 3 sem. hrs.
A critical examination of the ways in which crime is defined, how crime control policies are established, and how the criminal justice system responds to the problem of crime. Specific attention will be given to the social and political context in which crime is talked about and responded to. Alternative approaches to crime control, such as peacemaking criminology and restorative justice, will be examined. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 162. Sociology of Sex and Gender
3 sem. hrs.
Biological and cultural bases of sex and gender patterns. Impact of major social institutions and processes on maintenance of gender patterns, with questions of power and dominance central to discussion. Benefits and costs of stereotypic gender patterns. Mechanisms and alternative directions for change. Historical and cross-cultural research included. May not be taken for credit by students who have received credit for SOCI 126. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 163. Race and Ethnic Relations
3 sem. hrs.
Social, economic, political, and legal aspects of minority relations. Consideration of several minorities and minority issues such as racial, cultural, ethnic, age and gender. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 164. African-American Social Thought
3 sem. hrs.
Examination of historical and contemporary writings of Black social theorists. The impact of historical, social, economic, and cultural factors on Blacks in the United States and alternative strategies for change. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 165. Social Inequality 3 sem. hrs.
Theories and systems of social class in modern society. Societal structures and processes resulting from stratification phenomena. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 166. Topics on Gender, Race, and Inequality 3 sem. hrs.
Course on a special topic and theme involving gender, race, and inequality. May be taken twice, provided the topics differ. The specific topic of each offering will be designated in the *Timetable of Classes*. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 168. Political Sociology 3 sem. hrs.
The interrelationship of politics and society. Special consideration of leadership analysis, party systems, public opinion, electoral behavior and conflict situations. May not be taken for credit by students who have received credit for SOCI 177. Offered occasionally. *Recommended Prereq: SOCI 001.*

SOCI 182. Comparative Sociology

3 sem. hrs.

Similarities and differences among major social institutions. Emphasis on organizational, demographic, and ecological features. Comparisons of political, economic, educational, familial and other institutions. Contents vary; subtitles indicate precise contents. May not be taken for credit by students who have received credit for SOCI 161. Offered occasionally.

Recommended Prereq: SOCI 001.

SOCI 183. Population 3 sem. hrs.

Demographic analysis including characteristics of the U.S. and world population, social and cultural factors related to population changes and the role played by demographic forces in society. May not be taken for credit by students who have received credit for SOCI 130. Offered occasionally. *Recommended Prereq:* SOCI 001.

SOCI 186. Social Change 3 sem. hrs.

Selected topics dealing with models and theories of innovation, diffusion, resistance to change and associated conflict in and between social systems. Contents vary; subtitles indicate precise contents. Offered occasionally. May not be taken for credit by students who have received credit for SOCI 166. *Recommended Prereq:* SOCI 001.

SOCI 188. Topics in Sociological Theory

3 sem. hrs.

Late 20th century intellectual issues, efforts and achievements which have contributed substantially to current sociological theory. May be taken twice, provided the topics differ. The specific topic of each offering will be designated in the *Timetable of Classes*. Offered occasionally. *Recommended Prereq:* SOCI 001.

SOCI 189. Sociological Practice 3 sem. hrs.

Selected topics dealing with the application of sociology to social and personal issues and problems. Primary topics include program evaluation, clinical sociology, policy analysis, and social forecasting. Contents vary: see *Timetable of Classes* for precise contents. Maybe taken more than once if subtitles differ. Offered occasionally.

SOCI 193. Internship in Sociology

3 sem. hrs.

Supervised field experience in relating sociological theory, concepts, and research methodology to real life or applied settings. Approximately 8–10 field hours per week are expected. Additional readings and reports integrating experiences and observations with sociological ideas will be required. Students may continue work begun in SOCI 193 by enrolling in SOCI 195 or 199 in subsequent term. Offered every term. *Prereq:* SOCI 100 and 104, Jr. stndg., quality point average of 2.500 in SOCI courses, arrangements made during previous term with an instructor, cons. of dept. ch. and majors only.

SOCI 195. Independent Study 1-3 sem. hrs.

Supervised study in a specific area of Sociology. Offered every term. *Prereq:* 12hrs. and a quality point average of 2.500 in SOCI courses plus cons. of dept. ch. and instr.

SOCI 196. Seminar in Sociology 3 sem. hrs.

An in-depth consideration of sociological perspectives and concepts and how they may be

used to analyze contemporary society and social relationships. Basic sociological theories, methods, and concepts are discussed and used to evaluate contemporary sociological concerns and issues. Supervised and individualized research-writing projects involving a sociological area of each student's choice. Offered every year. *Prereq:* 21 hrs. of Sociology and Sociology major or cons. of dept. ch.

SOCI 198. Topics in Sociology 3 sem. hrs.

Lecture course on special areas and themes. May be taken a maximum of two times as long as topics differ. The specific topic of 198 will be designated in the *Timetable of Classes*. Offered occasionally.

SOCI 199. Senior Thesis 1-3 sem. hrs.

Sociology majors with a quality point average of 3.000 or higher may write a thesis under direction of an adviser. Offered every term. *Prereq:* SOCI 100 and 104, sr. stndg., cons. of dept. ch. and an instr.

THEOLOGY (THEO)

Chairperson and Professor: Rossi

Assistant Chairperson and Assistant Professor: M. Johnson

Distinguished Professor: D. Coffey (William J.

Kelly, S.J. Chair), Fahey (Doerr Chair)

Professor: Carey, Kurz, Maguire, Misner,

Schultenover (Francis X. Wade, S.J.

Distinguished Scholar)

Associate Professor: Barnes, Copeland,

Dabney, Del Colle, Dempsey, Duffey, Goltzin,

Hills, FirerHinze, Hinze, Hughson, Laurance,

Masson, Pace, Schmitt, C. Stockhausen,

P. Stockhausen (Emeritus), Zemler-Cizewski

Assistant Professor: Deahl, Gawronski, Mueller,

Schaefer

Lecturer: Bonjean, Caldwell, Crowe, Lambeck,

Silberg, Slocum, Skoyles, Wakefield, Zemler

MAJOR:

Thirty-three hours, Theology 001 plus 30 upper division hours:

Either two-course sequence, THEO 100/103 or THEO 101/102; THEO 106; THEO 135; one course from THEO 137, 140, 142, 146; two courses from THEO 155, 157, 158; one course from THEO 165, 166, 167, 168; one course from THEO 182, 184, 185, 186; and THEO 197. Depending on a student's preparation and educational needs, other courses may be substituted by approval of the departmental adviser who may also suggest cognate courses in other departments. Students preparing for graduate studies in theology are encouraged to begin courses in a necessary classical (Greek/Hebrew/Latin) or modern language (French/German).

MINOR:

At least 18 hours, of which 15 must be upper division courses.

Note: See Theology Requirements as stated in the College, School and Programs section of this bulletin.

TEACHING MAJOR IN RELIGIOUS STUDIES:

Thirty-six hours, THEO 001 plus 33 upper division credits, including the Wisconsin Department of Public Instruction requirements:

- Study of Major Religious Traditions, one course from THEO 182–186.
 - Role of Religion in Contemporary Society, two courses: THEO 146 or 148 or HIST 115 or 116; and THEO 116 or 150 or 165 or 166 or 168 or 180.
 - Religion and Other Institutions, one course: ANTH 112 or SOCI 134 or THEO 167.
- Additional requirements are: Either two-course sequence, THEO 100/103 or THEO 101/102; THEO 106; THEO 135; THEO 155; THEO 157; and THEO 158.

Students wishing state certification also need the regular teacher education sequence: 36 hours, including a special methods course and student teaching. See the School of Education section of this bulletin for the university and state requirements for teacher education.

Please refer to "Core Curriculum Requirements for Education Majors" under "Graduation Requirements" in the College of Arts and Sciences section of this bulletin.

TEACHING MINOR IN RELIGIOUS STUDIES:

A total of 22 upper division hours is required. This must include the Wisconsin Department of Public Instruction requirements (see "Teaching Major in Religious Studies," above).

THEOLOGY CORE CURRICULUM:

The theology requirement for graduation is nine hours. This must include THEO 001, one second-level course and one third-level course, in that sequence.

The comprehensive educational goal of the theology core curriculum is theological literacy, that is, an intellectual formation—to a level legitimately expected of graduates of a Catholic university—that habituates students, on the basis of key sources and figures, to approaches, responses, and critiques appropriate to "faith seeking understanding."

Three specific objectives guide the theology core curriculum. Every core course is designed, first, to increase students' awareness of the mystery and religious dimensions of human life, particularly as conveyed in the basic narrative outline, from creation to fulfillment, that characterizes Christian world views. This objective takes precedence in the first course, "Introduction to Theology."

While cultivating a growing base of factual knowledge, core courses go on to provide training in theological understanding, primarily through the reading and interpreting of significant texts. Second-level courses in particular are designed to develop the skills required for such understanding.

All knowledge implies responsibility. Hence the core curriculum also addresses the need for critical evaluation and judgment concerning religious and justice issues that students will face in their later lives. The challenge of forming intellectually well-founded personal positions in dialogue with others is especially emphasized in third-level courses.

In all courses, theological issues are introduced and discussed with respect for others,

inkeeping with the Declaration on Religious Liberty of the Second Vatican Council.

FIRST LEVEL: INTRODUCTORY COURSE

THEO 001. Introduction to Theology 3 sem. hrs.

Key sources and questions of theology as reflection upon the worldview and core narrative found in Christian tradition and scriptures. Includes orientation to the academic study of religion. Background in theology is not presupposed. Prerequisite to all other courses in theology. Offered every term.

SECOND LEVEL: THEOLOGICAL TEXTS AND FOCAL TOPICS (GOD, HUMAN PERSON, PEOPLE OF GOD)

THEO 100. Hebrew Scriptures/Old Testament Overview 3 sem. hrs.

Survey of the contents of the Hebrew Bible, its historical contexts and religious ideas. Includes analysis of selected texts from representative sections of the Old Testament and discussion of their various theological visions of God, the human person and the people of God in interrelationship. Offered annually. *Prereq: Soph. stndg. and THEO 001*

THEO 101. New Testament Overview 3 sem. hrs.

Survey of the contents of the New Testament, its historical contexts and religious ideas. Includes analysis of selected texts from representative sections of the New Testament and discussion of their various theological visions of God, the human person and the people of God in interrelationship. Offered annually. *Prereq: Soph. stndg. and THEO 001.*

THEO 102. Hebrew Scriptures/Old Testament: Selected Books 3 sem. hrs.

Study of a portion of the Old Testament in depth and with a focus on critical reading skills, as well as central theological questions (God, individual, community). Specific textual content varies by term, with possible focus on the Pentateuch, Prophets, and the other Writings. Offered annually. *Prereq: Soph. stndg. and THEO 001.*

THEO 103. New Testament: Selected Books 3 sem. hrs.

Study of a portion of the New Testament in depth and with a focus on critical reading skills, as well as central theological questions (God, individual, church). Specific textual content varies by term, with possible focus on the synoptic gospels, the Johannine literature, or the Pauline letters. Offered annually. *Prereq: Soph. stndg. and THEO001.*

THEO 104. The Bible Through the Ages 3 sem. hrs.

Understandings and uses of the Bible in the history of Christianity. Revelation, Faith, Tradition, Scripture. Offered annually. *Prereq: Soph. stndg. and THEO 001.*

THEO 106. Theology Through the Centuries 3 sem. hrs.

Trinity, Incarnation and Salvation in the history of Christian thought over a substantial portion of its range. Offered annually. *Prereq: Soph. stndg. and THEO 001.*

THEO 108. Church and World in the History of Religious Thought 3 sem. hrs.

The consequences in Christian life and thought of the coexistence of faith community and society in its political, economic, and/or cultural dimensions. Attention to more than one period (Early Church, Byzantine, Middle Ages, Reformation, Recent). Offered occasionally. *Prereq: Soph. stndg. and THEO 001.*

THEO 109. Good and Evil, Past and Present 3 sem. hrs.

Human beings' religious and moral relationship with God and fellow creatures as illuminated by past Christian experience, in comparison with the present. Major emphasis on one or two historical eras (Early Church, Middle Ages, Byzantine, Reformation, Recent). Offered occasionally. *Prereq: Soph. stndg. and THEO001.*

THEO 110. Quests for God, Paths of Revelation 3 sem. hrs.

The quest for God in human and specifically religious experiences with a focus on Christian belief in God. Grounds for belief; revelation; the nature of God's relationship to the world including issues relevant to modern culture and science. The historical precedents and context for these issues. The dialogue with other religious and atheistic conceptions of ultimate reality. Implications of a community's understanding of God for its way of life. Offered every term. *Prereq: Soph. stndg. and THEO001.*

THEO 111. Explorations in Christian Theology 3 sem. hrs.

Examination of the meaning and interconnections of some of the central themes in Christian theology (e.g. Jesus Christ, Trinity, Church, Sacraments, Sin and Grace, Revelation). The historical and communal context for understanding these. Implications of these for understanding what it means to be human. Offered every term. *Prereq: Soph. stndg. and THEO 001.*

THEO 115. Christian Discipleship 3 sem. hrs.

The Christian identity of God as a God of Love and Justice. The divine and personal call to the human person to a life of holiness, faith, the virtues, especially justice; the preferential option for the poor; the role of community in the moral and spiritual life of individuals and Christian communities as agents for social change. Offered every term. *Prereq: Soph. stndg. and THEO001.*

THEO 116. Christian Faith in Cultural Contexts 3 sem. hrs.

Religious experience and beliefs concerning God, human beings, and faith community as apprehended within a particular historically and culturally situated community or communities (e.g. African-American, Hispanic, Asian, or European). Offered annually. *Prereq: Soph. stndg. and THEO001.*

THIRD LEVEL: FAITH, RESPONSIBILITY, AND THE INTELLECTUAL LIFE

THEO 120. Digging the Bible: Archeology and Biblical Studies 3 sem. hrs.

An exploration of the uses and abuses of archeology relative to the field of biblical studies. Case studies in a historical approach to the intersection of archeology and biblical theology.

Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 121. Truth, Falsehood, and Authority in the Bible 3 sem. hrs.

Interdisciplinary survey and analysis of the various claims to "truth" found in the Bible, e.g. divine commands, true and false prophecy, wisdom, the example of Jesus. Special attention to the historical and social situations to which these claims were originally addressed. Offered occasionally. *Prereq: Jr. stndg., THEO001 and one second-level course.*

THEO 122. The Bible in Its Interpretative Communities 3 sem. hrs.

The ways in which the Bible was produced, and the ways in which it has been understood and used in the course of time and in the context of different religious and scholarly communities. Intertextuality, canon, history of interpretation, modern critical methods, postmodern literary perspectives, liberationist hermeneutics. Offered occasionally. *Prereq: Jr. stndg., THEO001 and one second-level course.*

THEO 123. From Scripture to Living Beliefs 3 sem. hrs.

Interdisciplinary interpretations, application, and actualizations of Biblical texts in contemporary Christian or Catholic creeds, life, worship, moral issues, beliefs, and practices. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 124. The Bible in the Liturgy and Lectionary 3 sem. hrs.

Reading of Scripture in public worship. Historical and contemporary views on the selection and combinations of passages from the Bible for the liturgical year. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 126. Bible in the Jewish Community 3 sem. hrs.

The uses of the Bible in Jewish life and practice, in synagogue and in private use. Haggadah and Halakah. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 127. The Bible in Black Religious Experience 3 sem. hrs.

The use and meaning, in the religious and cultural lives of the enslaved African peoples and their descendants in the United States, of some of the most significant texts of the Hebrew Bible and Christian scriptures. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 129. Women in the Bible 3 sem. hrs.

Status and roles of women in selected biblical texts. Social and historical background with emphasis on narrative technique and theological themes. Offered biennially. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 132. New Testament Narratives 3 sem. hrs.

The Gospels as stories. Literary analysis, comparing the Gospels with each other and examining their similarity and distinctiveness with other narratives. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 134. Special Topics in Biblical**Theology** 3 sem. hrs.

Significant topics in Old Testament, Intertestamental, or New Testament literature. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 135. Theology in the Early Church

3 sem. hrs.

Basic theological questions and developments during the era of the Church Fathers. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 137. History and Theology of the Christian East 3 sem. hrs.

The Christian East from its origins, through the conversion of Constantine, to the present-day Eastern Orthodox and Oriental Orthodox Churches. Particular attention to the distinctive theological emphases of the East, as well as to the developments leading to the break in communion between Catholic (and Protestant) West and Orthodox East. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 138. St. Augustine: The Man and the Theologian 3 sem. hrs.

A study of Augustine's life, writings and thought, with special attention to the Confessions, to his theology of the church and the sacraments, and to his teaching on grace and predestination, against the background of his early philosophical writings. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 140. Theology in the Middle Ages

3 sem. hrs.

Basic theological questions and developments during the Middle Ages, from the Carolingians to the fourteenth century. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 141. Theology in the Thirteenth Century 3 sem. hrs.

Survey of Dominican and Franciscan theology at the universities of Paris and Oxford, with special attention to the work of Albert the Great, Thomas Aquinas, Bonaventure, and Robert Grosseteste. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 142. Theology in the Reformation Era 3 sem. hrs.

Basic theological questions and developments during the late Middle Ages and early Reformation. Current ecumenical issues also addressed. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 143. Martin Luther 3 sem. hrs.

The thought and world of Luther, with emphasis on Luther in his Catholic context; Luther and the Bible, Augustine, the Radicals, the Pope; Luther's theology of faith and freedom; contextual, theological and ethical. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 146. Theology in America 3 sem. hrs.

Basic theological questions and developments from Puritanism to the present. Offered occa-

sionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 148. American Catholic Life and Thought 3 sem. hrs.

Analyzes the development of American Catholic life and thought from the colonial establishment to the present. Investigates in particular how clergymen, theologians, and laypersons came to terms with the difficulties and benefits of being Catholic in the United States. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 149. Special Topics in Historical Theology 3 sem. hrs.

Significant figures and themes in the history of religious thought, examined in their historical context and contemporary significance. Topics and periods vary. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 150. Contemporary Atheism and Theism 3 sem. hrs.

Origins and varieties of contemporary atheism. The existence of God and Christian theistic interpretations. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 154. Theology of the Holy Spirit 3 sem. hrs.

Study of the distinct mission and person of the Holy Spirit in the Trinitarian work of human salvation. Analysis of biblical, patristic, and conciliar sources; attention to modern theology and the role of experience. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 155. Jesus the Christ 3 sem. hrs.

The identity of Jesus Christ and the nature of Christian salvation as attested to in the New Testament and Christian tradition. Historical Jesus and diversity of christologies in the New Testament. Humanity and divinity of Christ. The saving significance of Christ's life, death, and resurrection. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 157. Theology of the Church 3 sem. hrs.

The Church in light of the documents, event, and charism of Vatican II. Contemporary understandings of the Church and its mission in the modern world. Special attention to post-conciliar "communion ecclesiology" and the relation of the local to the universal Church. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 158. Sacraments and Christian Life 3 sem. hrs.

Theological overview of the major sacramental enactments of the church's life in Christ. The witness of Scripture and Tradition, including the liturgy itself. Ethical and ecumenical dimensions. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 159. The Eucharist 3 sem. hrs.

Biblical origins and historical evolution of the Eucharist in light of contemporary theology and ritual theory, with special focus on the Roman Rite Catholic post-Vatican II celebration.

Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 161. Christian Prayer and Mysticism 3 sem. hrs.

Introduction to some of the main currents in the Christian tradition of prayer and mysticism. Origins in Scripture and the early church. Main lines of development in both Eastern and Western traditions, with a focus on the Catholic tradition. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 163. Protestant Thought and Practice 3 sem. hrs.

Major perspectives within the broad spectrum of Protestantism. Examination of the thought of several Protestant theologians. A survey of the unity and diversity of several Protestant denominations and their respective forms of worship. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 164. Special Topics in Systematic Theology 3 sem. hrs.

Significant movements and/or major figures in contemporary systematic theology. Their historical antecedents and cultural context. Specific topics to be specified in the *Timetable of Classes*. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 165. Christian Faith and Justice 3 sem. hrs.

Classic and recent Christian understandings of justice as interpersonal and societal right-relations. Justice as constitutive aspect of the Gospel; love and justice; Christian responsibility in the face of injustice. Further issues, e.g. sexual and gender ethics, political and economic issues. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 166. Christian Theology in Global Contexts 3 sem. hrs.

The reception of the Christian gospel in diverse cultures throughout the world. The challenge of inculturation and the requirements of the unity of Christian faith. The meaning of mission and evangelization outside the West. The encounter with indigenous religions. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 167. Family, Church, and Society 3 sem. hrs.

The interaction of family, church, and society. Contemporary family patterns, their strengths and stresses; the teachings, reflection, and pastoral responses of the Church concerning marriage and family. Ecclesial and societal implications of family as "domestic church." Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 168. Theology, Violence and Non-Violence 3 sem. hrs.

Non-violence as a creative solution to human oppression and violence. The relationship between non-violence and the life style of such

figures as Jesus, Gandhi, King. The implications of non-violence for social, political and cultural life. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 170. Theology and the Natural Sciences 3 sem. hrs.

Theological analysis of the historical relationship between religion and the natural sciences; exploration of models for relating the two disciplines today; reflection on the theological implications of contemporary scientific discoveries and theories. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 171. Foundations of Ecological Ethics 3 sem. hrs.

Exploration of religious foundations for ecological ethics, with a focus on the Catholic tradition and social teachings; application to contemporary ecological problems. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 175. Medical Ethics 3 sem. hrs.

Health care practices under moral assessment from within the Christian tradition. Controversial topics facing medicine (issues of the beginning and end of life, assisted reproduction, etc.) as related to Christian moral principles. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 179. Special Topics in Moral Theology 3 sem. hrs.

Selected issues in contemporary moral life; selected themes from classical and contemporary writings in moral theology and Christian ethics. Topics vary, as specified in the *Timetable of Classes*. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 180. Christ and World Religions: Theology of Interreligious Dialogue 3 sem. hrs.

Global pluralism of religions considered from perspectives of Christian faith. Methods and case studies of the theological dialogue with particular religious traditions, e.g. Judaism, Islam, Hinduism, Buddhism. Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 182. Survey of World Religions 3 sem. hrs.

An overview of the major religious traditions of the world: Hinduism, Buddhism, religions of China and Japan, Judaism, Christianity, and Islam. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 184. Jewish Thought and Practice 3 sem. hrs.

Meaning of Jewish history. Philosophical and social understanding of the Jewish experience. Ruling ideas, myths, symbols, and rites. Offered every term. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 185. Islam 3 sem. hrs.

Major trends of Islamic religious thought, practice, and worship. Readings from the Qur'an and other Islamic writings. Historical approach. Current issues and developments.

Offered occasionally. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 186. Hinduism, Yoga and Buddhism 3 sem. hrs.

Religious experience, cultic act, religious organization, theological formulation, as illustrated by two religions of India, Hinduism and Buddhism. Yoga as spiritual discipline. Historical approach. Readings from sacred writings. Offered annually. *Prereq: Jr. stndg., THEO 001 and one second-level course.*

THEO 190. Introductory Biblical Hebrew 3 sem. hrs.

Grammar and exercises. Offered occasionally. (*Not applicable toward Theology core requirement.*)

THEO 191. Readings in Biblical Hebrew 3 sem. hrs.

Selections from Old Testament prose. Offered occasionally. (*Not applicable toward Theology core requirement.*) *Prereq: THEO 190 or equivalent.*

THEO 195. Independent Study 1-3 sem. hrs. Offered every term. *Prereq: Jr. or Sr. stndg. and cons. of dept. ch., THEO 001 and one second-level course.*

THEO 197. Capstone Seminar 3 sem. hrs.

Exploration of a theological topic involving issues of theological method and interrelatedness of the subdisciplines of biblical, historical, systematic and moral theology. Colloquium paper demonstrating critical analysis in a specific field. Offered annually. *Prereq: Sr. stndg. and cons. of dept. ch., THEO 001 and one second-level course.*

SPECIAL PROGRAMS

ARTS AND SCIENCES (ARSC)

ARSC 007. First-year Seminar 1-3 sem. hrs.

An academic seminar that enhances critical thinking, reading, and communication skills. Weekly small group exploration of ideas, evidence, and argument, and investigation of college transitional issues. The faculty leader of each "Introduction to Inquiry" section is the student's academic adviser. Twelve weeks; S/U grade assessment; limited to first-year students. *Prereq: Fr. stndg.*

ARSC010-011. Major Concepts in Modern Science 1, 2

3 hrs. lec., 2 hrs. lab., 4 sem. hrs. each. An interdisciplinary, integrated study of processes and principles of modern biological sciences, chemistry, and physics. Scientific inquiry as a means of knowledge; major technological contributions to modern societies; stability, information transfer, and evolution of biological sciences systems, emphasizing relevant chemical and physical processes in specific environments. May be counted as natural science toward the Arts and Sciences and Communication core curriculum requirements, and for elementary/middle school and middle school/secondary teacher certification. Does not count toward major requirements for biological sciences, chemistry, physics, and broad field science. ARSC 010 offered fall term, ARSC 011 offered spring term.

ARSC 050. Career Planning and Decision-Making 1 sem. hr.

Assessment of values, personality characteristics, interests, goals and decision-making skills related to career planning. Also includes job search and labor market information. Offered every term and summer session. S/U grade assessment.

ARSC 060. Introduction to Trial Advocacy 1 0 sem. hrs.

ARSC 061. Introduction to Trial Advocacy 2 2 sem. hrs.

A practicum that introduces students to analytical legal thinking, the skills required for trial advocacy, the legal system, problem solving, basic concepts of evidence, and public speaking by using the National Mock Trial Competition. Students learn by preparing to compete in the Competition. Seminar format. To receive credit, students must complete both courses in the same academic year. ARSC 060 offered fall term; ARSC 061 offered spring term. S/U grade assessment for second term only. *Prereq: ARSC 060 is a prerequisite for ARSC 061.*

ARSC 100. Arts and Sciences Colloquium 1-3 sem. hrs.

An interdisciplinary course dealing with a central theme, subject or problem. Offered according to availability of faculty, student interest and resources.

ARSC 101. International Study 0 sem. hrs.

Structured pre-approval and continuous enrollment for students studying abroad in non-Marquette programs. Offered every term. *Prereq: Cons. of College Office; Approved for full-time study at another college/university abroad, but will NOT be certified as full-time by Marquette University.*

ARSC 110. Capstone Seminar for Interdisciplinary Minor in Environmental Ethics 3 sem. hrs.

Culminating the interdisciplinary minor in environmental ethics, this seminar provides students with an opportunity to explore the ethical dimensions of an environmental problem informed by the minor's core disciplines. Students investigate regional sources of information, consult with experts who are invited to the seminar sessions, and collaborate in identifying an ethical approach to resolving the problem. Service opportunities may be offered to students in organizations, agencies or businesses that are addressing the problem. Lead rotationally by philosophy and theology professors, this seminar counts as an elective in the professor's discipline. *Prereq: Jr. stndg., completion of three courses required for the minor, declared minor in environmental ethics, and cons. of instr.*

ARSC 120. The Environment and the City 3 sem. hrs.

Interdisciplinary lectures and discussion focusing on the science, ethics, and economics of environmental issues that affect cities. Issues covered include cities and a sustainable environment, the limits to urban growth, social justice and environmental preservation, air and water pollution, solid waste disposal, and recycling. Previous urban/environment courses desirable. *Prereq: Jr. stndg.*

ARSC 130. Medieval Models (Medieval Studies Colloquium) 1-3 sem. hrs.

Interdisciplinary treatment of medieval topics featuring presentations by faculty of several departments. Specific topics and faculty vary. May be counted towards Medieval Studies Minor and as Fine Arts Core Curriculum requirement. Offered occasionally. *Prereq:* Second term Fr. status.

ARSC 140. Perspectives on Women in Society 3 sem. hrs.

Interdisciplinary lectures and discussions focusing on gender as a dynamic component in human institutions and experience. Includes analysis of myths and realities of women's experiences from a social science, science and humanities perspective. Taps the expertise of faculty across campus who research in women's issues. May count toward Social Science requirement in Communication and Clinical Laboratory Science. Service Learning is a requirement for this course.

ARSC 150. Interdisciplinary Seminar in Family Studies 3 sem. hrs.

Interdisciplinary readings, discussion, and research centering on factors that affect family life, family satisfaction and family stability. Interaction with faculty family specialists. Focuses on interdisciplinary research methods in the area of the family. Offered spring term. *Prereq:* SOCI 021 plus 12 additional hours from the minor in Family Studies.

ARSC 160. Senior Capstone Seminar in International Affairs 3 sem. hrs.

Senior seminar for INIA majors designed to bring political, economic, and historical approaches to bear on specific issues in international affairs. Topics vary. The course com-

bines readings, class discussions, and foreign language application, with lectures and panel discussions by faculty specialists in international affairs. Offered spring term. *Prereq:* INIA major and Sr. stndg.

ARSC 190. Arts and Sciences Undergraduate International Exchange 0 sem. hrs.

Study abroad as part of an international student exchange program. Upon approval, students are enrolled in a college or university abroad as a full-time student for a term or a year. Course credits transfer to Marquette. *Prereq:* Approval by College of Arts and Sciences.

ARSC 192. Arts and Sciences Affiliated Study Abroad Programs 0 sem. hrs.

This is a zero-credit, full-time status course designed to keep students' files active while they participate in an affiliated study abroad program. *Prereq:* Acceptance by College of Arts and Sciences and by the program.

ARSC 193. Internship 1-4 sem. hrs.

Practical learning experiences. For example: An internship at the Center for the Study of Bioethics at the Medical College of Wisconsin. Interns are assigned projects in any of the several areas of the Bioethics Center. Areas may be in educational programs, research and investigation, medical ethics committees, publications and resources, and governmental relations.

All internships require a commitment of 8–12 hours per week during the term. Selection is based on academic credentials, extra-curricular experience, and a written essay. May be taken only once, S/U grades. Grade is determined by evaluation of work performance and a final written assignment. *Prereq:* Jr. stndg., minimum of 3.00 Q.P.A. cons. of Associate Dean and Director of the internship. Additional prerequisites may be found as stated in the Timetable of Classes.

ARSC 194. Seminar on Service Learning 0.5 sem. hr.

Theoretical aspects of leadership, service, and social analysis, approached through required readings and written reflection on the integration of service with theory. Social problems dis-

cussed from the perspective of process and change.

Limited to Burke Scholarship students. May be taken up to eight times for credit, but credits do not count toward university or college graduation requirements. Offered every term. S/U grading. *Prereq:* Burke Scholarship Holder.

EDUCATIONAL OPPORTUNITY PROGRAM (EDOP)**EDOP010. Introductory Writing Colloquium** 3 sem. hrs.

Designed to facilitate the acquisition of writingskills required in the university context. Addresses grammatical and structural problems. Includes readings, focused discussion and extensive practice in writing and editing essays, interviews, reports, a case study and a research paper. Not applicable to total number of credits required for graduation. Offered occasionally. *Prereq:* Cons. of EOP College Prog. Dir.

EDOP100–101. Pre-Law Colloquium 1,2 3 sem. hrs.

Intended for students planning to enter law school. Offered occasionally. *Prereq:* Cons. of the Dir. of the EOP College Prog. Limited to 20.

HONORS PROGRAM (HOPR)**HOPR 010. Honors Program Freshman Year Seminar** 1 sem. hr.

First-year Honors Program students will make connections among disciplines and understand that traditional distinctions among disciplines do not preclude productive dialogue among what might seem, at first, separate modes of inquiry. Twelve weeks; S/U grade assessment. Offered fall term. *Prereq:* Limited to first-year Honors Program students.

HOPR 020. Honors Program Second Year Seminar 2 sem. hr.

Second-year Honors Program seminars are intended to allow students to investigate a topic from a perspective that joins a specific disciplinary technique (e.g., literary analysis, philosophical inquiry, scientific empiricism) with a specific contemplative practice (e.g. Ignatian reflection, individual and/or guided meditation, centering prayer). The goal of the seminar is to help students gain an understanding of the relationship between contemplative and analytic modes of inquiry and the limitations and assets of each. Topics will differ among individual sections. Offered fall term.

HOPR 196. Honors Program Seminar 3 sem. hrs.

Topic of broad cultural interest investigated through a variety of approaches drawn from several disciplines. Topics vary. Guest faculty from within the university invited to conduct the seminar and encouraged to arrange as many different and experimental teaching formats as are consonant with the topic considered. Offered every term. Honors students only. Limited to 15. *Prereq:* Approval of Director of Honors Program.

College of Business Administration

The mission of the College of Business Administration is to provide a quality education grounded in Catholic, Jesuit values that enables students to function effectively and ethically in a diverse workplace and global economy. Our goal is to foster a community of scholars committed to improvement and collaboration, and to enhance interaction with business and service organizations. In doing this, we create a superior environment for our students to learn and develop.

UNDERGRADUATE PROGRAM DESCRIPTION

Professional undergraduate business education at Marquette University provides students with an educational foundation that makes them effective and responsible business leaders. This requires a focus on preparing individuals for responsibility in all aspects of their lives in an era of constant change. It implies that we will strive to graduate men and women who not only will become highly competent professionals but whose careers will be built on integrity and the highest values of professional and personal conduct.

The College of Business Administration stresses three elements of business education: perspectives, knowledge and skills. The first is grounded in the liberal arts traditions of Marquette University and builds on the core curriculum taken by all of our students. It is built on the premise that an effective business leader will develop a deep understanding of the religious, cultural, social, political, economic, international, scientific and technical environments in which individuals and organizations exist. This helps our students develop their own internalized value systems and prepares them to apply these values broadly throughout their lives. It also enables them to place business decisions in a larger context, developing an understanding of the potential impact of business actions more broadly on society. We believe that a liberal education is a necessary part of a professional education, and our curriculum is structured on this premise.

The second element focuses on knowledge of businesses and how they work. Initially, this portion of the curriculum focuses on core business knowledge required of all College of Business Administration graduates. This core provides the foundation for a career as a business leader. It provides each student with an introduction to the various functions generic to an organization such as marketing and finance and manufacturing and service operations. It also stresses development of a clear understanding of the dynamics of the firm and the economy, the basic managerial and organizational concepts necessary to function in an organization, the interaction between a firm and its environment, and an overall view of policy making within an organization. Building on this core, the curriculum provides the students an opportunity to specialize in a specific business area, such as accounting, information technology, human resources or international business. This prepares graduates for entry-level business positions — the start of their business careers.

Third, the curriculum stresses skill building, helping students develop their personal potential, allowing them to grow professionally as their careers progress. The building of skills in areas such as communication, quantitative analysis, team building, leadership and critical thinking is

an integral part of the curriculum throughout a student's program of study. The development of these skills prepares graduates to continue to grow and develop in a rapidly changing work environment.

DEGREES OFFERED

Marquette University confers the degree bachelor of science in business administration on those students who have satisfactorily completed one of the regularly prescribed curricula of the College of Business Administration.

The master of business administration, master of science in accounting, master of science in applied economics and master of science in human resources are offered through the Marquette University Graduate School. Details on these master's programs are contained in the *Graduate Bulletin*.

MAJORS OFFERED

Majors in the College of Business Administration are offered in accounting, business economics, finance, human resource management, marketing, information technology, international business, and operations and supply chain management; students also may earn a major in general business. The college also offers minors to non-business students in business administration, human resources and marketing.

All undergraduate majors and minors in the college are open to part-time degree students taking day classes. Day and evening courses also are available for credit or audit to non-degree students with the proper prerequisites. Part-time students are assigned to academic advisers in Part-time Studies, 1212 Building, 103.

ADMISSION REQUIREMENTS

For admission requirements for the College of Business Administration see the Admissions Procedures on page 17 of this bulletin.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

A candidate for a baccalaureate degree in business administration must earn 129 semester hours of credit. In addition to the overall requirement of a 2.000 quality point average, students enrolled in the College of Business Administration must achieve a 2.000 quality point average in all courses offered by the college. Candidates in the accounting curriculum must earn a 2.500 quality point average in all courses offered by the college.

BUSINESS DEGREE REQUIREMENTS

1. NON-BUSINESS CORE COURSES	HOURS
a. ENGL 001 (Expository Writing 1)	3
ENGL 002 (Expository Writing 2)	3
b. LITERATURE Electives	6
(students choose English or foreign language literature courses)	
c. HIST 001 (Growth of Western Civilization 1)	3
HIST 002 (Growth of Western Civilization 2)	3
(Students who have completed one year of world history in high school with at least a B+ average may substitute HIST 004 and HIST 005 or select two courses from POSC 020, 040, or 060.)	
d. MATH 070 (Finite Mathematics)	3
MATH 071 (Elements of Calculus 1)	3
(If student's MATH ACT score is greater than 28 or MATH SAT score is greater than 625, then the student may complete MATH 80 (4 credits) in lieu of MATH 070 and MATH 071. The student would still be required to complete an additional 2 elective credits.)	

e. PHIL 050 (Philosophy of Human Nature)	3
PHIL 104 (Theory of Ethics)	3
PHIL 108 (Business Ethics)	3
f. CMST 012 (Public Speaking)	2
(CMST 010 may be substituted)	
g. THEO 001 (Introduction to Theology)	3
THEOLOGY Electives	6
h. Non-College of Business Administration Electives	9 or 18
(Accounting majors must complete 9 elective credits; all other majors, 18 elective credits. All students must include 6 hours in social science, natural science, mathematics or foreign language.)	
TOTAL NON-COLLEGE OF (Accounting majors)	53
BUSINESS ADMINISTRATION COURSES (All other majors)	or 62

2. BUSINESS CORE COURSES

HOURS

a. BUEX 001 (Orientation to Business Administration)	1
NOTE: Students transferring into the college are required to complete BUEX 002 (Computer Literacy in Business) instead of BUEX 001.	
b. ACCO 030 (Principles of Financial Accounting), and ACCO 031 (Principles of Managerial Accounting)	6
c. ECON 043 (Principles of Microeconomics) and ECON 044 (Principles of Macroeconomics)	6
d. MANA 025 (Introductory Business Statistics), and MANA 026 (Intermediate Business Statistics)	6
e. ECON 110 (Applied Microeconomic Analysis)	3
f. FINA 180 (Introduction to Financial Management)	3
g. MANA 156 (Behavior and Organization)	3
h. MANA 170 (Operations and Supply Chain Management)	3
i. MARK 140 (Introduction to Marketing)	3
j. MANA 120 (Introduction to Information Technology) (<i>non-ACCO Majors</i>) or ACCO 144 (Accounting Information Systems) (<i>ACCO Majors</i>)	3
k. MANA 181 (Business and Its Environment)	3
l. MANA 182 (Business Policies)	3
TOTAL BUSINESS CORE COURSES	43

3. MAJOR COURSES

Business degree students also must complete the requirements for one of the following majors: accounting, business economics, finance, human resources, information technology, marketing, international business, operations and supply chain management, or general business. Double counting of courses for two or more majors is not permitted.

ACCOUNTING MAJOR (33 CREDITS)

- ACCO 120 (Intermediate Accounting)
- ACCO 121 (Advanced Accounting 1)
- BULA 127 (Legal Environment of Business)
- BULA 128 (Business Law)
- ACCO 132 (Cost Accounting)
- ACCO 133 (Auditing)
- ACCO 135 (Taxation of Corporations, Partnerships and Trusts)
- Three ACCO electives from:
ACCO 105, ACCO 110, ACCO 122, ACCO 134, ACCO 140, ACCO 141, ACCO 142,
ACCO 146, ACCO 147
- One Business elective

Effective January 1, 2001, in Wisconsin, Illinois, and most, if not all states, students will need to complete 150 semester hours, including a bachelor's degree in accounting to qualify for the CPA exam. Many students may prefer to meet this requirement by earning a graduate degree in addition to their undergraduate degree. Marquette's accounting program offers a master of science in accounting degree which meets the 150-hour requirement. For information, consult the Graduate Bulletin or contact the Department of Accounting at (414) 288-7340.

BUSINESS ECONOMICS MAJOR (24 CREDITS)

- ECON 120 (Intermediate Macroeconomic Analysis)
- Four upper division ECON electives
- Three business and/or economics electives

In addition to the bachelor's degree program outlined above, the Department of Economics offers a special five-year program enabling students to earn an undergraduate degree and a master of science in applied economics (MSAE) degree. For information, consult the Graduate Bulletin or contact the Department of Economics at (414) 288-7377.

GENERAL BUSINESS MAJOR (24 CREDITS)

- Eight upper division business electives.

FINANCE MAJOR (24 CREDITS)

Specific Finance Course Requirements:

- FINA 181 (Investment Analysis)
- FINA 183 (Advanced Financial Management)
- Three FINA electives from:
 - FINA 105 (Internship in Finance)
 - FINA 112 (Real Estate Valuation and Financing)
 - FINA 182 (Investment Management)
 - FINA 184 (Personal Financial Planning)
 - FINA 185 (International Finance)
 - FINA 186 (Bank Management)
 - FINA 187 (Cases in Financial Management)
 - FINA 188 (Introduction to Financial Derivatives)
 - FINA 189 (Issues in Finance)
- Three business electives

HUMAN RESOURCES MAJOR (24 CREDITS)

Specific Human Resource Course Requirements:

- MANA 160 (Management of Human Resources)
- Three electives from:
 - MANA 163 (Compensation of Human Resources)
 - MANA 164 (Labor Relations and Collective Bargaining)
 - MANA 166 (Employment of Human Resources)
 - MANA 167 (Training and Development)
- One elective from those listed above, or
 - MANA 105 (Internship in Human Resources)
 - MANA 155 (An Introduction to Diversity in Organizations)
 - MANA 158 (Motivation and Leadership)
 - MANA 162 (Employee Benefit Systems)
 - MANA 168 (Issues in Human Resources)
- Three business electives

In addition to the human resources major described above, a special five-year program is offered which enables students to earn an undergraduate degree with a major in human resources and a master of science degree in human resources (MSHR). For information, consult the Graduate Bulletin or the director of the Master's in Human Resources program at (414) 288-3643.

INFORMATION TECHNOLOGY MAJOR (24 CREDITS)

Specific Information Technology Course Requirements:

- MANA 121 (Business Applications Program Development)
- MANA 122 (Data Base Management Systems)
- MANA 126 (Information Systems Analysis)
- MANA 127 (Information Systems Design and Implementation)
- One elective from:
 - MANA 106 (Internship in Information Technology)
 - MANA 124 (Telecommunications)
 - MANA 128 (Advanced Business Applications Program Development)
 - MANA 129 (Issues in Information Technology)
 - COSC 051 (Structured Programming)
- Three business electives

MARKETING MAJOR (24 CREDITS)

Specific Marketing Course Requirements:

- MARK 142 (Marketing Research)
- MARK 150 (Marketing Management)
- Three MARK electives from:
 - MARK 105 (Internship in Marketing)
 - MARK 143 (Integrated Marketing Communications)
 - MARK 144 (Marketing Logistics and Distribution Strategy)
 - MARK 145 (Product and Pricing Strategy)
 - MARK 146 (Consumer Behavior)
 - MARK 148 (Sales Management)
 - MARK 152 (Retailing Management)
 - MARK 153 (International Marketing)
 - MARK 155 (Business-to-business Marketing)
 - MARK 156 (Direct Marketing)
 - MARK 157 (Marketing and Society)
 - MARK 159 (Issues in Marketing)
- Three business electives

OPERATIONS AND SUPPLY CHAIN MANAGEMENT MAJOR (24 CREDITS)

Specific Quality and Performance Management Course Requirements:

- Three electives from:
 - MANA 171 (Manufacturing Management)
 - MANA 172 (Service Management)
 - MANA 173 (Quality and Process Management)
 - MANA 174 (Logistics and Purchasing Management)
 - MANA 179 (Issues in Operations and Supply Chain Management)
- Two electives from the following group *with at least one of MANA 122, MANA 124 or MANA 126*:
 - MANA 108 (Internship in Operations and Supply Chain Management)
 - MANA 122 (Data Base Management Systems)
 - MANA 124 (Telecommunications)
 - MANA 126 (Information Systems Analysis)
 - MANA 158 (Motivation and Leadership)
 - MANA 160 (Management of Human Resources)
 - MANA 176 (Management Science)
 - MANA 183 (International Management)
- Three business electives

INTERNATIONAL BUSINESS MAJOR

(12 CREDITS PLUS AN ADDITIONAL MAJOR IN THE COLLEGE)

Students completing the international business major must also complete another a major in business. Double counting of courses for two majors is not permitted.

- Required Courses (12 credits)
 - Select four electives from:
 - ECON 154 (International Currency Markets)
 - ECON 155 (Comparative Economic Development)
 - ECON 156 (International Trade)
 - BULA 132 (Legal and Regulatory Environment of International Business)
 - ACCO 141 (International Accounting)
 - FINA 185 (International Finance)
 - MANA 183 (International Management)
 - MARK 153 (International Marketing)
 - INBU 105 (Internship in International Business)
 - INBU 189 (Seminar in International Business)

One of the four electives above must be either ECON 154 or ECON 156.

A maximum of two international business electives can be economics.

- Foreign Language
 - Working competency in a least one approved foreign language is required, satisfied by either (1) completing foreign language courses 001, 002, 003, 004, 082, 182 or equivalent in French, German, Japanese, Italian, or Spanish; or (2) if passing a reading, writing, speaking, and listening working competency test in a foreign language

taught at Marquette University as endorsed by the Department of Foreign Languages and Literatures. Permission to take this competency test is granted by the director of International Business Studies.

Note: Foreign students whose native language is not English may have the language competency requirement waived subject to the approval of the director of International Business Studies.

- **STUDY OR WORK ABROAD**

Completion of a work or study abroad summer or term program is required. (NOTE: A term or academic year abroad may result in more than eight terms needed to complete the business degree.) Approval of the study/work abroad experience is subject to prior, written approval by the director of International Business Studies.

5. GRADUATION REQUIREMENTS

- a. A minimum total hours of 129.
- b. A minimum Q.P.A. of 2.000 must be earned in all courses taken at Marquette University.
- c. A minimum Q.P.A. of 2.000 must be earned in all College of Business Administration courses taken at Marquette University. (2.500 for accounting majors). A grade of C or higher must be earned in each of a student's major courses including the core courses introducing the major. For international business majors, a grade of C or better must be earned in required language courses beyond either 004 or 010.
- d. At least 50 percent of the business credit hours required for the business degree must be taken at Marquette University.
- e. On occasion, seniors will be required to take a comprehensive examination testing their grasp of the concepts, principles, and relations covered in the core business courses. A similar test might be given in any one of the majors.
- f. It is the candidate's responsibility to meet all university academic, financial, and administrative requirements and procedures as outlined elsewhere in this bulletin.

MINOR IN BUSINESS ADMINISTRATION

The College of Business Administration offers a minor in business administration open to all other undergraduate students at Marquette University. *The minor is not available to students in the College of Business Administration.*

Completion of the minor will be noted on a student's transcript if the following requirements are met:

1. Required Courses	Credits
BUEX 002 Computer Literacy in Business	0
ECON 043 Principles of Microeconomics	3
ECON 044 Principles of Macroeconomics	3
ACCO 030 Financial Accounting	3
ACCO 031 Managerial Accounting	3
FINA 180 Financial Management	3
MANA 025 Introductory Business Statistics ^a	3
MANA 026 Intermediate Business Statistics	3
MANA 156 Organizational Behavior	3
MARK 140 Introduction to Marketing	3
	<hr/> Total 27

^a MATH 164, MATH 060 or PSYC 060 will fulfill requirements for both MANA 025 and MANA 026; students completing MATH 164, MATH 060 or PSYC 060 must also complete an upper division business elective to total 27 credits.

2. A C or better must be earned in each course except BUEX 002; students must earn a passing grade (CR) in BUEX 002.
3. Certification of completion of the minor by the dean of the student's college.

Undergraduate students outside the College of Business Administration should limit their enrollment in business courses (excluding ECON 043 and 044) to no more than 25 percent of the total credit hours applied to their degree programs.

MINOR IN HUMAN RESOURCES

The College of Business Administration offers a minor in human resources that is open to all other undergraduates at Marquette University. *The minor is not available to students in the College of Business Administration.*

A minor in human resources requires ACCO 030, ECON 043, MANA 160 and three courses from the following: MANA 156, MANA 162, MANA 163, MANA 164, MANA 166, MANA 167, MANA 168, and ECON 160. In addition, a course in basic statistics is required (MANA 025 or equivalent). A grade of C or better must be earned in each of these courses.

MATH 060, MATH 164, PSYC 060, or SOCI 060 may be substituted for MANA 025.

The College of Business Administration offers a special five-year program which enables students to earn a minor in human resources as part of their undergraduate degree and a master of science in human resources (MSHR) degree. For information, consult the *Graduate Bulletin* or director of the Master's in the Human Resources program at (414) 288-3643.

MINOR IN MARKETING

A minor in marketing includes MATH 060, ECON 043 and 044, MARK 140, 142 and two other upper division marketing courses. *MARK 143 (Integrated Marketing Communications)*, *MARK 153 (International Marketing)*, and *MARK 146 (Consumer Behavior)* are recommended.

MATH 060, PSYC 060 or MATH 164 may substitute for MANA 026 as a prerequisite for MARK 142. The economics courses should be completed in the sophomore year. Students must earn a C or better in each course in their minor. *The minor in marketing is not available to students in the College of Business Administration.*

ACADEMIC REGULATIONS

Students in the College of Business Administration are expected to comply with the academic requirements and regulations listed in the university section of this bulletin. Amplifications and additions to the university requirements are detailed herein and govern only those students enrolled in the College of Business Administration. Procedures developed to enforce university and college regulations are available for review in the college office.

DECLARATION OF MAJOR

Each business student is required to declare a major prior to registration for the junior year. All students must declare their majors prior to advising and registration for the senior year. All students must file applications for graduation in the main office one term prior to the term of intended graduation.

ABSENCES FROM FINAL EXAMINATIONS

A business administration student who misses a final examination in any course must file a written excuse with the assistant dean in the College of Business Administration office within 48 hours. If the written excuse is approved by the assistant dean, all students enrolled in business administration courses (regardless of their college) with valid and verifiable non-academic excuses may take make-up examinations during a period scheduled by the college the following term. Clearance of X and I grades in all business administration courses is administered by the College of Business Administration. (See also the University section of this bulletin under "Examinations.")

S/U OPTION

For enrichment purposes, junior and senior students are given an option to elect one course per term (to a maximum of four courses) for which only an S or U grade is assigned. Quality of C or higher achievement must be maintained if a grade of S is to be assigned.

Eligible courses include only non-business electives which are not used to satisfy non-business core requirements. Courses for a minor or major cannot be taken under the S/U option. No business course may be taken under the S/U Option by a business administration student if the student wishes that course to fulfill a graduation requirement for either number of hours or as a required course for the core or major. BUEX and internship grading courses are graded using the S and U grades and do not fall within the S/U Option.

CD AND D GRADES

Courses completed with a grade CD or D are not counted toward the total hour requirement for the major (in the College of Business Administration) but do fulfill the subject matter requirement and do count toward the total hours required for graduation.

Credit is *never* given twice for the same course. Students who received the grade of CD or D in a course specific to their major or minor may need to repeat the course.

Accounting students must earn a C or better in ACCO 030 and ACCO 031 prior to enrolling in ACCO 120.

GRADE APPEALS AND POLICY PROCEDURES

The college adheres to university policy on grade appeals. Any appeal *must* begin with the teacher who assigned the grade. If a resolution cannot be reached, the department chairperson must be contacted with a written appeal. Information concerning subsequent steps can be obtained from the assistant dean of undergraduate programs or the associate dean.

ATTENDANCE

A student is expected to attend every exercise of the courses in which he or she is registered. Any absence, regardless of the reason, will prevent the student from getting the full benefit of the course and renders a student liable to university censure. Since it is assumed that no college student will be absent from class without reason, this college will not differentiate officially between excused and unexcused absences.

When a student has absences in hours equal to two weeks of class periods, he or she may be dropped without warning, earning a grade of WA, at the request of the instructor or the dean of the college. After the WA grade has been issued, the student may not apply for a grade of W.

All students enrolled in courses taught by the College of Business Administration must conform to the attendance policy in effect in the College of Business Administration even though they are registered through another college or division of the university.

ACADEMIC PROBATION AND DISMISSAL

Students in academic difficulty are automatically warned on the grade reports and typically are placed on academic probation by the College of Business Administration. Students in the college are expected to maintain a C (2.000) academic average overall and in all College of Business Administration courses. Students who fail to maintain progress necessary to meet university and college graduation requirements are subject to academic dismissal. A student on academic probation is directed as to what the student will be expected to attain the next term in order to continue enrollment. Note that students can also be placed on probation and dismissed for accumulating 15 percent of hours attempted with a grade of F.

INDEPENDENT STUDY COURSES

The purpose of an independent study business course (195) is to provide an independent, directed-study experience for the qualified student. To qualify, a student must have attained senior standing, have a minimum 2.500 quality point average overall and a 3.000 quality point average in the major area or topic of which the independent study will be in. Independent study courses are not available for those courses in the same term when the course is being offered. The appropriate use of an independent study course is to allow the further pursuit of topics and issues presented in a course and/or a legitimate course of study for which no regularly scheduled course is presently offered. Obtaining permission and approval for a 195 is contingent on the approval of the research proposal, the willingness of a specific faculty member to accept the student's proposal, and that faculty member's willingness to work with the student for the duration of the course. All 195s must have written approval from the instructor and the department chair.

ADVANCED STANDING STUDENTS

The College of Business Administration accepts credit from both two- and four-year educational institutions based on the university transfer policy and an individual evaluation of credits earned using the following criteria:

- a. Educational objectives and nature of the institution from which the student transfers credit.
- b. Comparability of the nature, content, and level of credit earned to that offered by the college. Courses offered on the lower division at other institutions, but at the upper division at Marquette University, are normally not acceptable. Occasionally, such courses may be validated.

- c. Appropriateness and applicability of the credit earned to the programs offered by the college, in the light of the student's goals and the nature of Marquette's education. The college will normally not accept highly technical, career oriented courses, physical education courses, or courses earned in fulfillment of requirements for a professional license or certification.
- d. A C grade or better must be earned in order to be considered for transfer; credits only transfer, not the grade.

The College of Business Administration has established validation procedures for some courses taken at the lower division level which the college offers at the upper division level.

Such validation is usually based on the successful completion of advanced courses in a given area and may include written examinations and/or CLEP tests. Please discuss validation with the assistant dean of undergraduate programs.

APPROVAL FOR SUMMER SESSIONS STUDY

Students who plan to study in summer school at another institution must obtain written approval for each course before the summer session actually begins. If prior approval is not obtained, there is no guarantee that credits earned will be accepted by Marquette University. Course approval forms may be obtained from the College of Business Administration main office. Students must earn a C grade or better in the course in order to be eligible for transfer credit; credits transfer, not the grade.

ACADEMIC LOAD

The academic load of a student is measured by credit hours assigned to each course. The normal business administration program varies from 15 to 18 credit hours per term.

Request for permission to exceed 19 credit hours must be submitted in writing to the assistant dean prior to registration.

GRADUATION

All graduates are expected to complete the Senior Exit Survey in the month prior to their graduation. All May graduates are required to attend the university and college commencement ceremonies.

SPECIAL ACADEMIC PROGRAMS

BUSINESS INTERNSHIP PROGRAM

The College of Business Administration offers qualified students the opportunity to participate in an experiential internship program which combines practical experience with the core curriculum. The program, offered in cooperation with public, private and professional organizations includes actual experience in a carefully supervised program of productive work with a clearly defined educational objective.

Full-time degree students in the college, who have achieved junior standing and a quality point average of 2.500 overall, are eligible to participate in the internship program. Credit is granted based on hours worked and the educational content of a particular offering.

Interns are full-time students whether at school or at work. When at work the intern is subject to the rules of the company and is under its direct supervision. Wages are paid directly to the student. The university does not employ the student but cooperates with business and industry in arranging such employment. Registration for each work period is required of all full-time interns, and credit is established and graded through enrollment in the appropriate course during the following school period. For specific criteria to earn internship credit, contact the college director of career management. Six credit hours earned via internship may be applied to the bachelor of science degree requirements. Contact the college director of career management for information.

PRE-LAW SCHOLARS

The Pre-law Scholars program allows students to reduce from seven years to six years the total time needed to complete the bachelor's and law degrees. A typical bachelor's degree program in the College of Business Administration consists of three parts: core curriculum require-

ments, major requirements and electives. In the first three years of the Pre-law Scholars program, students will complete the core curriculum and major requirements. Courses taken in the fourth year (the first year of law school) count as electives for the bachelor's degree and toward the completion of the law degree. The majors students may choose to pursue are:

- Accounting
- Business Economics
- Finance
- Human Resource Management
- Information Technology
- International Business
- Marketing
- Operations and Supply Chain Management

Note: Students majoring in accounting will need to take two courses in summer school; also, depending on foreign language placement, international business majors may need to take summer school courses.

The assistant dean of the College of Business Administration and/or a designated business faculty member, will be responsible for the academic advising of Pre-law Scholars.

ACADEMIC STANDARDS FOR PRE-LAW SCHOLARS

Admission to the Pre-law Scholars program is offered only to five incoming first-year students, ordinarily during the spring prior to the first year. Admission guarantees the scholar a place in Marquette Law School's first-year class of 2005, after completion of the third year of undergraduate studies (and having earned at least 100 credits) in the College of Business Administration. Students will maintain a place in the Law School by fulfilling the following requirements:

- Maintain a minimum cumulative 3.400 Q.P.A. in the undergraduate program.
- Earn a score on the Law School Admissions Test that is equal to or greater than the median score of the class admitted to the Law School in the year before the Scholar's enrollment in the Law School (i.e., the first-year class of 2004). Students may take the LSAT as many times as needed to earn this score, but should bear in mind that the Law School relies on the average of all the LSATs a student has taken.
- Meet the Law School's standards for character and fitness.

Students may choose to complete the fourth year as an undergraduate; in such a case, the student will be guaranteed a place in the Law School entering class the following year, provided the academic standards of the program are met. While the Law School is bound to hold a place for Scholars who meet all requirements, students are not obligated to attend Marquette's Law School. Students may elect to complete the undergraduate degree in the major(s) chosen. The College of Business Administration will base its calculations for academic honors on all credits earned toward the bachelor's degree, including Law School credits needed to total 129 credits.

FINANCIAL AID FOR PRE-LAW SCHOLARS

The financial aid and scholarships Pre-law Scholars receive will be applicable only to the first three years at Marquette. After completing the first three years of undergraduate course work, the student must apply for financial aid and scholarships through the Law School.

STUDENT FINANCIAL AID

While most financial aid is awarded by the Office of Student Financial Aid, a few scholarships are available through the College of Business Administration. Interested students should contact the associate dean of the college. Scholarships are typically available only to prospective juniors and seniors with a cumulative Q.P.A. of 3.0 or better. Applications must be filed in the main office by mid-April for scholarship funds for the coming academic year.

STUDENT ORGANIZATIONS

The College of Business Administration supports student organizations intended to cultivate academic, professional, career and social interests of business students and related majors. This includes the Business Administration Student Council (BASC). The presidents of each business student organization serve as an advisory council to the dean, meeting several times each term.

To inquire about business student organizations activities and membership, ask your adviser or the dean's office.

HONOR GROUP

BETA GAMMA SIGMA

Beta Gamma Sigma is the international honor society for students enrolled in business schools accredited by the AACSB—International (Association for the Advancement of Collegiate Schools of Business).

The Marquette chapter was founded in 1929 “to encourage and reward scholarship and accomplishment among students of business and administration, to promote the advancement of education in the art and science of business, and to foster integrity in the conduct of business operations.” Induction to Beta Gamma Sigma is the highest honor that may be conferred by the College of Business Administration.

PROFESSIONAL FRATERNITIES

Students in the College of Business Administration are eligible to join the following professional fraternities on campus: Psi Chapter of Beta Alpha Psi, national accounting fraternity, and Delta Sigma Pi, the international professional commerce fraternity.

PROFESSIONAL SOCIETIES

AMERICAN MARKETING ASSOCIATION (AMA)

The American Marketing Association is a national marketing organization of business professionals, educators and students. The chapter provides opportunities to students to interact with their fellow students, academicians, and the business community and to develop a career-oriented objective.

AMERICAN PRODUCTION AND INVENTORY CONTROL SOCIETY (APICS)

The American Production and Inventory Control Society (APICS) is an international professional organization made up of individuals who practice and preach the art and science of Operations and Supply Chain Management. Through the Milwaukee chapter, students interact with local professionals by attending dinner meetings, plant tours, technical sessions, and other related activities.

ASSOCIATION OF INFORMATION TECHNOLOGY PROFESSIONALS (AITP)

The Association of Information Technology Professionals has a mission to heighten the awareness of information systems business applications and careers available for business systems analysts.

COLLEGIATE ENTREPRENEURS OF MARQUETTE (CEM)

Collegiate Entrepreneurs of Marquette is an organization of college students who promote entrepreneurship among the students, faculty, alumni and within the local community. CEM is an affiliate of Collegiate Entrepreneurs of America.

ECONOMICS ASSOCIATION

The Economics Association student group was established to promote the academic, professional and leadership development of its members. The organization provides a forum for the professional and social interaction of students, faculty, alumni and professionals interested in economic issues and careers in economics.

FINANCIAL MANAGEMENT ASSOCIATION (FMA)

The Financial Management Association is a national association of finance specialists dedicated to developing interactions between students, the faculty, and the business community. Through a series of guest speakers, field trips, and simulation games, the organization exposes the students to as many career opportunities in finance as possible.

HUMAN RESOURCES MANAGEMENT ORGANIZATION (HRMO)

The Human Resources Management Organization's primary aim is to assist students in improving their personal and professional managerial skills and understanding of the realities of the business environment.

INTERNATIONAL ASSOCIATION OF STUDENTS IN ECONOMICS AND BUSINESS MANAGEMENT (AIESEC)

AIESEC is an international student-run educational association with the purpose of contributing to the development of member countries and their people with an overriding commitment to international understanding and cooperation. The primary objective is to develop internship opportunities for Marquette students to work abroad.

INTERNATIONAL BUSINESS STUDENT ASSOCIATION (IBSA)

The International Business Student Association (IBSA) provides a forum for all Marquette University students to learn about international business (IB) events, developments, and activities on campus and in the business community. IBSA holds information meetings, IB-leader-guest-speaker series, and provides other IB related academic and professional career development and networking opportunities.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

CURRICULA INFORMATION

FRESHMAN-SOPHOMORE CURRICULUM

The following are the required courses and alternatives for freshmen and sophomores.

<i>Freshman Year</i>	SEM. HRS.	<i>Sophomore Year</i>	SEM. HRS.
BUEX 001	1	ACCO 030 and 031	6
ENGL 001 and 002	6	ECON 043 and 044	6
History requirement [†]	6	MANA 025 and 026	6
MATH 070 and 071	6	Literature electives	6
CMST 012 or CMST 010	2-3	Theology or other electives	6-12
PHIL 050	3		
THEO 001	3		
Non-business electives*	6-9		
	<hr/> 33-37		<hr/> 30-36

*An elective selected from foreign languages, mathematics, biology, chemistry, physics, anthropology, political science, psychology or sociology.

[†]See Graduation Requirements for specific course selection(s).

BUSINESS ADMINISTRATION AND ROTC

Students in the Army Military Science program (AROTC) and the Naval Science program (NROTC) may enroll in any of the curricula offered by the College of Business Administration; more than the 129 credit hours normally required for graduation are necessary.

The heritage requirement for NROTC students can be fulfilled with (a) HIST 118 or POSC 129 and (b) NASC 022; AROTC students can fulfill the heritage requirements with (a) MISC 146 and (b) HIST 118 or MISC 195. Also, military and naval science courses will fulfill the 9–18 credit requirement of non-business electives.

COURSE DESCRIPTIONS

ACCOUNTING (ACCO)

Chairperson and Professor: Giacomino

Professor: Doney, Probst

Professor Emeritus: H. Loebel

Associate Professor: Akers, Eaton, Naples, Trebby, Yahr

Adjunct Assistant Professor: Dole

Adjunct Instructor: C. Gruber, Kren

Lecturer: Rausch

The curriculum in accounting is designed to accomplish many specific objectives, the most important of which are: critical thinking, oral communication, business writing ability, technical knowledge and skills needed for an entry level accounting position, and technical knowledge needed for the Certified Public Accounting Examination.

The individual course descriptions below focus primarily on content, as opposed to process. The accounting curriculum reflects the faculty's commitment to excellence and breadth. The faculty use a wide variety of methods to enhance the learning process. Accounting courses include computer assignments, team projects, oral reports and term papers, and they cover ethical and international accounting issues. The department offers a group of electives in tax research, international accounting, financial statement analysis, accounting theory, and government accounting. Some of the electives are seminars in which students are regularly involved in class discussions and report writing and presentation. Several courses also call for class presentations by the students.

ACCO 030. Principles of Financial Accounting 3 sem. hrs.

Accounting concepts and principles applied in the preparation of financial statements, asset valuation, and the accounting for debt and equity issues of business corporations. *Prereq:* Computer literacy; *Soph. stndg.*

ACCO 031. Principles of Managerial Accounting 3 sem. hrs.

Structuring data to aid management decisions. Internal control, budgeting, break-even analysis, standard costing, variable costing, ratio analysis, inventory control, capital budgeting, and transfer pricing. *Prereq:* ACCO 030 and computer literacy.

ACCO 105. Intern Grading Period in Accounting 3 sem. hrs.

Co-op or intern experience in accounting features educational activity and productive work related directly to the accounting curriculum. Credit granted for previous work period. *Prereq:* Jr. stndg. in business; approval and cons. of internship dir. S/U grade assessment.

ACCO 110. Accounting Communications 3 sem. hrs.

A comprehensive examination of the major forms of communication used in the accounting profession. Instruction in business writing and speaking. *Prereq:* ACCO 031; CMST 010 or CMST 012.

ACCO 120. Intermediate Accounting 3 sem. hrs.

Discussion of the development of accounting standards and the conceptual framework underlying financial accounting. An in-depth review of the income statement and the balance sheet. Recognition, measurement and reporting of cash, receivables, inventories, property, plant and equipment, intangible assets, liabilities and investments. *Prereq:* ACCO 031 and computer literacy.

ACCO 121. Advanced Accounting 1 3 sem. hrs.

Recognition, measurement and reporting of stockholders' equity, retained earnings and dilutive securities. An examination of financial reporting issues; earnings per share, income taxes, pensions, leases, accounting changes and errors. A further elaboration of financial statement preparation: statement of cash flows, interim reporting, segment reporting and reporting for inflation. Also, accounting for partnerships. *Prereq:* ACCO 120.

ACCO 122. Advanced Accounting 2 3 sem. hrs.

Business combinations through acquisitions of net assets or common stock. Construction of consolidated financial statements, including analysis of intercompany transactions. International accounting issues. Accounting for state and local governments and not-for-profit organizations. *Prereq:* ACCO 121.

ACCO 132. Cost Accounting 3 sem. hrs.

Industrial cost accounting systems, job order and process costing, standard costs, and variance analysis. Procedures for measuring managerial performance and enforcing budgets. Problems conveying the importance of accounting information in planning and controlling a business. *Prereq:* ACCO 120.

ACCO 133. Auditing Principles and Procedures 3 sem. hrs.

Philosophy, concepts and techniques used by independent auditors. Professional ethics and legal relationships. Study and evaluation of internal control. Audit program applications. Statistical sampling and EDPAuditing. Reporting obligations and options. *Prereq:* ACCO 121.

ACCO 134. Individual Income Taxation 3 sem. hrs.

History of federal income taxation. Taxation of personal income. Determination of gross income, adjusted gross income, deductions, credits, exemptions, normal tax, and surtax. *Prereq:* ACCO 120 and Jr. stndg.

ACCO 135. Taxation of Corporations, Partnerships, and Trusts 3 sem. hrs.

Partnership, fiduciary, and corporation income tax laws studied for proper treatment of various types of income, deductions, the consequences of ownership interests, and the application of various tax rates to taxable situations. Survey of administrative procedure for protests, refunds and of gift and estate taxes. *Prereq:* ACCO 120.

ACCO 140. Analysis of Financial Statements 3 sem. hrs.

The primary objective of the course is to provide experience in reading, interpreting, and analyzing corporate financial statements. The course also integrates finance theory relative to the importance and value of accounting information. Specific attention is given to the evaluation methods necessary to assess a firm's short-term liquidity, long-term solvency funds flows, capital structure, return on investment, operating performance, and asset utilization. The effects of alternative accounting methods and footnote disclosures are important ingredients in these analyses. Course requirements stress the ability to write both cases and reports that summarize the various analyses and conclusions. *Prereq:* Srs. majoring in accounting or finance.

ACCO 141. International Accounting 3 sem. hrs.

The primary objective of the course is to provide an overview of managerial and financial accounting issues faced by multinational corporations or firms involved in international business. These issues include the diversity of worldwide accounting principles and the prospects for uniform international accounting standards, foreign currency transactions and translation, inflation, various technical accounting methods and the implications of their application, financial disclosures, analysis of financial statements, auditing, investment analysis, risk management, management information systems, performance evaluation, methods of financing transfer pricing, and taxation. These topics are viewed from the perspective of companies based in the United States that operate in diverse business environments throughout the world. Some specific countries are analyzed to provide contrasts and comparisons in these areas. Course requirements stress the ability to write both cases and reports some of which require use and analysis of foreign company financial statements. *Prereq:* ACCO 031.

ACCO 142. Tax Research Seminar 3 sem. hrs.

The objective of this course is to assist in the development of essential tax research skills and their application in the prevailing federal tax environment. The student will learn how to find tax authority, evaluate the efficacy of that authority, and apply the results of the research to a specific situation. *Prereq:* ACCO 134 and Sr. stndg.

ACCO 143. Accounting Theory 3 sem. hrs.

Analysis of theoretical structure underlying financial accounting. Emphasis directed toward its development from both nominative and descriptive approaches. Coverage includes relation of accounting theory to basic financial statements and to selected topical areas. *Prereq:* Sr. stndg. and accounting major.

ACCO 144. Accounting Information Systems

3 sem. hrs.

Examines most of the information systems knowledge components, required of entry-level accountants, by the AICPA, IIA and IMA. Hands-on projects, using data base management software, and accounting systems software, reinforce understanding of the knowledge components. Coverage includes: systems theory, analysis and design of computer-based accounting systems, various approaches to computerizing accounting data, data modeling, data base management systems, internal control, computer crime, management fraud, end-user computing, networks and role of the information technology function in organizations. *Prereq: ACCO 120.*

ACCO 145. Advanced Cost Accounting

3 sem. hrs.

This course is designed to develop an understanding of accounting as a financial information system. Cost accounting is designed to structure financial information so as to assist management in decision-making. As a result, this course has a decision-orientation which is important for students who seek careers in either profit-motivated or not-for-profit organizations. *Prereq: ACCO 132.*

ACCO 146. Governmental Accounting

3 sem. hrs.

Study of accounting principles for governmental and not-for-profit sector and the related financial reporting and disclosure requirements. Examination of objectives of financial reporting for these entities and the theoretical structure underlying these principles. Coverage of current and pending GASB and FASB pronouncements. *Prereq: Sr. stndg. and ACCO 121.*

ACCO 147. International Taxation

3 sem. hrs.

Study of taxation issues facing American companies carrying on business outside the country, as well as those issues for foreign companies conducting business in the United States. *Prereq: ACCO 135.*

ACCO 195. Independent Study

1-4 sem. hrs.

Prereq: Cons. of dept. ch.

BUSINESS LAW COURSES (BULA)

BULA127. Legal Environment of Business

3 sem. hrs.

A review of basic business law principles in the regulatory environment of government and society. Coverage includes the administrative environment, jurisdiction, litigation and arbitration remedies, torts, contracts, both commercial instruments and secured transaction under the UCC, and international law. *Prereq: Jr. stndg.*

BULA128. Business Law

3 sem. hrs.

A review of the principles of law related to business organizations with emphasis upon agency, partnership and corporation law principles; UCC contract concepts related to the sale of goods, and property law related to personal and real property (land use regulation), bailments, wills, trusts and estates, insurance environment and employment law. *Prereq: BULA127.*

BULA132. The Legal and Regulatory Environment of International Business

3 sem. hrs.

A review of the legal environment of international business and of the structure and organization of foreign legal systems, international trade agreements, associations and regulatory agencies. The course will include a comparative analysis of the legal principles, issues, conventions, and competitive influences affecting international business activities as conducted by U.S. multinational enterprises when operating outside of the United States; and, by foreign multi-national enterprises when operating within the United States. In addition, the course will review international dispute resolution mechanisms as applied by the international Court of Justice, the European Union, and various arbitral organizations. *Prereq: Jr. stndg.*

ECONOMICS (ECON)

*Chairperson and Professor: Brush**Professor: Davis, Smiley**Professor Emeritus: Danner**Associate Professor: Booth, Breeden, Chowdhury, Clark, Crane, Daniels, McGibany, Nourzad, Tumanoff**Associate Professor Emeritus: Trestrail**Adjunct Assistant Professor: Lephardt**Lecturer: Kashian***ECON 020. Introduction to Economics**

3 sem. hrs.

An introductory survey of economic issues for non-majors with an emphasis on using economic concepts as elements of critical reasoning. Microeconomic topics include markets and the role of government in a market economy. Macroeconomic topics include the banking system, inflation and unemployment. International issues include the balance of trade and foreign exchange. Will not be counted towards the Economics major. *Not available for students enrolled in the College of Business Administration.*

ECON 043. Principles of Microeconomics

3 sem. hrs.

Institutions and processes of market specialization and exchange. Supply and demand and their determinants. Pricing and production decisions of the firm under varying competitive conditions. The role of government in a modern mixed economy. Microeconomic analysis applied to selected economic problems.

ECON 044. Principles of Macroeconomics

3 sem. hrs.

Processes and determinants of overall economic activity and growth. National income accounting, determination of aggregate income, employment, and the price level. Money and banking, government monetary and fiscal policy, and international economics. *Prereq: ECON 043.*

ECON 105. Intern Grading Period in Economics

3 sem. hrs.

Co-op or intern experience in economics features educational activity and productive work related directly to the economics curriculum. S/U grade assessment. *Prereq: Jr. stndg.; approval and cons. of internship dir.*

ECON 110. Applied Microeconomic Analysis

3 sem. hrs.

A review of the tools of supply and demand analysis. A study of the market behavior of consumers and business firms and the way they interact with each other and with public policy. The application of market theory to questions of resource allocation efficiency, changing market conditions, optimal pricing and output strategies and to important social issues of the day. *Prereq: ECON 043 and 044; and MATH 071 or equivalent.*

ECON 120. Intermediate Macroeconomic Analysis

3 sem. hrs.

Determination of the levels of aggregate output, employment, and prices. Inflation and unemployment. A description of available policy variables and their impacts upon the money, bond, goods, and labor markets. International macroeconomic interrelationships. Fundamentals of the economic growth process. Offered annually. *Prereq: ECON 043 and 044; and MATH 071 or equivalent.*

ECON 125. American Business History

3 sem. hrs.

Survey of the development of American business from the Colonial era to the present. Industries and individual firms will be examined as well as entrepreneurs and their role in the development of American business, and the role of governments in the development of American businesses. *Prereq: ECON 043 and 044.*

ECON 126. American Economic History

3 sem. hrs.

Briefly surveys the pre-1900 development of the American economy and then examines 20th Century changes in the agricultural, manufacturing, transportation, finance, and trade and communications sectors. Prosperity and depression in the 1920 to 1940 period will be examined in depth. Concludes with an examination of the distribution of income and wealth and the changing role of government in the 20th century American economy. *Prereq: ECON 043 and 044.*

ECON 134. Public Policies Toward American Industry

3 sem. hrs.

Role of competition as an economic regulator. Bases and consequences of monopoly power. Development of statutory and administrative law affecting market processes in the U.S. Antitrust policies applied to monopoly, oligopoly, mergers and restrictive trade policies. Alternatives to anti-trust, including utility regulation and social regulation. *Prereq: ECON 043 and 044.*

ECON 145. Public Finance

3 sem. hrs.

Examination of such current topics as the growth of government spending, taxes, and deficits. Proper role of the state, centralization and decentralization, the impact of government decisions on the distribution of income and the efficient allocation of resources. *Prereq: ECON 043 and 044.*

ECON 146. Urban Economics

3 sem. hrs.

Economic role of cities. Forces behind urban growth. Problems of central city economic decline and urban poverty. Urban land and housing markets. Suburbanization of employment and population. The urban fiscal crisis. *Prereq: ECON 043 and 044.*

ECON 150. Money, Banking and Monetary Policy 3 sem. hrs.

Origins, nature and importance of money. Money demand and supply. Types of financial markets and their role in the economy. Banking institutions and the Federal Reserve. Role of monetary policy in business cycles and its impact on financial institutions and markets. *Prereq: ECON 043 and 044.*

ECON 151. International Economic Issues 3 sem. hrs.

Survey of international economics. Basis for and welfare effects of international trade, commercial policies, and economic growth. International organizations, trading regions, and trade accords. Balance of payments concepts and exchange rate theories. History and theory of international monetary systems including fixed versus flexible exchange rates. Credit not given if ECON 154 or ECON 156 already completed for credit. *Prereq: ECON 043 and 044.*

ECON 154. International Currency Markets 3 sem. hrs.

Examination of various foreign exchange markets, including the spot, forward, futures and options markets. Risk, pricing and arbitrage procedures for cash and portfolio managers. Exchange rate management, structure of the international financial architecture, and the determination of exchange rates and the balance of payments. The role and practice of global financial intermediaries. *Prereq: ECON 043 and 044.*

ECON 155. Comparative Economic Development 3 sem. hrs.

An analysis and description of institutional differences among national economies. A theoretical framework for analyzing the effects of alternative systems on social and economic behavior is developed. Theoretical models are applied to specific cases, with special emphasis on issues of growth and development in advanced variants of capitalist, post-communist and less developed economies. *Prereq: ECON 043 and 044.*

ECON 156. International Trade 3 sem. hrs.

Sources, patterns, and welfare implications of international trade. Empirical investigations of traditional trade theories. Arguments for and impact of commercial policies. Trade effects of economic growth. Imperfect competition and intra-industry trade as alternatives to traditional theories and views. *Prereq: ECON 043 and 044.*

ECON 160. Economics of Labor Markets 3 sem. hrs.

Supply and demand conditions unique to markets for services of human beings. The economics of investment and disinvestment of human capital. Topics include: determination of labor force size, geographic distribution and qualitative aspects; economic effects of institutional arrangements and labor laws; current issues. *Prereq: ECON 043 and 044.*

ECON 163. Environmental and Natural Resource Economics 3 sem. hrs.

Economic analysis of environmental and natural resources including land, air, and water. Special emphasis on the role of human values and economic institutions in resource exploitation. Topics covered include air and water

pollution, energy, ocean resources, forestry practices, mineral resources, the population problem, and agriculture. *Prereq: ECON 043 and 044.*

ECON 174. Introduction to Mathematical Economics 3 sem. hrs.

Designed to give students the quantitative background required to appreciate the use of mathematics in economic analysis. Emphasis is on developing important techniques. However, many economic applications are incorporated in order to demonstrate how standard economic models can be developed in mathematical terms. Topics include matrix algebra, differential calculus, both constrained and unconstrained optimization and comparative statistics. *Prereq: ECON 043 and 044; MATH 070 and 071 or their equivalents.*

ECON 175. Introduction to Econometrics 3 sem. hrs.

Designed to teach how to build an econometric model and to make forecasts using it. Models are constructed to explain phenomena that are observed frequently in business, economics and the social sciences. Linear regression analysis is employed and both single-equation and multi-equation models are investigated. Of practical value to economists, businessmen, engineers, statisticians, and other professionals for whom applied quantitative techniques are important. *Prereq: ECON 043 and 044; MATH 060 or MANA 026 or their equivalents.*

ECON 181. Economics and Ethics 3 sem. hrs.

Interaction of economic principles and understanding with ethical principles and understanding in contemporary society. Analysis of affluence's impacts on character development, the practice of moderation and justice, and the meaning of spiritual poverty. Applications of this ethic to critical features of modern industrial society. *Prereq: ECON 043 and 044 and PHIL 104.*

ECON 182. Economics and Law 3 sem. hrs.

Relationship between the rights and obligations which the legal system confers on individuals and the allocation of resources which results from alternative assignments of legal rights. Uses and limitations of economic analysis in explaining the process by which legal rights are conferred. *Prereq: ECON 043 and 044.*

ECON 195. Independent Study 1-4 sem. hrs.

Prereq: Cons. of dept. ch.

ECON 196. Undergraduate Seminar 3 sem. hrs.

Specific titles to be announced in the *Timetable of Classes*. Offered occasionally. *Prereq: ECON 043 and 044; Jr. stndg.*

ECON 199. Senior Thesis 2 sem. hrs.

With department approval. Seniors may write a thesis under direction of an adviser. *Prereq: Cons. of dept. ch.*

FINANCE (FINA)

Chairperson and Associate Professor: Seifert
Associate Professor: Hunter, Kutner
Assistant Professor: Peck, Prucyk
Visiting Assistant Professor: Pyo
Lecturer: Blonski, Lohre, Zellmer

FINA081. Personal and Professional Finance 3 sem. hrs.

Course considers the financial planning and management needs men and women regularly have in the conduct of their personal and professional lives. Topics covered relate to management of personal and household finances, such as budgeting, credit buying, banking and borrowing, taxation, home ownership. Also focuses on financial issues relating individuals to an employer, a personal business, or a professional practice: selection and evaluation of fringe benefits, accounting and taxation of professional income. Personal and professional insurance decisions. Savings, investment and tax planning for estate accumulation and retirement. Support capabilities in microcomputer technology are illustrated and discussed. Available for elective credit to non-business majors in the health sciences, arts and sciences or other areas. *Note: Available only to students not enrolled in Business Administration.*

FINA105. Intern Grading Period in Finance 3 sem. hrs.

Co-op or intern experience in finance features educational activity and productive work related directly to the finance curriculum. S/U grade assessment. *Prereq: Jr. stndg.; approval and cons. of internship dir.*

FINA 110. Real Estate Fundamentals 3 sem. hrs.

Fundamentals and significance of real property, particularly the growth of communities. Analysis of principal legal concepts pertaining to location, financing, and environmental factors. Causes of growth factors. *Prereq: Jr. stndg.*

FINA 112. Real Estate Valuation and Financing 3 sem. hrs.

Basic techniques of evaluation and appraisal of residential, commercial, and industrial real estate. Fundamentals of real estate development including market studies, legal and infrastructure requirements and property management. Financing techniques including syndications and securizations. *Prereq: FINA 180.*

FINA180. Introduction to Financial Management 3 sem. hrs.

Principles and methods of corporate finance, valuation, analysis and management. Planning and controlling funds for liquidity and profitability. Introduction to the financial markets and instruments available to corporations and individuals. Emphasis placed on the framework and methodology involved in financial decision making. *Prereq: MANA 026 and ACCO 031 and Jr. stndg.*

FINA181. Investment Analysis 3 sem. hrs.

Study of financial instruments such as stocks, bonds, convertibles, and options, and the markets in which they are traded. The primary concern of the course is with the decision process that evaluates the various investment opportunities. *Prereq: FINA 180.*

FINA182. Investment Management

3 sem. hrs.

Extends the concepts introduced in FINA181. Topical coverage includes modern portfolio theory, options, futures and hedging techniques. Emphasis of course is on application of the concepts to investment strategies. *Prereq: FINA181.*

FINA183. Advanced Financial Management

3 sem. hrs.

Extension of the development of the theory of financial management, including an examination of the relevant literature. Concentration will be on applications of financial management theory. Topics include working capital, capital budgeting, dividend policy issues, cost of capital, and principles of valuation. Required for finance specialization. *Prereq: FINA180.*

FINA184. Personal Financial Planning

3 sem. hrs.

Introduction to the framework and tools for preparing personal financial plans. Personal financial planning is a dynamic planning process projecting, and reflecting, the major financial events in individual lives. These events include the financial implications of career choice, major asset purchases, managing liabilities, determining insurance needs, developing investment portfolios, and a retirement plan, and estate planning. Financial planning is based upon setting financial goals and is developed in the context of government policies and the economic environment. *Prereq: FINA180.*

FINA185. International Finance

3 sem. hrs.

This course looks at financial decision making in an international context. Global financial markets and foreign currency issues will be studied along with the international financing and capital investments. *Prereq: FINA180.*

FINA186. Bank Management

3 sem. hrs.

Study of banking on both an institutional and operating unit level. History, regulation and competitive environment of banking covered at institutional level. Development and application of specific tools and techniques dealing with the management of banks' deposit base and loan and securities portfolios, international banking and trust operations. *Prereq: FINA180.*

FINA187. Cases in Financial Management

3 sem. hrs.

The application of the principles and models of financial management through case analysis and discussion; forecasting of financing needs for future operations and growth; financial policy and fund sources. Support of financial decision making through computerized planning and modeling. *Prereq: FINA183 and Sr. stndg.*

FINA188. Introduction to Financial Derivatives

3 sem. hrs.

This course will focus on the mechanics, pricing and use of financial derivatives, including futures contracts, options, swaps, collateralized securities, Treasury Bond, Eurodollar, and S&P 500 Index futures contracts will be discussed in detail. Stock options and index options also will be discussed. Important pricing models including Black-Scholes and the Binomial Option Pricing Model also will be discussed. Risk

management using these instruments will be emphasized. *Prereq: FINA180.*

FINA189. Issues in Finance

2-3 sem. hrs.

Specific titles announced in the *Timetable of Classes*. *Prereq: FINA180.*

FINA190. Principles of Risk and Insurance

3 sem. hrs.

Insurance and the method of handling risk, including risk retention, prevention, transfer, and the economic significance in regulation of property, liability, marine, life, health, and social insurance. *Prereq: FINA180.*

FINA195. Independent Study

1-4 sem. hrs.

Prereq: Cons. of dept. ch.

FINA197. Colloquium in Finance

1-3 sem. hrs.

Readings and research in restricted fields to learn and to apply techniques and disciplines of research in the finance area. *Prereq: Cons. of finance faculty.*

MANAGEMENT (MANA)

Chairperson and Professor: Cotton

Professor: T. Bausch, Keaveny

Professor Emeritus: Kaye, Martin

Associate Professor: Inderrieden, Kaiser,

D.Kim, Maranto, Rehbein, Srivastava, Stewart, Syam

Associate Professor Emeritus: McElroy

Assistant Professor: Blumentritt, Cule, Danis,

Griffin, Holtom, Y. Kim, O'Neill, Willis

Instructor: Shirk

Visiting Assistant Professor: Barnes

Visiting Instructor: Rau, Voelker

Adjunct Assistant Professor: Collins

Lecturer: Bell, C. Bausch, Haefner, Hunt, Kelly,

Kleinman, Singh

MANA025. Introductory Business Statistics

3 sem. hrs.

Introduction to statistical methods used in the analysis of business decisions. Covers descriptive statistics, including index numbers, and use of probability and probability distributions in business decisions. Introduction to sampling and sampling distributions, development of statistical estimation and statistical inference, including hypothesis testing of means and variances. Use of chi-square distribution in testing goodness-of-fit and contingency tables. *Prereq: MATH 070 and 071 or their equiv. and computer literacy.*

MANA026. Intermediate Business Statistics

3 sem. hrs.

Continued development of statistical methods used in the analysis of business decisions. Covers analysis of variance, including factorial experiments. Develops bivariate linear regression and correlation, with tests of significance. Covers multiple regression, including an introduction to qualitative variables. Includes time series analysis and general forecasting approaches. May include introductory treatment of nonparametric statistics, decision theory, or Bayesian statistics. *Prereq: MANA025 or equiv.*

MANA105. Intern Grading Period in Human Resources

3 sem. hrs.

Co-op or intern experience in human resources features educational activity and productive

work related directly to the human resource curriculum. S/U grade assessment. *Prereq: Jr. stndg.; approval and cons. of internship dir.*

MANA106. Intern Grading Period in Information Technology

3 sem. hrs.

Co-op or intern experience in operations management features educational activity and productive work related directly to the information systems curriculum. S/U grade assessment. *Prereq: Jr. stndg.; approval and cons. of internship dir.*

MANA107. Intern Grading Period in Entrepreneurship

3 sem. hrs.

Co-op or intern experience in management features educational activity and productive work related directly to the management curriculum. S/U grade assessment. *Prereq: Jr. stndg.; approval and cons. of internship dir.*

MANA108. Intern Grading Period in Operations and Supply Chain Management

3 sem. hrs.

Co-op or intern experience in operations and supply chain management features educational activity and productive work related directly to the management curriculum. S/U grade assessment. *Prereq: Jr. stndg.; approval and cons. of internship dir.*

MANA120. Introduction to Information Technology

3 sem. hrs.

This course provides future information systems users a broad overview of information systems theory, research and applications used in organizations. Topics include the impact of technology on business, groupware, systems development life cycle, database, hardware, software, telecommunications and applications in function areas. *Prereq: Enrollment in the College of Bus. Admin. only; Jr. stndg. and either BUEX 001 or 002.*

MANA121. Business Applications Program Development

3 sem. hrs.

Fundamentals of software program design and techniques for object, file and data manipulation. Topics include file processing concepts, structured programming, data structures, interface design, exposure to object-oriented tools and operation system design differences and efficient resources allocation. Choice of tools may include Visual BASIC and Delphi. *Prereq: Enrollment in the College of Bus. Admin. only and Jr. stndg.*

MANA122. Database Management Systems

3 sem. hrs.

Applications of database management software to the design and implementation of business databases. File storage devices, data structures, logical data models, physical data storage schemes, and normalized design of databases. Management and administration of databases including procedures for data security, backup and recovery. Architecture of distributed data systems. Students from database design teams may serve as a business client. Use of tools such as SQL, Access, Oracle, Delphi, etc. *Prereq: Enrollment in the College of Bus. Admin. only and Jr. stndg.*

MANA124. Telecommunications

3 sem. hrs.

An overview of the essential elements of connectivity and client/server designs. Topics include: media, network configuration, efficient

resource allocation, communication carrier industry, video conferencing and applications in groupware, electronic data interchange (EDI), Internet applications, electronic commerce opportunities and limitations, preliminary CNE qualifications, and World Wide Web page development. Methodology may consist of case analyses, expert speakers, field trips and projects. *Prereq: Enrollment in the College of Bus. Admin. only and Jr. stndg.*

MANA126. Information Systems Analysis
3 sem. hrs.

Covers the early stages of the systems development life cycle. Focus is on derivation of logical system specifications from information needs. Topics include: problem formulation, requirements definition, JADS, RADS, data flow diagrams, the role of the systems analyst, data and process modeling, techniques for investigation, logical system design, tools for system representation, business process reengineering (BPR), and cost/benefit analysis. Students will begin on a project that will continue in Information Systems Design and Implementation. *Prereq: MANA120.*

MANA127. Information Systems Design and Implementation 3 sem. hrs.

Covers the principles, techniques and problems involved in the design of information technology. Focus is on the transformation of logical systems specifications to a working prototype. Detailed study of information systems outputs, files, inputs, controls, terminal dialogues, procedures, documentation, program specifications, hardware and software selection, testing, system implementation and system maintenance. Students will continue the project begun in Information Systems Analysis: systems development tools will be used. *Prereq: MANA126.*

MANA128. Advanced Business Application Program Development 3 sem. hrs.

Programming minicomputer and PC environment; traditional file processing and object-oriented techniques; emphasis on techniques of resource allocation; appropriate methodologies for systems design. Course will be taught using different development environments from COBOL, Visual BASIC, Java, C++, Delphi, etc. *Prereq: MANA121.*

MANA129. Issues in Information Technology 1-4 sem. hrs.

Varied subject matter each time offered. In-depth exposure to relevant selected topics. *Prereq: Jr. stndg.*

MANA150. Understanding Entrepreneurship
3 sem. hrs.

An overview of current theory and research on entrepreneurial phenomena. Material from economics, organizational science, psychology, political science, sociology, and public policy will be used to explore conceptions of entrepreneurship, entrepreneurial career choices, new firm foundations, new firm survival and success, effects of social context on entrepreneurship, and the impact of public policy. *Prereq: Jr. stndg.*

MANA151. New Venture Creation 3 sem. hrs.
This course focuses on starting and developing a new business. Topics include evaluating opportunities and testing the feasibility of creative ideas, selecting and dealing with partners;

alternative methods of financing, developing the initial competitive strategy, structuring and managing the business through the early survival months, and sources of outside help. Students will prepare a business plan that can be used to launch a new initiative. *Prereq: Jr. stndg.*

MANA154. Negotiation and New Ventures
3 sem. hrs.

This course examines the art and science of negotiations with the aim of developing student's negotiation abilities. This development will be achieved through readings, discussion, and active participation in negotiation exercises. This course is designed to complement the skills learned in other business courses. Representative negotiations to be completed in the course include salary negotiations, car and home purchases, customer contracts, vendor contracts, venture capital arrangements, and partnership agreements among others. *Prereq: Jr. stndg.; College of Business students only.*

MANA155. An Introduction to Diversity in Organizations 3 sem. hrs.

Addresses the personal and managerial implications of diversity in organizations. The course will incorporate both a cognitive and experiential understanding of diversity and group differences. We examine demographic trends in the workforce, differentiate cultural practices and values among diverse groups, explore the concepts of social identity and privilege, and discuss strategies for dealing with discrimination and stereotyping. *Prereq: Jr. stndg.*

MANA156. Behavior and Organization
3 sem. hrs.

Behavior of people individually and in groups. Emphasizes organization environment, communication, motivation, supervision and productivity. Develops fundamentals of organization theory, structure and administration. *Prereq: Jr. stndg.*

MANA158. Motivation and Leadership
3 sem. hrs.

Central issues in motivation and leadership at work, and applying theories and concepts of organizational behavior will be addressed. Specific issues may include theories of motivation, the impact of various reward structures, employee participation programs, the management of poor performers, and approaches to leadership. These topics are addressed from both theoretical and applied perspectives. *Prereq: MANA156.*

MANA159. Issues in Organizational Management 1-4 sem. hrs.

Varied subject matter each time offered. In-depth exposure to relevant selected topics. Offered occasionally. *Prereq: Jr. stndg.*

MANA160. Management of Human Resources 3 sem. hrs.

Issues concerning the effective use and equitable treatment of employees. How human resource management activities are influenced by the economy, laws, unions, organizational strategies, and human behavior. The analysis of management activities such as recruitment and selection, training and development, pay and benefits, labor relations, performance assessment, discipline and due process. How these activities affect the attraction, retention, performance, and satisfaction of employees. *Prereq: Jr. stndg.*

MANA162. Employee Benefit Systems
3 sem. hrs.

The course addresses the design and administration of employee benefit systems. Among the programs studied are: health and wellness programs, pension and retirement programs, and cafeteria plans. Legally mandated benefit systems are also studied. *Prereq: MANA160.*

MANA163. Compensation of Human Resources 3 sem. hrs.

The development of pay programs that are internally consistent, externally competitive, and individually rewarding. The application of these concepts via job descriptions and job evaluation, market surveys and pay structures, and performance or seniority based pay. Administering employee benefits such as insurance and pensions. The government's impact on pay and benefits. *Prereq: MANA025, MANA160.*

MANA164. Labor Relations and Collective Bargaining 3 sem. hrs.

Examines the development, structure and process of collective bargaining, as well as negotiation processes and strategies in a variety of settings. Central topics include labor law, union organization, general principles of negotiation, and labor contract negotiation in particular. The course is taught from a neutral perspective, emphasizing the rights and responsibilities of labor, management and government. Makes extensive use of bargaining exercises.

MANA166. Employment of Human Resources 3 sem. hrs.

Issues relevant to staffing work organizations are addressed. Topics include: validation of selection procedures; criterion development; forecasting employee requirements and supply; alternative selection procedures; and equal employment opportunity regulations. *Prereq: MANA160 and MANA026.*

MANA167. Training and Development
3 sem. hrs.

Principles and factors that contribute to the personal growth and development of employees and the welfare of the company. Focus on training and employee development within organizations. Topics include training development and evaluation, employee development, career management, and career pathing within organizations. *Prereq: MANA160.*

MANA 168. Issues in Human Resources
1-4 sem. hrs.

Varied subject matter each time offered. In depth exposure to relevant selected topics. Offered occasionally. *Prereq: Jr. stndg.*

MANA170. Operations and Supply Chain Management 3 sem. hrs.

Examination of the operations and supply chain function in manufacturing and service firms from a managerial perspective. Core concepts and issues include planning, designing and managing operations, and the flow of materials and information from suppliers to customers. *Prereq: MANA025 or equivalent.*

MANA171. Manufacturing Management
3 sem. hrs.

A focus on leading edge techniques used in developing a manufacturing strategy, inventory management, cycle time reduction, production scheduling ERP, JIT/Kanban, synchronous manufacturing, supply chain management and advanced manufacturing systems. *Prereq: MANA170.*

MANA172. Service Management 3 sem. hrs.
Particular problems and issues of designing, managing and delivering services will be addressed. Issues include service challenge and breakthrough design, productivity, quality, innovation and flexibility, demand and capacity management, manpower planning, scheduling, technology management, strategy and integration. *Prereq: MANA170.*

MANA173. Quality and Process Management 3 sem. hrs.

A foundation to quality philosophies, principles, techniques and tools is provided. The inter-relationship of each is highlighted through addressing customer focus, value and satisfaction; leadership and organizational change; process design, measurement and improvement; and benchmarking. Application of decision making, planning and measurement tools will occur. *Prereq: MANA170.*

MANA174. Logistics and Purchasing Management 3 sem. hrs.

Managing logistics activities with emphasis on transportation, global sourcing, and international facility location. Issues related to the strategic and operational role of purchasing in a global supply chain management are also examined in depth. *Prereq: MANA170.*

MANA176. Management Science 3 sem. hrs.
Introduction to the methods of management science operations research with applications to problems in business decision making. Topics include linear programming, transportation and assignment model, integer programming, queuing models, simulation decision theory and CPM/PERT. *Prereq: MANA025.*

MANA179. Issues in Operations and Supply Chain Management 1-4 sem. hrs.

Varied subject matter each time offered. In depth exposure to relevant selected topics. Offered occasionally. *Prereq: Jr. stndg.*

MANA181. Business and Its Environment
3 sem. hrs.

Overview of social, political and legal opportunities and constraints influencing business decision-making; social trends and underlying causes, including changes in population and income distribution and their business significance; patterns of change in political strength of identifiable groups on social, geographic and economic interest bases; antitrust, trade regulation and the legal system. *Prereq: Sr. stndg.*

MANA182. Business Policies 3 sem. hrs.
Requires a knowledge of all functional areas. Broad involvement in management decision-making process. Integrates functional areas through analysis of actual business case histories and related readings. Class discussion and written reports. Management game used when appropriate. *Prereq: FINA180, ECON 110, MANA156, MANA170, MARK 140, Sr. stndg.*

MANA183. International Management
3 sem. hrs.

Present and future trends in the international commercial arena. The course examines international trading trends for major sectors of the U.S. economy. This course differentiates international from domestic management. *Prereq: Sr. stndg.*

MANA195. Independent Study 1-4 sem. hrs.
Prereq: Cons. of dept. ch.

MARKETING (MARK)

Chairperson and Associate Professor: Akhter
Professor: Andrews, Durvasula, Lacznia, Lysonski
Professor Emeritus: Brownlee
Associate Professor: Bauer, Garrett, Robinson
Assistant Professor: Simmons
Instructor: Terrian
Lecturer: Barrett, Grede, McDonald, Peterson

MARK 105. Intern Grading Period in Marketing 3 sem. hrs.

Co-op or intern experience in marketing features educational activity and productive work related directly to the marketing curriculum. S/U grade assessment. *Prereq: Jr. stndg.; approval and cons. of internship dir.*

MARK 140. Introduction to Marketing
3 sem. hrs.

The marketing process as it relates to management of marketing in the profitable operation of the firm. Environmental constraints, including consumers' needs, governmental regulation, and the social environment. Price determination, promotional strategy, channels of distribution, and product development. *Prereq: Jr. stndg., ECON 043 and 044.*

MARK 142. Marketing Research 3 sem. hrs.
Methods and techniques of securing, analyzing, and interpreting data essential to the scientific solutions of marketing problems. Research planning, research design, data collection methods, sampling analysis, report writing and the integration of research and marketing management. *Prereq: MANA025 and MANA 026, MARK 140.*

MARK 143. Integrated Marketing Communications 3 sem. hrs.

Marketing aspects of communication between the firm and its customers. Brief introduction to behavioral sciences as they apply to promotion. Advertising, personal selling, publicity, and sales promotion as components of the promotional mix. Treatment of the social and legal constraints of promotion. *Prereq: MARK 140.*

MARK 144. Marketing Logistics and Distribution Strategy 3 sem. hrs.

Use of time and place utilities as variables in marketing strategy. Principles for the efficient design of wholesale and retail distribution systems. Logistics base, problems of distribution channel design and strategy considered in terms of their effectiveness in satisfying the demand of consumers. Offered occasionally. *Prereq: MARK 140.*

MARK 145. Product and Pricing Strategy
3 sem. hrs.

New Product development, competitive strategies and product life cycles as components of

effective product management. The environment of pricing strategy and recent developments in pricing decision making as well as the psychological aspects of pricing. *Prereq: MARK140.*

MARK 146. Consumer Behavior 3 sem. hrs.
Behavioral science concepts, including motivation, perception, learning, personality, attitudes, culture, social class, reference groups, and the family unit. Application of behavioral concepts to marketing management and research problems, including diffusion of innovation, cognitive dissonance, brand loyalty, attitude change, and comprehensive consumer decision models. *Prereq: MARK 140.*

MARK 148. Sales Management 3 sem. hrs.
Sales management is a complex and specialized business and organizational function including the oversight of the direct and personal marketing of consumer and industrial goods and services. The unique nature of sales management requires a separate examination of recruiting, selection, training, compensation, retention, and motivation of management tasks. *Prereq: MARK 140.*

MARK 150. Marketing Management
3 sem. hrs.

Planning, implementation and control of the marketing activity of firm or division. Formulation of marketing objectives, policies, programs, and strategy. Managerial aspects of product, price, promotion, and distribution decisions. *Prereq: MARK 140, 142 and one other MARK course; Sr. stndg.*

MARK 152. Retailing Management
3 sem. hrs.

Readings and cases in retail management. Types of retail organizations. Problems of location, buying, merchandise control, and retail promotion. The present state of retailing and a look into the future. Offered occasionally. *Prereq: MARK 140.*

MARK 153. International Marketing
3 sem. hrs.

Adapting business efforts to differing economic, social, and cultural milieus and the development and application of marketing strategies and mixes in foreign markets. Differing methods of international trade, marketing, and business organization are covered. *Prereq: MARK140.*

MARK 155. Business-to-business Marketing
3 sem. hrs.

Focus on applying marketing in the industrial product and services environment. Emphasis is placed on application of strategic planning models to industrial markets and development of marketing mixes especially oriented to industrial products/services. *Prereq: MARK 140.*

MARK 156. Direct Marketing 3 sem. hrs.
Focuses on the direct marketing process of prospecting, conversion, and customer maintenance; and the four Ms of direct marketing (merchandising, media, message, and measurement). Emphasis is placed on database management, customer segmentation, customer profitability analysis, forecasting, market testing and analysis, and direct response advertising via direct mail. *Prereq:*

MARK 142 and one of the following: MANA 026, PSYC 060, MATH 060.

MARK 157. Marketing and Society

3 sem. hrs.

Focuses on environments external to the firm which have significant consequences on marketing and demonstrates how the marketing system contributes to or impedes the objectives of society. Topics discussed: Consumerism, Law, Marketing Ethics, Ecology, Marketing in Non-Profit Organizations. Offered occasionally. *Prereq: MARK 140.*

MARK 159. Issues in Marketing

1-4 sem. hrs.
Enrollment limited to superior students. Offered occasionally with various topics. *Prereq: MARK 140.*

MARK 195. Independent Study

1-4 sem. hrs.
Prereq: Cons. of dept. ch.

SPECIAL PROGRAMS:

BUSINESS EXPERIENCE (BUEX)

Program Director: Terrian

Course Coordinators: Brennan, Terrian
Performance in all BUEX courses is assessed using S and U grades.

BUEX 001. Orientation to Business

Administration 1 sem. hr.

Introduction to the profession of Business Administration. Orientation to college programs, resources and administrative staff. Computer literacy for business. Information on business student organizations, library skills, career awareness, academic regulations, academic honesty, counseling center and the Wall Street Journal. *Prereq: First term Fr. enrolled in the College Bus. Ad.; S/U grade assessment.*

BUEX 002. Computer Literacy in Business

0 sem. hrs.

Introduction to university computer system and resources. On-line information, e-mail, Internet and World Wide Web. Word processing and spreadsheet analysis, with hands-on lab exercises and assignments. *Prereq: Enrollment in the College of Bus. Admin. only*

BUEX 101. Career Planning

1 sem. hr.
Personal and business, short-term and long-term, and practical and theoretical aspects of personal career planning. Lectures, readings, written assignments and guest speakers will make up the class. Preparation for seeking employment will include resume preparation and interviewing skills. Exploration of career alternatives and expectations will also be included. S/U grade assessment. *Prereq:*

Open to juniors and seniors enrolled in the College of Business ONLY.

BUEX 110. Internship Work Period

0 sem. hrs.

Registration in this course indicates that the student is on full-time internship, approved by the College of Business Administration. Credits are earned in the subsequent term by registering for the internship-grading course in the respective major. Fee. *Prereq: Jr. stdng., enrolled in College of Bus. Ad., cons. of BUEX dir., and 2.500 QPA.*

BUEX 111. Junior Achievement Applied Management

3 sem. hrs.

Student serves as a member of the Board of Directors along with business professionals, advising a Junior Achievement firm consisting of high school students as they organize, incorporate, capitalize, choose and market a product, and eventually liquidate the firm. The Junior Achievement experience will also be supplemented with the Business Basics Program: teaching an Introduction to Business course to elementary students. S/U grade assessment. *Prereq: Jr. stdng. and enrolled in the College of Bus. Ad.*

BUEX 115. Small Business Institute

1-3 sem. hrs.

Supervised development of a management consulting project with a small business firm. Projects include analysis of marketing, production, finance, accounting, or economics problems and submission of a written project report. S/U grade assessment. *Prereq: Jr. stdng., cons. of BUEX dir. S/U grade assessment.*

BUEX 189. Business and the Non-profit Sector

1-3 sem. hrs.

This course involves business service to a community non-profit organization and benefits the student by supplying direct sustained involvement with non-profit and social service organizations. Students will be expected to apply their business education, especially in their majors, to community and social issues. S/U grade assessment. *Prereq: Jr. stdng. and*

enrolled in College of Bus. Ad. and cons. of instr.

INTERNATIONAL BUSINESS (INBU)

Program Director: Hosseini

INBU 100. International Study in Business

0 sem. hrs.

Pre-approval and continual enrollment for Marquette students studying abroad at non-Marquette programs. *Prereq: Cons. of Program Director. Approved for full-time study at another college/ university abroad, but will NOT be certified as full-time by Marquette University.*

INBU 105. Intern Grading Period in International Business

3 sem. hrs.

Co-op or intern experience in international business features educational activity and productive work overseas related to the international business curriculum. S/U grade assessment. *Prereq: Cons. of INBU dir. and college internship dir.*

INBU 181. Travel and Study Abroad in International Business

3 sem. hrs.

Structured travel and study programs in international business coordinated by Marquette University. *Prereq: Cons. of INBU dir.*

INBU 189. Seminar in International Business

3 sem. hrs.

Specific titles to be announced in *Timetable of Classes*. *Prereq: Jr. stdng. in business.*

INBU 190. Business Administration Undergraduate International Exchange

0 sem. hrs.

Study abroad as part of an international student exchange program. Upon approval, students are enrolled in a college or university abroad as a full-time student for a term or a year. Course credits transfer to Marquette. *Prereq: Cons. of INBU dir.*

INBU 191. Study at St. Clare's College

0 sem. hrs.

Study abroad at St. Clare's College in Oxford, England. This full term program offers a variety of lecture and tutorial courses taught by Oxford faculty. Course credits transfer to Marquette. *Prereq: Cons. of INBU dir., student's college adviser and student's college office.*

INBU 192. Business Administration Affiliated Study Abroad Programs

0 sem. hrs.

Structured full-time study program in international business with other affiliated colleges/ universities. *Prereq: Cons. of International Business Studies dir.*

INBU 195. Independent Study

1-3 sem. hrs.

Prereq: Cons. of International Business Studies dir.

INBU 196. International Business Elective

1-4 sem. hrs.

Enrollment in this course indicates that a course, completed at another university, will transfer as an international business elective. *Prereq: Cons. of the assistant dean.*

College of Communication

Students in the College of Communication pursue academic programs centered on a liberal arts core with majors leading to careers in the many areas of communication and the performing arts. Arts and sciences courses comprise more than half of the curriculum, providing students with an appreciation of the interrelation of human knowledge. As a foundation for the professions and for continued life-long growth and learning, this broad-based curriculum leads students to develop intellectually as mature, educated and responsible citizens of the world.

The college places great value on the integration of theory and practice and on developing the habits of ethical and responsible performance. Opportunities exist throughout the four years of undergraduate study for such integration and development, in the classroom and beyond the campus.

DEGREES OFFERED

Marquette University confers the degree of bachelor of arts on those students who have satisfactorily completed the following majors: advertising, broadcast and electronic communication, communication studies, journalism, public relations, theatre arts, and the teaching majors in communication studies, journalism and theatre arts. Students enrolled in the Honors Program who successfully complete that program may receive an honors bachelor of arts.

The College of Communication offers programs leading to the master of arts degree. Students may choose to focus their program in advertising and public relations, broadcast and electronic communication, communication studies, journalism, mass communication, public relations or religious communication.

For information regarding the master's degree, please see the *Graduate Bulletin*.

MAJORS/MINORS OFFERED

These majors are offered by the College of Communication: advertising, broadcast and electronic communication, communication studies, journalism, public relations, theatre arts, plus majors leading to secondary teaching certification in communication studies, journalism, and theatre arts. The available minors are: advertising, broadcast and electronic communication, communication studies, film, public relations, theatre arts, and teaching minors in communication studies, journalism and theatre arts.

ACCREDITATION

The college's academic areas of Advertising and Public Relations, Broadcast and Electronic Communication and Journalism have been accredited by the Accrediting Council on Education in Journalism and Mass Communication.

ADMISSION REQUIREMENTS

Freshman Admission: Freshmen applicants to the College of Communication are expected to fulfill the admission requirements listed in the University section of this bulletin.

Admission with Advanced Standing: Applicants who have been enrolled or registered in an institution of higher learning since high school graduation, need a minimum average of a 2.000 (based on a four-point system) in previous college work for consideration. An applicant's entire academic performance will be evaluated in making an admission decision.

Students planning to major in an education sequence must contact the School of Education for separate admission requirements.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

Candidates for a degree must earn a minimum of 128 credit hours and a minimum number of quality points equal to twice the number of credit hours attempted at Marquette (2.000 quality point average). Students may present credits but not quality points from another institution. All students must earn at least a C average in their Marquette work. Normally 32 hours of credit in upper-division courses must be presented by candidates for a degree. Credit is not normally allowed for more than 40 credit hours in any one major. Students majoring in advertising, broadcast and electronic communication, journalism and public relations may not exceed 38 credits in any combination of those courses excluding certain exempt courses. A student taking more than 38 credits in these areas will have to add a similar number of credits beyond the 128 needed to graduate.

GENERAL DEGREE REQUIREMENTS

Candidates for the baccalaureate degree must complete a minimum of 128 credit hours including the following requirements:

<i>Area</i>	<i>Credit Hours</i>
Major	32-40
Communication	3
English Composition	6
Literature	6
Fine Arts	2-3
Foreign Language	0-8
History/Social Sciences	12
Science/Mathematics	6-8
Philosophy	12
Theology	9

COMMUNICATION REQUIREMENT

All students must complete CMST 010, Introduction to Communication, for a total of three credit hours.

ENGLISH COMPOSITION REQUIREMENT

All students must complete ENGL 001 and 002 for a total of six credit hours in English Composition. Non-native speakers of English should consult the director of the English as a Second Language Program concerning concurrent registration in ESLP 010 and the section of the ENGL 001 designated for non-native speakers.

LITERATURE REQUIREMENT

All students must complete six hours in either English literature or foreign language literature (original or in translation).

FINE ARTS REQUIREMENT

All students must complete a fine arts (dance, film, music, theatre, etc.) course for a total of two or three credit hours. Four terms of non-credit music courses (MUSI 010, 015, 016, 020, 030 and/or 031) will satisfy the fine arts requirement. EDUC 100 will satisfy requirement for education majors.

FOREIGN LANGUAGE REQUIREMENT

All students must demonstrate one-year college competency in a foreign language. This may be accomplished by placement or course work.

Students who have never studied a foreign language or who wish to pursue a new language must take levels 001 and 002 to complete this requirement. Students who wish to continue studying the same language begun in high school *must* complete the Foreign Language Placement Exam. On the basis of the achieved score, students will be placed in the appropriate language course. Students who are placed in 003 or higher are exempt from the foreign language requirement. For further details on the placement exam in French, German and Spanish see the University section on “Placement Credit in Foreign Languages.”

HISTORY/SOCIAL SCIENCE REQUIREMENT

All students are required to complete History 001 and 002 plus six additional hours in social science offered through the Departments of Social and Cultural Sciences, History, Political Science, or Economics, for a total of 12 hours. ARSC 140, Perspectives on Women in Society, may also be taken to partially fulfill the social science requirement. Some majors require additional or specific course work from this area. Please refer to the individual major listing for details. Elementary/middle school education students must complete POSC 020 and HIST 006. Middle school/secondary education students must complete EDUC 078.

MATHEMATICS OR SCIENCE REQUIREMENT

All students must complete two courses in the same area of psychology, science or mathematics for a total of six or eight credit hours. Some majors require additional or specific course work from this area. Please refer to the individual major listing for details. Elementary/middle school education students must complete MATH 030, MATH 031 and MATH 032; ARSC 010 and ARSC 011. Secondary education students must take two courses in MATH and either ARSC 010 and 011 or BIOL 002 and PHYS 009.

PHILOSOPHY REQUIREMENT

Twelve hours in philosophy must be completed, including Philosophy 001, 050, and 104, plus a three-hour elective.

Philosophical Foundations of Education, EDUC 158, may be taken for philosophy credit by students completing an education sequence.

THEOLOGY REQUIREMENT

All students must complete nine hours of theology. Of the nine credit hours required, three must be in Theology 001, three in a second-level course (THEO 100–119) and three in a third-level course (THEO 120–199), in that sequence.

CORE CURRICULUM REQUIREMENTS FOR EDUCATION MAJORS

Besides completing at least one academic major, students intending to complete a teacher-preparation program, elementary/middle school or middle school/secondary, through the School of Education must also meet the core requirements of the College of Communication, adjusted to meet graduation and licensure requirements. These core curriculum requirements are very specific and require that students seeking to complete the program in four years plan their course work very carefully under the supervision of an academic adviser in the School of Education. Students who intend to complete a teacher-preparation program through the Marquette School of Education should contact the Office of Teacher Education as early as possible, and should carefully study the School of Education section of this bulletin.

Students interested in *elementary/middle school education* are required to complete a *regular academic major*. Students interested in *middle school/secondary education* must complete at least one *teaching major* (communication studies, theatre arts or journalism) to be eligible for Wisconsin licensure. A teaching minor alone is not sufficient for license eligibility, but as a supplement to a teaching major could lead to licensure in additional areas. Students at either the elementary or secondary level must also complete the appropriate professional education sequence to be eligible for a Wisconsin teacher's license. Further information can be found under Curricula Information in the School of Education section of this bulletin.

ACADEMIC REGULATIONS

Students in the College of Communication are expected to comply with the academic requirements and regulations listed in the University section of this bulletin.

ACADEMIC DISHONESTY

The college adheres to university policy on academic dishonesty found in the University section of this bulletin. Ethical behavior is essential to any communication professional and it is expected of students in the College of Communication. Cheating, plagiarism, unapproved collaboration, or falsifying work in whole or in part are infractions that can result in failure in the assignment or course or even dismissal from the college.

ADVISERS

Each student in the college is assigned a faculty adviser with whom the student should confer at least twice each term. Among other duties, the faculty advisers assist students in planning and accomplishing their programs of study. However, it is wholly each student's responsibility to know and fulfill the requirements for graduation specified for his or her selected program.

ATTENDANCE

Courses in this college often include performance under the guidelines and supervision of faculty and staff in classroom, theatre, studio, laboratory as well as on- and off-campus professional situations. Students are expected to attend all meetings of the courses in which they are registered. Any absence, regardless of the reason, will prevent the student from getting the full benefit of the course and can result in university censure. When a student is reported to have been excessively absent from class, the penalty of being withdrawn from the class with a grade of WA—withdrawal due to excessive absences—may be imposed. Majors in this college are bound by these expectations in each course they take, in each college in which they take courses.

Attendance policies will be announced by individual teachers in their syllabi and in their first class meetings. Each student is responsible for understanding the absence regulations in effect in each course and is bound by the regulations and policies for that course and/or college. As a general norm, a student may, for serious reasons, be excused from four 75-minute periods or from six 50-minute periods in a three-credit course or from four 50-minute periods in a two-credit course or from eight 50-minute periods in a four-credit course.

APPROVAL FOR SUMMER SESSION STUDY AT OTHER INSTITUTIONS

Students who plan to take course work during the summer at other institutions are strongly urged to obtain the college's approval of such courses before enrolling. Approval will be based on course descriptions in the current bulletin of the college or university at which the courses will be attempted. The student is expected to present a bulletin with such information at the time approval is sought. If prior approval is not obtained, there is no guarantee that credits earned will be accepted by Marquette University. Approval forms may be obtained at the college records office.

CD AND D GRADES

CD grades in courses offered by the College of Communication will be accepted towards majors and minors offered by the College of Communication providing that the student has a 2.000 quality point average in the major or minor. Grades of D do not normally fulfill the credit hour requirement for the major or minor in the College of Communication. Students who receive a D in a College of Communication major or minor course should contact the department in which the grade was received. The department chair will make a recommendation whether the course can be accepted in the major/minor, if the course should be repeated or if a substitute course should be taken. Likewise, if a student receives a grade of CD or D in a major or minor course offered by another college on campus, that department chair must be consulted. Credit will be given only once for courses that are repeated. See the University section of this bulletin for additional information regarding repeated courses.

PROFESSIONAL STANDARDS

All papers produced by students in all classes under the jurisdiction of the College of Communication are expected to conform to professional standards of lucidity, coherence, grammar, spelling, and punctuation. All oral presentations produced by students in all classes under the jurisdiction of the college are expected to conform to professional standards of lucidity, coherence, and grammar. All instructors in all classes under the jurisdiction of the college will consider the factors listed above, as well as substance, in grading written and oral presentations.

SPECIAL ACADEMIC PROGRAM

EDUCATION PROGRAM

Marquette University offers majors in elementary/middle school or middle school/secondary education. Students pursuing elementary/middle school education can pursue a second major in communication studies, journalism or theatre arts. Communication students pursuing a middle school/secondary education major must complete a teaching major in journalism, communication studies or theatre arts. **Separate and special application to the School of Education is required to pursue an education major.** The state of Wisconsin mandates a 2.500 grade point average for admission into the School of Education. A 2.750 grade point average in areas of licensure and in the professional education sequence is required for licensure. See the School of Education section of this bulletin for details. See the School of Education adviser whose office is Schroeder Complex, 150, (414) 288-6981 as soon as possible.

STUDENT MEDIA

BROADCAST OPERATIONS

MUTV is a student-run, cable television station which serves the campus community. Some programs are also distributed to homes in the metropolitan Milwaukee area by the Higher Education Cable Consortium. The station is a co-curricular activity in the College of Communication. Student volunteers from all fields of study find experience in production, sales, promotion, management, news, sports, entertainment, and virtually every aspect of television. MUTV uses excellent facilities including two color studios and a computerized newsroom.

Marquette Radio, a student radio station, is broadcast on Time-Warner and carrier current into residence halls, the Alumni Memorial Union and other campus buildings. Marquette Radio is a co-curricular activity in the College of Communication but it is staffed and managed by students representing many academic fields.

Students who participate in Marquette Radio gain experience in news production, announcing, public relations, advertising sales, management, record company relations and virtually every aspect of radio. The station broadcasts seven days a week during the academic year from its studios on the fourth floor of Johnston Hall. The studios include a main broadcast studio, a news/production studio, and a computerized newsroom.

PRINT OPERATIONS

The two student publications are run by students with advice and assistance from the business manager and publication adviser. The publications provide opportunities for students to participate in the advertising, circulation, and production functions.

The *Marquette Tribune*, published Tuesdays and Thursdays, is the student newspaper of the university. Its purpose is to publish the news of the university, to aid in the formation of opinion and to afford the students an opportunity for extended practice in newspaper editorial responsibility.

The *Marquette Journal* aims to: (1) serve as a publication for the expression of the undergraduates intellectual concerns, both artistic and scientific; (2) foster effective expression and encourage initiative and responsibility among undergraduate students; and (3) afford students the opportunity for practice in magazine editing, writing, and production.

FACILITIES/LABORATORIES

COLLEGE READING ROOM

The College Reading Room is located in the basement of Johnston Hall. Available for student and faculty use are selected magazines, books and reference materials serving specialized or scholarly needs in the study of communication and journalism.

LABORATORIES

Laboratories are available to students in the College of Communication. These facilities include:

ADVANCED DIGITAL LABORATORY

The J. William and Mary K. Diederich Advanced Digital Laboratory is an advanced computing laboratory emphasizing design and visual communication. Each of the eighteen Macintosh lab stations has its own scanner and a full complement of software for visual production.

BROADCAST LABORATORIES

In-studio work employs two fully-equipped color studios (one of which is broadcast quality), nine video editing suites, three audio studios, extensive computer graphics platforms (including facilities for animation), digital video effects, advanced interactive digital equipment, both audio and video field equipment, a radio station (Marquette Radio) and a TV station (MUTV) on campus. Television mobile equipment is used to broadcast sporting events.

BROADCAST NEWS LABORATORY

The Kay and Don McNeill Broadcast News Laboratory provides students with real-world resources to hone their broadcast writing, reporting and producing skills. The Associated Press News Wire System is used extensively for class-related and cocurricular activities including live news broadcasts by Marquette University Television and Marquette Radio.

DESKTOP PUBLISHING LABORATORY

Apple Macintosh workstations with negative and flatbed scanners, professional production software and laser printers are used by students taking desktop publishing, publications editing and design and related courses.

EDITING LABORATORIES

Separate laboratories are provided for print and broadcast news editing. The college subscribes to the AP wire service. The print editing lab and the student publication offices are equipped with on-line and Internet capabilities.

GRAPHICS LABORATORY

Desktop publishing and production equipment are located in this facility for the use of the various student publications.

MEDIA LAB

The Kate and John Wakerly Media Lab houses the Compaq Center for Excellence and the Marquette New Media Center. This is a high-end production and research facility using state-of-the-art Compaq and Apple computers for non-linear editing, 3-D animation, Web design, Web-based video production and CD/DVD development. The Wakerly Media Lab is also used for student, staff and faculty training.

REPORTING LABORATORIES

Reporting laboratories are equipped with personal computers and standard newsroom reference materials, and Internet capabilities.

THEATRE AND DANCE LABORATORIES

The Evan P. and Marion Helfaer Theatre provides an excellent theatre/teaching facility on campus. The structure includes a 226-seat theatre, with additional audience seating for the disabled; a proscenium stage; a scenery shop on stage level; multipurpose room for acting, directing and dance instruction; and production rooms: costume, light lab, make-up and dressing rooms.

CENTERS FOR COMMUNICATION RESEARCH

Marquette University Centers for Communication Research is an umbrella organization that coordinates and fosters the growth of interdisciplinary communication research and research-related teaching and outreach activities among the associated faculty and centers throughout the university. The mission of CCR is:

- To enhance the development of collaborative and interdisciplinary communication research programs at Marquette University;

- To advance the development of theoretically based communication research and its integration with the important teaching and service activities of the university;

- To maintain an environment that encourages, respects and rewards faculty and student communication research efforts;

- To enhance the potential to identify and develop present and future research opportunities that blend theoretical, social and professional applications;

- To provide broad, centralized support for the centers and faculty associated with the CCR.

CENTER FOR MASS MEDIA RESEARCH

As part of the graduate program, the college operates the Center for Mass Media Research. Limited opportunities exist for juniors and seniors to participate in the work of the center as research clerks. Assistantships are reserved for students in the graduate programs.

STUDENT ORGANIZATIONS

ADVERTISING CLUB

The purpose of the Marquette University Advertising Club is to promote better understanding of the functions of advertising, sales promotion and marketing communication; to stimulate and encourage advertising professionalism among the Marquette community through advertising education; to promote career possibilities in advertising; to apply the skills, creativity and energy of advertising in helping to solve social problems; and to promote fellowship and the free exchange of ideas. The club is affiliated with the American Advertising Federation and the Business Marketing Association. Membership is open to all students interested in advertising, communication and marketing.

COLLEGE STUDENT COUNCIL

The College Student Council is a group of student leaders which integrates social and academic student activities across the college. Two students are selected from each academic area to represent their fellow students on the council.

MULTI-CULTURAL ASSOCIATION OF COMMUNICATION STUDENTS

The MACS seeks to enhance the awareness of resources and opportunities available to students. The organization serves to connect its multicultural membership to professionals and national organizations in the various fields of communication.

DEBATE TEAM

The Debate Team competes in tournaments on college and university campuses across the country. The team is open to all interested undergraduate students and attempts to accommodate students with little or no academic debate experience, as well as those with sufficient ability and experience to step immediately into national caliber competition. The debate team is designed as an outlet for students who are interested in developing research and argumentation skills in a competitive environment.

LAMBDA PI ETA

Lambda Pi Eta is an honorary society, sponsored by the National Communication Association, for outstanding full-time undergraduate students in communication studies. Requirements for the society demand students achieve a 3.250 Q.P.A. in the communication studies major, a 3.000 overall Q.P.A. and have completed nine hours in the major. Benefits include the possibility of par-

icipating in a yearly national undergraduate conference and/or in the yearly national Speech Communication Association conference, as well as the privilege of being a member of the society.

KAPPA TAU ALPHA

A Marquette chapter of Kappa Tau Alpha, the national honor society for journalism and mass communication, was established at Marquette in 1929. Undergraduate students majoring in journalism and mass communication who are in the upper ten percent scholastically in their junior or senior year are eligible for membership. Graduate students in the upper ten percent scholastically in their group who have completed 12 hours in journalism or mass communication are also eligible for membership. Appointments are made annually.

MARQUETTE UNIVERSITY PLAYERS

The Marquette University Players invites participation by students from across the campus. Student members participate in the department's five major and numerous studio productions each academic year.

PUBLIC RELATIONS STUDENT SOCIETY OF AMERICA

The Marquette University Public Relations Student Society of America club chapter is intended to provide students with a better understanding of public relations in a corporate as well as non-profit setting. The club receives the professional guidance offered by the Wisconsin Chapter of PRSA. As members of the PRSA, students are able to actively participate within the professional ranks through field trips and attendance at PRSA functions. Membership is open to all students interested in public relations.

SOCIETY OF PROFESSIONAL JOURNALISTS

The Marquette Chapter of the Society of Professional Journalists is affiliated with the national organization of SPJ, and assists members in establishing professional journalism contacts, participating in professional meetings and activities, and maintaining awareness of crucial issues in professional journalism.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

CURRICULA INFORMATION

MAJOR AND MINOR REQUIREMENTS

MAJORS

The College of Communication offers majors in advertising, broadcast and electronic communication, communication studies, journalism, public relations, and theatre arts. Teaching majors are available in communication studies, journalism and theatre arts. Students majoring in advertising, broadcast and electronic communications, journalism, and public relations cannot take more than 38 credits in these areas. Specific major requirements and typical four-year programs are listed on the next several pages.

Students for whom particular interests may be better served by a flexible grouping of courses from several areas can pursue an **interdisciplinary major**. Such students should consult the college office where they will be referred to a faculty adviser in their area. With this adviser, the student will write a proposal explaining the relationship between educational objectives and the choice of an **interdisciplinary major**, a listing of courses to be included, and the sequence in which they will be taken. The proposal, as well as any subsequent modifications, is subject to the approval of the college office.

Students with interdisciplinary interest in electronic communication may pursue a flexible program of study through an interdisciplinary major in electronic communication studies. Such

students should consult the chairperson of the Department of Broadcast and Electronic Communication who will refer them to a faculty adviser in their area of interest.

Students who have not chosen their major at the time of admission to the college should do so no later than the second term of the sophomore year. Advisers are assigned to students based on the major. Students can declare their majors in the college records office.

MINORS

Students in the College of Communication are not required to complete a minor however, students are encouraged to consider the benefits of a minor or second major. Minors are offered by most disciplines in the College of Arts and Sciences and the requirements are listed in the Course Description sections of this bulletin. The College of Business Administration offers minors in marketing, human resources and business administration. See the College of Business Administration section of this bulletin for these requirements. Minors offered by the College of Communication are listed after the majors in this section of the bulletin, in front of the Course Description section.

Students can also complete *an interdisciplinary minor* composed of a minimum of 18 hours of course work complementary to the major. Courses which comprise the interdisciplinary minor are selected by the student and approved by the adviser and associate dean.

ADVERTISING MAJOR REQUIREMENTS

ADVERTISING CORE REQUIREMENTS

A total of 32 to 38 hours of course work must be completed for the major in advertising. Majors in advertising cannot take more than 38 credits in the mass communication area (BREC, JOUR and ADPR). The following basic courses must be completed toward the 32-38 hours:

<i>Course</i>	<i>Credit</i>
ADPR 008 Media Writing	3
ADPR 140 Advertising Principles	3
ADPR 142 Strategic Research for Advertising and Public Relations	3
ADPR 144 Advertising Copywriting	3
ADPR 145 Advertising Media	3
ADPR 146 Advertising Campaigns	3
ADPR 180 Public Relations Principles	3
COMM 161 Ethical Problems of Mass Communication	3
COMM 165 Media Law	3
ADPR/BREC/JOUR Electives	5-11
	<hr/> 32-38

The following courses are also required but do not count as hours in the major: CMST 052, ECON 043, 044, MARK 140, PSYC 001, and either MATH 060, PSYC 060 or MANA 025. Advertising majors must take, in addition to HIST 001 and 002 and PSYC 001, two other courses chosen from the Departments of History, Political Science, Psychology and Social and Cultural Sciences.

COMPUTER WORKSHOP

Computer workshops are offered at the beginning of each term for students who wish to take an advertising lab course. Students will be excused from the workshop if they can demonstrate proficiency on PC or Macintosh platforms with: Microsoft Office, Adobe Photoshop, QuarkXpress, Web browsers and HTML.

TYPICAL PROGRAM FOR ADVERTISING MAJORS

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
CMST 010	3	Foreign Language	4
Foreign Language.	4	HIST 002.	3
HIST 001	3	PHIL 050.	3
PHIL 001	3	THEO 001.	3

<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ADPR 008	3	ADPR 140.	3
ECON 043.	3	ECON 044	3
Literature course	3	Fine Arts elective	2-3
CMST 052	3	Literature course.	3
PSYC 001.	3	MATH 060, PSYC 060, MANA 025	3
Natural Science or Mathematics.	3	Natural Science or Mathematics	3
	18		17-18
<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ADPR 142	3	ADPR 144.	3
COMM 165	3	ADPR elective	3
MARK 140.	3	Elective.	3
Electives	6-9	Social Science electives	6
		PHIL 104.	3
	15-18		18
<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ADPR 145	3	ADPR 146.	3
COMM 161	3	ADPR elective	3
ADPR 180	3	Philosophy	3
Theology	3	Theology.	3
Electives.	6	Electives	6
	18		18

BROADCAST AND ELECTRONIC COMMUNICATION MAJOR REQUIREMENTS

General Information: The major in broadcast and electronic communication is designed to provide students with the knowledge and skills necessary for effective communication through the electronic media. Such opportunities exist in commercial radio and television, public broadcasting, corporate media, cable communication and associated industries. Courses emphasize the creative extension and application of mass communication theory in the development of news and entertainment programs for the electronic media. Programs of study appropriate for careers in broadcast journalism, production, writing, programming, management, audience research, sales, promotion, or alternative media can be selected.

Requirements for a Major: The broadcast and electronic communication major requires 36 (maximum 38) hours including BREC 001, 005, 035 or 045, COMM 002, 161, 165, 166 and 17 additional elective BREC credits. Students may complete five to seven credits from JOUR, ADPR and/or COMM with the consent of their adviser and the BREC coordinator. Majors in broadcast and electronic communication cannot take more than 38 credits in the mass communication area (BREC, JOUR, ADPR, COMM). However, if a student wishes, s/he may count BREC 164, 183 and 184 as university electives; these courses are not counted as mass communication credits.

<i>Required Courses</i>	
BREC 001	Practicum in Student Broadcasting
COMM 002	Media in Society
BREC 005	Production Techniques
BREC 035 or 045	Script and Continuity or Broadcast Newswriting and Editing
COMM 161	Ethical Problems of Mass Communication
COMM 165	Media Law
COMM 166	Mass Communication Theory and Research

Note: BREC majors are allowed a maximum of three credits in BREC 193 and three credits in BREC 168. They are allowed no more than six credits in or a combination of BREC 194 and BREC 196.

BREC majors must complete at least 65 hours in liberal arts courses including CMST 012, PSYC 001, and one of the following: MATH 060, PSYC 060, SOCI 060, or COMM 123. (Note that completion of two courses from the same department is necessary to fulfill the math/science requirement.)

Students should consult their advisers for information regarding courses appropriate to various career goals. For example, students interested in broadcast journalism are advised to select courses such as BREC 045, 050, 145, 146, and 147. These choices emphasize writing and reporting while providing sufficient background in critical areas. In contrast, students wishing to emphasize production might select BREC 035, 050, 121, 130, 150, 155, 164, 170, 171, 185 and/or 187. Other combinations and/or emphases are possible.

Although BREC students are not required to complete a departmental minor, students are advised to consider minors in one of the following areas: business, marketing, political science, history, psychology, sociology or theatre arts.

TYPICAL PROGRAM FOR BROADCAST AND ELECTRONIC COMMUNICATION MAJORS

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BREC 001	1	BREC 001 (if not taken 1st term)	1
CMST 010	3	BREC 005 or COMM 002	3
ENGL 001	3	ENGL 002	3
HIST 001	3	HIST 002	3
PHIL 001	3	PHIL 050	3
Foreign Language or social science elective	3-4	Foreign Language or social science elective	3-4
	16-17		16-17
<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BREC 005, 035, 045 or COMM 002	3	BREC 005, 035, 045 or COMM 002	3
Literature course	3	Literature course	3
THEO 001 or Fine Arts	2-3	THEO 001 or Fine Arts	2-3
PSYC 001 or CMST 012	2-3	PSYC 001 or CMST 012	2-3
Statistics or math/science elective	3	Statistics or math/science elective	3
Social science elective	3	Social science elective or minor course	3
	16-18		16-18
<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COMM 165 or 166 and/or broadcast and electronic electives	6-9	COMM 165 or 166 and/or broadcast and electronic electives	6-9
PHIL 104 or Theology elective	3	PHIL 104 or Theology elective	3
Minor/elective	3-6	Minor/elective	3-6
	12-18		12-18
<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COMM 161 and/or broadcast and electronic elective(s)	3-6	COMM 161 and/or broadcast and electronic elective(s)	3-6
Minor/elective	6-9	Minor/elective	6-9
Philosophy or Theology elective	3	Philosophy or Theology elective	3
	12-18		12-18

NOTE: Students should consult their advisers for appropriate electives and specific constraints on the above schedule.

BROADCAST JOURNALISM

Students should pursue their major in the Department of Broadcast and Electronic Communication. Related coursework should emphasize broadcast newswriting and reporting, history, law and ethics, and it should begin no later than the sophomore year. Broadcast journalism students are encouraged to be actively involved with Marquette's student radio and television newscasts and complete one or more broadcast news internships before graduating.

ELECTRONIC COMMUNICATION STUDIES

Students with specialized interests in working for corporations and institutions which need graduates with skills in multimedia and electronic communication may pursue one of the programs suggested below. Students with such interests should consult with the chair of broadcast and electronic communication who will refer them to an appropriate faculty adviser.

Business Studies: Introduction to the development, use and evaluation of electronic communication in business settings. Requires 52 hours of course work, 31 hours from communication and 21 hours from business.

Economics and Policy Studies: Introduction of electronic communication theories, techniques and practices as well as the political processes and economic systems that shape the practice of mediated communication in public and private organizations. Requires 58 hours of course work, 31 hours from communication and 27 hours from economics and policy.

Education Studies: Theories and practices of developing, using and evaluating electronic communication in educational and business settings. Does not count toward teacher certification. Requires 52 hours of course work, 31 hours from communication and 21 hours from education.

Health Studies: Introduction to the development, use and evaluation of electronic communication in health care settings. Requires 58 hours of course work, 31 hours from communication and 27 hours from health sciences.

COMMUNICATION STUDIES MAJOR REQUIREMENTS

General Information: The major in communication studies examines the theories, principles, and practices of human communication. It is understood that communication is important to personal, social, academic, and professional development.

The programs objectives include: (1) to understand the central position communication occupies in human life and relationships; (2) to develop logical thinking in its relation to situations, audiences, and arguments; (3) to experience and examine the relationship between human interaction and decision making; (4) to explore the principles and theories of effective expression; (5) to develop the following listening skills: appreciative, empathic, comprehensive, and analytical; and (6) to analyze the role of communication in conflict negotiation and resolution.

Requirements for Major: The communication studies major requires 32 credit hours including CMST 010, 012, 053, 054, 131, and 154, plus 15 credit hours of CMST courses. Majors may select classes in one or more of the following areas: organizational and interpersonal communication; intercultural communication and rhetoric; and communication and conflict studies. Each area provides students with knowledge and skills vital in future careers such as: sales and personnel; conflict mediation; and law and international relations. Students will consult with their adviser as to the selection of appropriate courses.

TYPICAL PROGRAM FOR COMMUNICATION STUDIES MAJORS

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.....	3
HIST 001	3	HIST 002.....	3
CMST 010	3	Math, Science or Psychology.....	3
PHIL 001	3	PHIL 050.....	3
CMST 012	2	Foreign Language 002.....	4
Foreign Language 001	4		
	18		16
<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CMST 054	3	Elective in Major.....	3
Literature course	3	Literature course.....	3
Math, Science or Psychology	3	THEO 001.....	3
CMST 053	3	Social Science elective.....	3
Social Science elective	3	Minor/elective.....	3
Fine Arts elective	2-3		
	17-18		15
<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CMST 131	3	CMST 154.....	3
PHIL 104	3	Philosophy elective	3
Theology elective.....	3	Theology elective	3
Minor/elective.....	6-9	Minor.....	3-6
		Elective in major.....	3
	15-18		15-18
<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Major electives	6-9	Major electives.....	3-9
Minor/electives.....	9	Minor/electives	9
	15-18		12-18

TEACHING MAJOR IN COMMUNICATION STUDIES REQUIREMENTS

General Information: The major is designed to educate teachers for the middle and secondary schools. It provides a broad background of academic experience in speech communication including public speaking, interpretation, interpersonal communication, discussion, and debate. Although a broad background is required, a student is permitted to elect credits in his/her area of interest.

Requirements for Teaching Major for Certification: The teaching major in communication studies requires 34 term hours including: COMM 100; CMST 010, 012, 014, 052, 053, 124, 131, 154 and 156. In addition to the required courses, each student takes additional courses in his/her area of interest to complete the 34 hours. (See the School of Education section of this bulletin for complete details. A quality point average of 2.750 is required before student teaching can be scheduled.)

**FOUR-YEAR SUGGESTED TERM SCHEDULE FOR MIDDLE SCHOOL/SECONDARY
TEACHER PREPARATION, GRADES 6-12, COMMUNICATION STUDIES TEACHING
MAJOR**

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.....	3
HIST 001	3	HIST 002.....	3
Foreign Language 001	4	Foreign Language 002.....	4
CMST 010	3	THEO 001.....	3
EDUC 008	3	CMST 012.....	2
		EDUC 048.....	3
	<hr/> 16		<hr/> 18

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHYS 009 or ARSC 010.....	3-4	BIOL 002 or ARSC 011	3-4
PHIL 001	3	PHIL 050.....	3
Literature course	3	Literature course.....	3
CMST 052	3	CMST 053.....	3
EDUC 078	3	EDUC 088.....	3
Social Science elective	3	EDUC 079.....	3
	<hr/> 18-19		<hr/> 18-19

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHIL 104	3	Theology elective	3
Math elective	3	CMST 014.....	3
Communication Studies elective.....	3	Math elective or Computer Science.....	3
CMST 124	3	CMST 131.....	3
EDUC 125	3	CMST 156.....	3
		EDUC 128.....	3
		EDUC 190.....	1
	<hr/> 15		<hr/> 19

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology elective.....	3	EDUC 176.....	12
Fine Arts.....	2-3	EDUC 158.....	3
COMM 100	3		
CMST 154	3		
CMST 121	3		
Communication Studies elective.....	3		
EDUC 191	1		
	<hr/> 18-19		<hr/> 15

NINE-TERM SUGGESTED TERM SCHEDULE FOR ELEMENTARY/MIDDLE SCHOOL TEACHER PREPARATION, GRADES 1-8, COMMUNICATION STUDIES MAJOR

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
HIST 001	3	HIST 002.	3
Foreign Language 001	4	Foreign Language 002.	4
CMST 010	3	THEO 001.	3
EDUC 008	3	EDUC 048.	3
	<hr/> 16		<hr/> 16

<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ARSC 010.	4	ARSC 011	4
MATH 030.	3	MATH 031	3
PHIL 001	3	PHIL 050.	3
CMST 012	2	Communication Studies elective	3
EDUC 078	3	EDUC 079	3
POSC 020	3	EDUC 088.	3
	<hr/> 18		<hr/> 19

<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology elective.	3	PHIL 104.	3
MATH 032.	3	HIST 006.	3
CMST 054	3	CMST 131.	3
CMST 053	3	CMST 154.	3
EDUC 110	4	EDUC 120.	4
EDUC 130	3	EDUC 140.	3
	<hr/> 19		<hr/> 19

<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Communication Studies elective.	3	Theology elective	3
Communication Studies elective.	3	Communication Studies elective	3
EDUC 160	4	Communication Studies elective	3
EDUC 190	1	EDUC 100.	3
Literature course	3	EDUC 128.	3
	<hr/> 14	EDUC 158.	3
		EDUC 191.	1
			<hr/> 19

<i>Fifth Year</i>	
FIRST TERM	SEM. HRS.
EDUC 181	12
	<hr/> 12

JOURNALISM MAJOR REQUIREMENTS

A total of 40 credits are needed to complete a Journalism major.

Required Courses (22 credits)

JOUR 001	Practicum in Student Publications (1 credit)
COMM 002	Media in Society
JOUR 008	Information Gathering and Media Writing
JOUR 010	Reporting for Media
JOUR 100	Publications Editing
JOUR 163	History of American News Media
COMM 161	Ethical Problems of Mass Communication
COMM 165	Media Law

- One Theory/Research Course from the list below (3 credits)
- COMM 160 Media and the Family
 - COMM 162 International Communication
 - COMM 166 Mass Communication Theory and Research
 - COMM 167 Race and Gender Issues in Mass Media
- One Writing Course from the list below (3 credits)
- JOUR 110 Persuasive Writing
 - JOUR 111 Article Writing
 - JOUR 112 Critical Writing
 - JOUR 175 Public Affairs Reporting
 - JOUR 177 Investigative Reporting
- One Design/Editing Course from the list below (3 credits)
- JOUR 150 Newspaper Design
 - JOUR 151 Magazine Design
 - JOUR 152 Web Design
 - JOUR 155 News and Information Design

General Electives (nine additional JOUR credits; no more than three hours in JOUR 193; with consent of adviser, student may choose appropriate ADPR/BREC/COMM courses)

The following courses also are required but do not count as hours in the major: ECON 020, POSC 020, plus one of the following: MATH 060 or PSYC 060 or SOCI 060 or COMM 123. One course in U.S. history. Two courses chosen from: PSYC 001, SOCI 001 or ANTH 001, plus one upper division course in the same subject. Majors must also take two natural science courses. These courses can also be used to meet college core requirements.

COMPUTER WORKSHOPS

Computer workshops are offered at the beginning of each term for students who wish to take a journalism lab course. Students will be excused from the workshop if they can demonstrate proficiency on PC and Macintosh platforms with: WordPerfect, Adobe, Photoshop, Excel, Paradox, QuarkXPress, Freehand, Netscape and HTML.

TEACHING MAJOR IN JOURNALISM

The teaching major in journalism consists of 34 hours consisting of JOUR 001, 008, 010, 100, 150, 163, 175 and 177. Also required are COMM 002, 161 and 165 and one course from among COMM 160, 162, 166 or 167. In addition students must complete JOUR 185. Credit from JOUR 185 is applied as part of the required education sequence, not as credit towards the journalism major.

Please Note: Students completing a teaching major must also complete a middle school/secondary education major to receive teacher certification. See the School of Education section of this bulletin for complete details. A quality point average of 2.750 is required before student teaching is scheduled.

TYPICAL PROGRAM FOR JOURNALISM MAJORS

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
JOUR 001.	1	ENGL 002.	3
ENGL 001	3	Foreign Language	4
CMST 010	3	HIST 002.	3
Foreign Language.	4	PHIL 050.	3
HIST 001	3	COMM 002 or JOUR 008	3
PHIL 001	3		
	<hr/> 17		<hr/> 16
<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COMM 002, JOUR 008 or 010.	3	JOUR 010	3
THEO 001	3	Social Science	3
POSC 020	3	History elective	3
Social Science.	3	Statistics	3
Natural Science	3	Natural Science.	3
ECON 020.	3	Fine Arts	2-3
	<hr/> 18		<hr/> 17-18

<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
JOUR 100.	3	JOUR 150, 151, 152 or 155.	3
JOUR 163.	3	COMM 165.	3
PHIL 104.	3	Journalism writing elective or JOUR 175.	3
Literature course.	3	Theology elective.	3
Minor and/or electives.	3-6	Literature course.	3
		Elective.	2-3
	<hr/> 15-18		<hr/> 17-18

<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
COMM 161 or one from COMM 160, 162, 166, 167.	3	COMM 161 or one from COMM 160, 162, 166, 167.	3
JOUR 175 or Journalism writing elective.	3	JOUR 177 or JOUR elective.	3
Philosophy elective.	3	Minor and/or electives.	6-9
Minor and/or electives.	3-6	JOUR 193 or Journalism elective.	3
Theology elective.	3		
	<hr/> 15-18		<hr/> 15-18

BROADCAST JOURNALISM: Students wishing to specialize in this area should see the broadcast and electronic communication section of this bulletin (page 160).

FOUR-YEAR SUGGESTED SCHEDULE FOR MIDDLE SCHOOL/SECONDARY TEACHER PREPARATION, GRADES 6-12, JOURNALISM TEACHING MAJOR

This schedule is set up for four-year completion WITH SUMMER SCHOOL INCLUDED. The courses listed following the senior year are usually easily available during summer schools at Marquette or away. Without summer school, a NINTH term will be needed for student teaching.

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001.	3	ENGL 002.	3
HIST 001.	3	HIST 002.	3
Foreign Language 001.	4	Foreign Language 002.	4
CMST 010.	3	EDUC 048.	3
EDUC 008.	3	COMM 002 OR JOUR 008.	3
JOUR 001.	1		
	<hr/> 17		<hr/> 16

<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHYS 009 or ARSC 010.	3-4	BIOL 002 or ARSC 011.	3-4
PHIL 001.	3	PHIL 050.	3
Fine Arts or THEO 001 or Statistics.	2-3	JOUR 010.	3
COMM 002 or JOUR 008.	3	American History.	3
EDUC 078.	3	EDUC 079.	3
ECON 020.	3	EDUC 088.	3
	<hr/> 17-19		<hr/> 18-19

<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature course.	3	Theology elective.	3
Fine Arts or MATH 060 or THEO 001.	3	Literature course.	3
PHIL 104.	3	COMM 165.	3
JOUR 100.	3	COMM 160, 162, 166 or 167.	3
JOUR 163.	3	JOUR 175 or 177.	3
EDUC 125.	3	EDUC 128.	3
		EDUC 190.	1
	<hr/> 18		<hr/> 19

<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology elective.	3	EDUC 176.	12
JOUR 150.	3	EDUC 158.	3
COMM 161	3		
JOUR 175 or 177	3		
JOUR 185.	3		
EDUC 191	1		
	<hr/> 16		<hr/> 15

Three suggested summer school courses: POSC 020; two from PSYC 001, SOCI 001, ANTH 001.

PUBLIC RELATIONS MAJOR REQUIREMENTS

PUBLIC RELATIONS CORE REQUIREMENTS

A total of 32 to 38 maximum hours of course work must be completed for the major in public relations. Majors in public relations cannot take more than 38 credits in the mass communication area (BREC, JOUR, and ADPR). The following basic courses must be completed toward the 32-38 hours:

<i>Course</i>	<i>Credit</i>
JOUR 008 Information Gathering and Media Writing	
or ADPR 008 Media Writing	3
ADPR 140 Advertising Principles	3
ADPR 142 Strategic Research for Advertising and Public Relations.	3
ADPR 143 Marketing Communications Design and Production	3
COMM 161 Ethical Problems of Mass Communication	3
COMM 165 Media Law	3
ADPR 180 Public Relations Principles	3
ADPR 181 Writing for the Marketplace: Public Relations and Business	3
ADPR 183 Public Relations Campaigns.	3
ADPR 193 Internship in ADPR	3
ADPR/BREC/JOUR electives	2-8
	<hr/> 32-38

The following courses are also required but do not count as hours in the major: ECON 043, 044, MARK 140, PSYC 001 and either MATH 060, PSYC 060, or MANA 025. Public Relations majors must take, in addition to HIST 001 and 002 and PSYC 001, two other courses chosen from the Departments of History, Political Science, Psychology, and Social and Cultural Sciences. They must also choose one course from the following: CMST 052, CMST 132 or CMST 154.

TYPICAL PROGRAM FOR PUBLIC RELATIONS MAJOR

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
CMST 010	3	Foreign Language	4
Foreign Language.	4	HIST 002.	3
HIST 001	3	PHIL 050.	3
PHIL 001	3	THEO 001.	3
	<hr/> 16		<hr/> 16

<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ADPR 008 or JOUR 008.	3	Social Science elective.	3
Literature course	3	Literature course.	3
ECON 043.	3	Math 060, Psych 060, MANA 025.	3
Minor and/or elective.	3	ADPR 180.	3
PSYC 001.	3	ECON 044	3
Math/Science	3	Math/Science.	3
	<hr/> 18		<hr/> 18

<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ADPR 181	3	ADPR 142.	3
COMM 165	3	ADPR 143.	3
PHIL 104	3	Theology elective	3
ADPR 140	3	Minor and/or electives	3-6
MARK 140.	3	CMST 052, 132 or 154	3
	<hr/> 15		<hr/> 15-18

<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ADPR 183	3	ADPR 193.	3
COMM 161	3	Theology elective	3
Social Science elective	3	Minor and/or electives.	3
Philosophy elective	3	Fine Arts elective.	2 or 3
Minor and/or electives.	3-6	Major electives.	3-7
	<hr/> 15-18		<hr/> 14-19

THEATRE ARTS MAJOR REQUIREMENTS

General Information: The Marquette theatre arts major has its focus upon those theatre students who wish to realize and develop their talent while at the same time relating it to broader knowledge.

At Marquette, the program in theatre arts offers intensive training in performance and/or production within a liberal arts foundation. Theatre arts students may select a minor from within the College of Communication such as advertising, broadcasting, public relations, or communication studies. Or they may select a minor from the College of Business Administration (i.e. marketing) or the College of Arts and Sciences where they often elect a minor such as English, foreign language, psychology or political science.

Theatre arts majors have also found it beneficial to double major in any of the areas listed above, thereby obtaining a broad range of connections between the performing arts and other disciplines.

Theatre Arts Major: The theatre arts major requires 35 credits including:

Required Courses:

THAR 001 Orientation to Theatre Studies

THAR 010 Acting I—Fundamental Technique

THAR 016 Stagecraft

THAR 023 Basic Costume Technology

THAR 052 Play Analysis I

THAR 150 History of Theatre

In addition to the above required courses, one course from each of the following three sequences are required:

Sequence I (Performance): THAR 010*, 011, 026, 028, 030, 031, 126, 128, 130, 132, 134, 136.

Sequence II (Design/Technical/Management): THAR 012, 016*, 023*, 118, 119, 120, 121, 122, 124, 127, and 160.

Sequence III (History): THAR 052*, 123, 125, 129, 140, 150*, 152, 153.

*core required courses

The following courses will be assigned a sequence at the time of registration: THAR 168, 193, 195, 196, and 199.

All-university Avocational Electives: Non-theatre arts majors are invited to use THAR 050 or 051 as a fine arts elective. Some courses require prior approval of the instructor; be sure to consult the bulletin description. Lab requirements apply where appropriate.

Participation in Theatre Productions: All university students with a minimum 2.000 Q.P.A. are invited to audition for theatre productions on stage or participate in a technical capacity. All theatre majors and minors are required to audition for theatre productions and participate in a technical, design, or management capacity.

TEACHING MAJOR IN THEATRE ARTS

The teaching major in theatre arts requirements are identical to those listed under the theatre arts major, plus THAR 160.

Please Note: Students completing a teaching major must also complete a secondary education major to receive teacher certification. See the School of Education section of this bulletin for complete details. A quality point average of 2.750 in major and 2.750 in professional sequence is required before student teaching is scheduled.

TYPICAL PROGRAM FOR THEATRE ARTS MAJORS

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
THAR 001	1	THAR 016 or 023	3
THAR 010	3	THAR 011 or Theatre Arts elective.	2-3
THAR 016 or 023.....	3	ENGL 002.....	3
CMST 010	3	HIST 001.....	3
ENGL 001	3	Foreign Language	4
Foreign Language.....	4	PHIL 001.....	3
	17		18-19
<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
THAR 052 and Theatre Arts electives	6-9	Theatre Arts electives.....	3-6
HIST 002	3	THEO 001.....	3
Math, Science or Psychology	3	PHIL 050.....	3
Literature course	3	Math, Science or Psychology.....	3
	15-18	Literature course.....	3
			15-18
<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theatre Arts electives.....	6	THAR 150.....	3
Social Science elective	3	PHIL 104.....	3
Theology elective	3	Social Science elective.....	3
Minor/electives	3-6	Theology elective	3
	15-18	Minor/electives.....	3-6
			15-18
<i>Senior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theatre Arts elective.....	3	Theatre Arts elective	3
Philosophy elective	3	Fine Arts elective	2-3
Minor/electives	9-12	Minor/electives.....	10-12
	15-18		15-18

FOUR-YEAR SUGGESTED TERM SCHEDULE FOR MIDDLE SCHOOL/SECONDARY TEACHER PREPARATION, GRADES 6-12, THEATRE ARTS TEACHING MAJOR

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
THAR 001	1	ENGL 002.....	3
ENGL 001	3	HIST 002.....	3
HIST 001	3	Foreign Language 002.....	4
Foreign Language 001	4	THAR 016 or THAR 023	2-3
THAR 010	3	THEO 001.....	3
EDUC 008	3	EDUC 048.....	3
CMST 010	3		
	20		18-19

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHYS 009 or ARSC 010.	3-4	BIOL 002 or ARSC 011	3-4
PHIL 001	3	PHIL 050.	3
Literature course	3	Literature course.	3
THAR 052	3	THAR 023 or THAR 016.	3
EDUC 078	3	EDUC 079.	3
MATH elective or COSC.	3	EDUC 088.	3
	<hr/> 18-19		<hr/> 18-19

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Social Science elective	3	Theology elective	3
Math elective	3	Theatre Arts electives	6
PHIL 104	3	THAR 150.	3
THAR 023	3	EDUC 128.	3
Theatre Arts elective.	3	EDUC 158.	3
EDUC 125	3	EDUC 190.	1
	<hr/> 18		<hr/> 19

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology elective.	3	EDUC 175.	12
Elective	3		
THAR 160	3		
Theatre Arts electives.	6		
THAR 170 (methods).	3		
EDUC 191	1		
	<hr/> 19		<hr/> 12

NINE-TERM SUGGESTED SCHEDULE FOR ELEMENTARY/MIDDLE SCHOOL TEACHER PREPARATION, GRADES 1-8, THEATRE ARTS MAJOR

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
THAR 001	1	ENGL 002.	3
ENGL 001	3	HIST 002.	3
HIST 001	3	Foreign Language 002.	4
Foreign Language 001	4	THAR 016 or 023.	5-6
THAR 010	3	EDUC 048.	3
EDUC 008	3		
CMST 010	3		
	<hr/> 20		<hr/> 18-19

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ARSC 010.	4	ARSC 011.	4
MATH 030.	3	MATH 031	3
PHIL 001	3	PHIL 050.	3
THAR 052	3	THAR 016 or 023	3
EDUC 078	3	EDUC 079.	3
POSC 020	3	EDUC 088.	3
	<hr/> 19		<hr/> 19

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
THEO 001	3	PHIL 104.	3
Social Science elective	3	HIST 006.	3
Theatre Arts electives	6	Theatre Arts elective	3
EDUC 110	4	EDUC 120.	4
EDUC 140	2	MATH 032	3
	<hr/> 18	THAR 150.	3
			<hr/> 19

		<i>Senior</i>	
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology elective.	3	Theology elective	3
Theatre Arts elective.	3	THAR 150.	3
EDUC 160	4	EDUC 100.	3
EDUC 190	1	EDUC 128.	3
Literature course	3	EDUC 158.	3
		EDUC 191.	1
	<hr/> 14		<hr/> 16
<i>Fifth Year</i>			
FIRST TERM	SEM. HRS.		
EDUC 180	12		
	<hr/> 12		

MINORS OFFERED IN THE COLLEGE OF COMMUNICATION

The following minors are available to any Marquette University student. Students in the College of Communication are not required to complete a minor or another major, however, students are encouraged to consider the benefit of a minor or second major. Students majoring in advertising, broadcast and electronic communication, journalism or public relations cannot second major or minor in another of these four areas.

Advertising Minor: 18 hours including ADPR 008, ADPR 140 and four courses chosen from the following: ADPR 142, 143, 144, 145, 146, 147, 148, 149.

Broadcast and Electronic Communication Minor: 20 hours including BREC 001, 005, COMM 002 and 160. The remainder consists of courses selected in consultation with a BREC adviser.

Communication Studies: CMST 010, 012, 053, 054 and 131 or 154, plus electives to total 20 credits.

Film Minor: 18 hours selected from any FILM courses, and any other related courses offered (i.e. ENGL 194 or MUSI 152) in other departments.

Public Relations Minor: 18 hours including JOUR 008 or ADPR 008; ADPR 180 and four of the following: ADPR 142, 143, 148, 149, 181 or 183.

Theatre Arts Minor: 18 hours including THAR 001, 010, 016, 023, 052, and 150.

**Teaching Minor in Communication Studies:* 26 hours including COMM 100, CMST 010, 012, 053, 054, 124, 131 or 154, and 156.

**Teaching Minor in Journalism:* 22 hours including JOUR 001, 008, 010, 100, and 163 plus COMM 002, 161 and 165. In addition, students must complete JOUR 185. Credits from JOUR 185 are applied as part of the required education sequence, not as credits towards the journalism major.

**Teaching Minor in Theatre Arts:* 26 hours including THAR 001, 010, 016, 023, 052, 150, and 160.

**Appropriate only for students completing an academic area teaching major.*

COURSE DESCRIPTIONS

ADVERTISING AND PUBLIC RELATIONS (ADPR)

Professor: Badaracco

Associate Professor: Baxter (*Emeritus*), Crowley (*Emeritus*), Ekachai, Pokrywczynski
Assistant Professor: von Dorn, Wolburg
Professional in Residence: Menck
Lecturer: Alley, Altstiel, Barnes, Calbreath, Cary, Cissne, Donaldson, Gaillard, Kaufman, Pfeil, Topczewski, Volrath

ADPR008. Media Writing 3 sem. hrs.

Factual and persuasive writing for the mass media. Introduction to and practice in news-writing, public relations writing and advertising copy-writing. Basic information gathering. In-class writing exercises require use of computers. Offered every term. *Prereq: ENGL 001 and 002 or equivalent.*

ADPR 140. Advertising Principles

3 sem. hrs.

An overview of advertising as it relates to marketing and mass media. The course examines the advertising industry, including advertisers, advertising media and ad agencies, advertising history, its social and economic effects, advertising law and ethical standards. Students are introduced to the advertising planning process: product, market and consumer research, creative and media strategy, production of messages and evaluation of advertising effectiveness. Offered every term.

ADPR 142. Strategic Research for Advertising and Public Relations

3 sem. hrs.

Introduction to fundamental standards and practices of advertising and public relations research, focusing on audiences, messages, media, public opinion and issues management. Students learn to use research and to evaluate the quality of information for strategic planning based on validity, consistency, and reliability. Provides an opportunity for critique and practice of professional communication research. Offered every term. *Prereq: ADPR 140 or 180.*

ADPR 143. Marketing Communications Design and Production 3 sem. hrs.

Fundamentals of marketing communications design focusing on advertisements, newsletters, brochures and posters. Students learn basic concepts and develop basic skills through planning, executing and evaluating effective designs. *Prereq: ADPR 008 or JOUR 008; ADPR 140 or 180; or cons. of unit coord. Computer workshop or demonstrated proficiency on the Macintosh computer using QuarkXPress.*

ADPR 144. Advertising Copywriting

3 sem. hrs.

Rigorous study and practice in planning and preparation of advertising messages. Emphasis on writing for all media. Artistic and scientific aspects of advertising creativity. Principles of creative strategy including: product/service research, target audience analysis, and selection of persuasive appeals and creative

approaches. Evaluation of advertising effectiveness. Lecture and laboratory. Offered every term. *Prereq: ADPR 008 and ADPR 140; or cons. of instr.*

ADPR 145. Advertising Media 3 sem. hrs.

Study of the evaluation and selection of advertising media to meet specific advertising objectives. Theory and practice of media planning, including: audience measurement; reach, frequency, and continuity strategy; inter- and intra-media comparisons; budgeting. Principles of media scheduling and buying, computer media models. Testing media effectiveness. Offered every fall. *Prereq: ADPR 140, MARK 140, and MATH or PSYC 060.*

ADPR 146. Advertising Campaigns

3 sem. hrs.

Senior capstone course in integrated advertising campaign planning. Students working in groups plan and develop advertising campaigns for real world advertisers. Campaigns include research, objective setting, strategy, media selection, message preparation, sales promotion and public relations, and budgets. Project culminates in formal, competitive presentations. Offered spring term. *Prereq: ADPR 144, 145 and CMST 052; or cons. of instr.*

ADPR 147. Advanced Advertising

Copywriting 3 sem. hrs.

A continuation of ADPR 144. Emphasis on formulating strategy and producing executions for coordinated, multi-media campaigns. Each student will create a portfolio which will showcase his or her talent and ability to work as a professional copywriter. Offered occasionally. *Prereq: ADPR 144 or cons. of instr.*

ADPR 148. Advertising and Public Relations Account Management 3 sem. hrs.

The fundamentals of management in both the client and agency environments. Analyzes client and agency structures and functions. Explores project estimating, budgeting and time management. Examines account profitability maintenance and account team productivity. Reviews techniques for agency and supplier selection. Special emphasis on the ethical aspects of account work. Offered occasionally. *Prereq: ADPR 140 or ADPR 180.*

ADPR 149. Business to Business Marketing Communications 3 sem. hrs.

Study of how businesses promote their goods and services to other businesses. Examines products, markets, objectives, strategies, media techniques and evaluation. Covers advertising, public relations, direct marketing and sales promotion. Includes case studies, outside speakers and field trips. Offered occasionally. *Prereq: ADPR 140 or 180, or cons. of instr.*

ADPR 180. Public Relations Principles

3 sem. hrs.

Principles, history, theory and practice of public relations in business, organizations and agencies. Analyses of public relations programs; the responsibility of the public relations practitioner to management and to relevant publics; ethics of public relations practice; the future of the field and career opportunities. Offered every term.

ADPR 181. Writing for the Marketplace: Public Relations and Business

3 sem. hrs.

The course covers the basics of public relations writing, including the principles of effective professional writing, finding and generating news-worthy information for print, electronic and "new" media. Topics covered include news releases, fact sheets, brochures, online public relations, media kits, speech writing, crisis communication, and spokesperson training. Writing portfolios are assembled for purposes of future internships and employment. All classes held in a computerized writing laboratory. Offered every semester. *Prereq: JOUR or ADPR 008, ADPR 180.*

ADPR 183. Public Relations Campaigns

3 sem. hrs.

Senior capstone course in public relations issues management for corporations, government and non-profit groups. Working in teams, students design a public communication campaign involving media management, community relations, educational outreach or other methods of advocacy in the public forum for achieving social justice goals using public relations strategies and tactics. Students design public communication campaign proposals for local or national clients. Student campaign designs are read and responded to by industry professionals, the client and the instructor. Students conduct field research, analyze results and incorporate findings in their action plans. Offered every semester. *Prerequisites: ADPR 142, 181; cons. of instr.*

ADPR 193. Internship in Advertising and Public Relations 0-3 sem. hrs.

Work experience in advertising or public relations in specific organizational settings, supervised by an approved professional coupled with related academic work assigned. Approval of departmental internship director required in advance of internship. Maybe taken more than once to a maximum of three total credits. S/U grade assessment. Offered every term. *Prereq: ADPR or JOUR 008, ADPR 140 or 180 and cons. of ADPR dept. intern director.*

ADPR 194. Special Institute/Workshop/Project 1-3 sem. hrs.

Offered occasionally. S/U grade assessment. *Prereq: ADVE or PURE majors or minors.*

ADPR 195. Independent Study 1-3 sem. hrs.

Offered every term. S/U grade assessment. *Prereq: ADVE or PURE major or minor and cons. of unit coord.*

ADPR 196. Seminar in Advertising and Public Relations 1-3 sem. hrs.

Specific subjects of seminars to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

ADPR 199. Senior Thesis 1-3 sem. hrs.

The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of unit coord.*

BROADCAST AND ELECTRONIC COMMUNICATION (BREC)

Associate Professor: Grams, Havice, Ksobiech, Porter, Slattery

Assistant Professor: Ugland

Adjunct Instructor: Fleming (Broadcast Media Adviser)

Lecturer: Hoimes, McGilligan, Nault

BREC 001. Practicum in Student Broadcasting 1 sem. hr.

Under faculty direction, students work in two or more departments of student radio (WMUR) or television station (MUTV). Experiences might include work in news, programming, traffic, production, promotion, etc. Offered every term. S/U grade assessment.

BREC 005. Production Techniques 3 sem. hrs.

Basic audio and video production techniques as utilized in radio, television, cable, education, and corporate communications. Lecture/lab format. Offered every term.

BREC 035. Script and Continuity 3 sem. hrs. Survey of writing styles for electronic communication. Theory and extensive practice. Emphasis on both form and content. Offered every term. *Prereq:* ENGL001 and 002.

BREC 045. Broadcast Newswriting and Editing 3 sem. hrs.

Theory and practice in writing and editing news for the electronic media. Includes gathering and writing local news, editing and rewrite of wire copy, interviews, and on-the-air coverage of news events. Offered every term. *Prereq:* ENGL001 and 002; or equivalent.

BREC 050. Television Production 3 sem. hrs. Practical application of the theories of television production. Emphasis on studio and field productions, development of basic directing skills, single camera video techniques, video editing. Production of short programs. Offered annually. *Prereq:* BREC 005 and either 035 or 045.

BREC 121. Sound Design 3 sem. hrs. Aesthetics of audio mixing in various program genres (drama, commercial, documentary, interviewing, feature, etc.) utilizing stereo and multi-track consoles and digital effects devices and workstations. Offered occasionally. *Prereq:* BREC 050 or cons. of instr.

BREC 130. Program Development 3 sem. hrs.

Planning and development of programs for specialized audience and objectives. Preparation of program layouts for television, cable, and corporate systems. Offered annually.

BREC 135. Advanced Scriptwriting 3 sem. hrs.

Development and writing of full-length scripts for entertainment television or feature film. Includes development of concepts for new television series, miniseries, and movies-for-television, and study of their specific writing requirements, as well as writing for current television series. Writing workshop approach. Offered occasionally. *Prereq:* cons. of instr.

BREC 140. Television Performance 3 sem. hrs.

Application of performance techniques to the television medium. Extensive in-studio practice. Concentration on performance in television commercials, news anchoring, interviewing, and possible role-playing in comedy and dramatic scripts. Offered odd-numbered years.

BREC 145. Radio Reporting/Performance 3 sem. hrs.

Extensive practice in gathering, writing, and reporting radio news. Emphasis on performance techniques appropriate to news, interviews, and special features. Offered occasionally. *Prereq:* BREC 005 and 045.

BREC 146. Television Reporting 3 sem. hrs.

Extensive practice in gathering, writing, and presenting television news. Emphasis on field production, performance, and editing of news actualities. Topics include narration, interviews, and problem stories. Offered occasionally. *Prereq:* BREC 005 and 045.

BREC 147. News and Information Gathering 3 sem. hrs.

Analysis of the community with a view to the problems and opportunities for the broadcast media on the political, public, administrative, financial and commercial, labor, social welfare, and educational affairs of the community. Offered annually.

BREC 150. Advanced Television Production and Direction 3 sem. hrs.

Development of program-length dramatic and non-dramatic productions for television, cable, educational, and corporate distribution. Particular attention to the integration of the various media used in television production and to legal and financial considerations. Offered even-numbered years. *Prereq:* BREC050 or 051.

BREC 155. Corporate Media 3 sem. hrs.

Analysis and practice in the development, acquisition and utilization of electronic media in the corporate world. Emphasis on problems of budget, audience, objectives, evaluation and production as encountered in corporate media communication. Offered occasionally.

BREC 156. Technology and Learning 3 sem. hrs.

Learning theories applied to design, use and evaluation of electronic communication technologies in instructional settings. Offered in alternate years. *Prereq:* BREC005, 035 or 045; and Jr. stndg. or cons. of instr.

BREC 157. Multi-Media Authoring 3 sem. hrs.

Study of electronic media within the context of training/learning systems. Multi-media authoring software used to design, produce and evaluate instructional lessons. Offered in alternate years. *Prereq:* BREC156 and Jr. stndg.; or cons. of instr.

BREC 164. Television Criticism 3 sem. hrs.

Examination of the major critical approaches which have historically been applied to television programming. Study of major television critics whose work appears in academic publications and the mass media. Offered annually.

BREC 168. Independent Projects in Broadcast and Electronic Communication 1-3 sem. hrs.

Student projects in designated areas of special interest. *Prereq:* Cons. of unit coord.

BREC 170. Radio Programming 3 sem. hrs.

Examination and case study analysis of the contemporary radio industry. Emphasis on music formats, news, talk, sports, syndication, and other sources of program material. Audience demographics, profiles, ratings, and promotions. Practical experience in applying for FCC license. Offered occasionally.

BREC 171. Television Programming 3 sem. hrs.

Analysis of television programming theories. Includes data-based criticisms of different programming strategies. Primary emphasis on prime-time network entertainment programming; includes consideration of effective programming for other "day parts" and news. Students will program their own network on the basis of theories and data provided. Offered alternate years.

BREC 172. Broadcast Sales and Promotion 3 sem. hrs.

Methods, organization, compensation, and administration of sales and promotion activities. Motivational and organizational techniques; methods of selling and alternative approaches to market, product, and media analysis. Case study approach. Offered occasionally.

BREC 183. Early History of Broadcasting 3 sem. hrs.

History of the American system of broadcasting from its inception to approximately 1950. Examination of the technological, social, cultural, economic and political forces which shaped the industry. Emphasis on the roles of the broadcasters as agencies of information and entertainment by an analysis of trends in radio and early television programming. Offered annually.

BREC 184. American Television: 1946-Present 3 sem. hrs.

Historical, cultural and commercial growth of American television, with special emphasis on programming, from pre-commercial beginnings to the present. Key genres, persons, issues and trends in the development of American prime-time television. Offered annually. Fulfills fine arts requirements for Arts and Sciences students.

BREC 185. Communication and the Information Age 3 sem. hrs.

Examination of current directions in communication systems and information services. Analysis of social, economic, and political implications of technological development. Offered occasionally.

BREC 187. Interactive Technologies 3 sem. hrs.

Creation of a variety of applications for interactive technology, including business, instruction and information products. Emphasis on learning theories in the design, utilization and evaluation of these products. Offered occasionally. *Prereq:* BREC 157 and Jr. stndg. or cons. of instr.

BREC 189. Public Policy in**Telecommunications** 3 sem. hrs.

Analysis of the public policy process and its impact on the development of media and telecommunications systems. Emphasis on current policy issues relating to content, economics, technological change, and social effects. Offered occasionally.

BREC 193. Internship in Broadcast and Electronic Communication 0-1 sem. hr.

Observation, participation, and experience in a radio, television, cable, or corporate setting. Augmented with selected readings, papers or conferences with adviser. Performance is assessed using S/U grade assessment. Offered every term. *Prereq: Cons. of unit coord.*

BREC 194. Special Institute/Workshop/Project 1-3 sem. hrs.**BREC 195. Independent Study in Broadcast and Electronic Communication** 1-3 sem. hrs.

Offered every term. *Prereq: Cons. of unit coord.*

BREC 196. Seminar in Broadcast and Electronic Communication 1-3 sem. hrs.

Special subjects of seminar to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

BREC 197. Topics in Broadcast and Electronic Communication 1-3 sem. hrs.

Special topics in broadcast and electronic communication to be announced in the *Timetable of Classes*. Includes extensive screening and/or other activities. Lecture/lab format. Offered occasionally.

BREC 199. Senior Thesis 1-3 sem. hrs.

The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of unit coord.*

COMMUNICATION (COMM)

Professor and Gretchen and Cyril Colnick Chair in Communication: Soley
Lecturer: Trueblood

COMM 002. Media in Society 3 sem. hrs.

Surveys the historical, economic and cultural development of the mass media in America. Introduces the theoretic approaches utilized to understand the media's role in society. Offered every term.

COMM 100. Coping with the Mass Media 3 sem. hrs.

Designed for non-majors. Examines the structure, function, content, and effects of mass media in society. Aimed at developing intelligent consumers of mass communications. Offered occasionally.

COMM 101. International Study in Communication 0-3 sem. hrs.

Structured travel and study programs in International Communication. Program includes special advising, reading, and a required paper. S/U grade assessment. Offered every term. *Prereq: Cons. of assoc. dean; study abroad students only.*

COMM 110. Co-op Internship Work Period 0 sem. hrs.

Intensive internship demanding extensive hours throughout the term directly related to the student's academic area. Enrollment in this course qualifies student as full-time status. *Prereq: Jr. stndg. and cons. of academic area internship director, dept. chair associate dean.*

COMM 123. Statistical Reasoning, the Media and Current Events 3 sem. hrs.

This course is not a traditional statistics course. The emphasis is on statistical reasoning as it is applied to current events and media fare, specifically, how to interpret, evaluate critically, and understand statistically-based information in news, advertising and other popular media. Techniques for clear verbal and graphic presentation of quantitative information. Emphasis on group discussion. Offered occasionally.

COMM 125. Principles in Visual Communication 3 sem. hrs.

The bases of perception and visual literacy and the historical development and impact of the visual media. Intended to enhance critical sensitivity toward the use of visuals for informative, interpretive, and persuasive communication. Twentieth century visual communication emphasizing photography, graphic design and typography. Satisfies college fine arts requirement. Offered annually. *Prereq: Jr. stndg.*

COMM 160. Mass Media and the American Family 3 sem. hrs.

The impact of the mass media on family communication patterns, familial value structures, development of children, and orientation to news media. Examination of news, advertising, and entertainment content from educational, cultural and economic perspectives. Emphasis on empirical social science research which examines relationships between media and families. Offered annually. *Prereq: Jr. stndg.*

COMM 161. Ethical Problems of Mass Communication 3 sem. hrs.

The practice of journalism and mass communications as ordered by moral principles. Offered every term. *Prereq: PHIL104 and Jr. stndg.*

COMM 162. International Communication 3 sem. hrs.

History of the comparison among present structures of national media systems and the role of journalism within them. Principles of international news flow, gatekeeping, impact of technology, and the relationship between developing countries. Exploration of various models of press-government relationships. Offered fall term. *Prereq: Jr. stndg.*

COMM 165. Media Law 3 sem. hrs.

Legal standards/doctrines governing libel, privacy and other areas of law directly affecting the media. Special consideration of legal problems in advertising, broadcast and electronic communication, journalism and public relations. Emphasis on the constitutional protection of freedom of expression and the media. Analysis of how these standards, doctrines and constitutional procedures affect the work of media professionals. Offered every term. *Prereq: Jr. stndg.*

COMM 166. Mass Communication Theory and Research 3 sem. hrs.

Theoretical and methodological considerations involved in mass media research. Examines quantitative and qualitative approaches within the context of the media as social institutions. Offered annually. *Prereq: Jr. stndg.*

COMM 167. Race and Gender Issues in Mass Media 3 sem. hrs.

Surveys the past and present relationship between women and racial and ethnic minorities in the United States and the mass media. Specifically, the issues of how women and people of color are portrayed in the news and entertainment media, the role of ownership, employment and access to the media institutions will be studied. Women's Studies elective. Offered annually. *Prereq: Jr. stndg.*

COMM 177. Media Management 3 sem. hrs.

Staffing, organization, economics, salaries, law, labor negotiations and community relations as involved in the mass media. Theoretical and practical approaches to the problems of management. Offered annually.

COMM 181. Media and Politics 3 sem. hrs.

How the news media cover politics and how politicians deal with news coverage. Emphasis is on recent presidential campaigns, with special attention to ethical issues, the impact of new media, campaign advertising and strategies used by politicians and journalists. Offered occasionally. *Prereq: Jr. stndg. and POSC 020.*

COMM 190. Communication Undergraduate International Exchange 0 sem. hrs.

Study abroad as part of an international student exchange program. Upon approval, students are enrolled in a college or university abroad as a full-time student for a term or a year. Course credits transfer to Marquette.

COMM 193. Internship in Communication 1-3 sem. hrs.

Provides students with the opportunity to apply theories, skills, and techniques in communication. Performance in this course is assessed using S/U grades. *Prereq: Cons. of assoc. dean.*

COMM 195. Independent Study in Communication 1-3 sem. hrs.

Offered every term. *Prereq: Cons. of assoc. dean.*

COMM 196. Seminar in Communication 3 sem. hrs.

Special topics of seminar to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

COMM 199. Senior Thesis 1-3 sem. hrs.

The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of assoc. dean.*

COMMUNICATION STUDIES (CMST)

Professor: Shuter

Associate Professor: Goldzwig, Turner

Assistant Professor: Meyer

Visiting Assistant Professor: Kempf

Lecturer: Carey, Collins, Crisp, Dooley, Inman, Mansur, McCarthy, Schoenfeld, Stockwell, Wendt

CMST 010. Introduction to Communication 3 sem. hrs.

A survey of communication principles and processes as they relate to interpersonal communication, small group communication, culture and communication, persuasion, communication in organizations, and mediated communication. Offered every term.

CMST 012. Public Speaking 2 sem. hrs.

Examines theory and practice of effective public speaking. The course includes informative, persuasive, and occasional speaking. Criticism and critical listening skills will also be emphasized. Offered every term.

CMST 014. Oral Interpretation of Literature 3 sem. hrs.

Fundamentals and practice of interpretation by using representative literary forms. Offered occasionally.

CMST 050. Debate/Forensic Practicum 1-2 sem. hrs.

Students participate in intercollegiate debate and/or individual events and travel to various tournaments. A maximum of 4 credits can apply toward graduation. Offered every term.

CMST 052. Introduction to Small Group Communication 3 sem. hrs.

Examines theories, principles and methods of small group communication. The course will focus on such topics as: leadership, problem solving, roles, norms, and climate. The class takes a systems approach to groups and students will have hands-on experience in a decision making group. Offered every term.

CMST 053. Argumentation 3 sem. hrs.

Explores the role of argument in contemporary society. Includes analysis and application of various theories of public argumentation. Areas include identification of fallacies, refutation, forms of argument, and formal and informal logic. Offered every term.

CMST 054. Introduction to Communication Theory and Research 3 sem. hrs.

Surveys major theoretical approaches to communication studies and will introduce students to basic research methods in the field. Emphasis will be on reading research reports analytically. Offered every term.

CMST 061. Nonverbal Communication 3 sem. hrs.

Examines the varied approaches, channels, and functions of nonverbal behavior in human interaction. Sensitizes students to the pervasiveness of controversial issues in and origins of nonverbal communication. Explores theoretical and popular issues as well as relationships between verbal and nonverbal systems. Offered occasionally.

CMST 078. Communication Approaches to Interviewing 3 sem. hrs.

Stresses communication theory and current research related to interviewing. Provides in-class practice with interchanging roles as interviewer/interviewee in several types of interviews. Current research in interviewing techniques, assistance in resume preparation and legal guidelines for questions are among the topics for discussion. Offered annually.

CMST 081. Listening 3 sem. hrs.

Explores current and past approaches to listening, readability/listenability issues, recall tests, training and development techniques, silence, human information processing issues, and perceptual biases. Listening techniques for comprehension, evaluation, and empathy are explored. The role of listening in various contexts is explored. Offered occasionally. *Prereq:* CMST 010.

CMST 121. Principles and Methods of Teaching Speech Communication 3 sem. hrs.

Examines the theory and practice of teaching speech communication in secondary schools. Areas include public speaking, interpersonal communication, small group communication, and mass communication. Minimum 30-hour clinical experience required. Offered occasionally. *Prereq:* Enrolled in the School of Education and EDUC 079.

CMST 124. Directing Speech Activities 3 sem. hrs.

Theory and practice in the organization and management of co-curricular speech activities in high school and college. Offered occasionally.

CMST 131. Interpersonal Communication 3 sem. hrs.

Examines person-to-person communication with a focus on such topics as social roles, conflict management, relationship development, perception, communication effectiveness, and relevant theories. Offered every term. *Prereq:* CMST 010.

CMST 132. Organizational Communication 3 sem. hrs.

Presents historical and current perspectives on the origins and usefulness of organizational theories as they relate to communication issues. Emphasizes the relationship between organizational life and communication principles. Ultimate goals, assumptions, and cases relating to organizational communication theories are developed and discussed. Offered annually.

CMST 133. Group Dynamics 3 sem. hrs.

Explores small group theory and techniques. Case studies, task groups, network analysis, and simulations are discussed and used. Offered occasionally. *Prereq:* CMST 052.

CMST 134. Communication and Conflict 3 sem. hrs.

Communication and conflict explores theoretical and experiential avenues to conflict management, resolution, and regulation through communication styles and methods. The communicative contexts for investigation are interpersonal and organizational (profit and non-profit). Exercises and case studies provide an opportunity to implement theoretical learnings from the course. Offered every other year.

CMST 135. Communication Approaches to Training and Development 3 sem. hrs.

Emphasizes development of training sessions within organizations. Diagnostic methods for assessing needs and determining the utility of specific training are explored. Roles of consultant, in-house human resource trainer, and liaison with subject matter experts are differentiated. Students develop training modules for communication skills training. Offered annually.

CMST 136. Managerial Communication 3 sem. hrs.

The communication relationship between managers and employees involves a set of circumstances not often found in everyday communication with friends and colleagues. The differences in power, knowledge, job description, and life experiences create many unique and challenging interactions. This course looks in-depth at the circumstances which affect communication between managers and their employees as well as at a number of theories and strategies for improving communication in the workplace. Offered annually.

CMST 137. Gender and Communication 3 sem. hrs.

Examines the relationship between gender and communication. Includes discussion of verbal and nonverbal communication patterns of males and females, various explanations for these patterns, perceptions of gender differences and the implications these perceptions have for people in several contexts (public, interpersonal, and organizational). Offered annually.

CMST 140. Intercultural Communication 3 sem. hrs.

Examines the influence of culture on communication within Europe, Asia, Latin America, and Africa. International in scope, the course also analyzes communication between people from different national cultures and provides an analytical framework for dissecting intercultural exchanges. Offered annually.

CMST 141. Cross-Cultural Communication in the United States 3 sem. hrs.

Explores the dynamics of cross-cultural communication in the U.S. and obstacles to effective interaction across American co-cultures. Examines the interpersonal patterns of selected ethnic groups, races, religions, and social classes in the U.S. with the aim of improving cross-cultural understanding and communication. Offered annually.

CMST 142. Communicating in Multinational Organizations 3 sem. hrs.

Examines the influence of culture on communication in organizations. Global comparisons in organizational communication are offered including analysis of European, Asian, and Latin American corporate cultures. Intercultural communication in U.S. organizations is also explored. Offered occasionally.

CMST 144. Leadership and Communication 3 sem. hrs.

Explores communication variables involved when leaders attempt to influence members to achieve a goal. Topics include power, credibility, motivation, research on leader traits, styles and situations, and current models of leadership such as transactional, transformational,

charismatic, and functional approaches. The different leadership challenges posed by community and institutional settings will also be explored. Offered occasionally.

CMST 145. Family Communication
3 sem. hrs.

Introduces communication phenomena in the family setting. Examines how communication affects the development, maintenance, and enhancement of family relations. Offered annually.

CMST 146. Health Communication
3 sem. hrs.

Provides an introduction to the field of health communication. This course examines the role of communication in health care with a focus on provider training and the provider-patient relationship. Theoretical models for developing effective health communication programs are discussed and applied within a variety of health care settings. Offered annually.

**CMST 148. Diffusion of Innovations:
The Role of Communication in
Technological Change** 3 sem. hrs.

Introduces the role communication plays in the spread of new ideas through social systems. By investigating the variables that influence the diffusion process, students will learn how to assess and proactively affect change processes.

CMST 150. Philosophy of Communication
3 sem. hrs.

This course outlines foundational theories and concepts regarding rhetoric's contribution to our understanding of reality, knowledge, truth, and certainty. Topics include the role of rhetoric in the construction of our knowledge of science, politics, ethics, religion, law, gender, and culture. Offered occasionally.

CMST 154. Persuasion 3 sem. hrs.

Surveys theories, principles, and practices of persuasion. Special emphasis on the social, psychological and cultural study of influence. Offered every term. *Prereq: CMST 010.*

**CMST 155. Business and Professional
Speaking** 3 sem. hrs.

Explores and offers practice in the types of oral communication faced in organizational settings. The emphasis is on professional presentations. Offered occasionally.

CMST 156. Classical Rhetorical Theory
3 sem. hrs.

Analyzes Greek and Roman rhetorical theory from the rise of the early sophists in Greece to rhetoric's decline in the early Christian era. Special emphasis on Plato, Aristotle, Cicero, and Quintilian. Offered occasionally. *Prereq: CMST 010 and 154; or cons. of instr.*

**CMST 157. Modern Rhetorical Theory and
Criticism** 3 sem. hrs.

Discusses contemporary theoretical and critical approaches to the description, analysis, interpretation, and evaluation of public discourse. Examines and applies principles established by such theorists as Kenneth Burke, Ernest G. Bormann, Chaim Perelman, and Stephen Toulmin, among others. Offered occasionally. *Prereq: CMST 010 and 154; or cons. of instr.*

CMST 160. Rhetoric of Social Movements
3 sem. hrs.

Examines the rhetoric of social change and methodologies for analysis and appraisal of social movement discourse. Rhetorical strategies will be traced through contemporary movements including: civil rights, feminism, Native American, anti-nuclear, abortion, gun control, Ku Klux Klan, and others. Offered occasionally. *Prereq: CMST 010, 154; or cons. of instr.*

CMST 165. Ethics in Human Communication
3 sem. hrs.

Explores theoretical and practical ethical questions of importance to responsible communicators in personal and public contexts. Discussion of ethical theories in communication studies will provide an opportunity to explore case studies and contemporary communication dilemmas critically, while heightening personal sensitivity to the underlying ethical implications of human communication. Offered occasionally.

CMST 166. Freedom of Speech 3 sem. hrs.

Examines definitions, issues, problems, and requirements for protecting or curbing free expression of speech in areas such as defamation and invasion of privacy; religious-moral heresy; provocation to anger; commercial speech; time, place, manner and institutional constraints; and prior restraint. Analysis of landmark cases and contemporary public arguments. Offered occasionally.

**CMST 167. Communication and the Legal
Process** 3 sem. hrs.

This course focuses on the role of communication in the American legal system. The course is designed to acquaint students with the various dimensions of communication in the practice of law with a particular emphasis on the trial process. Offered occasionally.

**CMST 168. Independent Project in
Communication Studies** 1-3 sem. hrs.

Prereq: Cons. of unit coord.

**CMST 170. Communication and Urban
Families** 3 sem. hrs.

This course investigates communication about urban families, the communication links between urban families and institutions, and communication practices within urban families. The course emphasizes the diversity among urban families as well as the stressors and strengths found in the urban context. Offered occasionally.

**CMST 193. Internship in Communication
Studies** 1-3 sem. hrs.

Internship in Communication and Rhetorical Studies provides students with the opportunity to apply theories, skills, and techniques in communication as believed appropriate within specific organizational settings. Performance in this course is assessed using S/U grades. *Prereq: CMST 010, 012, 052, 054, and three upper division CMST credits and cons. of unit coord.*

**CMST 194. Special Institute/Workshop/
Project** 1-3 sem. hrs.

**CMST 195. Independent Study in
Communication Studies** 1-3 sem. hrs.

Offered every term. *Prereq: Cons. of unit coord.*

**CMST 196. Seminar in Communication
Studies** 1-3 sem. hrs.

Special subjects of seminar to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

CMST 199. Senior Thesis 1-3 sem. hrs.

The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of unit coord.*

JOURNALISM (JOUR)

Professor: Griffin

Professor Emeritus: Bovee, Staudacher

Lucius W. Nieman Professor: Seib

Lucius W. Nieman Professor Emeritus: Leonard

Associate Professor: Garner, Scotton, Thorn

Assistant Professor: Webb

Adjunct Instructor: Mueller (Student Media Adviser)

Lecturer: Bisswurm, Franzen, Hollis, Jones, Kenner, Marciniak, Perlick, Salsini, Thomas-Lynn, Whitehead, Williams

**JOUR001. Practicum in Student
Publications** 1 sem. hr.

Under faculty direction, students work in Student Publications. Assignments in writing, editing, and production. Guest speakers from mass communication fields. Offered every term. *S/U grade assessment.*

**JOUR 008. Information Gathering and Media
Writing** 3 sem. hrs.

Factual writing in types and forms of news and news features for print and broadcast. Principles of news selection, newsroom organization, newsgathering, and reportorial responsibilities. Reporting techniques and fact verification. Readings in outstanding reportage. Offered every term. *Prereq: ENGL001 and 002; or equivalent.*

JOUR 010. Reporting for Media 3 sem. hrs.

Extensive practice in gathering, evaluating, and writing news from beats, interviews, meetings, speeches and other sources. Emphasis on interviewing, both face to face and by telephone. Verification, multiple sources, and backgrounding. Responsibilities of the journalist. Offered every term. *Prereq: ADPR008 or JOUR 008.*

JOUR. 020. Basic Photography 3 sem. hrs.

An introduction to basic photography using traditional and digital methods, including the 35mm camera, lenses, films, natural and artificial lighting and control of motion. Lab work is devoted to digital output using negative scanners, Photoshop software and color printers. Emphasis on visual communication. Lecture and laboratory. Offered every term. Camera rental optional.

JOUR 100. Publications Editing 3 sem. hrs.

Editing principles and practices for newspapers, magazines, brochures and on-line publication. Students work on stories and articles suitable to each medium, write headlines, crop photographs, etc. News judgment and wire services. Offered every term. *Prereq: JOUR 010 or ADPR 180 or ENGL 104 or Jr. stndg.*

JOUR 110. Persuasive Writing 3 sem. hrs.
An advanced writing course giving the student directed practice in the work of moving readers to assents and to acts according to the principles of Aristotle's rhetoric as they apply to the instruments and techniques of Journalism. Offered every term. *Prereq: JOUR 010 or equivalent and Jr. stndg.*

JOUR 111. Article Writing 3 sem. hrs.
Writing features for news media. Human interest factors, literary devices, and news media feature markets. Offered every term. *Prereq: JOUR 010 or equivalent; and Jr. stndg.*

JOUR 112. Critical Writing 3 sem. hrs.
An advanced writing course giving the students understanding and directed practice in the arts criticism function in the mass media. Reviewing books, plays, films, television, music, restaurants primarily for print media. Development of critical theories for evaluation of the arts. Offered annually. *Prereq: JOUR 010 or equivalent; and Jr. stndg.*

JOUR 120. Photojournalism 3 sem. hrs.
Intermediate black-and-white photography course, emphasizing the special demands of shooting for publications. Photo assignments on technical principles and wide range of journalistic applications. Caption writing and picture editing included. Also requires shooting and editing short and extended photo essays. History of photojournalism discussed, along with legal and ethical questions photojournalists must face. Offered every term. Camera rental optional. *Prereq: JOUR 020 or consent of unit coord.; and Jr. stndg.*

JOUR 150. Newspaper Design and Production 3 sem. hrs.
Fundamentals of newspaper design and production. Students develop design skills and familiarity with design elements through study and execution of various newspaper design problems. Offered annually. *Prereq: JOUR 100. Computer Workshop or demonstrated proficiency on the Macintosh computer with QuarkXPress.*

JOUR 151. Magazine Design and Production 3 sem. hrs.
Fundamentals of magazine design and production. Students develop understanding of basic elements of publication design and critical skills through analysis of various design problems. Offered annually. *Prereq: JOUR 100. Computer Workshop or demonstrated proficiency on the Macintosh computer with QuarkXPress.*

JOUR 152. Online Editing and Designing 3 sem. hrs.
Fundamental principles of processing and managing information in verbal and visual forms for web publication. An emphasis on the special editing and design issues created by the online environment and internet technology. Legal and ethical issues on Internet. Offered annually. *Prereq: JOUR 150 or JOUR 151 or ADPR 143; computer workshop or demonstrated proficiency on Macintosh with Dreamweaver, Photoshop, and Illustrator.*

JOUR 155. News and Information Design 3 sem. hrs.
Fundamentals of designing news and information content in visual forms for publications and

web pages. Visual components of newspaper "packages;" charts, graphs, cartoons for statistical data; web page and online information design. Principles of digital imaging. Students work on design problems related to visual presentation of information in newspaper, magazine, and web page formats. Offered annually. *Prereq: JOUR 100 or ADPR 143; and Jr. stndg. Computer Workshop or demonstrated proficiency on the Macintosh computer with QuarkXPress.*

JOUR 163. History of American News Media 3 sem. hrs.
The origin and development of Journalism in the United States considered in relation to American political, social and economic history. Consideration of newspapers, magazines, the electronic media, and important figures within each field. Offered annually. *Prereq: Jr. stndg.*

JOUR 164. Introduction to Survey Research Methods 3 sem. hrs.
Study of the principles, techniques, and problems in designing, conducting, and analyzing scientific research which employs a questionnaire or interview schedule. Major topics: study design, conceptualization, item construction, sampling, data collection, reliability and validity of measurement, analysis and interpretation of data. Knowledge of statistics helpful. Offered occasionally. *Prereq: Jr. stndg., MATH 060 or SOCI 060, or PSYC 060 recommended but not required.*

JOUR 168. Independent Project in Journalism 1-3 sem. hrs.
Prereq: Cons. of unit coord. and Jr. stndg.

JOUR 171. Communication of Urban Issues 3 sem. hrs.
Study and practice of communicating urban issues with public with an emphasis on reporting in various forms of media. Scope and types of media in the modern metropolis. Media interaction with political and social forces in the urban environment. Audience use of news media and other sources of information about urban issues. *Prereq: BREC 147 or JOUR 175 or cons. of instr.*

JOUR 172. Religious Journalism 3 sem. hrs.
Study of, and practice in, mass media coverage of contemporary religion with an emphasis on the Catholic Church. Purposes and practices of religious publications; religion coverage in the secular press. Offered alternate years. *Prereq: JOUR 175 or BREC 147; and Jr. stndg.*

JOUR 173. Health, Science and Environmental Communication 3 sem. hrs.
Study of and practice in communication of health, science, environmental, and risk information with the public and other non-experts, especially through mass, specialized and new media. Includes overview of some current issues. Available for graduate credit. Usually offered spring term of odd-numbered calendar years.

JOUR 174. Business and Economic Journalism 3 sem. hrs.
Study of, and practice in, mass media coverage of business and economic issues. Survey of business publications and business reporting; economic publications and economic reporting.

Corporate reports, forecasting, market information, and other publicized data. Management, labor, and other corporate problem areas. Offered alternate years. *Prereq: JOUR 175 or BREC 147; and Jr. stndg.*

JOUR 175. Public Affairs Reporting 3 sem. hrs.
Analysis of the community with a view to the problems and opportunities for the public affairs reporter. Practice in reporting the political, public, administrative, financial and commercial, labor, social, welfare, and educational affairs of the community. Offered every term. *Prereq: JOUR 010, POSC 020, Jr. stndg; or cons. of instr.*

JOUR 177. Investigative Reporting 3 sem. hrs.
Advanced reporting strategies focusing on interpretation and analysis of trends, issues, events and problems in public affairs. Use of computers to investigate and research public records and to analyze data for depth reports. Offered annually. *Prereq: BREC 147 or JOUR 175 or cons. of instr.*

JOUR 181. Media and Politics 3 sem. hrs.
How the news media cover politics and how politicians deal with news coverage. Emphasis is on recent presidential campaigns, with special attention to ethical issues, the impact of new media, campaign advertising, and strategies used by politicians and journalists.

JOUR 185. School Publications 3 sem. hrs.
The special nature and functions of school publications. Their educational value. Projects in planning publications to fit their nature and functions. The role of the publication adviser. Lecture and laboratory. Offered occasionally. *Prereq: JOUR 010 or BREC 045 or equiv., Jr. stndg.*

JOUR 193. Internship in Journalism 0-3 sem. hrs.
Work experience in an area related to major supervised by an approved professional coupled with related academic work assigned. Approval of adviser and Internship Program Director required in advance of internship. May not substitute for a Journalism writing requirement. May be taken more than once to a maximum of three total credits only by majors within the dept. S/U grades. *Prereq: Cons. of unit coord., Jr. stndg.*

JOUR 194. Special Institute/Workshop/Project 1-3 sem. hrs.
Prereq: Jr. stndg.

JOUR 195. Independent Study in Journalism 1-3 sem. hrs.
Offered every term. *Prereq: Cons. of unit coord., Jr. stndg.*

JOUR 196. Seminar in Journalism 1-3 sem. hrs.
Specific subjects of seminars to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally. *Prereq: Jr. stndg.*

JOUR 197. Special Topics in Journalism 3 sem. hrs.
Study of, and practice in, various areas of specialized work such as regional, small community, union, organization journalism, and the special interest press. Offered occasionally. *Prereq: JOUR 175 or BREC 147; and Jr. stndg.*

JOUR 199. Senior Thesis 1-3 sem. hrs.
The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of unit coord., Jr. stndg.*

PERFORMING ARTS (PEAR)

Artistic Director: P. Ravel
Associate Professor: Price
Adjunct Associate Professor: Krajec
Adjunct Assistant Professor: Campbell, Hudson-Mairet
Visiting Adjunct Assistant Professor: Loeffler-Bell
Lecturer: Benson-Hora, Contorno (Director of Bands/Orchestra), Kilmurry, McGilligan, D.Ravel, Ross, Schneider, Wutz

Dance (DANC)

DANC 038. Disciplines of Movement 2 sem. hrs.

Introduction to movement disciplines like Alexander, Feldenkrais, and Tai Chi for performers. Training geared toward relaxation, loss of inhibition, and ease of flexibility.

DANC039. Theatre Dance 2 sem. hrs.
Basic musical theatre dance techniques for actors and dancers. Movement and dance training geared toward developing an individual's movement potential to its fullest ideal. A study of various techniques of musical comedy dance and traditional dance forms. Offered every other year.

DANC 040. Tap Dance 1 2 sem. hrs.
Emphasis will be placed on fundamental tap dance techniques. No previous tap dance needed. Offered fall term.

DANC 041. Tap Dance 2 2 sem. hrs.
Continuation of DANC 040. Offered occasionally. *Prereq: DANC 040; or equivalent.*

DANC 042. Beginning Dance Technique 1
2 sem. hrs.
Emphasis will be placed on fundamental modern and jazz techniques. No previous dance needed. Offered fall term.

DANC 043. Beginning Dance Technique 2
2 sem. hrs.
Continuation of DANC 042. Offered every spring. *Prereq: DANC 042; or equivalent.*

DANC 050. Composition: Improvisational Sources 3 sem. hrs.
The examination of improvisational techniques and structures from a dance/movement perspective. The course is a combination of practical and analytical perspectives of improvisational movement. *Prereq: Cons. of instructor.*

DANC 111. Staging Musical Productions
2 sem. hrs.
Advanced staging techniques for theatre and dance. *Prereq: DANC 039 and 041; or equivalent.*

DANC 194. Special Institute/Workshop/Project 1-3 sem. hrs.

DANC 195. Independent Study in Dance
1-3 sem. hrs.
Offered every term. *Prereq: Cons. of artistic dir.*

DANC 196. Seminar in Dance 1-3 sem. hrs.
Specific subjects of seminars to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

DANC 199. Senior Thesis 1-3 sem. hrs.
The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of artistic dir.*

Film (FILM)

FILM 110. History of Film 3 sem. hrs.
Traces the development of film as a distinctive mode of communication and an important art form within societal and theoretical contexts. Particular emphasis on films and the film industries of the United States and Europe. Offered annually.

FILM 111. Issues in Film Studies 3 sem. hrs.
Intensive examination of a topical issue in film. Specialized focus changes but may include issues such as women in film, minorities in film, regional or national films, auteur studies, genre studies, etc. Topics announced in *Timetable of Classes*. Offered occasionally.

FILM 115. Film as Communication
3 sem. hrs.
Nature and characteristics of the film medium as a means of conveying information, ideas and attitudes. The interpretation of film messages. Offered alternate spring terms.

FILM 116. Film as Art 3 sem. hrs.
Study and evaluation of film as an art-form. The various theories of cinematic excellence and aesthetics. A critical approach to film in all its contemporary forms and genres. Offered alternate spring terms.

FILM 117. Film and Popular Culture
3 sem. hrs.
Study of popular culture and its varied categories (myths, stereotypes, icons, heroes, etc.) applied to contemporary American movies and to some other popular entertainment, including television, radio, music and print. Impact of popular media on society, culture and values. Offered occasionally.

FILM 118 Economic and Social Aspects of Film 3 sem. hrs.
Examines the economic structure of the film industry, the effect that this structure has on themaking and content of motion pictures, and the affect of motion picture content on viewers, particularly children and young adults. Offered occasionally.

FILM 166. The Documentary Film Tradition
3 sem. hrs.
Study of the documentary film in America and Europe, covering most of the significant films and styles, including Lumiere, Flaherty, Grierson, the propaganda films of the Thirties and Forties, the compilation film, Wiseman, Ophuls and contemporary direct cinema. The "reality films" viewed and discussed touch on

most of the personal and social problems of the 20th century. Course subtitle to be announced in the *Timetable of Classes*. Offered occasionally.

FILM 194. Special Institute/Workshop/Project 1-3 sem. hrs.

FILM 195. Independent Study in Film
1-3 sem. hrs.
Offered every term. *Prereq: Cons. of unit coord.*

FILM 196. Seminar in Film 1-3 sem. hrs.
Specific subjects of seminars to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

FILM 199. Senior Thesis 1-3 sem. hrs.
The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of unit coord.*

Music (MUSI)

MUSI 010. University Chorus No credit.
Open to all students who qualify through auditions held during fall registration week. At least one concert per term. Offered annually. *Prereq: Audition.*

MUSI 015. Chamber Choir No credit.
A 16-voice ensemble performing madrigals and jazz selections. Performs in concert with other MU ensembles at special functions. Singers skilled in sight-singing and in foreign languages encouraged to audition. *Prereq: Audition.*

MUSI 016. Gospel Choir No credit.
Open to all students who qualify through audition held during fall registration week. Offered annually. *Prereq: Audition.*

MUSI 020. Symphony Orchestra—Theatre Orchestra No credit.
Open to all students, faculty, and alumni interested in continuing their music pursuits. All orchestra instrumentation and skill levels are welcome. Literature will be selected from all periods of music history. Performance will include at least one formal concert per term. Some university owned instruments are available. Offered every term.

MUSI 030. Symphonic Band No credit.
Open to all students interested in continuing their musical pursuits. All symphonic band instrumentation and skill levels are welcome. Annual fall audition is held for chair placement only. No one is denied admission. Pep band members will be recruited from the symphonic band. Performances will include all home basketball games (for pep band) and at least one formal concert each term (for symphonic band). Literature for symphonic band will be selected from all periods of music history while pep band literature will include appropriate high energy arrangements representing all areas of pop, rock and jazz. There are also possibilities of organizing ensembles for more playing experience, depending on interest and time. Some university owned instruments are available. Offered every term.

MUSI 031. Jazz Ensemble No credit.
Open to all interested members of the symphonic band and orchestra. Literature to include hits from the big band swing era through current jazz standards. Currently there are two complete jazz ensembles on campus rehearsing at 4 p.m. and 7 p.m. on Tuesdays. Performances include at least one formal concert per term. Offered every term. *Prereq:* Concurrent enrollment in either MUSI020 or MUSI 030.

MUSI 050. Introductory Music Theory
2 sem. hrs.

An introductory course designed for the non-music major who wishes to learn the fundamentals of musical notation, scale construction, intervals, chords, the writing of elementary harmonic progression, and basic techniques of traditional harmony. Offered every term.

MUSI 051. Appreciation of Music
2 sem. hrs.

An introductory course designed for the nonmusic major who wishes to develop musical perception through the development of more acute listening techniques, and structured to emphasize elements of musical style and their development in an historical context. Offered every spring term.

MUSI 052. Wind Band History and Analysis
2 sem. hrs.

History of the wind band in America from the American Revolution to modern times. Deals with early influences on the band as well as with those individuals who popularize this medium of performance. Included will be structural analysis of pieces written specifically for the wind band. Offered every term. *Prereq:* Membership in Symphonic Band (MUSI 030), or cons. of instr.

MUSI 060. Vocal Music Practicum 0 sem. hrs.
Private vocal techniques includes sight reading, correct phrasing and good tone, the rudiments of music, vocal scales. Advanced vocal techniques will include repertoire from European arts songs, operatic arias, and musical theatre. May be taken more than once. Offered every term. *Prereq:* Theatre majors only.

MUSI 115. The Phonograph Record and Popular Culture 3 sem. hrs.

An examination of the history of the record industry from Edison to stereo. Technology, distribution systems and the development of a mass "popular" market. A study of the record as a medium of in-group and mass communications, socialization, and culture transmission. Elements of basic discography. Offered occasionally.

MUSI 152. History of the Musical in America
3 sem. hrs.

Origins and development of the musical theatre in America from its early beginnings before *The Black Crook* (1866) to the production of the current Broadway season. Credit may be applied towards a film minor. Offered fall term.

MUSI 154. History of Jazz 3 sem. hrs.
Traces the colorful history of Americas unique contribution to music, jazz, from its roots in African and European music of the nineteenth century to the fully-developed and many-faceted art form it is today. Many recorded

musical examples and first-hand interviews highlight the lectures. Offered annually.

MUSI 194. Special Institute/Workshop/Project 1-3 sem. hrs.

MUSI 195. Independent Study in Music
1-3 sem. hrs.

Offered every term. *Prereq:* Cons. of unit coord.

MUSI 196. Seminar in Music 1-3 sem. hrs.
Specific subjects of seminars to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

MUSI 199. Senior Thesis 1-3 sem. hrs.
The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq:* Cons. of unit coord.

Theatre Arts (THAR)

THAR 001. Orientation to Theatre Studies
1 sem. hr.

Emphasis will be on dissemination of information which will prepare the student for success as a theatre major/minor, and will enable the student to receive the most beneficial educational experience possible. Topics include: department expectations regarding classes, laboratories, auditions, rehearsals and performances as well as research strategies and library services for theatrical courses and productions. Other areas covered include: internship and summer theatre opportunities, career planning including graduate school, resume and self promotion, as well as professional unions, equity contracts and organizations. S/U grading assessment. Offered fall term.

THAR 010. Acting 1 — Fundamental Technique 3 sem. hrs.

Basic acting technique for the beginning actor, including warm-up, exploration of five senses, sense memory, creating place and creating objects; exercises in relationships to objects and people, improvisation; understanding given circumstances and action, personalization, physical scores, combining sensory work with text. Lab required. *Prereq:* Theatre major or minor or cons. of artistic dir.

THAR 011. Acting 2 — Characterization
3 sem. hrs.

A continuation of the work begun in THAR 010, refinement of the work begun in THAR 010; refinement of the script analysis and research for the actor as well as exploration of the physical self in creating and developing a character for the stage through scene work and monologues. Lab required. *Prereq:* THAR 010.

THAR 012. Make-Up 2 sem. hrs.

The fundamental techniques of stage makeup through using a variety of materials and exercises. Usually offered fall term.

THAR 016. Stagecraft 3 sem. hrs.
The basic techniques of stagecrafts including construction of scenery and props, painting and rigging, lighting and running of shows. Lab and crew required for two productions. Offered every term.

THAR 023. Basic Costume Technology
3 sem. hrs.

Emphasis on obtaining a working knowledge of skill necessary to construct theatrical costumes. Includes hand and machine sewing. Student apply skills to mainstage productions. Lab and crew required for two productions. Offered every term.

THAR 026. Voice and Movement for Stage
3 sem. hrs.

Study of the foundational aspects of voice production through movement; linking of the actor's vocal, physical and emotional resources through text and sound. Movement exercises to free, develop and strengthen the voice; study and practice of relaxation, projection and resonance, breath control, variety and vibration. Offered fall term.

THAR 028. Voice and Speech 1 3 sem. hrs.
Continued work on vocal relaxation and production with an added concentration on removing regionalism and substandard sounds and acquiring clear, unaffected vibrant speech for the stage. Offered spring term. *Prereq:* THAR 026.

THAR 030. Acting 3 — Advanced Scene Study 3 sem. hrs.

The application of acting fundamentals to text work through study and performance of scenes from realistic drama. Emphasis is on creating a personal process through which the actor can come to understand the character and, through creative use of self, bring that character to a full life of the stage. Areas of study include research and text analysis, developing a vocabulary of method related terminology, and familiarity with a variety of rehearsal techniques as tools to clarifying the objectives, obstacles and actions of the character within the context of a play. Lab required. Offered fall term. *Prereq:* THAR 011.

THAR 031. Acting 4 — Shakespeare
3 sem. hrs.

Concentrates on the skills needed to perform Shakespearean texts through monologue and scene work. Emphasis on understanding and connecting with the material and then developing the language skills necessary to convey that knowledge to an audience. Exploration of Shakespeare as a product of the Elizabethan world, as well as its universality in modern production. Lab required. Offered spring term. *Prereq:* THAR 030.

THAR 050. Theatre Appreciation 3 sem. hrs.
An introduction to the experience of live theatre. The student will be exposed to many facets of theatre including basic theatre history and play production practices. Emphasis is on awareness of the theatre as a collaborative art form where the director, actors, designers, and technicians contribute to the shared artistic vision of the play. Visits by guest artists and attendance at a university and local professional productions aid in understanding the creative process from choosing a play to the final production. Lab required. Offered fall term. *Prereq:* THAR 011.

THAR 051. Acting for Non-theatre Majors

3 sem. hrs.

An introduction to the art and craft of the actor through use of theatre games, improvisation, scene and monologue study, and attendance at Marquette University and local productions. Development of critical knowledge of, and appreciation for, the theatrical performer. Offered every term.

THAR 052. Play Analysis 1

3 sem. hrs.
Analyzes tragedy and comedy. Emphasis on performance, drama theory, and historical context of plays. Offered fall term.

THAR 118. Aspects of Theatrical Design

3 sem. hrs.

Collaborative communication techniques for theatre artists. The exploration of the designer/director/ performer/ relationship through development of visual and three-dimensional communication skills. Offered fall term. *Prereq: Soph. stdg. and THAR 016; or cons. of instr.*

THAR 119. Scenographic Techniques

3 sem. hrs.

A study of rendering and mechanical drawing as it relates to theatrical design. An exploration of color media and perspective. Offered spring term. *Prereq: THAR 016 or cons. of instr.*

THAR 120. Lighting Design

3 sem. hrs.
The study and practice of theatrical lighting script analysis, research and planning techniques. Culminates in a realized collaboration. Offered spring term. *Prereq: THAR 016 and THAR 118.*

THAR 121. Crafts for the Theatre

3 sem. hrs.
A techniques course that encompasses traditional and new materials which may be used in special projects often encountered in the creation of props and costumes. May include casting and molding, thermoplastics, mask making, foam carving, jewelry, armor, etc. Offered occasionally.

THAR 122. Costume Design

3 sem. hrs.
Study of the aesthetic and practical application of costume design and how it relates to the theatrical production process. Includes research, script analysis and costume renderings for in class projects. Offered occasionally. *Prereq: THAR 118 or cons. of instr.*

THAR 123. History of Clothing 1

3 sem. hrs.
The study of clothing from historical perspectives. Clothing examined within sociological, artistic, and economic context. Clothing regarded as essential to Western culture, studied for a better understanding of peoples in different cultures and epochs. Offered occasionally.

THAR 124. Advanced Costume Techniques

3 sem. hrs.
Course covers advanced methods of costuming by exploring the art and technique of fabric modification and related crafts. Offered occasionally. *Prereq: THAR 023 or cons. of instr.*

THAR 125. History of Clothing 2

3 sem. hrs.
The study of clothing from historical perspectives. Clothing examined within sociological, artistic, and economic context. Clothing regarded as essential to Western culture, studied for a better understanding of peoples

in different cultures and epochs. Offered occasionally.

THAR 126. Play Direction

3 sem. hrs.
The principles of play direction as a creative and interpretative art on the stage. Offered every fall. *Prereq: THAR 010 or 051.*

THAR 127. Scenery Design

3 sem. hrs.
Study of the principles and practices of designing scenery for the stage. Offered fall term of even numbered years. *Prereq: THAR 118 or cons. of instr.*

THAR 128. Advanced Play Direction

3 sem. hrs.
Study of interpretative styles of play direction, rehearsal techniques, audience analysis, and contemporary trends. Opportunity to test principles in assigned laboratory productions. Offered occasionally. *Prereq: THAR 126 or cons. of instr.*

THAR 129. Period Styles

3 sem. hrs.
Period movements as they relate to period clothing, decorative arts, architecture, music, etc., as they relate to different styles of theatrical performance and apply to actors, directors and designers. Offered occasionally.

THAR 130. Voice and Speech 2

3 sem. hrs.
Continued voice and speech work which builds upon the previous two classes and includes strengthening contact with the emotional impulse of linking the actor's voice and speech to both contemporary and classical texts. Elements of interpretation which combine voice and speech work including: scansion, phrasing, emphasis, pauses, pitch, range, quality, concentration and rhythm. Note: This class is structured to meet as a class for the first half of the term and as individual tutorials for the second half. Offered fall term. *Prereq: THAR 028.*

THAR 132. Acting 5 — Professional Auditions and Career Preparation

3 sem. hrs.
Designed to prepare the student for professional auditions. Emphasis is placed on presentation, appropriate material selection, analysis and arrangement of material, and developing a repertoire of audition pieces. In addition to prepared monologues the student will develop skills for other audition situations including improvisation, interviews, cold readings, and callbacks. Lab required. Offered fall term. *Prereq: THAR 030 or THAR 031.*

THAR 134. Musical Theatre Practicum

3 sem. hrs.
The Musical Theatre Practicum is the continued development of the students' singer/actor skills. The course centers on the creation of a musical revue for public performance. The performance will integrate acting, vocal and movement skills developed in beginning and intermediate courses. Offered spring term. *Prereq: Cons. of artistic dir.*

THAR 136. Voice—Dialects

3 sem. hrs.
Study and practice of phonetics and commonly used stage dialects including: Standard English, Cockney, Irish, American, Southern, Brooklynese and French. Offered spring term. *Prereq: THAR 130.*

THAR 140. Playwriting

3 sem. hrs.
Study of the structure and execution of dramatic scripts for theatre. Assignments to write and analyze scenes and one act plays. Offered occasionally.

THAR 150. History of Theatre

3 sem. hrs.
A chronological survey of theatre history from its origins in 1914. Particular emphasis paid to major periods of theatrical achievement, studying conjectural and documented styles in acting, design and production methods. Offered spring term odd years. *Prereq: Soph. stdg.*

THAR 152. Play Analysis 2

3 sem. hrs.
Analyzes melodrama, farce, reactions against realism, social comedy, and theatre of the absurd. Similar content emphases as THAR 052. Offered spring term.

THAR 153. Contemporary Theatre

3 sem. hrs.
A survey of 20th century theatre practice from modern European theories of the late 19th century through Postmodernism. Special attention given to innovative aspects, such as surrealism and expressionism, epic theatre, the absurd movement, multi-media presentations, environmental theatre and multi-media presentations. Offered occasionally. *Prereq: Soph. stdg.*

THAR 160. Theatre Publicity and Management

3 sem. hrs.
Study and practice of Theatre Management and Publicity. Offered occasionally.

THAR 168. Independent Project in Theatre Arts

0-3 sem. hrs.
Offered every term. *Prereq: Cons. of artistic dir.*

THAR 170. Principles and Methods of Teaching Theatre Arts

3 sem. hrs.
Investigation of methods used in teaching Theatre Arts. Offered occasionally. *Prereq: Admission to the School of Education and EDUC 079.*

THAR 193. Internship in Theatre Arts

0-3 sem. hrs.
Performance in this course is assessed using S/U grades. *Prereq: Cons. of artistic dir.*

THAR 194. Special Institute/Workshop/Project

1-3 sem. hrs.

THAR 195. Independent Study in Theatre Arts

1-3 sem. hrs.
Offered every term. *Prereq: Cons. of artistic dir.*

THAR 196. Seminar in Theatre Arts

1-3 sem. hrs.
Specific subjects of seminars to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

THAR 199. Senior Thesis

1-3 sem. hrs.
The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of artistic dir.*

School of Education

The School of Education is committed to preparing teachers and educational specialists who uphold the Jesuit traditions of *cura personalis* (care for the whole person), social justice, academic excellence, ethical behavior, and service to the urban community. The sequence of professional courses offered by the School of Education is designed to support these traditions by integrating the theoretical and practical dimensions of teaching and by providing opportunities for students to experience the implementation of both dimensions in Milwaukee area public, private, and parochial schools. Further, the importance of subject matter knowledge, culturally and developmentally relevant pedagogy, and technological applications in enhancing student learning is emphasized throughout coursework and field experiences. Observation, tutoring, and small group instruction in a wide variety of settings are integral to the program, providing a solid foundation for successful student teaching experiences and entry to the profession.

The teacher preparation programs offered by the School of Education have been developed to satisfy the university core requirements and to meet the Wisconsin Department of Public Instruction Certification Code. Students who are preparing to teach are expected to demonstrate knowledge, skills, and dispositions in ten areas which have been identified by the Department of Public Instruction and in two additional areas which have been specified by the School of Education: commitment to social justice and use of technology. Assessment of student outcomes occurs at multiple intervals throughout the program. In order to ensure that students are well-prepared to enter the teaching profession, School of Education course goals and objectives are carefully aligned with proficiencies associated with quality teaching.

DEGREES OFFERED

Students who complete the teacher education program at Marquette University graduate with a double major: a major in education and a major in an academic content area. The bachelor of arts or bachelor of science degree is conferred by the college in which the student's major department is located. Thus the major and core requirements of that college must be met and the academic standards of that college maintained. The School of Education provides the professional course sequence, recommends for certification, and administers admission and retention in its programs and field experiences.

The degrees of master of education, doctor of education, and master of arts and doctor of philosophy with concentrations in education are offered by the School of Education through the Marquette University Graduate School. It also offers the master of arts in teaching degree for students of Spanish and the specialist certificate directed toward licensing as principal, superintendent, or director of instruction. Details for these programs are contained in the *Graduate Bulletin*.

ADMISSION REQUIREMENTS

Students interested in the Teacher Education Program must apply for formal admission to the School of Education through the Office of Teacher Education. The admission and retention requirements at Marquette University meet the requirements established by the Wisconsin Department of Public Instruction. Students are advised to apply during the term in which they are enrolled in EDUC 008, Introduction to Teaching in a Diverse Society.

Students must meet the following requirements to be admitted to the Teacher Education Program:

- Achieve a Q.P.A. of 2.500 in a minimum of 40 credits of undergraduate course work.
- Obtain passing scores on the Praxis I Academic Skills Test.
- Complete EDUC 008 and EDUC 048 with a minimum grade of C.
- Demonstrate mastery of written and oral communication as evidenced in ENGL 001, ENGL 002, EDUC 008 and EDUC 048.
- Demonstrate entry-level technology skills as defined by the School of Education.

Applications for admission to the program are reviewed frequently. Students who do not meet the state mandated 2.500 Q.P.A. requirement can apply and appeal for admission under the 10 percent rule provided the remaining requirements have been met. Further, students who do not achieve passing scores on all three components of the Praxis I assessment (after a minimum of two attempts) can appeal admission under the 10 percent rule providing the remaining requirements have been met. The state allows each institution to admit up to 10 percent of its students who have not achieved the required quality point average or passed the Praxis I assessment.

RETENTION IN PROGRAM

Students must retain a cumulative quality point average of 2.500 after they are admitted to the program. The Wisconsin Department of Public Instruction requires that students achieve a 2.750 Q.P.A. in their major, minor, and professional education sequence to student teach and to be licensed. The School of Education does not count courses with a grade of CD or lower to meet the requirement in the professional education sequence. Courses with these grades must be repeated. Anyone with questions related to admissions or retention should contact the Office of Teacher Education. While the admission requirements apply to all students, the School of Education reserves the right to deny admission or retention to students who demonstrate unprofessional behavior.

ACCREDITATION

The School of Education is a member of the American Association of Colleges for Teacher Education. All programs are accredited by the North Central Association and by the State of Wisconsin. Undergraduate programs are accredited by the National Council for Accreditation of Teacher Education.

CERTIFICATION

The Wisconsin Department of Public Instruction approves the teacher preparation program offered by Marquette University. This approval includes the elementary/middle school sequence, the middle/secondary sequence, and the majors and minors named in the following pages. A student who satisfactorily completes a professional sequence and an academic major, and who demonstrates mastery of the School of Education standards as evidenced in a portfolio can be recommended for certification in the state of Wisconsin. Completion of course work is a necessary but not sufficient condition for certification. The professional judgement of faculty, supervisors, and the Director of Teacher Education enter into the final decision. A student must complete an application for certification and pay the required fee. Applications are available in the Office of Teacher Education, Schroeder Complex, 150.

Changes required by the Wisconsin Department of Public Instruction and state law are ongoing. These changes may require revision of the programs of study and the certification procedures described on the pages which follow.

A student who plans to teach in a state other than Wisconsin should recognize that reciprocal certification agreements with other states change from time to time. The student should write directly to the department of education of the state involved, requesting a copy of the certification requirements of the state and application procedures for licensure. If specific certification

courses other than those required for Wisconsin are noted, such courses should be elected by the student during the junior and senior years. Students are also encouraged to discuss other state certification requirements with their advisers or the director of Teacher Education.

Certification levels available to Marquette students are elementary/middle (grades 1-8) and middle/secondary (grades 6-12). Students should check with the Office of Teacher Education for the requirements and availability of each level for the different majors and minors.

The following statistics attest to the quality in terms of employability of the Marquette teacher education program. At the close of the 1999-2000 academic year, 96 percent of the School of Education students who completed the program obtained employment in the teaching profession. Of the 82 students who were program completers, 54 remained in Wisconsin, and 60 percent of those chose to work in Milwaukee Public Schools. Twenty-four program completers returned to their home states to seek employment.

FIELD EXPERIENCES

Education students participate in field experiences with public, private, and parochial schools in the Milwaukee area. The Department of Public Instruction requires a minimum of 100 hours to be completed prior to student teaching. Of these, 50 hours must be in diverse settings with students or adults whose backgrounds differ from that of the field student. Marquette University's program exceeds the minimum requirements of the state with specific hours being assigned to various courses. Students must meet Marquette's requirements.

PARTNERSHIP SCHOOLS

Marquette University's School of Education has entered into partnership agreements with four schools in the Milwaukee Public School district: Lloyd Street School, Sarah Scott Middle School for the Health Sciences, Wisconsin Conservatory of Lifelong Learning, and Roosevelt Middle School of the Arts. These schools serve as laboratories for field placements and student teaching in exchange for access to university resources and opportunities for faculty and staff development.

FACILITIES

EDUCATIONAL RESOURCES CENTER

The School of Education maintains an Educational Resources Center in Schroeder Complex, 199. Collections of the ERC include sample curriculum guides from many cities and states, sample copies of elementary, middle, and secondary school textbooks, pamphlet material related to issues in teaching, audio-visual material and equipment, educational computer software, and other materials related to teaching and learning. Material in the ERC may be used by any student in the university with priority for the needs of students enrolled in the School of Education. Throughout the year, the ERC sponsors exhibits and programs open to students and others.

PARENTING CENTER

The Parenting Center offers outreach training and services to the community on parenting young children. The center is supported by the School of Education. The center sponsors classes for parents, conducts workshops/training for agency personnel who work with parents, and provides other parent/child services. The center also conducts research on parenting and offers a course on parenting to undergraduate and graduate students. The Parenting Center is located in the William and Evelyn Krueger Parent and Child Care Center at 749 N. 17th Street.

THE RALPH C. HARTMAN LITERACY AND LEARNING CENTER

The Hartman Literacy and Learning Center is a facility within the School of Education which supports undergraduate and graduate literacy related programs. The center library houses a children's literature collection which is used by the School of Education students as well as children and families participating in the Marquette University Family Literacy Project, a collaboration between the university and neighborhood elementary schools. Students enrolled in EDUC 160 (Practicum in Reading) participate in the Family Literacy Project by tutoring small groups of

children in reading and writing after school. The Hartman Literacy and Learning Center provides faculty and staff to support and conduct research regarding the project.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

CURRICULA INFORMATION

ELEMENTARY/MIDDLE SCHOOL TEACHER PREPARATION (GRADES 1-8)

The elementary/middle school education program leads to a teaching license for grades 1 through 8. Students who select this program complete the following components:

1. An academic major;
2. The core requirements for the college of their major with the inclusion/addition of specific state-mandated general education requirements;
3. The professional education course sequence.

Students must also meet the School of Education's admission and retention requirements.

STUDENTS WHO INTEND TO COMPLETE A TEACHER PREPARATION PROGRAM THROUGH THE MARQUETTE UNIVERSITY SCHOOL OF EDUCATION ARE STRONGLY ADVISED TO CONTACT THE OFFICE OF TEACHER EDUCATION AS EARLY AS POSSIBLE TO AVOID DELAYS IN THEIR PROGRAM.

(1) MAJORS, CORE REQUIREMENTS, AND STATE MANDATED GENERAL EDUCATION REQUIREMENTS

Students intending to complete an elementary/middle school teacher preparation program through the Marquette University School of Education must select an academic major and meet the core curriculum requirements of their college and also the Wisconsin state teacher certification general education requirements.

A. BACHELOR OF ARTS

Students who select an academic major from the following list will earn a bachelor of arts degree upon successful completion of their program.

- | | |
|----------------|----------------------------------|
| • Anthropology | • Communication Studies (Speech) |
| • English | • French |
| • German | • History |
| • Journalism | • Latin |
| • Philosophy | • Political science |
| • Psychology | • Religious studies |
| • Sociology | • Spanish |
| • Theatre Arts | |

Students must also meet the core curriculum requirements for the bachelor of arts degree as follows:

ENGLISH REQUIREMENT

Elementary/middle school education majors must complete ENGL 001 and 002 for a minimum of six credits hours, unless placed directly into ENGL 002 or beyond by recommendation of the Department of English.

FOREIGN LANGUAGE (FOLA) REQUIREMENT

Elementary/middle school education majors in the College of Arts and Sciences must demonstrate competency in a foreign language through the intermediate college level — Foreign Language 004 or 010 (0–14 credits). Elementary/middle school majors in the College of Communication must demonstrate competency in a foreign language through the elementary level — Foreign Language 002 (0–8 credits).

HISTORY/SOCIAL-BEHAVIORAL SCIENCE REQUIREMENT

Elementary/middle school education majors must complete HIST 001, 002, 006, and POSC 020.

LITERATURE AND FINE ARTS REQUIREMENT

Elementary/middle school education majors must complete one three-credit course in literature, either English or foreign language (original or translation). EDUC 110 and 120 are accepted for the other course in literature. EDUC 100 is accepted for the Fine Arts requirement.

MATHEMATICS-LOGIC-COMPUTER REQUIREMENT

Elementary/middle school education majors must complete MATH 030, 031, and 032. A logic course cannot fulfill a math requirement for teacher education.

NATURAL SCIENCE REQUIREMENT

Elementary/middle school education majors must complete (1) both ARSC 010 and 011 or (2) both PHYS 009 and BIOL 002 and a third science course of at least two credits.

PHILOSOPHY REQUIREMENT

Elementary/middle school education majors must complete PHIL 050, 104, EDUC 158, and one three-credit elective PHIL course. Students in the College of Communication must complete PHIL 001, 050, 104, and EDUC 158. Some Arts and Sciences majors require a specific philosophy course which would complete the four-course philosophy requirement.

THEOLOGY REQUIREMENT

Elementary/middle school education majors must complete THEO 001, one second-level course (THEO 100-119), and one third-level course (THEO 120-199) in this sequence.

B. BACHELOR OF SCIENCE

Students who select an academic major from the following list will earn a bachelor of science degree upon successful completion of their program.

- Biology
- Chemistry
- Physics
- Broad field science
- Mathematics

Students must also meet the core requirements for the bachelor of science degree as follows:

ENGLISH REQUIREMENT

Elementary/middle school education majors must complete ENGL 001 and 002 for a minimum of six credits hours, unless placed directly into ENGL 002 or beyond by recommendation of the Department of English.

FOREIGN LANGUAGE REQUIREMENT (FOLA)

Elementary/middle school education majors must complete two courses in a foreign language unless they enter at Foreign Language 010, in which case one course is required.

HISTORY/SOCIAL-BEHAVIORAL SCIENCE

Elementary/middle school education majors must complete HIST 001, HIST 006 and one social/behavioral science course.

LITERATURE AND FINE ARTS REQUIREMENT

Elementary/middle school education majors must complete one three-credit course in literature (either English or foreign language). EDUC 110 and 120 are accepted as the second course in literature.

MATHEMATICS-LOGIC-COMPUTER REQUIREMENT

Elementary/middle school education majors must complete MATH 030, 031, and 032.

NATURAL SCIENCE REQUIREMENT

Elementary/middle school education majors must complete ARSC 010 and 011 or PHYS 009 and BIOL 002.

PHILOSOPHY REQUIREMENT

Elementary/middle school education majors must complete PHIL 050, 104, and EDUC 158.

THEOLOGY REQUIREMENT

Elementary/middle school education majors must complete THEO 001, one second-level course (THEO 100-119), and one third-level course (THEO 120-199) in this sequence.

(2) PROFESSIONAL EDUCATION SEQUENCE

To be eligible for an elementary/middle school teaching license, students must complete the following courses in the School of Education: EDUC 008, 048, 078, 079, 088, 100, 110, 120, 128, 140, 158, 160, 181, 190, and 191. Students must check with their advisers in the School of Education in regard to sequence and admission requirements. Usually, EDUC 181, Student Teaching, is the last course to be completed in a student's program. Students must apply to take EDUC 181 by Friday of the fourth week of the term prior to the term during which they plan to student teach.

BACHELOR OF ARTS, COLLEGE OF ARTS AND SCIENCES
RECOMMENDED ELEMENTARY/MIDDLE (GRADES 1-8)
TEACHER PREPARATION CURRICULUM AND SUGGESTED TERM SCHEDULE

This schedule is set up for completion of graduation requirements in four years and completion of certification requirements in one additional semester. Completion of both graduation and certification in four years is possible under certain circumstances.

Freshman

INTRODUCTION TO TEACHING AND SCHOOLING IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ARSC 010.	4	ARSC 011.	4
ENGL 001.	3	ENGL 002.	3
HIST 001.	3	HIST 002.	3
Foreign language 001.	4	Foreign language 002.	4
EDUC 008.	3	EDUC 048.	3
	<hr/> 17		<hr/> 17

Sophomore

FOCUS ON LEARNERS IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Foreign language 003.	3	Foreign language 004.	3
Literature elective.	3	THEO 001.	3
PHIL 050.	3	HIST 006.	3
EDUC 078.	3	EDUC 079.	3
POSC 020.	3	EDUC 088.	3
Major.	3	Major.	3
	<hr/> 18		<hr/> 18

Junior

FOCUS ON DEVELOPMENTALLY AND CULTURALLY RESPONSIVE PEDAGOGY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 110.	4	EDUC 120.	4
MATH 030.	3	MATH 031.	3
PHIL 104.	3	PHIL elective.	3
EDUC 140.	2	EDUC 190.	1
Theology (Second level – 100-119)	3	Theology (Third level – 120-199)	3
Major.	3	Major.	3
	<hr/> 18		<hr/> 17

Senior

FOCUS ON DEEPENING CONTENT KNOWLEDGE

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 128.	4	EDUC 160.	4
MATH 032.	3	EDUC 191.	1
EDUC 100.	3	EDUC 158.	3
Major.	3	Major.	3
Major.	3	Major.	3
Major.	3	Major.	3
	<hr/> 19		<hr/> 17

Total — 141

Fifth Year

STUDENT TEACHING

FIRST TERM	SEM. HRS.
EDUC 181.	12

Total — 153

Note: Elementary ACADEMIC MAJORS normally require a total of 10 courses. Most include at least one course that is also a core requirement.

**BACHELOR OF ARTS, COLLEGE OF COMMUNICATION
RECOMMENDED ELEMENTARY/MIDDLE SCHOOL (GRADES 1-8)
TEACHER PREPARATION CURRICULUM AND SUGGESTED TERM SCHEDULE**

Freshman

INTRODUCTION TO TEACHING AND SCHOOLING IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
HIST 001	3	HIST 002.	3
Foreign language 001.	4	Foreign language 002	4
CMST 010	3	THEO 001.	3
EDUC 008	3	EDUC 048.	3
	<hr/> 16		<hr/> 16

Sophomore

FOCUS ON LEARNERS IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ARSC 010.	4	ARSC 011	4
POSC 020	3	Literature elective	3
PHIL 001	3	PHIL 050.	3
CMST 012	2	EDUC 079.	3
EDUC 078	3	EDUC 088.	3
Major.	3	Major	3
	<hr/> 18		<hr/> 19

Junior

FOCUS ON DEEPENING CONTEXT KNOWLEDGE

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHIL 104	3	Theology (Second level – 100-119)	3
EDUC 110	4	HIST 006.	3
MATH 030.	3	EDUC 120.	4
EDUC 140	3	MATH 031	3
Major.	3	Major	3
Major.	3	EDUC 190.	1
	<hr/> 19		<hr/> 17

Senior

FOCUS ON DEVELOPMENTALLY AND CULTURALLY RESPONSIVE PEDAGOGY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology (Third level – 120-199).	3	EDUC 160.	4
EDUC 128	4	EDUC 158.	3
MATH 032.	3	EDUC 191.	1
Major.	3	EDUC 100.	3
Major.	3	Major	3
	<hr/> 16	Major	<hr/> 3
			17

Total — 138

Fifth Year

STUDENT TEACHING

FIRST TERM	SEM. HRS.
EDUC 181	12

Total — 150

Note: This schedule represents a generic major in Communication Studies. Please consult with the Communication Studies adviser for specific requirements related to each major.

**BACHELOR OF SCIENCE, COLLEGE OF ARTS AND SCIENCES, MATHEMATICS MAJORS
RECOMMENDED ELEMENTARY/MIDDLE SCHOOL (GRADES 1-8)
TEACHER PREPARATION CURRICULUM AND SUGGESTED TERM SCHEDULE**

Freshman

INTRODUCTION TO TEACHING AND SCHOOLING IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
MATH 080	4	MATH 081	4
ENGL 001	3	ENGL 002.	3
ARSC 010.	4	ARSC 011	4
Foreign language 001.	4	Foreign language 002	4
EDUC 008	3	EDUC 048.	3
	<hr/> 18		<hr/> 18

Sophomore

FOCUS ON LEARNERS IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
HIST 001	3	HIST 006.	3
Literature Elective	3	MATH, LOGIC or COSC.	3
MATH, LOGIC, or COSC.	3	PHIL 104.	3
PHIL 050	3	EDUC 079.	3
EDUC 078	3	EDUC 088.	3
Major.	3	Major	3
	<hr/> 18		<hr/> 18

Junior

FOCUS ON DEEPENING CONTEXT KNOWLEDGE

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
EDUC 140	2	Theology (Second level – 100-119).	3
THEO 001	3	EDUC 120.	4
EDUC 110	4	MATH 031	3
MATH 030.	3	Major	3
Social-Behavioral Science Elective	3	Major	3
Major.	3	EDUC 190.	1
	<hr/> 18		<hr/> 17

Senior

FOCUS ON DEVELOPMENTALLY AND CULTURALLY RESPONSIVE PEDAGOGY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology (Third level – 120-199).	3	EDUC 160.	4
EDUC 128	4	EDUC 158.	3
MATH 032.	3	EDUC 100.	3
Major.	3	EDUC 191.	1
Major.	3	Major	3
	<hr/> 16	Major	3
			<hr/> 17

Total — 140

Fifth Year

STUDENT TEACHING

EDUC 181	12
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Total — 152

Note: The mathematics major requires 39 hours of mathematics courses. Other bachelor of science requirements vary according to major. Please consult the Arts and Sciences section of this bulletin for specific information.

MIDDLE SCHOOL/SECONDARY TEACHER PREPARATION (GRADES 6-12)

The middle school/secondary education program leads to a teaching license for grades 6 through 12. Students who select this program complete the following components:

1. An academic major;
2. The core requirements for the college of their major with the inclusion/addition of specific state-mandated general education requirements;
3. The professional education course sequence.

Students must also meet the School of Education's admission and retention requirements.

STUDENTS WHO INTEND TO COMPLETE A TEACHER PREPARATION PROGRAM THROUGH THE MARQUETTE UNIVERSITY SCHOOL OF EDUCATION ARE STRONGLY ADVISED TO CONTACT THE OFFICE OF TEACHER EDUCATION AS EARLY AS POSSIBLE TO AVOID DELAYS IN THEIR PROGRAM.

(1) MAJORS, CORE REQUIREMENTS, AND STATE MANDATED GENERAL EDUCATION REQUIREMENTS

Students intending to complete a middle school/secondary teacher preparation program through the Marquette University School of Education must select an academic major and meet the core curriculum requirements of their college and also the Wisconsin state teacher certification general education requirements. The state approved teaching majors and minors at Marquette have been cooperatively developed by the School of Education and other colleges and departments of the university. All students working toward teacher certification must complete at least one **teaching** major.

A. MAJORS LEADING TO A BACHELOR OF ARTS DEGREE

Students who select an academic major from the following list will earn a bachelor of arts degree upon successful completion of their program.

- Anthropology
- English
- German
- Journalism
- Philosophy
- Psychology
- Sociology
- Theatre Arts
- Communication Studies (Speech)
- French
- History
- Latin
- Political science
- Religious studies
- Spanish

Students are encouraged to earn certification in a second teaching major or in one or more teaching minors. To be certified to teach a second subject area, Wisconsin requires nine credits in the second subject area in addition to the required credits in the major area.

Students must also meet the core curriculum requirements for the bachelor of arts degree as follows:

ENGLISH REQUIREMENT

Middle school/secondary education majors must complete ENGL 001 and 002 for a minimum of six credits hours, unless placed directly into ENGL 002 or beyond by recommendation of the Department of English.

FOREIGN LANGUAGE (FOLA) REQUIREMENT

Middle school/secondary education majors in the College of Arts and Sciences must demonstrate competency in a foreign language through the intermediate college level – Foreign Language 004 or 010 (0–14 credits). Middle school/secondary majors in the College of Communication must demonstrate competency in a foreign language through the elementary level – Foreign Language 002 (0–8 credits).

HISTORY/SOCIAL-BEHAVIORAL SCIENCE REQUIREMENT

Middle school/secondary education majors must complete HIST 001, 002 and an elective social or behavioral science course. EDUC 078, which is required, is accepted as the fourth course in this core area.

LITERATURE AND FINE ARTS REQUIREMENT

Middle school/secondary education majors must complete two three-credit courses in literature, either English or foreign language (original or translation). Students must also complete one fine arts course for a minimum of two credits. Four terms of non-credit music courses (MUSI 010, 016, 020, 030, and/or 031) will waive the two credit fine arts requirement.

MATHEMATICS-LOGIC-COMPUTER REQUIREMENT

Middle school/secondary education majors must complete two math courses or a math course and a computer science course. Math courses must be at the appropriate level for their college to fulfill core curriculum requirements. A logic course cannot fulfill a math requirement for teacher education.

NATURAL SCIENCE REQUIREMENT

The state requires applicants for certification in broad field social science with any social science teaching major to complete environmental science as well as life science and physical science. Applicants for certification in other majors need both life science and physical science, but not necessarily environmental science. Middle school/secondary education majors meet all three requirements by completing (1) both ARSC 010 and 011 or (2) both PHYS 009 and BIOL 002.

PHILOSOPHY REQUIREMENT

Middle school/secondary education majors must complete PHIL 050, 104, EDUC 158, and one three-credit elective PHIL course. Students in the College of Communication must complete PHIL 001, 050, 104, and EDUC 158. Some Arts and Sciences majors require a specific philosophy course which would complete the four-course philosophy requirement.

THEOLOGY REQUIREMENT

Middle school/secondary education majors must complete THEO 001, one second-level course (THEO 100-119), and one third-level course (THEO 120-199) in this sequence.

SPECIAL NOTE ON BROAD FIELD SOCIAL SCIENCE TEACHING LICENSE EXTENSION

To broaden career opportunities, students are encouraged to examine the broad field social science teaching license extension. It includes courses in economics, history, political science, psychology, geography (please see ANTH 110), and sociology. The student completes a 34-36 credit teaching major in an approved social science area and completes seven courses in other social science disciplines. Students must check with the Office of Teacher Education regarding specific course options. Those who complete this program earn a Wisconsin certification in their teaching area and in broad field social sciences; this enables one to teach "fusion" courses such as civics, contemporary problems, and social problems. Also, those who complete the broad field social sciences program may earn licensure in any other social science area with a minimum of nine credits in that area beyond their major through the Wisconsin Department of Public Instruction.

B. BACHELOR OF SCIENCE DEGREE

Students who select an academic major from the following list will earn a bachelor of science degree upon successful completion of their program.

- Biology
- Chemistry
- Physics
- Broad field science
- Mathematics

Students are encouraged to earn certification in a second teaching major or in one or more teaching minors. To be certified to teach a second subject area, Wisconsin requires nine credits in the second subject area in addition to the required credits in the major area.

Students must also meet the core requirements for the bachelor of science degree as follows:

ENGLISH REQUIREMENT

Middle school/secondary education majors must complete ENGL 001 and 002 for a minimum of six credits hours, unless placed directly into ENGL 002 or beyond by recommendation of the Department of English.

FOREIGN LANGUAGE REQUIREMENT (FOLA)

Middle school/secondary education majors must complete two courses in a foreign language unless they enter at Foreign Language 010, in which case one course is required.

HISTORY/SOCIAL-BEHAVIORAL SCIENCE

Middle school/secondary education majors must complete HIST 001 and one additional history or social-behavioral science course.

LITERATURE AND FINE ARTS REQUIREMENT

Middle school/secondary education majors must complete two three-credit courses in literature, either English or foreign language (original or translation).

MATHEMATICS-LOGIC-COMPUTER REQUIREMENT

Middle school/secondary education majors must complete two courses in mathematics, logic, or computer science.

NATURAL SCIENCE REQUIREMENT

Middle school/secondary education majors must complete ARSC 010 and 011 or PHYS 009 and BIOL 002.

PHILOSOPHY REQUIREMENT

Middle school/secondary education majors must complete PHIL 050, 104, and EDUC 158.

THEOLOGY REQUIREMENT

Middle school/secondary education majors must complete THEO 001, one second-level course (THEO 100-119), and one third-level course (THEO 120-199).

SPECIAL NOTE ON BROAD FIELD SCIENCE TEACHING MAJOR WITH TEACHING MINORS IN BIOLOGY, CHEMISTRY, OR PHYSICS

Students who complete the program with licensure in grades 6 through 12 may be employed to teach:

1. All science in grades 6 through 9 and general science including physical science in grades 10 through 12;
2. Biology, chemistry, or physics (their minor area).

Interested students should see the chairs of biology, chemistry, or physics and their advisers or the Director of Teacher Education.

A student completing all of the course work earns a broad field science teaching major and a teaching minor in his or her science area of study. Also, those who complete the broad field science program may earn licensure in any of the three science areas with a minimum of nine credits through the Wisconsin Department of Public Instruction.

Courses common to all the broad field science majors are BIOL 001, 002, or 004, and BIOL 090; CHEM 001, 002, 023, and 024; PHYS 008 and 009; and PHIL 050 and 130.

In addition,

- Biology minors take BIOL 100, 125, 135, 170; PHYS 001 and 002; and COSC 050 and MATH 073 or 080.
- Chemistry minors take CHEM 110 and an upper division chemistry elective of at least two credits, BIOL 100 and 125; PHYS 001 and 002; and COSC 050 and MATH 073 or 080.
- Physics minors take PHYS 001 and 002, or 003 and 004, plus 104, 105 and MATH 080, 081, and 082.

(2) PROFESSIONAL EDUCATION SEQUENCE

To be eligible for a middle school/secondary school teaching license, students must complete the following courses in the School of Education: EDUC 008, 048, 078, 079, 088, 125, 128, 158, 176, 190, 191, and one advanced methods course in their teaching major. Students must check with their advisers in the School of Education in regard to sequence and admission requirements. Usually, EDUC 176, Student Teaching, is the last course to be completed in a student's program. Students must apply to take EDUC 176 by Friday of the fourth week of the term prior to the term during which they plan to student teach.

BACHELOR OF ARTS, COLLEGE OF ARTS AND SCIENCES
RECOMMENDED MIDDLE SCHOOL/SECONDARY (GRADES 6-12)
TEACHER PREPARATION CURRICULUM AND SUGGESTED TERM SCHEDULE

Freshman

INTRODUCTION TO TEACHING AND SCHOOLING IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ARSC 010.	4	ARSC 011.	4
ENGL 001.	3	ENGL 002.	3
HIST 001.	3	HIST 002.	3
Foreign language 001.	4	Foreign language 002.	4
EDUC 008.	3	EDUC 048.	3
	<hr/> 17		<hr/> 17

Sophomore

FOCUS ON LEARNERS IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Foreign language 003.	3	Foreign language 004.	3
Social-Behavioral Science Elective.	3	COSC 050 or MATH elective.	3
MATH elective.	3	PHIL 104.	3
PHIL 050.	3	EDUC 079.	3
EDUC 078.	3	EDUC 088.	3
Major.	3	Major.	3
	<hr/> 18		<hr/> 18

Junior

FOCUS ON DEEPENING CONTEXT KNOWLEDGE

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature Elective.	3	Theology (Second level – 100-119).	3
THEO 001.	3	EDUC 125.	4
EDUC 128.	4	EDUC 190.	1
PHIL elective.	3	Fine Arts elective.	2/3
Major.	3	Major.	3
Major.	3	Major.	3
	<hr/> 19		<hr/> 19-20

Senior

FOCUS ON DEVELOPMENTALLY AND CULTURALLY RESPONSIVE PEDAGOGY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature elective.	3	EDUC 176.	12
Theology (Third level – 120-199).	3	EDUC 158.	3
Advanced Methods Course.	3		
EDUC 191.	1		
Major.	3		
Major.	3		
Major.	3		
	<hr/> 19		<hr/> 15

Total — 142-143

Note: ONE TEACHING MAJOR normally requires a total of 12 courses plus the appropriate advanced methods course. Many majors include two courses that are also core requirements. Thus, this schedule indicates ten MAJOR courses.

**BACHELOR OF ARTS, COLLEGE OF COMMUNICATION
RECOMMENDED MIDDLE SCHOOL/SECONDARY (GRADES 6-12)
TEACHER PREPARATION CURRICULUM AND SUGGESTED TERM SCHEDULE**

Freshman

INTRODUCTION TO TEACHING AND SCHOOLING IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.....	3
HIST 001	3	HIST 002.....	3
Foreign language 001.....	4	Foreign language 002	4
CMST 010	3	THEO 001.....	3
EDUC 008	3	EDUC 048.....	3
		Major	3
	<hr/> 16		<hr/> 19

Sophomore

FOCUS ON LEARNERS IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ARSC 010.....	4	ARSC 011	4
Soc/behavioral science elective.....	3	Literature elective	3
PHIL 001	3	PHIL 050.....	3
Literature elective.....	3	EDUC 079.....	3
EDUC 078	3	EDUC 088.....	3
Major.....	3	Major	3
	<hr/> 19		<hr/> 19

Junior

FOCUS ON DEEPENING CONTEXT KNOWLEDGE

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHIL 104	3	Theology (Second level – 100-119).....	3
Math elective	3	Math/computer science elective.....	3
EDUC 128	4	EDUC 125.....	4
Major.....	3	EDUC 190.....	1
Major.....	3	Major	3
Major.....	3	Major	3
	<hr/> 19	Major	3
			<hr/> 20

Senior

FOCUS ON DEVELOPMENTALLY AND CULTURALLY RESPONSIVE PEDAGOGY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Fine arts elective.....	2-3	EDUC 176.....	12
Theology (Third level – 120-199).....	3	EDUC 158.....	3
Advanced Methods Course.....	3		
EDUC 191	1		
Major.....	3		
Major.....	3		
Major.....	3		
	<hr/> 18-19		<hr/> 15

Total — 145-146

Note: This schedule represents a generic major in Communication Studies. Please consult with the Communication Studies adviser for specific requirements related to each major.

**BACHELOR OF SCIENCE, COLLEGE OF ARTS AND SCIENCES, MATHEMATICS MAJOR
RECOMMENDED MIDDLE SCHOOL/SECONDARY (GRADES 6-12)
TEACHER PREPARATION CURRICULUM AND SUGGESTED TERM SCHEDULE**

Freshman

INTRODUCTION TO TEACHING AND SCHOOLING IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
MATH 080	4	MATH 081	4
ENGL 001	3	ENGL 002	3
HIST 001	3	Major	3
Foreign language 001	4	Foreign language 002	4
EDUC 008	3	EDUC 048	3
	<hr/> 17		<hr/> 17

Sophomore

FOCUS ON LEARNERS IN A DIVERSE SOCIETY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ARSC 010	4	ARSC 011	4
History-Social-Behavioral Science Elective ...	3	PHIL 104	3
Fine Arts Elective	2-3	EDUC 079	3
PHIL 050	3	EDUC 088	3
EDUC 078	3	Major	3
Major	3		
	<hr/> 18-19		<hr/> 16

Junior

FOCUS ON DEEPENING CONTEXT KNOWLEDGE

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature Elective	3	Theology (Second level – 100-119)	3
THEO 001	3	EDUC 125	4
EDUC 128	4	EDUC 190	1
Major	3	Major	3
Major	3	Major	3
Major	3	Major	3
	<hr/> 19		<hr/> 17

Senior

FOCUS ON DEVELOPMENTALLY AND CULTURALLY RESPONSIVE PEDAGOGY

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature elective	3	EDUC 176	12
Theology (Third level – 120-199)	3	EDUC 158	3
Advanced Methods Course	3		
EDUC 191	1		
Major	3		
Major	3		
Major	3		
	<hr/> 19		<hr/> 15

Total — 138-139

Note: The mathematics major requires 39 hours of mathematics courses. Other bachelor of science requirements vary according to major. Please consult the Arts and Sciences section of this bulletin for specific information.

HEALTH PROFESSIONS INSTRUCTOR: POST-SECONDARY CERTIFICATE: DENTAL HYGIENE/CLINICAL LABORATORY SCIENCE

Students who are enrolled in dental hygiene or clinical laboratory science programs or who are graduates of such programs may apply for admission to the program leading to the certification for post-secondary instructor in these programs. The certificate program is directed toward assisting those who seek teaching positions as instructors in those professions. Toward that end, a professional education background and initial practicum experiences are offered to assist the development of pre-service instructors in dental hygiene and clinical laboratory science at the post-secondary level.

With the recommendation of the director of the health profession, those who wish to join this program must enroll in the School of Education. Information on that procedure can be obtained from the chair of the dental hygiene, the chair of clinical laboratory science, or in the Office of Teacher Education, Schroeder Complex, 150. Earning this certificate depends upon the successful completion of the following courses: EDUC 048, 078 (or PSYC 103, 121, or 122), 095, 158, EDPL 215, and DEHY 179 or METE 189.

COACHING COURSES

Students enrolled in a teaching program in the School of Education may seek to enhance their job opportunities by enrolling in coaching courses: EDUC 063, 072, and 073. In addition, some students, whether or not enrolled in the School of Education, may find the courses beneficial to their professional or personal development. Students who would like to enroll in further course work in coaching are urged to consider the courses offered by the Department of Exercise Science.

COURSE DESCRIPTIONS

Dean and Associate Professor: Augenstein
Professor: Fox, Leslie, Loew, Pink
Distinguished Professor: Fuller
Professor Emeriti: Dupuis, Ivanoff, Nordberg
Associate Professor: Bardwell
Assistant Professor: Allen, Burant, Chubbuck, Cole, Eckman, Evans, Schweizer, Wattsjohnson, Whipp
Director of Teacher Education: Matthews
Coordinator of Undergraduate Admissions: McNamara
Coordinator of Field Placements and Licensure: Stang

*For those courses marked with an asterisk, a two- to three-hour time block between 8 a.m. and 3 p.m. one day each week must be kept free for the required field experience if there is no lab section in the *Timetable of Classes*. Mornings are preferred.

EDUC 008. Introduction to Schooling in a Diverse Society 3 sem. hrs.

Critical and reflective examination of assumptions about schooling in the United States including the impacts of race, ethnicity, class and gender; power and control in school and community contexts; and the concerns, demands, conditions, and rewards of the teaching profession. Field experiences required. Offered every term.

EDUC 048. Critical Inquiry into Contemporary Issues 3 sem. hrs.

Analysis and critique of current issues in elementary and secondary education. Skill development in research, communication, and critical inquiry needed to foster social justice in schools. Offered every term. *Prereq:* EDUC 008.

EDUC 063. Principles, Problems, and Psychology of Coaching 2 sem. hrs.

Educational implications of sports. Rules, organization, equipment and ethics. Individual/social psychological attributes of athletes/coaches/programs. Use of psychology by coaches. Open to all students in the university.

EDUC 072. Theory and Practice in Coaching Individual and Dual Sports 2 sem. hrs.

Principles and problems of coaching individual and dual sports. Major sports in these areas are reviewed. Open to all students in the university.

EDUC 073. Theory and Practice in Coaching Team Sports 2 sem. hrs.

Principles and problems of coaching team sports. All major team sports are reviewed. Open to all students in the university.

EDUC 078. Psychology of Human Development in Children and Adolescents in a Diverse Society 3 sem. hrs.

Critical examination of physical, social, emotional, moral and cognitive development of children and adolescents, including variables (gender, socioeconomic status, gender, race, ethnicity, language) that impact developmental outcomes. Offered every term.

EDUC 079. Using Technology for Learning and Assessment 3 sem. hrs.

Application of major theories of learning to instructional planning and assessment. Skill development in a variety of technological tools that can be used to enhance learning, instruction and assessment. Offered every term. Required for all students entering teacher education program in and after Fall 2001.

EDUC 088. Children and Youth with Exceptional Needs 3 sem. hrs.

Introduction to children and adolescents with a wide range of exceptional educational needs. Addresses characteristics, causes, assessment, teaching strategies, and legal issues. Field experience required for certification students, optional for others. *Prereq:* EDUC 078 or equivalent

EDUC 095. Secondary Level Methods 3 sem. hrs.

Frameworks for planning, teaching, and evaluating developmentally and culturally responsive lessons and units across the secondary curriculum. Offered both terms. *Prereq:* EDUC008; and EDUC 078 or equivalent. Field experience in a secondary school required.

EDUC 100. Integrating the Arts Across the Curriculum 3 sem. hrs.

Use of visual and performance arts (dance, music, film, theater) as well as newer forms of technology and multimedia to enhance learning and instruction across the K-12 curriculum. Offered every term. *Prereq:* Application to the School of Education; either EDUC 030, EDUC 079 or EDUC 095.

EDUC 102. Principles of Peer Facilitation Among College Students 3 sem. hrs.

Theoretical, research, and applied principles of peer facilitation among college students, includes theories of student development and leadership development; values clarification; principles of effective communication and methods to encourage an appreciation for individual differences within a diverse student population, as applies in a Catholic, Jesuit, urban university. *Prereq:* Cons. of instr.

EDUC 104. Parenting and Family Issues 3 sem. hrs.

Theoretical, research, and applied topics in parenting. Parenting infants through adolescents. Includes family communication systems, child and adolescent development, cultural childrearing practices, intergenerational parenting, legal issues, parenting exceptional children, and current topics.

EDUC 109. Measurement in Education 3 sem. hrs.

An orientation to history and development of the testing movement, selection and administration of tests, principles of classroom test construction, and interpretation of test result. Offered occasionally.

EDUC 110. Teaching Elementary Reading, Language Arts, and Children's Literature 1* 4 sem. hrs.

Teaching reading, language arts, and children's literature from a developmental perspective to diverse lower elementary learners. Emphasis on developing the relationship between the three literacy areas. Field experience and concurrent enrollment in Math 030 required. Offered every term. *Prereq:* Application to the School of Education.

EDUC 120. Teaching Elementary Reading, Language Arts, and Literature 2* 4 sem. hrs.

Teaching reading, language arts, and children's literature from a developmental perspective to diverse upper elementary learners. Emphasis on developing the relationship between the three literacy areas and how social factors influence students' literacy learning. Field experience and concurrent enrollment in Math 031 required. Offered every term. *Prereq:* Admission to the School of Education and EDUC 110.

EDUC 125. Literacy in the Content Areas 4 sem. hrs.

Examines the interrelationship of reading, writing, speaking and listening as learning skills in the content areas. Included are methods and materials the teacher can use in the classroom setting to improve literacy skills in all content areas and integrate literature across the curriculum. Field experience required. Offered every term. *Prereq:* Admission to School of Education.

EDUC 128. Teaching in the Middle School* 3 sem. hrs.

Foundations, methods, and strategies for teaching at the middle school level. Field experience required. Offered every term. *Prereq:* Admission to the School of Education; MATH 032, which may be taken concurrently; and EDUC 078; and either EDUC 030, EDUC 079, or EDUC 095.

EDUC 130. Teaching Elementary Level Social Studies 3 sem. hrs.

Curriculum development, instructional strategies and techniques for teaching elementary social studies with emphasis on primary research skills. Includes preparation of materials, assessment, micro-teaching. Offered fall term. *Prereq:* Application to the School of Education required; and either EDUC 030 or EDUC 079.

EDUC 140. Teaching Elementary/Middle Level Science 3 sem. hrs.

Curriculum development and instructional methods for teaching inquiry-based science at the primary and upper elementary level. Includes preparation of materials, assessment, use of technology and field experiences. *Prereq:* Application to the School of Education; and either EDUC 030 or EDUC 079. Field experience required.

EDUC 145. Teaching Middle/Secondary Social Sciences 3 sem. hrs.

Application of teaching methods to social studies in middle and high schools. Required field experience in a high school setting. Offered fall term only. *Prereq:* Admission to the School of Education; and either EDUC 079 or 095.

EDUC 155. Teaching Middle/Secondary Sciences 3 sem. hrs.

Application of methods to teach inquiry-based science in physical sciences, physics, biology, chemistry and environmental sciences at the secondary level. Includes planning, preparation of materials, assessment, and use of technology aligned with National Science Education Standards and OSHA safety requirements. Field experience in a secondary setting required. Offered spring term. *Prereq:* Admission to the School of Education; and either EDUC 079 or 095.

EDUC 158. Philosophy of Education 3 sem. hrs.

Principles and methods of various classical and contemporary philosophies and their implications and application in education. Attention to professional ethics and students' development of their own philosophies of education. (This course satisfies 3 of the 12-credit core requirement in philosophy for students enrolled in and completing a teacher education program). Offered every term. *Prereq:* Phil 050.

EDUC 160. Practicum: Teaching Elementary Level Reading* 4 sem. hrs.

Supervised experience in the teaching of reading to struggling readers. Emphasis on linking literacy assessment and instruction. Seminars and small group tutoring sessions are included. Offered every term. *Prereq:* Admission to the School of Education; 3.0 average in EDUC 110 and 120; cons. of Office of Teacher Education.

EDUC 165. Strategies in Religious Education 3 sem. hrs.

Application of current catechetical theory and educational strategies to present religious needs and practices. Curriculum objectives and evaluation. Analysis of instructional materials and other resources for teaching religion. Clinical experience required. Open to all upper division students in the university. Offered occasionally. *Prereq:* Admission to the School of Education required for Education students only.

EDUC 170. Practicum: Elementary Level Mathematics* 3 sem. hrs.

Supervised clinical experience in the teaching of mathematics. Seminar and class sessions also required. Experience in diagnosing and remediation of learning problems of children in mathematics. Field experience required. Offered every term. *Prereq:* MATH 030, 031, and 032. Admission to the School of Education required; cons. Office of Teacher Education.

EDUC 175. Student Teaching: Secondary 12 sem. hrs.

Full-day secondary school supervised student teaching Monday through Friday. Only EDUC 158 may be taken during the term of this practicum. Regular on-site visitation by university faculty. Student must apply for student teaching during the first three weeks of the term preceding the practicum. Offered every

term. S/U grade assessment. Weekly seminar required. Fee. *Prereq:* Admission to the School of Education required; advanced methods course(s); cons. of Office of Teacher Education.

EDUC 176. Student Teaching: Middle/Secondary 12 sem. hrs.

Full day, full term of public or private school teaching Monday through Friday. Only EDUC 158 may be taken during the term of this practicum. Regular on-site visitation by university faculty. Student teaching is split; half of the term at the middle school level and half of the term at the high school level. Students must apply for student teaching during the first three weeks of the term preceding the practicum. Offered every term. Fee. S/U grade assessment. Weekly seminar required. *Prereq:* Admission to the School of Education; advanced methods course(s); cons. of Office of Teacher Education; EDUC 128.

EDUC 177. Student Teaching: Secondary Bilingual 12 sem. hrs.

Full-day, full term of the public or private school student teaching Monday through Friday. EDUC 158 may be taken during the term of this practicum experience. Regular on-site visits by university faculty. Student teaching is split: half of the term is in an elementary level bilingual classroom and half of the term in a regular elementary level classroom. Student must apply for student teaching during the first three weeks of the term prior to the term they plan to student teach. S/U grade assessment. Offered every term. Weekly seminar included. Fee. *Prereq:* Admission to the School of Education required; advanced methods course(s); cons. of Office of Teacher Education.

EDUC 180. Student Teaching: Elementary 12 sem. hrs.

Full-day elementary school supervised student teaching Monday through Friday. Only EDUC 158 may be taken during the term of this practicum. Regular on-site visitation by university faculty. Student must apply for student teaching during the first three weeks of the term preceding the practicum. S/U grade assessment. Offered every term. Weekly seminar required. Fee. *Prereq:* Admission to the School of Education required; Advanced methods course(s); cons. of Office of Teacher Education.

EDUC 181. Student Teaching: Elementary/Middle 12 sem. hrs.

Full day, full term of public or private school teaching Monday through Friday. Only EDUC 158 may be taken during the term of this practicum. Regular on-site visitation by university faculty. Student teaching is split; half of the term at the elementary school level and half of the term at the middle school level. Students must apply for student teaching during the first three weeks of the term preceding the practicum. Offered every term. Fee. S/U grade assessment. Weekly seminar required. *Prereq:* Admission to the School of Education; advanced methods course(s); cons. of Office of Teacher Education; and EDUC 128.

EDUC 182. Student Teaching: Elementary Bilingual 12 sem. hrs.

Full-day, full term of the public or private school student teaching Monday through Friday.

EDUC 158 may be taken during the term of this practicum experience. Regular on-site visits by university faculty. Student teaching is split; half of the term in an elementary level bilingual classroom and half of the term in a regular elementary level classroom. Students must apply for student teaching three weeks into the term prior to the term they plan to student teach. S/U grade assessment. Weekly seminar required. Fee. *Prereq:* Admission to the School of Education required; Advanced methods course(s); cons. of the Office of Teacher Education.

EDUC 187. Theory and Methods of Teaching Bilingual Learners in the Content Areas* 3 sem. hrs.

Emphasis on testing and evaluating abilities and needs of bilingual/bicultural learners and developing instructional strategies. Course component includes intensive clinical experience in bilingual elementary or secondary school. Secondary students to be placed in major subject area. *Prereq:* Admission to School of Education required.

EDUC 188. Foundations of Bilingual/Bicultural Education. 3 sem. hrs.

Includes rationale, history, and survey of existing models. Emphasis on special problems of testing as it impacts on bilingual/bicultural education.

EDUC 190. Reflective Seminar 1 1 sem. hr.

Reading, writing and portfolio development to meet portfolio requirements for licensure. Required for all students entering teacher education program in and after Fall 2001. Offered every term. *Prereq:* Admission to School of Education required. Concurrent enrollment in methods courses.

EDUC 191. Reflective Seminar 2 1 sem. hr.

Reading, writing and portfolio development to meet portfolio requirements for licensure. Required for all students entering teacher education program in and after Fall 2001. Offered every term. *Prereq:* Admission to the School of Education; EDUC 190 and concurrent enrollment in methods courses.

EDUC 192. Reading Instruction for School Service Personnel 3 sem. hrs.

Theories underlying the reading process are examined. Psychological, sociological and linguistic factors that influence the development of readers will be studied. Interrelationships of reading with writing and the other language arts and across all content areas will be investigated. In addition, study of the school-wide comprehensive reading and language arts curriculum will be included. *Prereq:* Only for students in certification programs endorsed by the School of Education.

EDUC 195. Independent Study 1-4 sem. hrs.

Readings on a particular problem or subject of interest to the student. A paper must be completed for each problem studied. Offered every term. *Prereq:* Approval, Office of Teacher Education.

EDUC 198. Special Topic in Education 1-4 sem. hrs.

Special topics in education as identified in the *Timetable of Classes*. Offered occasionally.

College of Engineering

The mission of the Marquette University College of Engineering is to prepare undergraduate and graduate students for successful careers based on a strong ethical and moral foundation, to advance the state of the art in engineering, to serve the professional and technical communities and to contribute to our global society.

These statements reflect the essential nature of the college. The motivation of the college centers about its desire to emphasize to the engineering community the intrinsic value of humankind and of the individuals who comprise it. This motivation flows directly from the fact that the college is an integral part of a Catholic, Jesuit university.

DEGREES OFFERED

Marquette University confers the degree of bachelor of science in biomedical, civil, computer, electrical, industrial or mechanical engineering on those students who have satisfactorily completed one of the prescribed curricula in the majors within the biomedical, civil, electrical, industrial or mechanical engineering departments. Engineering students have the opportunity to earn a minor in another engineering field. Also, non-engineering students may earn a minor in a field of engineering.

The master of science degree is conferred upon recommendation by the Graduate School for candidates in biomedical, civil, computer, electrical and mechanical engineering, and the doctoral degree is conferred on a college-wide basis. Details on the master's and doctoral programs are contained in the *Graduate Bulletin*.

MAJORS OFFERED

The College of Engineering is made up of four departments which offer the following majors: the Department of Biomedical Engineering with majors in biocomputing, bioelectronics and biomechanics; the Department of Civil and Environmental Engineering with majors in civil engineering and environmental engineering; the Department of Electrical and Computer Engineering with majors in computer engineering, electrical and electronic engineering, and electrical and computer engineering; the Department of Mechanical and Industrial Engineering with majors in mechanical, manufacturing engineering, and engineering management.

ACCREDITATION

The College of Engineering is a member of the American Society for Engineering Education. Accreditation by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology is held for all engineering programs.

ADMISSION REQUIREMENTS

Applicants to the College of Engineering are expected to fulfill the admission requirements listed in the university section of this bulletin.

Engineering is mainly a mental occupation. High school preparation should include a thorough grounding in mathematics, including algebra, plane and solid geometry, and trigonometry. A thorough background in the physical sciences is essential. Since an engineer's success depends to a considerable extent on an ability to express him or herself, knowledge of English is necessary. Further, an engineer must have a desire to know the basic truths behind natural phenomena, a genuine interest in mathematical analysis, design, research, and development.

The elements of algebra, geometry, and trigonometry, if included in a course of another title, will be acceptable. Furthermore, a year of advanced mathematics may be substituted for one-half unit of algebra and one-half of trigonometry. Four units of high school mathematics are expected for admission to the College of Engineering.

GRADUATION REQUIREMENTS

The degree bachelor of science in biomedical, civil, computer, electrical, industrial or mechanical engineering may be conferred on students who successfully complete a curriculum as prescribed for the degree, and who have satisfied the following requirements:

- A minimum of 32 hours of upper division course work must be completed at Marquette University. At least 15 hours must be either within the major or the required department courses shown in the senior year of the catalog showcase curriculum.
- A cumulative C average or better in Marquette work.
- A cumulative grade average of C or better in all engineering courses.
- A minimum of 133 semester hours.
- The completion of all required courses.
- Formal application for a degree filed in the dean's office no later than two weeks after the beginning of the candidate's last term.

GENERAL DEGREE REQUIREMENTS

All candidates for a baccalaureate degree in engineering must complete requirements for one of the majors on the following pages:

Department of Biomedical Engineering

Biocomputing

Bioelectronics

Biomechanics

Department of Civil and Environmental Engineering

Civil Engineering

Environmental Engineering

Department of Electrical and Computer Engineering

Computer Engineering

Electrical and Computer Engineering

Electrical and Electronic Engineering

Department of Mechanical and Industrial Engineering

Mechanical Engineering

Engineering Management

Manufacturing Engineering

THEOLOGY AND PHILOSOPHY REQUIREMENTS

All students must complete nine semester hours of theology/philosophy, taking at least one course in each category. PHIL 050 must be taken as the first philosophy course and THEO 001 as a first theology course. **Students are also required to have an ethics course included within their theology, philosophy, humanity/social science requirements.** Normally students will take an ethics course such as PHIL 104, PHIL 190, PHIL 191 to complete their theology/philosophy requirements. However, theology and philosophy also can be used to fill the humanity/social science requirement as well. Please see your adviser or the engineering office if further clarification is needed.

HUMANITIES/SOCIAL SCIENCES REQUIREMENTS

All students must complete nine semester hours of humanities/social sciences electives. Students are highly encouraged to select courses which will have intrinsic meaning to their program rather than a selection of unrelated introductory courses.

The following list of courses are known and allowed toward fulfilling the humanities-social science requirements for engineering curricula. New courses are listed in the *Timetable of Classes* on a regular basis, therefore, this list may not include every course that can satisfy this requirement at any given time. Note that some courses are offered with special permission only. This should be approved by the students adviser, department chair, and the dean's office.

COLLEGE OF BUSINESS ADMINISTRATION

ECONOMICS (ECON)

043, 044, 110, 126, 134, 181

SCHOOL OF EDUCATION

EDUCATION (EDUC)

048, 078, 102, 158

COLLEGE OF ENGINEERING

CEEN 190 Professionalism, Ethics and Management in Engineering Organizations
(excluding BIOE, BIOM and ELCE majors)

COLLEGE OF ARTS & SCIENCES

CRIMINOLOGY AND LAW STUDIES (CRLS)

051, 083, 151, 152, 157, 162, 163, 164, 167, 181

ENGLISH (ENGL)

All courses except 001, 002, 102, 103, 104, 105 and 190

FOREIGN LANGUAGES

Courses may be taken (by qualified students) in literature,
culture and civilization excluding 142, 162, 182 and 185. Prior approval required.

HISTORY (HIST)

All courses

PHILOSOPHY (PHIL)

All courses except 001, 002 and 050

POLITICAL SCIENCE (POSC)

All courses

PSYCHOLOGY (PSYC)

All courses except 060

SOCIOLOGY AND ANTHROPOLOGY (SOCI) (ANTH)

All courses except SOCI 060, SOCI 104 and social work

THEOLOGY (THEO)

All courses except 001

COLLEGE OF COMMUNICATION

MUSIC (MUSI)

115, 152, 154

THEATRE ARTS (THAR)

050, 150

COMMUNICATION STUDIES (CMST)

by special permission only (excluding 012)

BROADCAST AND ELECTRONIC COMMUNICATIONS (BREC), FILM (FILM),
and JOURNALISM (JOUR)

by special permission only

ACADEMIC REGULATIONS

Students in the College of Engineering are expected to comply with the academic requirements and regulations listed in the University section of this bulletin, along with all official dean's office regulations.

ATTENDANCE

A.) Because absence from class will prevent a student from getting the full benefit of a course, and because in many courses each student's involvement contributes to the learning process for all other students in the class, attendance is mandatory for every exercise of a course in which a student is registered. Excessive absences may result in lower grades, or being withdrawn from a class for reason of absences with a WA grade.

B.) Students registered in any course offered by the College of Engineering are bound by this attendance policy even if they are enrolled in another college, program, or division of the university. It is the responsibility of each student to know and follow the college's class attendance policy and any specific attendance regulations of his/her instructors.

C.) In the case of an emergency absence (prolonged absence from class due to illness or other personal emergency), a student must inform the engineering office, which will keep a written record of such cases and inform the relevant instructors. Normally, the college office will not keep a record nor take any action unless such absences extend for one week or longer. See the college Web site for further details.

ACADEMIC LOAD

The academic load of a student is measured by credit hours assigned to each course. The normal engineering program varies from 15 to 19 credit hours per term.

Request for permission to exceed 19 credit hours must be submitted for approval prior to registration to the respective departmental chair on forms provided by the dean's office.

SPECIAL ACADEMIC PROGRAMS

THE COOPERATIVE EDUCATION PROGRAM

The Cooperative Education Program is an organized program integrating classroom work and practical work experience. Students in this program alternate periods of attendance at college with periods of employment in industry. The employment constitutes a regular, continuing, and desirable element in the educational process. It is related to some phase of the field of study in which the student is engaged and should be diversified in order to afford a range of experience. The objective is balanced training; the combination of theory and practical work experience during the early years of professional development. The Engineering Cooperative Education Program (Co-op program) has been employed successfully at Marquette since 1919.

At Marquette, all students spend the first two years in the conventional academic program. Those not electing to participate in the Co-op Program continue through their last two years on the same conventional program. Admission to the Co-op Program is conditioned by (1) the applicant's academic standing; (2) his/her general employability, possibly including United States citizenship; and (3) the number of openings made available by industry. It should therefore be regarded as a privilege to be sought after, one usually gained only by those best qualified.

Early in the sophomore year, students attend an engineering orientation class, GEEN 003, to learn about the Co-op Program's policies and procedures and the placement process. They then apply to the Co-op Program and pursue co-op placement by submitting resumes and interviewing with prospective employers. Students who are hired by the co-op employers begin working during the summer or fall following completion of their sophomore year, or soon thereafter. The students participating in the Co-op Program are divided into three groups which alternate between school and work on a planned basis. Typically, more than 250 students are in the Co-op Program at any given time and they are employed with more than 100 cooperating employers located in the Midwest and throughout the country.

NORMAL CO-OP SCHEDULE

Freshman			Sophomore			Co-op Section	Junior			Pre-Senior			Senior			Approx. Total Work
	Fa	Sp	Su	Fa	Sp		Su	Fa	Sp	Su	Fa	Sp	Su	Fa	Sp	
	S	S	V	S	S	A	S	W	S	W	S	W	S	W	S	16 mos.
	S	S	V	S	S	B	W	S	W	S	W	S	W	S	S	15 mos.
	S	S	V	S	S	C	V	S	W	S	W	S	W	S	S	12 mos.

S=School V=Vacation W=Work Period

The approved training programs provide for rapid progress of the co-op student through the various phases of the firm's engineering processes, according to a planned schedule. The Co-op Program therefore gives the students an opportunity to combine their classroom learning with practical experience, it provides financial assistance to pay their education expenses, and it provides an orientation to both the world of work and career opportunities available. For the employers, the Co-op Program provides a ready-made training and recruitment program, it provides a good source of technical labor, and it promotes college relations.

Since the cooperative education program is considered an integral part of a student's education, the Co-op student is a full-time student at Marquette University; whether he/she is in school or at work. When the Co-op student is at work, he/she is subject to the rules of the company and under their direct supervision. Wages are paid directly to the student. The university does not employ the student but cooperates with industry in arranging such employment. The Co-op Program provides one credit hour for each work period successfully completed. The Co-op student is required to follow an especially arranged *Timetable of Classes* while in school so as to accommodate his/her alternating status (in school, at work, etc.) and assure that sequential courses are scheduled in proper order. This includes summer sessions as noted on the Normal Co-op Schedule. Registration for each work period is required of *all* Co-ops, and credit is established and graded through enrollment in the appropriate Co-op Grading Period during the following school period. Three credit hours earned via co-op work experience may be applied to Bachelor of Science degree requirements as a substitute for one technical elective course.

ENGINEERING ETHICS AND VALUES (ENEV)

The goal of this program is to involve engineering students in a four-year elective program which will help them to: (a) understand the impact of Christian, Catholic and Jesuit values on engineering ethics, (b) recognize current engineering ethical issues and (c) strengthen their moral resolve to act courageously on these issues once they enter the engineering profession.

Students in engineering may obtain a minor in engineering ethics and values by completing the following course requirements with a grade of C or better in each: PHIL 050, PHIL 104, THEO 001, SOCI 001 plus nine additional hours from the following list of courses: PHIL 105, PHIL 131, PHIL 132, THEO 170, THEO 175, SOCI 128. In addition to the above courses, a colloquium series is offered each term. Students are required to attend each of the 0-credit colloquia ENEV 001, ENEV 002, ENEV 003, ENEV 004, ENEV 005, and each of the one-credit colloquia ENEV 006, ENEV 007, ENEV 008. For information, see your faculty adviser or your department office.

PART-TIME STUDIES

The College of Engineering offers a part-time studies evening program in civil, electrical, mechanical and industrial engineering for students who qualify for admission with junior standing. The part-time evening program is not available to majors in biomedical engineering, computer engineering or environmental engineering.

Since many part-time students cannot, because of employment (and often family) responsibilities, carry more than two or three courses in any given term, course offerings in the evenings are scheduled on a planned two- or three-year rotation basis, i.e., all upper division required engineering courses are offered at least once every two years along with a general selection of technical electives. Day and evening engineering courses are open to non-degree students with the proper prerequisites who are interested in professional development. Non-engineering required courses, e.g. mathematics, physics, chemistry, et al, are offered regularly in the evening as are humanities/social sciences electives and other technical electives. See the section on the Part-time Studies Program in the front part of this bulletin for information.

STUDY ABROAD PROGRAMS

Engineering students may study abroad with a Marquette affiliated program, a Marquette exchange program, a Marquette summer or intersession program or a non-Marquette program. Students are urged to contact the office of the associate dean for academic affairs as early as possible for details. See also, this bulletin under Study Abroad Programs. The College of Arts and Sciences also maintains a Study Abroad Resource Center in Marquette Hall, 208. Study abroad information is also available in the reference collection and at the reserve desk in the Memorial Library.

FIVE-YEAR COMBINED BS/MS PROGRAMS

Each of the departments in the College of Engineering at Marquette University offers programs which allow highly qualified students to complete a bachelor of science and master of science degree in five calendar years (six years for students enrolled in the Cooperative Education Program). By increasing course loads slightly in the junior year and/or by taking courses in the summer of the junior and/or senior years, qualified students may be able to complete the BS degree on schedule in four years and the MS degree at the end of five calendar years.

Students intending to pursue one of these programs should begin planning at the end of the sophomore year. Formal application to the program takes place during the second term of the junior year. See individual departments for details.

Students admitted to the Five-Year Combined BS/MS Program are eligible for graduate student financial aid (teaching and research assistantships and fellowships) beginning with the second term of their senior year. Students interested in information should contact the appropriate department chair.

ADVANCED STANDING – 2+2 AND DUAL DEGREE PROGRAMS

The College of Engineering maintains formal agreements with various colleges for the transfer of credits into selected engineering degree programs. Students who attend Waukesha County Technical College (WCTC) in Electronics Technology or Mechanical Design Technology may transfer to Marquette with junior status as a part of a 2+2 program agreement after satisfactorily completing their degree program at WCTC. The college also maintains dual degree programs with Spring Hill College in Mobile, Ala. and Creighton University in Omaha, Neb. Students who engage the Spring Hill program are awarded a bachelor's degree from Spring Hill and a bachelor's degree in engineering from Marquette. Students who engage the program with Creighton receive an associate degree after two years at Creighton, transfer to Marquette with junior standing and receive a bachelor's degree in engineering after completion of the Marquette program. For more information contact the office of the associate dean for new student programs.

STUDENT ORGANIZATIONS

COLLEGE ORGANIZATIONS

Engineering students are eligible for membership in the Engineering Student Council, composed of the elected officers of the Engineering Association and one member of the governing board of each activity, fraternal, honorary, and professional organization within the College of Engineering.

PROFESSIONAL SOCIETIES

Student chapters have been established by the American Society of Civil Engineers, the Institute of Electrical and Electronics Engineers, the American Society of Mechanical Engineers, Association of Computing Machinery, the SAE International, American Ceramic Society, ASM International, National Society of Black Engineers, the Society of Hispanic Professional Engineers, the Society of Women Engineers, the Institute of Transportation Engineers, the Institute of Industrial Engineers, the Society of Manufacturing Engineers, American Society for Quality Control, the Society of Photo-Optical Engineers and the Biomedical Engineering Society.

PROFESSIONAL FRATERNITIES/SORORITIES

Students in the College of Engineering are eligible to join the following professional fraternities on campus: Sigma Phi Delta, international professional engineering fraternity; Triangle, national fraternity for engineers, architects, and scientists; and Alpha Omega Epsilon, professional engineering sorority.

HONOR SOCIETIES

Engineering students are eligible for membership in the following engineering honor societies: Tau Beta Pi, all-engineering; Chi Epsilon, civil engineering; Eta Kappa Nu, electrical engineering; Pi Tau Sigma, mechanical engineering; Alpha Eta Mu Beta, biomedical engineering; and Upsilon Pi Epsilon, computer engineering. Each year, these societies award membership keys to men and women exhibiting high promise of success.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

CURRICULA INFORMATION

DEPARTMENT OF BIOMEDICAL ENGINEERING

The Department of Biomedical Engineering offers curricula that leads to a bachelor of science degree in biomedical engineering.

MISSION

The mission of the Department of Biomedical Engineering is to provide its students with knowledge, leadership and communication skills, while fostering ethical and moral character, and compassion for the human condition. This knowledge, character, compassion and skills will allow the students, as biomedical engineers, to respond to the scientific and technical needs of the medical and health care community and society at large.

Studies in biomedical engineering incorporate courses in biology, chemistry, mathematics, computers and engineering. These courses, in combination, emphasize the interdisciplinary elements of biomedical engineering not presently offered in the more traditional departments of engineering. A solid foundation in the mathematical, physical, and life sciences is necessary for the engineer to function effectively in a medically or biologically oriented problem solving environment. In this environment, the engineer needs to be able to communicate with physicians, to describe and model complex biological systems, to collect and analyze experimental or clinical data, to understand the capabilities and limitations of sophisticated instrumentation, and to understand the principles of design.

There are three majors in the biomedical engineering curriculum: biocomputing, bioelectronics and biomechanics. The bioelectronics major includes rigorous training in electrical engineering within the interdisciplinary framework of the curriculum. Such training, which includes courses in electric circuits and analog and digital electronics, supports interests focused on the measurement of bioelectric signals and biomedical instrumentation design. In the senior year, the culmination of the training features intensive biomedical instrument design and computer laboratories emphasizing modern bioelectric applications. In addition, a senior year capstone design course sequence places the student in a multidisciplinary design team situation to solve an actual industrial bioelectronic design problem.

The biomechanics major includes rigorous training in mechanical engineering within the interdisciplinary framework of the curriculum. Such training, which includes courses in materials and solid mechanics, supports interests focused on the application of biomechanics and biomaterials. In the senior year, the culmination of the training features intensive biomedical instrument design and computer laboratories emphasizing modern biomechanical applications. In addition, a senior-year capstone design course sequence places the student in a multidisciplinary design team situation to solve an actual industrial biomechanical or biomaterial design problem.

The biocomputer engineering curriculum integrates computer engineering and the life sciences, with a solid foundation in mathematics, physics, chemistry and engineering methods. The new curriculum combines foundational computer engineering knowledge with biocomputer engineering applications, integrating biology, physiology, medicine, biomedical software design, biosignal processing, bioinstrumentation. In the senior year, the training culminates with a comprehensive, biocomputer engineering, design laboratory experience that incorporates engineers from industry and emphasizes medical device design and methods for biomedical informatics. In addition, a senior capstone design course places students in a multidisciplinary team working with industry to solve biocomputer design problems.

All majors in biomedical engineering have been designed to be compatible with other programs offered by the College of Engineering. Each major contains the requisite humanities and theology/philosophy courses, and requires the standard 133 credit hours for graduation. Students can earn an optional minor in either electrical or mechanical engineering as well as biology, chemistry, business administration, and others. In addition, the majors retain many of

the core courses of the initial two years, and allow the student to elect the co-op/internship program. Since the majors satisfy the entrance requirements of many professional schools, the student can, usually without additional preparation, pursue studies in medical school, dental school, schools of veterinary medicine, law school and graduate schools in biomedical engineering or traditional areas of engineering.

The Department of Biomedical Engineering operates biomedical image and signal processing laboratories, biocomputer, bioelectronic and biomechanical design laboratories, and students have access to computer, electrical and mechanical engineering laboratories as well as the college and university computer facilities. In addition, collaborative programs exist between Marquette University, the Medical College of Wisconsin, the Milwaukee County Medical Complex, Froedtert Memorial Lutheran Hospital, and the Zablocki Veterans Administration Medical Center. These proximate collaborative research programs, some active for three decades, provide a uniquely enhanced laboratory experience that has significantly contributed to the success of biomedical engineering at Marquette.

THE LES ASPIN BIOMEDICAL INTERNSHIPS

The Department of Biomedical Engineering in conjunction with the Les Aspin Center for Government at Marquette University offer internships in medical regulatory and public policy issues. The Les Aspin Biomedical Engineering Internships began in Spring 1997 with qualified biomedical engineering undergraduates traveling to Washington, D.C. The venue for the engineering internships is Capitol Hill, the Food and Drug Administration or private industry located in the Washington, D.C., area. In addition to participating in the internship experience, the students take Marquette University classes at the Les Aspin Center for Government, located a few blocks from Capitol Hill, and reside nearby in Marquette-owned, furnished apartments. This program is unique in providing undergraduate experience in research and regulatory issues.

BIOMEDICAL ENGINEERING COOPERATIVE EDUCATION AND INTERNSHIP PROGRAM

The Biomedical Engineering Co-op/Internship program offers students the opportunity to gain meaningful practical and professional experiences in the health care industrial environment, in addition to their on-campus educational experiences. The undergraduate biomedical program also provides real-world biomedical engineering experiences in the freshman biomedical engineering methods course and Career Development Workshops during the sophomore year. The Biomedical Engineering Co-op/Internship Program is supported by funding from the Whitaker Foundation. Currently more than 70 percent of the biomedical engineering students participate in co-op or internship opportunities.

Marquette University began its Engineering Co-op Program in 1919. Students usually enter the Co-op program at the end of their sophomore year and complete three to four terms of off-campus employment. The employment experience is alternated with terms of on-campus study, only extending graduation by one year. The College of Engineering is a member of the American Society for Engineering Education and all of its undergraduate degree programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). In addition to the formal Co-op program, undergraduates may also gain experience through summer internships.

FIVE YEAR B.S./M.S. PROGRAM

This program allows students to receive a bachelor of science degree and a master of science degree in biomedical engineering in five years. Students with quality point averages (3.500 or above) apply to the program during their junior year. They begin their thesis research the summer between their junior and senior years. Their research laboratory experience continues the summer between their senior and fifth years and throughout their fifth year, culminating in the preparation of a written thesis and defense.

EDUCATIONAL OBJECTIVES

- To provide a quality foundation in the fundamental concepts (mathematics, physical science, life science and engineering) and background needed to pursue a successful career in biomedical engineering.
- To offer the student an educational program in areas which provide a broad and interdisciplinary background in appropriate theory, design and practice.
- To prepare graduates who are able to communicate effectively in written, graphical and oral forms.
- To provide opportunities to foster effective student-team interaction.
- To interact with industrial partners to maintain a current educational curriculum.

- To prepare graduates for employment or post-graduate training in biomedical engineering.
- To earn national recognition for excellence in biomedical engineering training and medical research.
- To provide an appreciation for religious, moral, ethical and human values.

BIOCOMPUTING MAJOR

<i>Freshman</i>	
FIRST TERM	SECOND TERM
BIEN 001 Introduction to Biomedical Engineering Methods 1 1-2-2	BIEN 002 Introduction to Biomedical Engineering Methods 2 1-2-2
BIOL 001 General Biology 1. 3-0-3	BIOL 004 General Biology 4 3-0-3
MATH 080 Calculus 1 4-0-4	MATH 081 Calculus 2. 4-0-4
PHYS 003 General Physics with Calculus 1 3-3-4	PHYS 004 General Physics with Calculus 2. 3-3-4
ENGL 001 Expository Writing 1 3-0-3	GEEN 051 Introduction to Computer Programming 3-0-3
16	16
<i>Sophomore</i>	
FIRST TERM	SECOND TERM
COEN 030 Introduction to Computer Hardware and Software 3-0-3	COEN 020 Software Methodologies 3-0-3
MATH 082 Calculus 3 4-0-4	ENGL 002 Expository Writing 2. 3-0-3
THEO 001 Introduction to Theology 3-0-3	BIEN 100 Biomedical Circuits. 4-0-4
GEEN 003 Engineering Orientation. 0-0-0	MATH 083 Differential Equations 4-0-4
CHEM 001 General Chemistry 1 3-3-4	CHEM 002 General Chemistry 2. 3-3-4
BIOL 090 Principles of Biological Investigation 1-3-3	
BIEN 084 Statistics for Biomedical Engineering 1-0-1	
18	18
<i>Junior</i>	
FIRST TERM	SECOND TERM
BIEN 112 Embedded Biomedical Instrumentation. 3-0-3	BIEN 155 Signals and Systems for Biomedical Engineering 4-0-4
BIEN 185 Computer Applications in Biomedical Engineering 2-2-3	COEN 171 Computer Hardware 3-0-3
COEN 120 Data Structures for Engineers .3-0-3	COEN 180 Software Systems. 3-0-3
**Biocomputer Electivex-x-4	COEN 181 Software Engineering 3-0-3
Humanities/Social Sciences Elective. 3-0-3	PHIL 050 Philosophy of Human Nature . . 3-0-3
16	16
<i>Senior</i>	
FIRST TERM	SECOND TERM
BIEN 146 Principles of Design. 2-2-3	BIEN 147 Senior Design Project 2-2-3
BIEN 180 Systems Physiology 3-0-3	BIEN 187 Biomedical Instrumentation Design. 3-0-3
BIEN 193 Biocomputers Design Lab I . . . 2-3-3	BIEN 194 Biocomputers Design Lab 2. . . 2-3-3
***Biomedical Engineering Elective. . . . 3-0-3	***Biomedical Engineering Elective 3-0-3
Humanities/Social Sciences Elective. . . . 3-0-3	****Theology/Philosophy Elective 3-0-3
15	18

* R refers to hours of recitation, L to hours of laboratory, and C to credit hours

**either CHEM 023, Organic Chemistry, or ENME 022, Statics and Dynamics

*** Biomedical Engineering Electives

The following is a list of electives typically taken by Biomedical Engineering students. This list is not inclusive. Other possible electives include 100-level courses in MATH, BIOL, PHYS, CHEM, EECE, MEEN, COEN, and related subject areas. These courses can be taken if approved by the adviser, department chair and associate dean through a course substitution form. Students bound for medical school are strongly encouraged to take CHEM 024 and BIOL 100 as electives.

BIEN 151, BIEN 152, BIEN 157, BIEN 160, BIEN 172, BIEN 182, BIEN 184, BIEN 186, BIEN 195, (Q.P.A.>3.0); COEN 122, COEN123, COEN 150, COEN 172, COEN 182, BIOL 100, BIOL 170, CHEM 024, (4 cr.); MATH 147, MATH 166, PSYC 114

****All students are required to take an ethics course, either as a theology/philosophy elective or humanities/social sciences elective.

BIOELECTRONICS MAJOR

Freshman

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
BIEN 001 Introduction to Biomedical Engineering Methods 1	1-2-2	BIEN 002 Introduction to Biomedical Engineering Methods 2.	1-2-2
BIOL 001 General Biology 1.	3-0-3	BIOL 004 General Biology 4	3-0-3
MATH 080 Calculus 1	4-0-4	MATH 081 Calculus 2.	4-0-4
PHYS 003 General Physics with Calculus 1	3-3-4	PHYS 004 General Physics with Calculus 2.	3-3-4
ENGL 001 Expository Writing 1	3-0-3	ENGL 002 Expository Writing 2.	3-0-3
	16		16

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
EECE 011 Electric Circuits 1	3-0-3	EECE 012 Electric Circuits 2.	3-0-3
GEEN 003 Engineering Orientation.	0-0-0	EECE 010 Electronic Devices and Applications	3-0-3
CHEM 001 General Chemistry 1	3-3-4	CHEM 002 General Chemistry 2.	3-3-4
MATH 082 Calculus 3	4-0-4	MATH 083 Differential Equations	4-0-4
THEO 001 Introduction to Theology.	3-0-3	BIOL 090 Principles of Biological Investigation	1-3-3
EECE 041 Circuits Lab 1	1-2-1	EECE 042 Circuits Lab 2	1-2-1
BIEN 084 Statistics for Biomedical Engineering	1-0-1		
	16		18

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
EECE 112 Digital Electronics.	4-0-4	BIEN 185 Computer Applications in Biomedical Engineering.	2-2-3
EECE 113 Linear Systems Analysis	4-0-4	EECE 111 Analog Electronics	4-0-4
CHEM 023 Organic Chemistry	3-3-4	PHIL 050 Philosophy of Human Nature	3-0-3
ENME 022 Statics and Dynamics.	4-0-4	Humanities/Social Sciences Elective	3-0-3
	16	BIEN 180 Systems Physiology.	3-0-3
			16

Senior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
BIEN 146 Principles of Design	2-2-3	BIEN 147 Senior Design Project	2-2-3
BIEN 187 Biomedical Instrumentation Design	3-0-3	BIEN 186 Physiological Transport Phenomena	3-0-3
BIEN 188 Biomedical Engineering Design Lab 1	2-3-3	BIEN 189 Biomedical Engineering Design Lab 2	2-3-3
EECE 143 Digital Electronics Lab	1-3-2	**Biomedical Engineering Elective	3-0-3
Biomedical Engineering Elective.	3-0-3	*Theology/Philosophy Elective	3-0-3
Humanities/Social Sciences Elective	3-0-3	***Humanities/Social Sciences Elective.	3-0-3
	17		18

* R refers to hours of recitation, L to hours of laboratory, and C to credit hours.

** Biomedical Engineering Electives

The following is a list of electives typically taken by Biomedical Engineering students. This list is not inclusive. Other possible electives include 100-level courses in MATH, BIOL, PHYS, CHEM, EECE, MEEN, COEN, and related subject areas. These courses can be taken if approved by the adviser, department chair and associate dean through a course substitution form. Students bound for medical school are strongly encouraged to take CHEM 024 and BIOL 100 as electives.

BIEN 151, BIEN 152, BIEN 153, BIEN 157, BIEN 160, BIEN 168, BIEN 170, BIEN 172, BIEN 180, BIEN 182, BIEN 183, BIEN 184, BIEN 195, (Q.P.A.>3.0); COEN 030, EECE 121, EECE 122, EECE 141, (2 cr.); EECE 142, (2 cr.); ENME 130, MEEN 104, MEEN 108, MEEN142, MEEN 154, MEEN 161, BIOL 100, BIOL 170, CHEM 024, (4 cr.); MATH 147, MATH 164, MATH 166, PSYC 114

*** All students are required to take an ethics course, either as a theology/philosophy elective or humanities/social science elective.

BIOMECHANICS MAJOR

Freshman

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
BIEN 001 Introduction to Biomedical Engineering Methods 1	1-2-2	BIEN 002 Introduction to Biomedical Engineering Methods 2	1-2-2
BIOL 001 General Biology 1	3-0-3	BIOL 004 General Biology 4	3-0-3
MATH 080 Calculus 1	4-0-4	MATH 081 Calculus 2	4-0-4
PHYS 003 General Physics with Calculus 1	3-3-4	PHYS 004 General Physics with Calculus 2	3-3-4
ENGL 001 Expository Writing 1	3-0-3	ENGL 002 Expository Writing 2	3-0-3
	16		16

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
BIOL 090 Principles of Biological Investigation	1-3-3	MEEN 060 Materials Science	3-0-3
CHEM 001 General Chemistry 1	3-3-4	CHEM 002 General Chemistry 2	3-3-4
ENME 010 Statics	3-0-3	ENME 020 Dynamics	3-0-3
MATH 082 Calculus 3	4-0-4	MATH 083 Differential Equations	4-0-4
GEEN 003 Engineering Orientation	0-0-0	Humanities/Social Sciences Elective	3-0-3
THEO 001 Introduction to Theology	3-0-3	BIEN 084 Statistics for Biomedical Engineering	1-0-1
	17		18

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
BIEN 100 Biomedical Circuits and Electronics	4-0-4	BIEN 155 Signals and Systems for Biomedical Engineering	4-0-4
ENME 130 Mechanics of Materials	3-0-3	BIEN 185 Computer Applications in Biomedical Engineering	2-2-3
CHEM 023 Organic Chemistry	3-3-4	MEEN 104 Thermodynamics	3-0-3
Humanities/Social Sciences Elective	3-0-3	PHIL 050 Philosophy of Human Nature	3-0-3
BIEN 180 Systems Physiology	3-0-3	***MEEN Elective	3-0-3
	17		16

Senior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
BIEN 191 Biomechanical Engineering Design Lab 1	2-3-3	BIEN 192 Biomechanical Engineering Design Lab 2	2-3-3
BIEN 187 Biomedical Instrumentation Design	3-0-3	BIEN 186 Physiological Transport Phenomena	3-0-3
BIEN 146 Principles of Design	2-2-3	BIEN 147 Senior Design Project	2-2-3
**Biomedical Engineering Elective	3-0-3	**Biomedical Engineering Elective	3-0-3
***Theology/Philosophy Elective	3-0-3	***Humanities/Social Sciences Elective	3-0-3
***MEEN Elective	3-0-3		
	18		15

*R refers to hours of recitation, L to hours of laboratory, and C to credit hours.

Special programs are available for advanced placement students.

** Biomedical Engineering Electives

The following is a list of electives typically taken by Biomedical Engineering students. This list is not inclusive. Other possible electives include 100-level courses in MATH, BIOL, PHYS, CHEM, EECE, MEEN, COEN, and related subject areas. These courses can be taken if approved by the adviser, department chair and associate dean through a course substitution form. Students bound for medical school are strongly encouraged to take CHEM 024 and BIOL 100 as electives.

BIEN 151, BIEN 152, BIEN 153, BIEN 157, BIEN 160, BIEN 168, BIEN 170, BIEN 172, BIEN 182, BIEN 183, BIEN 184, BIEN 195, (Q.P.A.>3.0); COEN 030, EECE 121, EECE 122, EECE 142, (2 cr.); ENME 130, (BIOE only); MEEN 108, MEEN 142, MEEN 154, MEEN 161, BIOL 100, BIOL 170, CHEM 024, (4 cr.); MATH 147, MATH 164, MATH 166, PSYC 114

****MEEN Elective: Students may choose from the following Mechanical Engineering courses. MEEN 128 Dynamics of Mechanical Systems; MEEN 141 Computer Aided Design; MEEN 160 Materials Selection in Mechanical Design (4 cr.). Note, MEEN 128 is a prerequisite for MEEN 141. If not used as a MEEN elective, any of these courses can be used as a BIEN elective.

*** All students are required to take an ethics course, either as a theology/philosophy elective or humanities/social science elective.

BIOMEDICAL ENGINEERING MINOR

The Department of Biomedical Engineering offers a minor in biomedical engineering to all undergraduate students in the university except those students in biomedical engineering. Completion of the minor will be noted on the student's transcript if the following requirements are met: Twenty-four hours consisting of BIEN 100, 155, 180, 185, 187; BIOL 001; CHEM 023; (or equivalent). At least half of these credit hours **must** be taken at Marquette University.

COMPUTER ENGINEERING MINOR

A minimum of thirty-two hours including: EECE 010, 011, 012, 041, 042 112, COEN 020, 030, 140, 171, 180 and 181. At least half of these credits must be taken at Marquette University.

ELECTRICAL ENGINEERING MINOR

Twenty-eight hours including: EECE 010, 011, 012, 111, 112, 113, 141, and either 121 or COEN 030, or both 142 and 143. At least half of these credit hours must be taken at Marquette.

MECHANICAL ENGINEERING MINOR

Thirty hours including the following courses or their equivalents: ENME 022 (or ENME 010/020, 4 cr. only), ENME 130, MEEN 060, 104, 106 or 108 (or BIEN 186), 120 (or BIEN 191/92 3 cr. only), 128, 142 and two MEEN electives (MEEN 160 and MEEN 141). The program as a whole must have MEIE Departmental approval.

BIOLOGY MINOR

Six courses including BIOL 001 and 002 (or 004) plus two other BIOL courses and two additional courses from **BIOL, CHEM and/or ANTH 106, PSYC 165, MATH 060**.

CHEMISTRY MINOR

Five classes including CHEM 001 and 002, 023 or 123, 024 or 124 and one additional upper division CHEM class.

OTHER MINORS

Other minors are available; please follow the minor requirements in the Bulletin listed under the appropriate department.

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

The Department of Civil and Environmental Engineering offers a curriculum that leads to a bachelor of science degree in civil engineering.

MISSION

The mission of the Department of Civil and Environmental Engineering is to educate students in the Catholic, Jesuit tradition. These students will be competent in their technical fields, appreciate the moral and ethical impact of their professional work, and continue their professional development throughout their careers. The students and faculty of the department will advance the state of technical and scientific knowledge through research and provide service to civic and professional communities.

EDUCATIONAL OBJECTIVES

- Develop an appreciation for religious, moral, ethical and human values.
- Provide a foundation for the application of the fundamentals of science and mathematics for solving engineering problems.
- Give students an opportunity to experience the civil engineering profession through the Cooperative Education program, summer internships or hands-on experience in laboratory courses.
- Prepare graduates to communicate effectively in written, graphical and oral form.
- Provide opportunities to exhibit leadership and develop team-building skills.
- Instill a commitment to lifelong learning.

Civil engineering is the art and science used in the construction of facilities which people need in their environment — land, water and air. Airports, buildings, bridges, dams, harbors, highways, irrigation systems, transportation systems, sewerage and water supply systems are examples of the types of facilities which are the responsibility of the civil engineer.

Since the beginning of civilization, people have been building with the use of engineering principles. Modern society depends on this contribution from the civil engineer, whose education is systematically developed from a strong background in mathematics, physical and engi-

neering sciences. The civil engineer must relate to society and fellow men and women, and be aware of how the engineering principles can be applied for the benefit of others.

Civil engineers are also stewards of the land, its resources and environment. Many civil engineers are involved in activities such as watershed and environmental planning, sustainable resource development and environmental protection.

The civil engineering major develops the analysis and design capabilities of the student in the study of structures and systems. The application of computers and pertinent software is used throughout the major. A broad educational program can be selected or some specialization is possible through advised elective course selection.

The curriculum provides the graduate with the necessary training to begin a professional career without further formal education, while also affording those students who enter graduate studies the opportunity to prepare more adequately in their field of specialization.

Civil engineering majors have the option to concentrate their studies in the following areas:

GENERAL CIVIL ENGINEERING

The diverse needs of people and society for many types of constructed facilities give a broad range to civil engineering. This breadth is well-suited to allow specialization in one of the major divisions of this branch of engineering. However, it is not necessary to make a commitment to only one area of concentration while in the undergraduate college. The curriculum at Marquette is arranged to permit students to prepare themselves generally in civil engineering by completing the core courses which provide all the necessary fundamentals and selecting electives to acquire additional depth in one or more of the areas of specialization. All the electives which the department offers are open to students with the required prerequisites. Selection of the courses for a general program requires careful planning between the student and an academic adviser.

CONSTRUCTION AND PUBLIC WORKS MANAGEMENT

Construction and public works projects of all types require management as well as the traditional engineering skills. This program is arranged so that a student may vary the usual undergraduate program to obtain the knowledge needed to enter a graduate program in construction and public works management while still maintaining the essentials of a general civil engineering program.

ENVIRONMENTAL AND WATER RESOURCES

The environmental area is concerned with the control and improvement of human surroundings using principles developed in civil engineering. The environmental/water resources engineer is responsible for conceiving and designing systems for water supply, wastewater treatment and disposal, air pollution control, solid and hazardous waste management and design of water resources systems.

STRUCTURAL

The structural area deals with the planning, analysis, design and construction of various types of structures such as buildings, bridges and foundations. Students will learn to analyze and design structures in concrete, steel and timber. They will also learn to analyze and design foundations for structures.

TRANSPORTATION

The transportation area provides the student with an overall understanding of the problems of transportation and urban planning, and how to solve them. Students may elect to concentrate in the area of highway engineering (design, pavements and materials) or traffic engineering (design, operations and traffic management).

URBAN

Many graduate civil engineers will find employment with governmental agencies and engineering design firms which are primarily concerned with metropolitan type problems. Courses within this area are designed to acquaint the student with urban related concepts and problems, most of which are large scale and people oriented.

CIVIL ENGINEERING MAJOR

Freshman

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MATH 080 Calculus 1	4-0-4	MATH 081 Calculus 2	4-0-4
CHEM 001 General Chemistry 1	3-3-4	CHEM 002 General Chemistry 2	3-3-4
ENGL 001 Expository Writing 1	3-0-3	ENGL 002 Expository Writing 2	3-0-3
Humanities/Social Sciences Elective	3-0-3	CMST 012 Public Speaking	2-0-2
GEEN 022 Introduction to Graphics for Engineers	1-2-2	GEEN 010 Introduction to Engineering Problem Solving	1-2-2
GEEN 011 Introduction to Engineering	1-2-2	GEEN 023 Introduction to Engineering Computing	1-2-2
	18		17

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MATH 082 Calculus 3	4-0-4	MATH 083 Differential Equations	4-0-4
PHYS 003 General Physics I with Calculus	4-2-4	PHYS 004 General Physics 2 with Calculus	4-2-4
GEEN 003 Engineering Orientation	0-0-0	THEO 001 Introduction to Theology	3-0-3
CEEN 032 Elem. Surveying	2-3-3	ENME 020 Dynamics	3-0-3
ENME 010 Statics	3-0-3	INEN120 Engineering Economy	2-0-2
PHIL 050 Philosophy of Human Nature	3-0-3		
	17		16

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
ENME 130 Mechanics of Materials	3-0-3	CEEN 110 Structural Analysis 1	3-0-3
CEEN 150 Environmental Engineering	3-0-3	CEEN 162 Geotechnical Engr.	2-2-3
CEEN 043 Behav. and Prop. Engr. Materials	2-2-3	CEEN 126 Hydraulic Engineering	2-2-3
ENME 151 Mechanics of Fluids	3-0-3	CEEN 170 Intro. to Transportation Engineering	3-0-3
MEEN 104 Thermodynamics	3-0-3	EECE 109 Elect. Circuits and Mach.	3-0-3
	15	Theology/Philosophy Elective (Upper Div.)**	3-0-3
			18

Senior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
CEEN 113 Steel Design 1	3-0-3	CEEN 189 Civil Engr. Design	3-3-4
CEEN 144 Reinforced Concrete Design	3-0-3	CEEN Elective (Design)	3-0-3
CEEN 180 Intro. to Constr. Management	3-0-3	CEEN Elective	3-0-3
CEEN 139 Engineering Fundamentals Review	2-0-1	Humanities/Social Sciences Elective**	3-0-3
CEEN Elective	3-0-3	Humanities/Social Sciences Elective	3-0-3
CEEN Elective (Design)	3-0-3		
	16		16

*R refers to hours of recitation, L to laboratory, and C to credit hours.

** All students are required to take an ethics course, either as a theology/philosophy elective or humanities/social science elective.

TECHNICAL ELECTIVE REQUIREMENTS

All civil engineering students must complete 12 credits of technical electives from the courses listed below. A minimum of 6 credits of civil engineering design is required and must be selected from those courses designated as design (D).

CEEN 111	CEEN 147 (D)	CEEN 174 (D)
CEEN 114 (D)	CEEN 148 (D)	CEEN 176 (D)
CEEN 123 (D)	CEEN 149 (D)	CEEN 181
CEEN 124	CEEN 154	CEEN 182
CEEN 127 (D)	CEEN 155	CEEN 183
CEEN 128	CEEN 156 (D)	CEEN 184
CEEN 129	CEEN 157	CEEN 185
CEEN 145	CEEN 163 (D)	CEEN 186
CEEN 146 (D)	CEEN 172 (D)	

(D) designates a Civil Engineering design course.

Exceptions to requirements: Students enrolled in NROTC or AROTC may substitute approved naval science or military science courses.

ENVIRONMENTAL ENGINEERING MAJOR

In addition to the Civil Engineering major described above, students can elect to specialize in environmental engineering and obtain a major in that discipline. The major in environmental engineering provides a solid foundation in civil engineering as well as more comprehensive study in the area related to the environment.

Freshman and Sophomore

The freshman and sophomore years are the same as those described for the civil engineering major.

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
ENME 130 Mechanics of Materials.	3-0-3	CEEN 110 Structural Analysis 1	3-0-3
ENME 151 Mechanics of Fluids.	3-0-3	CEEN 126 Hydraulic Engineering.	2-2-3
CEEN 043 Behavior & Prop.		CEEN 162 Geotechnical Engr.	2-2-3
Engr. Materials.	2-2-3	CEEN 170 Intro. to Transportation Engr.	3-0-3
CEEN 150 Environmental Engr.	3-0-3	MEEN104 Thermodynamics for	3-0-3
BIOL 001 General Biology 1.	3-0-3	Non-mechanical Engr.	
		Theology/philosophy Elective	3-0-3
	15		18

Senior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
CEEN 139 Engr. Fundamentals Review . . .	2-0-1	CEEN 189 Civil Engr. Design Project . . .	3-3-4
CEEN 154 Environmental Chemistry. . . .	3-0-3	CEEN Environmental Design Elective. . .	3-0-3
CEEN180 Intro. to Construction Mgmt. . .	3-0-3	CEEN Environmental Elective.	3-0-3
CEEN Environmental Design Elective . . .	3-0-3	CEEN Environmental Elective.	3-0-3
CEEN Structural Design Elective (1) . . .	3-0-3	Humanities/Social Science Elective	3-0-3
CEEN 188 Environmental Seminar (2) . . .	1-0-0		
Humanities/Social Science Elective. . . .	3-0-3		
	16		16

(1)Select one of the following: CEEN 113, CEEN 144, CEEN 148

(2)Participation in the Environmental Seminar is required during either the first or second term.

ENVIRONMENTAL ELECTIVES

Twelve credits are required from the following list. Six credits must be selected from those designated as design (D).

CEEN 123 (D)	CEEN 128	CEEN 156 (D)
CEEN 124	CEEN 129	CEEN 157
CEEN 127 (D)	CEEN 155	CEEN 185

CIVIL ENGINEERING ELECTIVES

The civil engineering major provides for elective courses which enable a student to study in depth or breadth those areas which best meet individual interests and needs. In this way, any student, after consultation with an adviser and approval by the department chairperson, can follow a special program which fulfills the technical elective credit requirement. The electives listed are those which would normally be used for this purpose. These are meant to be only

TABLE OF ELECTIVE COURSES

COURSES			Environmental Option	Structural Option	Transportation Option	Construction & Public Works Management Option
CEEN	111	Structural Analysis 2		HR		R
	114	Steel Design 2		HR		
	123	Urban Hydrology and Storm Water Management	HR		R	R
	124	Air Pollution Engineering	R		R	
	127	Water Resources Engineering	R		R	
	128	Groundwater Engineering	R			
	129	Geographical Information Systems	R		R	
	145	Advanced Mechanics of Materials		R		
	146	Advanced Concrete and Masonry Design		HR		R
	147	Prestressed Concrete Design		HR		R
	148	Timber Structures		HR		
	149	Bridge Design		HR	R	
	154	Environmental Chemistry	HR			
	155	Industrial Wastewater Management	R			
	156	Treatment Plant Design and Operation	HR			
	157	Hazardous and Industrial Waste Management	R			
	163	Foundation Engineering		R		HR
	172	Highway Planning and Design			HR	
	174	Pavement Design			R	
	176	Traffic Characteristics and Design			HR	
	181	Construction Cost Estimating	R	R	R	HR
	182	Computer Applications in Construction				HR
	183	Probability Applications in Engineering Planning and Design		R		HR
	184	Construction Seminars				HR
	185	Urban Planning for Civil Engineers			HR	R
	186	Law for Engineers	R			HR

R Recommended; HR Highly Recommended

suggestions and it is the responsibility of the student and an adviser to develop a well planned elective program.

CIVIL ENGINEERING MINOR

The Department of Civil and Environmental Engineering offers a minor in civil engineering to all undergraduate students in the university except those students in civil engineering. Completion of the minor will be noted on the student's transcript if the following requirements are met: Twenty-five hours including required courses ENME 022, or 010/020, 130, 151 and at least 12 additional hours, from the following CEEN courses: CEEN 032, 110, 150, 162, 170, or 180. The program as a whole must have departmental approval and be completed with a C average. At least half of these credit hours **must** be taken at Marquette University.

ENVIRONMENTAL ENGINEERING MINOR

The Department of Civil and Environmental Engineering offers a minor in environmental engineering to all undergraduate students in the university who are interested in the engineering aspects of environmental protection and water quality control, except those students in civil engineering. Completion of the minor will be noted on the student's transcript if the following requirements are met: Required courses ENME 022, or 010/020, 151, BIOL 001 or CHEM 023, CEEN 150 and at least nine credits of additional CEEN courses selected from: CEEN 123, 126, 127, 128, 154, 155, 156, 157. The program as a whole must have departmental approval and be completed with a C average.

OTHER MINORS

Students in the civil engineering curriculum who are interested in obtaining a minor (or major) in any other area should consult with their advisers during their freshman or sophomore

year in order to plan their schedules to meet their particular objectives with a minimum amount of overload credits.

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

The Department of Electrical and Computer Engineering offers curricula that lead to a bachelor of science degree in electrical engineering or a bachelor of science degree in computer engineering.

MISSION

The Department of Electrical and Computer Engineering embraces the missions of Marquette University and its College of Engineering. The mission of the Department of Electrical and Computer Engineering is to offer its students high-quality, up-to-date, nationally-recognized programs in electrical and computer engineering that prepare them for successful careers. This success is marked by a commitment to lifelong learning and a deep concern for the impact of their work on others; research that advances the frontiers of technical and scientific knowledge; and service to professional and civic communities.

Engineering is the professional art of applying science and mathematics to the efficient conversion of natural resources and the manipulation of information for human benefit. The basic concepts in this definition can be expanded, particularly for the electrical or computer engineer, by considering his or her activities. These usually involve (1) the processing and control of energy, (2) the processing and control of information, (3) the processing and control of materials. Certainly any educational experience in electrical engineering or computer engineering should be evaluated for the student in terms of its contribution in one or more of these areas.

However, this is not the only consideration. Equally important is the concept of engineering as a *dynamic* profession. In terms of the educational process, this means that attention must be directed to preparing the student for types of processing and control which have not yet been developed or perhaps even discovered. The young engineer must be prepared to cope with devices and systems which will appear years into the future, from the viewpoint of the scientific principles on which the design of these future devices and systems will be based.

There is another important consideration in the practice of electrical and computer engineering. An engineer is called on for many and varied activities but as diversified as these may be, when carefully examined, they lead to this conclusion: *Problem-solving is the engineer's most important activity*. From the educator's viewpoint, this naturally should lead to a planned, conscious effort to develop the young engineer's problem-solving ability to the limits of his or her God-given talents. In this regard, it is important to note that since engineers' problems are sometimes *creative*, sometimes *analytic*, and sometimes *experimental*, their educational experience must give practice in each of these areas and in all types of problems. Significant design experience is an essential part of the engineer's education.

Finally, the engineer is an *individual*, a citizen who needs to develop a sense of moral and ethical values on a plane consistent with his or her education in other areas. In the educational process, this requires that a good balance be developed between the technical and social-humanistic content.

The electrical engineering and computer engineering curricula at Marquette University are carefully designed to meet the requirements of each student. Opportunities are provided for each student to develop in the direction of personal interests and at a rate corresponding to individual ability. Coherent elective programs are planned with each student consistent with his or her ability and professional goals. Moreover, superior students have the opportunity for independent study and for participation in research activity.

ELECTRICAL ENGINEERING

The curricula offered in the Department of Electrical and Computer Engineering lead to the bachelor of science degree in electrical engineering.

EDUCATIONAL OBJECTIVES

- **Value-based Education.** Electrical Engineering graduates will have an informed concern for religious, moral, ethical and human values, especially as these values impact their professional decisions.
- **Fundamental Skills.** Electrical Engineering students will develop the ability to formulate and analyze significant electrical engineering problems by applying college-level mathematics,

- basic science, and engineering science. When solving these engineering problems, students will apply up-to-date tools and techniques with particular emphasis on the use of computers.
- **Practical Training.** Electrical Engineering students will experience the practical side of their profession through a number of avenues including laboratory courses, summer internships, and the co-op program.
 - **Communications Skills.** Electrical Engineering students will develop the oral and written communications skills necessary to function effectively in today's business world through formal courses and required oral and written presentations in their engineering classes.
 - **Design Skills.** Electrical Engineering students will learn the design process including the personal skills of group interaction through a variety of experiences culminating in the comprehensive senior-year design program.
 - **Team Skills.** Electrical Engineering students will develop the ability to work effectively in teams through a variety of experiences in course and laboratory assignments as well as in the senior-year design program.
 - **Lifelong Learning.** Electrical Engineering graduates will be fully cognizant of the need for, and will be prepared to participate in, lifelong learning.

Electrical and Electronic Engineering Major

The *electrical and electronic engineering major* provides students with a comprehensive electrical engineering background with course specialties in three broad categories: *materials and devices*, *devices and circuits*, and *circuits and systems*. *Materials and devices* involves the development of methods for characterizing materials and devices constructed from these materials, the development of new manufacturing and processing technologies, and the design and fabrication of electronic components. *Devices and circuits* work ranges from the design of electronic components to the development of complete circuits employing these devices. *Circuits and systems* involves the application of devices and circuits to full-scale consumer and industrial products which employ various solid state devices and transducers, electromechanical and otherwise.

Freshman

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MATH 080 Calculus 1	4-0-4	MATH 081 Calculus 2	4-0-4
PHYS 003 General Physics with Calculus 1	4-2-4	PHYS 004 General Physics with Calculus 2.	4-2-4
ENGL 001 Expository Writing 1	3-0-3	ENGL 002 Expository Writing 2.	3-0-3
GEEN 011 Introduction to Engineering. .	1-2-2	GEEN 010 Introduction to Engineering Problem Solving	1-2-2
CMST 012 Public Speaking	2-0-2	GEEN 051 Introduction to Computer Programming	3-0-3
EECE 001 Freshman Seminar	0-0-0	GEEN 052 Introduction to MATLAB	1-0-1
	15		17

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MATH 082 Calculus 3	4-0-4	MATH 083 Differential Equations	4-0-4
GEEN 003 Engineering Orientation.	0-0-0	CHEM 002 General Chemistry 2.	3-3-4
CHEM 001 General Chemistry 1	3-3-4	EECE 010 Electronic Devices and Applications ²	3-0-3
THEO 001 Introduction to Theology.	3-0-3	EECE 012 Electric Circuits 2 ²	3-0-3
EECE 011 Electric Circuits 1 ²	3-0-3	EECE 042 Circuits Laboratory 2	1-2-1
EECE 041 Circuits Laboratory 1 ²	1-2-1	Statistics Elective ⁶	3-0-3
COEN 030 Introduction to Computer Hardware and Software	3-0-3		
	18		18

<i>Junior</i>			
FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
EECE 112 Digital Electronics ²	4-0-4	EECE 111 Analog Electronics ²	4-0-4
EECE 113 Linear Systems Analysis	4-0-4	EECE 122 Electromagnetic Fields 2	3-0-3
EECE 121 Electromagnetic Fields 1 ²	4-0-4	EECE 123 Electromechanical Energy Conversion	3-0-3
EECE 141 Electrical Instrumentation Laboratory ²	1-3-2	EECE 143 Digital Electronics Laboratory	1-3-2
PHIL 050 Philosophy of Human Nature	3-0-3	Humanities/Social Sciences Elective ¹	3-0-3
	17		15
<i>Senior</i>			
FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
Humanities/Social Sciences Elective ¹	3-0-3	Humanities/Social Sciences Elective ¹	3-0-3
EECE 114 Physical Principles of Solid State Devices.	3-0-3	ENME 022 Statics and Dynamics	4-0-4
EECE 142 Analog Electronics Laboratory	1-3-2	EECE 147 Senior Design Project.	2-2-3
EECE 146 Principles of Design	2-2-3	EECE/Technical Elective ⁴	3-0-3
Design Elective ⁵	3-0-3	EECE/Technical Elective ⁴	3-0-3
Ethics Elective ³	3-0-3		
	17		16

*R refers to hours of recitation, L to hours of laboratory, C to credit hours.

¹ EECE students are required to declare a humanities/social science concentration by the middle of the second term of the sophomore year. A concentration consists of at least three courses with a coordinated focus and must include at least one upper division course.

² A C or better grade is required in these courses to meet the prerequisites for subsequent electrical or computer engineering core courses

³ All students are required to take a theology/philosophy ethics course as their ethics elective.

⁴ EECE/technical electives are normally upper division (100-199) level courses from EECE, COEN, MATH, COSC, PHYS, and/or CHEM. Other courses may qualify pending department approval.

⁵ This elective must be chosen from EECE 150, 153, 157, 162, 164, 165, 173, 174, 175, 176, 181, 182, 185, 186, 187, COEN 151, 152, 170, 171, 172, 181 and (EECE 145, 151, 168, 183, 195 and COEN 168, 195 with departmental approval).

⁶ This elective must be chosen from MATH 164 or INEN 140, or other statistics courses with departmental approval.

Electrical and Computer Engineering Major

The electrical and computer engineering major provides students with a comprehensive electrical engineering background that contains a greater exposure and more in-depth study of computer principles and applications. The *electrical and computer engineering major* offers a carefully integrated course of instruction in electrical engineering, computer engineering and mathematics, to provide a student with a broader computer background than does the *electrical and electronic engineering major*. The *electrical and computer engineering major* includes a course in data structures and an integrated two-term sequence in computer software and hardware. The emphasis in these courses is on small computers, particularly microcomputer concepts and applications. Students completing the electrical and computer engineering major may satisfy the requirements for a minor in computer science (COSC) from the College of Arts and Sciences by an appropriate selection of their program and technical electives.

Freshman, Sophomore Years

The freshman and sophomore years are the same as those described for the electrical and electronic engineering major with the exception that COEN 030 requires footnote 2.

<i>Junior</i>			
FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
EECE 112 Digital Electronics ²	4-0-4	EECE 111 Analog Electronics ²	4-0-4
EECE 113 Linear Systems Analysis	4-0-4	EECE 143 Digital Electronics Laboratory	1-3-2
EECE 121 Electromagnetic Fields 1.	4-0-4	COEN 120 Data Structures for Engineers	3-0-3
EECE 141 Electrical Instrumentation Laboratory ²	1-3-2	COEN 171 Computer Hardware	3-0-3
PHIL 050 Philosophy of Human Nature	3-0-3	Humanities/Social Sciences Elective ¹	3-0-3
	17		15

Senior			
FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
ENME 022 Statics and Dynamics.	4-0-4	Humanities/Social Sciences Elective ¹	3-0-3
EECE 142 Analog Electronics Lab	1-3-2	EECE 147 Senior Design Project.	2-2-3
EECE 146 Principles of Design	2-2-3	Program Elective ⁶	3-0-3
Humanities/Social Sciences Elective ¹	3-0-3	EECE/Technical Elective ⁴	3-0-3
Design Elective ⁵	3-0-3	EECE/Technical Elective ⁴	3-0-3
Ethics Elective ³	3-0-3		
<hr/>		<hr/>	
18		15	

*R refers to hours of recitation, L to hours of laboratory, C to credit hours.

¹ EECE students are required to declare a humanities/social science concentration by the middle of the second term of the sophomore year. A concentration consists of at least three courses with a coordinated focus and must include at least one upper division course.

² A C or better grade is required in these courses to meet the prerequisites for subsequent electrical or computer engineering core courses.

³ All students are required to take a theology/philosophy ethics course as their ethics elective.

⁴ EECE/technical electives are normally upper division (100-199) level courses from EECE, COEN, MATH, COSC, PHYS, and/or CHEM. Other courses may qualify pending department approval.

⁵ This elective must be chosen from the following courses with a computer design emphasis: EECE 150, 153, 157, 162, 164, 165, 175, 176, COEN 151, 152, 170, 172, 181, and (EECE 145, 151, 168, 195 and COEN 168, 195 with departmental approval).

⁶ This elective must be chosen from the following list: EECE 150, 153, 157, 162, 164, 165, 175, 176, COEN 151, 152, 170, 172, 181, (EECE 145, 151, 168, and 195 and COEN 168, 195 with departmental approval), and COSC 149, 152, 153, 157, 158, 159, and 170.

AREAS OF CONCENTRATION WITHIN ELECTRICAL ENGINEERING

ELECTRICAL AND ELECTRONIC MAJOR: various areas of concentration are available with the appropriate choice of the design elective and the EECE/technical electives. While there is no requirement to concentrate in one area, it is essential that the student select an appropriate and well-planned elective program. The various areas of concentration are described below.

COMPUTERS

Computer courses provide a general background in computer software, hardware, systems, and applications. An understanding of both practical and theoretical concepts is encouraged in the courses below which are available for pursuing software and hardware areas of concentration.

A. Recommended courses in the computer software area of concentration include: COEN 120, COEN 122, COEN 150, COEN 151†, COSC 158.

B. Recommended courses in the computer hardware area of concentration include: COEN 152†, COEN 170†, COEN 171†, COEN 172†.

CONTROL SYSTEMS

Control system engineering develops a general background in automatic controls and systems engineering with a fundamental emphasis on linear feedback systems and applications of computers. Course work in advanced controls, digital systems, and large-scale design is included. Recommended courses in the control systems area of concentration include: EECE 150†, EECE 151, EECE 152, EECE 153†, EECE 157†.

ELECTRONICS

The electronics area offers courses in microelectronics, high frequency and optical electronics, solid state materials and devices, and electronic circuit analysis and design.

A. Solid State Electronics and Materials

Solid state electronics courses include solid state physics and the construction, measurement and utilization of solid state electronic devices such as p-n junctions, MOSFETs, Gunn diodes, silicon controlled rectifiers and the diverse area of integrated circuits. Solid state materials courses study the electrical, physical and mechanical properties of materials as they relate to the present and future requirements of the electrical manufacturing industry.

Recommended courses in the solid state electronics and materials area of concentration include: EECE 160, EECE 161, EECE 162†, EECE 164†

B. Applied Electromagnetics and Waves

Applied electromagnetics and waves involve high frequency waves as applied to communications and sensing applications. Principles and applications of wireless communications are included. Fiber optics, antennas, modern communication cell systems, analog and digital modulation techniques, and sensor principles and applications are investigated.

Recommended courses in the applied electromagnetics and waves area of concentration include: EECE 152, EECE 173†, EECE 174†, EECE 175†, EECE 176†.

C. Electronic Circuit Analysis and Design

Electronic circuit analysis and design involve utilization of feedback and switching theory along with linear and digital, discrete and integrated circuits to construct modern electronic circuits.

Recommended courses in the electronic circuit analysis and design area of concentration include: EECE 165†, EECE 181†, EECE 145, COEN 170†.

POWER

Power engineering emphasizes the control and conversion of electrical energy. Motors, generators, and power distribution and control systems are examined. Modern computer-aided analysis is brought to bear on the design and analysis of power devices and power systems.

Recommended courses in the power area of concentration include: EECE 161, EECE 162†, EECE 165†, EECE 181†, EECE 182†, EECE 183, EECE 185†, EECE 186†, EECE 187†.

ELECTRICAL AND COMPUTER MAJOR: software and hardware areas of concentration are available through the appropriate choice of the design elective, the program elective, and the EECE/technical electives.

COMPUTER SOFTWARE

Recommended courses in the computer software area of concentration include: COEN 122, COEN 150, COEN 151†, COEN 172†, COEN 183, COSC 158.

COMPUTER HARDWARE

Recommended courses in the computer hardware area of concentration include: EECE 122, COEN 130, COEN 152†, COEN 170†, COEN 172†, BIEN 185.

†Design Elective

CHOOSING ELECTIVES

In choosing electives, the faculty adviser and student confer to determine what the student's individual interests and objectives are and then what upper division courses best meet his or her needs. By careful choice of an elective program the student can obtain in-depth knowledge in one area of concentration in addition to the broad fundamental background developed in the required courses. Or by equally careful choice of an elective program, the student may continue development of a broad fundamental background. It is the responsibility of the student and his or her faculty adviser to select an appropriate, well-planned elective program. It may be possible for students completing the requirements for the bachelor's degree in electrical engineering to also earn a minor in mathematics or computer science by carefully choosing their elective program.

COMPUTER SCIENCE MINOR

Students in engineering may obtain a minor in computer science by completing the following course requirements with a grade of C or better in each: GEEN 051, COEN 030, COSC 149, 152, and 154, plus three additional hours from the following list of courses: COSC 153, 157, 158, 159, 170. Overload hours can be minimized or eliminated in consultation with an academic adviser.

BIOMEDICAL ENGINEERING MINOR

Students in either the electrical and electronic major or the electrical and computer major may obtain a minor in biomedical engineering without carrying more than the standard 133 semester hours. Students interested in the biomedical engineering minor should consult their advisers as early as possible to minimize overload hours.

OTHER MINORS

Students in the electrical engineering curriculum who are interested in obtaining a minor (or major) in any other area should consult with their advisers during their freshman or sophomore year in order to plan their schedules to meet their particular objectives with a minimum amount of overload credits.

ELECTRICAL ENGINEERING MINOR

The Department of Electrical Engineering offers a minor in electrical engineering to undergraduate students in the university except those students in biomedical engineering. Completion of the minor will be noted on the student's transcript if the following requirements are met:

A minimum of twenty-eight hours including: EECE 010, 011, 012, 041, 042, 111, 112, 113, 141, and either 121 or COEN 030, or both 142 and 143. At least half of these credit hours must

be taken at Marquette University and a C or better average must be earned in the relevant courses taken at Marquette University.

Computer Engineering

In addition to the two electrical engineering majors outlined above, the Department of Electrical and Computer Engineering offers a curriculum leading to a bachelor of science in computer engineering. The computer engineering curriculum provides a solid foundation in electrical engineering fundamentals, as well as a comprehensive study of computer software and hardware systems. Through an ample elective program, students can customize their studies to their individual interests, emphasizing software engineering, computer system design, knowledge-based systems, or other areas of concentration. Students completing the computer engineering program satisfy the requirements for a minor in mathematics and may also satisfy the requirements for a minor in computer science (COSC) by an appropriate selection of their electives provided that a C or better grade is earned in all relevant courses in each minor.

EDUCATIONAL OBJECTIVES

- **Value-based Education.** Computer Engineering graduates will have an informed concern for religious, moral, ethical and human values especially as these values impact their professional decisions.
- **Fundamental Skills.** Computer Engineering students will develop the ability to formulate and analyze significant computer engineering problems involving both hardware and software considerations, by applying college-level mathematics, basic science, and programming skills as appropriate. When solving these computer engineering problems, students will apply up-to-date tools and techniques.
- **Practical Training.** Computer Engineering students will experience the practical side of their profession through a number of avenues including laboratory courses, summer internships, and the co-op program.
- **Communications Skills.** Computer Engineering students will develop the oral and written communications skills necessary to function effectively in today's business world through formal courses and required oral and written presentations in their engineering classes.
- **Design Skills.** Computer Engineering students will learn the design process including the personal skills of group interaction through a variety of experiences culminating in the comprehensive senior-year design program.
- **Team Skills.** Computer Engineering students will develop the ability to work effectively in teams through a variety of experiences in course and laboratory assignments as well as in the senior-year design program.
- **Lifelong Learning.** Computer Engineering graduates will be fully cognizant of the need for, and will be prepared to participate in, lifelong learning.

Freshman

The freshman year is the same as that described for the electrical engineering major.

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MATH 082 Calculus 3	4-0-4	MATH 083 Differential Equations	4-0-4
GEEN 003 Engineering Orientation.	0-0-0	CHEM 002 General Chemistry 2.	3-3-4
CHEM 001 General Chemistry 1	3-3-4	EECE 010 Electronic Devices and Applications.	3-0-3
THEO 001 Introduction to Theology.	3-0-3	EECE 012 Electric Circuits 2	3-0-3
EECE 011 Electric Circuits 1 ²	3-0-3	EECE 042 Circuits Laboratory 2.	1-2-1
EECE 041 Circuits Laboratory 1 ²	1-2-1	COEN 020 Software Methodologies	3-0-3
COEN 030 Introduction to Computer Hardware and Software ² . . .	3-0-3		
	18		18

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
EECE 112 Digital Electronics ²	4-0-4	MATH 145 Discrete Math for Engineers . .	3-0-3
COEN 160 Numerical Analysis	3-0-3	COEN 171 Computer Hardware	3-0-3
MATH 164 Statistical Methods.	3-0-3	COEN 180 Software Systems	3-0-3
COEN 120 Data Structures for Engineers	3-0-3	EECE 143 Digital Electronics Laboratory .	1-3-2
PHIL 050 Philosophy of Human Nature. .	3-0-3	COEN 181 Software Engineering	3-0-3
		Humanities/Social Science Elective ¹	3-0-3
	16		17

Senior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
Humanities/Social Sciences Elective ¹	3-0-3	Humanities/Social Sciences Elective ¹	3-0-3
COEN 140 Computer Engineering Laboratory	1-3-2	COEN 147 Senior Design Project	2-2-3
COEN 146 Principles of Design.	2-2-3	COEN/Technical Elective ⁴	3-0-3
Program Elective ⁶	3-0-3	COEN/Technical Elective ⁴	3-0-3
Design Elective ⁵	3-0-3	Program Elective ⁶	3-0-3
Ethics Elective ³	3-0-3		

17

15

*R refers to hours of recitation, L to hours of laboratory, C to credit hours.

¹ COEN students are required to declare a humanities/social science concentration by the middle of the second term of the sophomore year. A concentration consists of at least three courses with a coordinated focus and must include at least one upper division course.

² A C or better grade is required in these courses to meet the prerequisites for subsequent electrical or computer engineering core courses.

³ All students are required to take a theology/philosophy ethics course as their ethics elective.

⁴ COEN/technical electives are normally upper division (100-199) level courses from COEN, EECE, MATH, COSC, PHYS, and/or CHEM. Other courses may qualify pending department approval.

⁵ This elective must be chosen from the following courses with a computer design emphasis: COEN 151, 152, 170, 172, and (168 and 195 with departmental approval); EECE 157, 162, 164, 165, 175 and 176 and (151 with department approval).

⁶ This elective must be chosen from the following list of computer engineering electives: COEN 121, 122, 123, 130, 131, 132, 150, 151, 152, 161, 168, 170, 172, 173, 174, 175, 182, 183, and 195; EECE 151, 157, 162, 164, 165, 175 and 176.

AREAS OF CONCENTRATION WITHIN COMPUTER ENGINEERING

Software and hardware areas of concentration are available through the appropriate choice of the design elective, the program electives, and the COEN/technical electives. The elective program, determined by the student in conjunction with his or her faculty adviser, should be designed to provide depth of knowledge in at least one computer engineering area.

Software Engineering

Software engineering emphasizes the design of software systems including such concerns as the user interface, expandability and maintainability, efficiency in time and computing resources, etc. Recommended courses in the software engineering area of concentration include: COEN 122, COEN 123, COEN 150, and COEN 182.

Computer System Design

A concentration in computer system design incorporates knowledge of electronics, communications, operating systems, and the theory of computing. Recommended courses in the computer system design area of concentration include: COEN 152†, EECE 164†, COEN 172†, COEN 174.

Knowledge-Based Systems

The area of knowledge-based systems includes database systems, computer graphics, artificial intelligence, parallel computing, neural networks, etc. Recommended courses in the knowledge-based systems area of concentration include: COEN 130, COEN 131, COEN 150, COEN 151†, and COEN 175.

†Design Elective

Choosing Electives

In choosing electives, the faculty adviser and student confer to determine what the student's individual interests and objectives are and then what upper division courses best meet his or her needs. By careful choice of an elective program, the student can obtain in-depth knowledge in one area of concentration in addition to the broad fundamental background developed in the required courses. Alternatively, by an equally careful choice of an elective program, the student may continue development of a broad fundamental background. It is the responsibility of the student and his or her faculty adviser to select an appropriate, well-planned elective program. It may be possible for students completing the requirements for the bachelor's degree in computer engineering to also earn a minor in computer science by carefully choosing their elective program.

COMPUTER SCIENCE MINOR

Students in engineering may obtain a minor in computer science by completing the following course requirements with a grade of C or better in each: GEEN 051, COEN 030, COSC 149, 152, and 154, plus three additional hours from the following list of courses: COSC 153, 157, 158, 159, 170. Overload hours can be minimized or eliminated in consultation with an academic adviser.

BIOMEDICAL ENGINEERING MINOR

Students in computer engineering may obtain a minor in biomedical engineering without carrying more than the standard 133 semester hours. Students interested in the biomedical engineering minor should consult their advisers as early as possible to minimize overload hours.

OTHER MINORS

Students in the computer engineering curriculum who are interested in obtaining a minor (or major) in any other area should consult with their advisers during their freshman or sophomore year in order to plan their schedules to meet their particular objectives with a minimum amount of overload credits.

COMPUTER ENGINEERING MINOR

The Department of Electrical and Computer Engineering offers a minor in computer engineering to undergraduate students in the university except those students in computer engineering. Completion of the minor will be noted on the student's transcript if the following requirements are met: A minimum of thirty-two hours including: EECE 010, 011, 012, 041, 042, 112, COEN 020, 030, 140, 171, 180, and 181. At least half of these credit hours must be taken at Marquette University and a C or better average must be earned in the relevant courses taken at Marquette University.

DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING

The Department of Mechanical and Industrial Engineering offers curricula that lead to a bachelor of science in mechanical engineering or a bachelor of science in industrial engineering.

MISSION

In embracing the missions of the university and the College of Engineering, it is the mission of the Department of Mechanical and Industrial Engineering to offer high quality, up-to-date, nationally-recognized engineering programs which prepare students for successful careers. This success is marked by the graduates' commitment to lifelong learning; a deep concern for the impact of their work on others; research that advances technical and scientific knowledge; and service to professional and civic communities. The department also strives to develop students and faculty who will be recognized as exceptional in their pursuit of excellence, sense of community, spirit of collaboration, and ability to define problems and accomplish goals.

Mechanical Engineering Major

Mechanical engineering is that branch of engineering which is concerned with mechanical and energy systems, along with the intelligent use of modern materials. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems for energy conversion, environmental control, materials processing, transportation, materials handling, and other purposes. The field of mechanical engineering is very broad, and the profession thus provides an ideal base for interdisciplinary activities.

Engineers are constantly challenged to advance and implement modern technologies. This challenge can be met provided that one obtains a sound knowledge of the fundamental principles of the engineering sciences. The mechanical engineering curriculum is designed to provide not only a thorough understanding of the engineering sciences but also of the principles of manufacturing and organization that are used to implement these fundamentals in practical engineering applications.

Integrated with the technical and scientific content of the program is a series of required and elective courses in the humanities, social sciences, theology, philosophy, and communication arts. These courses provide the student with an understanding of society and an awareness of his or her social responsibilities.

In order to accommodate the students' professional interests, the department offers electives in a number of areas of study within mechanical engineering. In choosing electives, the student and faculty adviser confer to determine those courses which best meet the needs and interests of the individual student. By carefully selecting technical elective coursework, the student can obtain in-depth knowledge in one or possibly two areas of concentration to compliment the broad, fundamental, required courses.

The mechanical engineering curriculum is outlined below and then followed by a description of the areas of concentration and the corresponding technical elective courses for each.

EDUCATIONAL OBJECTIVES

- Develop the creative and critical thinking skills essential in identifying, structuring, and solving complex problems.
- Foster an appreciation for religious, moral and ethical values.
- Firmly ground students in the fundamentals of mathematics, the basic sciences, and the engineering sciences necessary to pursue a successful career in mechanical engineering.
- Develop graduates who can communicate effectively in written, graphical and oral forms.
- Provide open-ended challenges for the design of mechanical and thermal systems.
- Instill the necessary personal skills and attitudes in students for them to work effectively in teams.
- Give students an opportunity to experience the practical side of their profession through hands-on experience in laboratory courses, the Cooperative Education Program, and summer internships.
- Instill an attitude that learning is a lifelong process.

MECHANICAL ENGINEERING MAJOR

Freshman

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
CHEM 001 General Chemistry 1	3-3-4	CHEM 002 General Chemistry 2.	3-3-4
ENGL 001 Expository Writing 1	3-0-3	ENGL 002 Expository Writing 2.	3-0-3
GEEN 022 Introduction to Graphics for Engineers	1-2-2	GEEN 010 Introduction to Engineering Problem Solving	1-2-2
GEEN 011 Introduction to Engineering . .	1-2-2	GEEN 023 Introduction to Engineering Computing	1-2-2
MATH 080 Calculus 1	4-0-4	MATH 081 Calculus 2.	4-0-4
Humanities/Sociology Elective	3-0-3	CMST 012 Public Speaking.	2-0-2
	18		17

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
ENME 010 Statics	3-0-3	ENME 020 Dynamics	3-0-3
GEEN 003 Engineering Orientation. . . .	0-0-0	ENME 130 Mechanics of Materials	3-0-3
MEEN 060 Materials Science	3-0-3	MATH 083 Differential Equations	4-0-4
MATH 082 Calculus 3	4-0-4	PHIL 050 Philosophy of Human Nature . .	3-0-3
PHYS 003 General Physics 1 with Calculus	4-2-4	PHYS 004 General Physics 2 with Calculus	4-2-4
THEO 001 Introduction to Theology	3-0-3		
	17		17

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MEEN 143 Manufacturing Engineering 1 .	2-2-3	MEEN 144 Manufacturing Engineering 2 .	2-2-3
MEEN 104 Principles of Thermofluids. . .	3-0-3	MEEN 106 Energy Conversion Processes .	3-2-4
MEEN 120 Mechanical Measurements and Instrumentation	2-2-3	MEEN 128 Dynamics of Mechanical Systems.	3-0-3
MEEN 160 Materials Selection in Mechanical Design.	3-3-4	MEEN 142 Design of Machine Elements.	3-2-4
ENME 151 Mechanics of Fluids.	3-0-3	Humanities/Social Sciences Elective	3-0-3
	16		17

Senior		Senior	
FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MEEN 108 Fundamentals of Heat Transfer	3-0-3	Theology/Philosophy Elective (upper div.)***	3-0-3
MEEN 141 Computer-Aided Engineering	3-1-3	MEEN 147 Senior Design Project	2-2-3
MEEN 146 Principles of Design.	2-2-3	MEEN Elective	3-0-3
EECE 109 Electrical Circuits and Machinery	3-0-3	MEEN Elective	3-0-3
MEEN 190 Engineering Fundamentals Review**	2-0-1	Humanities/Social Sciences Elective	3-0-3
MEEN Elective.	3-0-3		
	16		15

*R refers to hours of recitation, L to hours of laboratory, C to credit hours.

**As part of the requirements for this course students must take the state of Wisconsin Fundamentals of Engineering Exam or that of another state.

*** All students are required to take an ethics course, either as a theology/philosophy elective or humanities/social science elective.

AREAS OF STUDY

ENERGY SYSTEMS

Economic growth and development is strongly dependent upon the development and conversion of energy resources. Assurance that supplies can meet demands without excessive monetary and environmental costs will depend upon political, economic, and technological decisions. But, in any case, the key to solving the problem is engineering the technological development of new and better energy conversion processes and systems. The courses offered in the energy area provide a most up-to-date background for the design of traditional energy systems and for design, research, and development of new systems.

MANUFACTURING

According to the Society of Manufacturing Engineers, manufacturing engineering is that specialty which requires such education and experience to understand, apply, and control engineering procedures and methods of production of industrial commodities and products. It requires the ability to plan the practices of manufacturing, to research and develop the tools, processes, machines, and equipment and to integrate the facilities and systems for producing quality products with optimal expenditures. The courses offered in this area have the aim of preparing the student to face the challenges of rapidly changing technologies present in the modern manufacturing environment.

MATERIALS SCIENCE AND ENGINEERING

This area provides the tools, both experimental and theoretical, for selecting appropriate materials for use in specific engineering applications. Courses stress the study of the effect of process parameters on the microstructure of materials and their mechanical and physical properties.

MECHANICAL SYSTEMS

This area provides the students with the theoretical, computational, and experimental tools that are necessary for the detailed analysis and design of mechanical systems including machine elements such as linkages, gears, and other power transmission components, precision tools, and machinery, etc. The courses offered in this area enable the student to understand the rationale and methodology of the overall design process of mechanical systems, proceeding from the conceptualization stage through the detailed design and implementation phases.

MECHANICAL ENGINEERING MINOR

The Department of Mechanical and Industrial Engineering offers a minor in mechanical engineering to all undergraduate students in the university except those students in mechanical engineering. Completion of the minor will be noted on the student's transcript if the following requirements are met:

Thirty hours including the following courses or their equivalents: ENME 022, ENME 130, MEEN 060, MEEN 104, MEEN 106 or MEEN 108, MEEN 120, MEEN 128, MEEN 142, and two (2) MEEN electives. The program as a whole must have departmental approval and be completed with a C average. Interested students should consult with the department in order to develop an acceptable program. At least 15 credit hours **must** be taken at Marquette University.

FIVE YEAR B.S./M.S. PROGRAM

This newly created program allows students to receive a bachelor of science degree and a master of science degree in mechanical engineering in just five years. Students with qualifying quality point averages enroll in the program during their junior year. They will begin their thesis research the summer between their junior and senior years. Their research laboratory experience will continue the summer between their senior and fifth years and throughout their fifth year, culminating in the preparation of a written thesis and defense.

TABLE OF ELECTIVE COURSES

COURSES	Areas of Study			
	Energy Systems	Manufacturing	Materials Science and Engineering	Mechanical Systems
MEEN 110 Two-Phase Flow and Heat Transfer	✓			
MEEN 111 Applied Energy Conversion I - Equipment	✓			✓
MEEN 112 Applied Energy Conversion II - Systems	✓			
MEEN 117 Heating and Air-conditioning Systems	✓			
MEEN 118 Power Plants	✓			
MEEN 119 Topics in Energy Conversion	✓			
MEEN 131 Products Liability and Engineering Safety	✓	✓		✓
MEEN 134 Intermediate Fluid Dynamics	✓			
MEEN 145 Reliability Engineering	✓	✓		✓
MEEN 148 Design of Engineering Experiments	✓	✓		✓
MEEN 150 Applied Stress Analysis I				✓
MEEN 151 Advanced Design of Machine Elements				✓
MEEN 152 Experimental Stress Analysis				✓
MEEN 153 Finite Element Method	✓			✓
MEEN 154 Introduction to Polymers and Polymer Composites in Design		✓	✓	✓
MEEN 155 Fatigue and Fracture in Mechanical Design			✓	✓
MEEN 156 Optimal Design of Engineering Systems	✓	✓		✓
MEEN 157 Perturbation Methods in Engineering	✓			✓
MEEN 158 Mechatronics				✓
MEEN 159 Topics in Mechanical Systems Analysis and Design				
MEEN 161 Failure Analysis			✓	✓
MEEN 162 Introduction to X-rays and Crystallography			✓	
MEEN 163 Powder Metallurgy 1		✓	✓	
MEEN 164 Powder Metallurgy 2		✓	✓	
MEEN 165 Surface Engineering			✓	
MEEN 166 Principles of Heat Treatment		✓	✓	
MEEN 167 Mechanical Behavior of Materials			✓	✓
MEEN 168 Processing and Forming of Materials		✓	✓	✓
MEEN 170 Introduction to Biomaterials Science and Engineering			✓	
MEEN 171 Topics in Materials Engineering				
MEEN 172 Electrical Properties of Solids			✓	
MEEN 180 Metal Forming 1		✓	✓	✓
INEN 120 Engineering Economy	✓	✓	✓	✓
INEN 130 Optimization of Industrial Systems		✓		✓
INEN 131 Industrial Simulation		✓		✓
INEN 140 Engineering Statistics	✓	✓	✓	✓
INEN 151 Work Measurement and Workplace Design		✓		
INEN 164 Ergonomics		✓		
INEN 185 Welding Engineering		✓	✓	✓

Industrial Engineering (Engineering Management and Manufacturing Engineering Majors)

The industrial engineering curricula at Marquette University are designed to prepare students for a rapidly changing, technology-driven global economy that has two key components: high-technology manufacturing and the service sector. In order to compete effectively in global markets, one must provide a high quality product and service. This level of quality requires the optimal integration of human and engineering aspects into a competitive system. Industrial engineers integrate human capabilities with the design of suitable equipment and work environments to achieve optimal system performance.

Globally, industrial engineers work in many different areas, such as manufacturing industries, transportation industries, utility companies, banks, hospitals, government and military institutions, and agriculture. Industrial engineers also have a variety of titles, such as manufacturing engineers, quality engineers, systems engineers, ergonomists, human factors engineers, operation researchers and management engineers.

Marquette University prepares students for this global challenge by providing curricula that stress the integration of various engineering disciplines with mathematics and the humanities. Students may choose to major in either manufacturing engineering or engineering management at the end of their sophomore year. The manufacturing engineering major enables students to develop broad-based engineering skills from both the mechanical and industrial engineering areas with an emphasis on materials processing and manufacturing systems. The engineering management major is designed for students who seek to specialize in managing engineering and technical enterprises. Students will develop pertinent management skills from selected courses in business management and necessary engineering skills from selected courses in industrial engineering.

ENGINEERING MANAGEMENT MAJOR

Engineering management involves the management of technical enterprises and is designed to accommodate the students whose career interests span both engineering and management aspects. This area of concentration provides students with considerable latitude to tailor their course of study to fulfill the requirements of the major. Typical elective courses to be taken in this area involve a range of courses from business management which include operations management, information systems, organizational behavior and quantitative business analysis. Elective courses from industrial engineering include: reliability, quality control, mathematical programming and product liability.

EDUCATIONAL OBJECTIVES

- Develop and challenge the critical thinking, planning, and problem solving skills associated with leaders within the engineering community.
- Instill an appreciation for religious, moral and ethical values.
- Prepare students with the fundamental, scientific and mathematical skills needed to organize and manage an engineering enterprise.
- Develop the written and oral communication skills needed for leading large- and small-scale engineering departments and programs.
- Provide open-ended challenges in the design of physical and humanistic systems.
- Create team atmospheres and group interactions which highlight the power of collective thought.
- Encourage practical engineering experiences through industrial participation, inside and outside the classroom.
- Develop an appreciation and desire for continuous improvement through lifelong learning and participation.

Freshman

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
CHEM 001 General Chemistry 1	3-3-4	CHEM 002 General Chemistry 2.	3-3-4
ENGL 001 Expository Writing 1	3-0-3	ENGL 002 Expository Writing 2.	3-0-3
GEEN 022 Introduction to Graphics for Engineers	1-2-2	GEEN 010 Introduction to Engineering Problem Solving	1-2-2
GEEN 011 Introduction to Engineering . . .	1-2-2	GEEN 023 Introduction to Engineering Computing	1-2-2
MATH 080 Calculus 1	4-0-4	MATH 081 Calculus 2.	4-0-4
Humanities/Sociology Elective	3-0-3	CMST 012 Public Speaking.	2-0-2
	18		17

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MATH 082 Calculus 3	4-0-4	MATH 083 Differential Equations	4-0-4
PHYS 003 General Physics with Calculus 1	4-2-4	PHYS 004 General Physics with Calculus 2.	4-2-4
GEEN 003 Engineering Orientation. . . .	0-0-0	INEN 140 Engineering Statistics.	3-0-3
PHIL 050 Philosophy of Human Nature. .	3-0-3	MEEN 060 Materials Science.	3-0-3
INEN 120 Engineering Economy.	2-0-2	ENME 130 Mechanics of Materials	3-0-3
ENME 022 Statics and Dynamics.	4-0-4		
	17		17

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
INEN 143 Manufacturing Engineering 1 . .	2-2-3	INEN 130 Optimization of Industrial Systems	3-0-3
INEN 148 Design of Engineering Experiments	3-0-3	INEN 144 Manufacturing Engineering 2. .	2-2-3
INEN 164 Ergonomics.	2-2-3	THEO 001 Introduction to Theology	3-0-3
MANA 120 Introduction to Information Technology	3-0-3	MANA 170 Operations Management.	3-0-3
MATH 121 Linear Algebra and Matrix Theory	3-0-3	INEN/MANA Elective	3-0-3
	15		15

Senior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
INEN 131 Industrial Simulation.	3-0-3	INEN 147 Senior Design Project.	2-2-3
INEN 146 Principles of Design	2-2-3	INEN/MEEN Elective	3-0-3
MEEN 191 Senior Seminar.	2-0-1	INEN/MANA Elective	3-0-3
MANA 171 Operations Planning and Control	3-0-3	MANA 172 Service Operations Management	3-0-3
MANA 150 Understanding Entrepreneurship.	3-0-3	Humanities/Social Sciences Elective	3-0-3
Humanities/Social Sciences Elective. . . .	3-0-3	Theology/Philosophy Elective (Upper Div.)**	3-0-3
	16		18

*R refers to hours of recitation, L to hours of laboratory, C to credit hours.

** All students are required to take an ethics course, either as a theology/philosophy elective or humanities/social science elective.

MANUFACTURING ENGINEERING MAJOR

Manufacturing engineering involves the science of transforming raw materials into value added economics goods and end products. Manufacturing engineers are responsible for designing, selecting, supervising and managing specific processes and equipment which are used in producing and assembling products. This area of concentration provides students with a strong background in fundamental and advanced topics pertaining to manufacturing processes, materials and systems. Elective courses are from mechanical and industrial engineering courses and include automation, robotics, metal forming, materials joining and tool design.

EDUCATIONAL OBJECTIVES

- Develop and challenge critical thinking and problem solving skills associated with leaders within the engineering community.
- Instill an appreciation for religious, moral and ethical values.

- Prepare students with the scientific and mathematical means for engaging the multi-disciplinary physical and humanistic problems associated with turning raw materials into finished products.
- Develop in each student the written and oral communication skills relevant to industrial and academic success.
- Provide open-ended challenges for the design and improvement of processes and products.
- Create team atmospheres and group interactions which highlight the power of collective thought.
- Encourage practical engineering experiences through laboratory experiments which include industrial participation, inside and outside of the classroom.
- Develop an appreciation and desire for continuous improvement through lifelong learning and participation.

Freshman

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
CHEM 001 General Chemistry 1	3-3-4	CHEM 002 General Chemistry 2.	3-3-4
ENGL 001 Expository Writing 1	3-0-3	ENGL 002 Expository Writing 2.	3-0-3
GEEN 022 Introduction to Graphics for Engineers.	1-2-2	GEEN 010 Introduction to Engineering Problem Solving	1-2-2
GEEN 011 Introduction to Engineering . . .	1-2-2	GEEN 023 Introduction to Engineering Computing	1-2-2
MATH 080 Calculus 1	4-0-4	MATH 081 Calculus 2.	4-0-4
Humanities/Sociology Elective	3-0-3	CMST 012 Public Speaking.	2-0-2
	18		17

Sophomore

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
MATH 082 Calculus 3	4-0-4	MATH 083 Differential Equations	4-0-4
PHYS 003 General Physics with Calculus 1	4-2-4	PHYS 004 General Physics with Calculus 2.	4-2-4
GEEN 003 Engineering Orientation.	0-0-0	INEN 140 Engineering Statistics.	3-0-3
PHIL 050 Philosophy of Human Nature. . .	3-0-3	MEEN 060 Materials Science.	3-0-3
INEN 120 Engineering Economy.	2-0-2	ENME 130 Mechanics of Materials	3-0-3
ENME 022 Statics and Dynamics.	4-0-4		
	17		17

Junior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
INEN 143 Manufacturing Engineering 1 . .	2-2-3	INEN 130 Optimization of Ind. Systems. .	3-0-3
INEN 148 Design of Engineering Experiments.	3-0-3	INEN 151 Work Measurement and Workplace Design.	2-2-3
MEEN 104 Principles of Thermofluids . .	3-0-3	INEN 144 Manufacturing Engineering 2 . .	2-2-3
MEEN 120 Mechanical Measurement and Instrumentation	2-2-3	THEO 001 Intro to Theology	3-0-3
MEEN 160 Materials Selection in Mechanical Design	3-3-4	MATH 121 Linear Algebra and Matrix Theory.	3-0-3
	16	EECE 109 Electric Circuits and Machinery	3-0-3
			18

Senior

FIRST TERM	*R-L-C	SECOND TERM	*R-L-C
INEN 131 Industrial Simulation.	3-0-3	INEN 147 Senior Design Project.	2-2-3
INEN 146 Principles of Design	2-2-3	INEN Elective.	3-0-3
INEN 164 Ergonomics.	2-2-3	INEN/MEEN Elective	3-0-3
INEN 190 Engineering Fundamental Review**.	2-0-1	Humanities/Social Sciences Elective	3-0-3
INEN/MEEN Elective.	3-0-3	Theology/Philosophy Elective***	3-0-3
Humanities/Social Sciences Elective. . . .	3-0-3		
	16		15

*R refers to hours of recitation, L to hours of laboratory, C to credit hours.

** As part of the requirements for this course, students must take the State of Wisconsin Fundamentals of Engineering Exam or test of another state.

*** All students are required to take an ethics course, either as a theology/philosophy elective or humanities/social science elective.

AREAS OF STUDY

QUALITY/RELIABILITY

Quality may be defined as a measurement of fitness for use and reliability is defined as the measure of the probability of a system performing its mission. These two areas have become increasingly important in today's world. This area of concentration provides the student with additional knowledge in the determination and improvement of quality and reliability. Typical elective courses to be taken in this area of concentration would be INEN 145, Reliability Engineering; MEEN 131, Products Liability and Engineering Safety; and INEN 159, Topics in Industrial Engineering.

MODELING AND SIMULATION

The availability of the computer has enabled companies to model systems in advance, in order to determine how they will respond to various stimuli. Because of the large cost of facilities and the need for rapid results, this use of computer simulation is becoming more important in business strategies. This area of concentration provides additional knowledge in the types of models, simulation languages, and techniques to be used. Typical elective courses to be taken in this area of concentration would be MATH 146, Numerical Analysis; MATH 147, Computational Models; INEN 165, Stochastic Models in Operations Research; and INEN 159, Topics in Industrial Engineering.

ERGONOMICS/HUMAN FACTORS ENGINEERING

Ergonomics/Human Factors Engineering is the study of human characteristics for the appropriate design of living and work environments (ergonomics and human factors engineering are interchangeable terms.) The principle of ergonomics is to design the workplace around the person in order to maximize safety and comfort and maximize productivity. Effective ergonomic intervention in the workplace takes into account the capabilities of workers. Topics covered in ergonomics courses include anthropometry, cumulative trauma disorders (including carpal tunnel syndrome), and lower back pain disorders. Ergonomics is currently taught in INEN 164. Typical elective courses in this area of concentration are BIEN 185, Computer Applications in Biomedical Engineering; BIEN 191, Biomechanics Instrumentation Design Laboratory I; BIEN 192, Biomechanics Design Laboratory 2; MATH 162, Regression Analysis; and INEN 159, Topics in Industrial Engineering.

INDUSTRIAL ENGINEERING MINOR

The Department of Mechanical and Industrial Engineering offers a minor in industrial engineering to all undergraduate students in the university except those students in industrial engineering. Completion of the minor will be noted on the student's transcript if the following requirements are met: Twenty hours including: INEN 120, 130, 140, 143, 148, 151, and an INEN upper division elective. At least half of these credit hours **must** be taken at Marquette University.

FIVE YEAR B.S./M.S. PROGRAM

This newly created program allows students to receive a bachelor of science degree in industrial engineering and a master of science degree in mechanical engineering, specializing in industrial engineering, in just five years. Students with qualifying quality point averages enroll in the program during their junior year. They will begin their thesis research the summer between their junior and senior years. Their research laboratory experience will continue the summer between their senior and fifth years and throughout their fifth year, culminating in the preparation of a written thesis and defense.

NON-ENGINEERING MINORS

Students wishing to achieve a minor in business administration, mathematics or computer science should follow the guidelines below. In general, if any other major or minor program is desired, students should consult the appropriate area in the undergraduate bulletin for guidelines and requirements.

BUSINESS ADMINISTRATION

Completion of the business administration minor allows students to be eligible for a waiver of the foundation requirements in the MBA program. Completion of the minor will be noted on a student's transcript if the following requirements are met:

1. Required Courses		Hours
ECON 043	Principles of Microeconomics ^a	3
ECON 044	Principles of Macroeconomics ^a	3
ACCO 030	Financial Accounting	3
ACCO 031	Managerial Accounting	3
BUEX 002	Computer Literacy in Business ^b	0
MATH 164	Statistical Methods	3
FINA 180	Financial Management	3
MANA 156	Organizational Behavior ^c	3
MARK 140	Introduction to Marketing ^c	3
BUAD Elec.	Upper Div. Business Administration Elective ^a	3
Total		27

NOTES:

- If an upper division economics course is selected to accompany ECON 043, ECON 044, it can be used to satisfy the upper division Business Administration elective, and the three course set can also satisfy the humanities/social sciences requirement.
- GEEN 023, 051 or BIEN 001 will substitute for this requirement.
- Electrical engineering students may utilize either MANA 156 or MARK 140 as an EECE/Technical elective.

2. A C or better grade must be earned in each course.

Careful planning with an academic adviser can minimize the number of additional hours beyond the normal graduation requirements to 15-21 hours depending on degree program.

MATHEMATICS

Students in engineering may obtain a minor in mathematics by completing the following course requirements with a grade of C or better in each: MATH 080, MATH 081, MATH 082, MATH 083, plus nine additional hours of upper division MATH courses. Overload hours can be minimized or eliminated by consultation with an academic adviser.

PHYSICS

Students in engineering may obtain a minor in physics by completing the following course requirements with a grade of C or better in each: PHYS 003 and PHYS 004, plus nine additional hours of upper division PHYS courses. Students who take EECE 121 or EECE 122 may not take PHYS 131 or PHYS 132 to satisfy the physics minor requirements.

COURSE DESCRIPTIONS

GENERAL ENGINEERING (GEEN)

GEEN 003. Engineering Orientation

No credit.

A one-hour-per-week series of lectures, discussions and engineering speakers to assist beginning sophomores to define more clearly their professional goals by acquainting them with diversified career options available to engineers. Topics include: engineering career exploration and development; cooperative education and internships; and job search, resume writing and interviewing techniques. All sophomores and transfer students are required to attend.

GEEN 010. Introduction to Engineering Problem Solving 2 sem. hrs.

Students are introduced to the engineering profession from a design and problem solving perspective. The design process is introduced along with creativity and creative techniques for finding solutions. Students learn team building techniques and compete in problem solving ventures designed to enhance their engineering experience. Writing and presentation skills are also introduced.

GEEN 011. Introduction to Engineering 2 sem. hrs.

Individual departments will provide lectures and prepare laboratories experiences intended to acquaint students with various engineering majors in the college. This course is designed to provide students with information that will allow student to select a major as well as for students to affirm their decision. The course covers civil and environmental, electrical and computer, mechanical and industrial engineering careers.

GEEN 018. Education for Technological Leadership — Team Dynamics 1 sem. hr.

A 2.5 day program focusing on developing the interpersonal skills required of engineering leaders. The program is divided into four modules: People Skills: communicating situations, motivation problems, ability problems and emergent problems; Analytical Problem Solving: brainstorming, lateral and vertical thinking; Team Chartering: defining the role of teams and developing the team's own charter; and Group Process: meeting management and group process. S/U grade assessment.

GEEN 022. Introduction to Graphics for Engineers 2 sem. hrs.

Students learn to visualize geometric information and graphically communicate engineering ideas in three-dimensional space. Students are exposed to graphic science and application of computer-aided design software to engineering. Conventional practices are discussed along with the application of geometric data bases to design activities and problem solving.

GEEN 023. Introduction to Engineering Computing 2 sem. hrs.

An introduction to computer programming using a structured computer language. Includes data

types, data structures, control structures and design methodologies. Laboratory experience introduces students to programming computers to solve engineering problems.

GEEN 050. Graphical Techniques for Electrical Computer Engineers 1 sem. hr.

Students will learn to make isometric and orthogonal projection sketches as well as orthographic drawings using straight edges and templates. Legos™ and wood block models will be used as visual aids. A brief introduction to a CAD package will be included.

GEEN 051 Introduction to Computer Programming 3 sem. hrs.

An introduction to computer programming with an emphasis on object-oriented programming (OOP) design methodologies. Students will learn typical programming constructs including data types, data structures, control structures, data input and output techniques as well as several algorithms used for solving engineering problems. Use of modern programming tools in an integrated development environment by focusing on developing software solutions to significant engineering problems will be studied.

GEEN 052 Introduction to MATLAB 1 sem. hr.

Provides freshmen EECE students with an introduction to a widely used engineering tool through a hands-on experience. Engineering problems will be presented and students will learn how to model the problems' solutions using MATLAB.

GEEN 101. College of Engineering International Study 0 sem. hrs.

Structured pre-approval and continuous enrollment for students studying abroad in non-Marquette programs. Approved for full-time study abroad but will NOT be certified as full time by Marquette. Offered every term. *Prereq: Cons. of college office.*

GEEN 120. Ethical Dimensions of Engineering 3 sem. hrs.

Foundations of ethical values and their application to issues in engineering practice. Technology's impact on society. Codes of ethics of engineering societies. Analysis and discussion of conflict cases. Offered occasionally. *Prereq: Preregistration, Jr. stdng.*

GEEN 190. College of Engineering International Undergraduate Exchange 0 sem. hrs.

Study abroad as a part of an international student exchange program. Upon approval, students are enrolled in a college or university abroad as a full-time student for one or two terms. Course credits transfer to Marquette. *Prereq: Cons. of College of Engineering.*

GEEN 192. College of Engineering Undergraduate Affiliated Study Abroad 0 sem. hrs.

This is a 0-credit, full-time status course designed to keep students' files active while they participate in an affiliated study abroad

program. *Prereq: Cons. of College of Engineering and the Study Abroad Program.*

BIOMEDICAL ENGINEERING (BIEN)

Chairperson and Professor: Winters
Curriculum Coordinator: Silver-Thorn
Professor: Brower, Dawson, D. Green, Harris, Hendee, Horgan(Emeritus), Jeutter, Josse, Miner, Sances (Emeritus), Seitz
Adjunct Professor: Battocletti, Cowley, Hoffman, Hudetz, Hyde, Larson, Madden, Merritt, Pintar, Sarna, Schwab, J. Smith, Warltier, Wertsch, Yoganandan
Associate Professor: Brown, Cariapa, Clough, Krenz, Marklin, Olson, Riedel, Ropella, Silver-Thorn
Adjunct Associate Professor: Abler, Greene, Jodat, Schlager, Schmeling, Soto, Toth
Assistant Professor: Goldberg, Johnson, Nagurka, Scheidt, Schmit
Research Assistant Professor: Audi
Adjunct Assistant Professor: Ackman, Bandettini, DeYoe, Donahue, Donnell, Hause, Hubbard, Liu, Lyon, Marks, Merker, Molthen, Ninomiya, P. Smith, Patel, Prieto, Rickaby, Schmainda, Shi, Street, Wang

BIEN 001. Introduction to Biomedical Engineering Methods 1 2 sem. hrs.

Introduction to biomedical engineering design and problem solving using computers. Key elements include flow-charting, statistics, graphics, measurement and error, teamwork and decision-making. Problem-solving elements will be applied to real-world biomedical problems introduced by practicing biomedical engineers as well as faculty. Programming assignments will use existing software packages as well as a high level programming language.

BIEN 002. Introduction to Biomedical Engineering Methods 2 2 sem. hrs.

Continuation of BIEN 001's professional Biomedical Engineer presentations and more advanced software applications and programming methods. *Prereq: BIEN 001.*

BIEN 084. Statistics for Biomedical Engineering 1 sem. hr.

Numerical and graphical summary of biomedical data and the use of statistics in problem solving for a variety of case studies in biomedical research, medical device design and clinical trials. *Prereq: MATH 080.*

BIEN 091, 093, 095 and 097. Co-op Work Periods #1, 2, 3, 4 No credit.

Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following

term when registered for courses numbered 092S, 094S, etc. Fee.*

BIEN 092, 094, 096 and 098. Co-op Grading Periods #1, 2, 3, 4 1 sem. hr.

Grading for preceding co-op work assignments is accomplished by review of Employer Evaluation Forms, Work Exit Reports, and other materials as required during each term inschool following a work period. S/U grade assessment.*

**Anominal fee is charged for registration for work periods. No tuition is charged for grading periods.*

BIEN 100. Biomedical Circuits and Electronics 4 sem. hrs.

An experience in electrical circuits (AC and DC), electronic devices (Junction, Transistor, Operational, Amplifier) bridges, digital circuits and Boolean implementation, combinational and sequential logic, memories. Use of P-Spice software. Analysis and design. *Prereq: MATH 083, PHYS 004.*

BIEN 112. Embedded Biomedical Instrumentation 3 sem. hrs.

Fundamentals of digital circuit design and analysis and the application to embedded biomedical instrumentation. Topics include microprocessor principles and programming. Offered fall term.

BIEN 146. Principles of Design

2 hrs. lec., 2 hrs. lab, 3 sem. hrs.

Course content focuses on a structured product design and development process that includes project definition, customer needs identification, product specification, concept generation, and concept selection. Course also focuses on issues related to teamwork, project management, and effective communication. Student team design projects culminate in the development of a technically and economically viable concept and a proposal for future development of the concept (done in the second semester of this two-course sequence). Offered fall term. *Prereq: Sr. stndg., (co-op students, Jr. stndg.).*

BIEN 147. Senior Design Project

2 hrs. lec., 2 hrs. lab, 3 sem. hrs.

Course focuses on detailed design, prototyping, and testing design concepts. Course includes topics directly relevant to student design projects and careers in engineering profession. Student team design projects culminate in a final report that documents the performance and details (engineering drawings and/or documentation) of their final design. Offered spring semester. *Prereq: BIEN 146.*

#BIEN 151. Topics in Biomedical Engineering 1–3 sem. hrs.

Course content announced prior to each term. Students may enroll in the course more than once because subject matter changes. Possible topics include biomechanics, experimental methods, neuroanatomy, telemetry, etc. Offered occasionally. *Prereq: Jr. stndg.*

#BIEN 152. Analysis of Physiological Models 3 sem. hrs.

Development of continuous (compartmental), and distributed-in-space-and-time mathematical models of physiological systems and molecular events. Analytical and numerical methods for

solving differential equations of the initial and boundary value types. Simulation of model response, and estimation of model parameters using linear and nonlinear regression analysis. *Prereq: MATH 083; Jr. stndg.*

#BIEN 153. Applied Finite Element Analysis in Biomechanics 3 sem. hrs.

This course will introduce the finite element solution method for linear, static problems. The course will include calculation of element stiffness matrices, assembly of global stiffness matrices, exposure to various finite element solution methods, and numerical integration. Although the course will emphasize structural mechanics, heat transfer and fluid mechanics applications in finite element analysis also will be discussed. Computer assignments will include development of finite element code (FORTRAN or C) and also use of commercial finite element software (ANSYS and/or MARC). *Prereq: ENME 130, and either BIEN 002 or GEEN 040; Sr. stndg.*

BIEN 155. Signals and Systems for Biomedical Engineering 4 sem. hrs.

Mathematical models of continuous-time signals and systems are studied in this course. The time domain viewpoint is developed for linear time invariant systems using the impulse response and convolution integral. The frequency domain viewpoint is also explored through the Fourier Series and Fourier Transform. Basic filtering concepts including simple design problems are covered. Application of the Laplace transform to block diagrams, linear feedback, and stability including Bode plots are discussed. The sampling theorem, the Z-Transform, and the Discrete Fourier Transform are introduced. Examples of electrical, mechanical, and biomedical signals and systems are used extensively throughout the course. Offered both terms. *Prerequisites: MATH 083 and either EECE 012 with a minimum grade of C, BIEN 100 with a minimum grade of C.*

#BIEN 157. Intelligent Biosystems 3 sem. hrs.

Principles and performance of physiological control systems with emphasis on the use of simulation as a tool to understand normal and pathological dynamic mechanisms. Models of human technology biosystems targeting the interface and clinical decision-support systems. Survey of intelligent systems tools (adaptive neural networks, fuzzy systems, genetic algorithms) for smart biomonitoring and approximating biocontrol systems. *Prereq: BIEN 155 or cons. of instr.*

#BIEN 160. Neural Engineering 3 sem. hrs.

Basic principles of neural engineering, properties of excitable tissues, quantitative models used to examine the mechanisms of natural and artificial stimulation. Basic concepts for the design of neuroprosthetic devices for sensory, motor and therapeutic applications. Design issues including electrode type, biomaterials, tissue response to stimulating electrodes and stimulus parameters for electrical stimulation and artificial control. Examples of how engineering interfaces with neural tissue show increasing promise in the rehabilitation of individuals of neural impairment. *Prereq: MATH 083 and PHYS 004.*

#BIEN 168. Rehabilitation Engineering: Prosthetics, Orthotics, Seating and Positioning 3 sem. hrs.

This course will present an overview of biomedical engineering as it applies to Rehabilitation Engineering, specifically, the design and prescription of prosthetic limbs, orthotic devices, and seating and positioning systems. Topics to be covered include: medical terminology, musculoskeletal anatomy, muscle mechanics, soft tissue mechanics, gait/locomotion, amputation surgery, lower extremity prosthetics, lower extremity orthotics, hand function, electromyography, upper extremity prosthetics, upper extremity orthotics, seating and positioning, and assistive devices. *Prereq: ENME 020 or ENME 022.*

#BIEN 170. Introduction to Biomaterials Science and Engineering 3 sem. hrs.

This course is designed to introduce the uses of materials in the human body for the purposes of healing, correcting deformities, and restoring lost function. The science aspect of the course encompasses topics including characterization of material properties, biocompatibility, and past and current uses of materials for novel devices that are both biocompatible and functional for the life of the implanted device. Projects will allow students to focus and gain knowledge in an area of biomaterials engineering that they are interested in. *Prereq: MEEN 060 or cons. of instr.*

#BIEN 172. Biotechnology Instrumentation 3 sem. hrs.

The presentation of biotechnology instrumentation will be based on the application of the following topics: boundary value problems (modeling of one and two dimensional distributions of temperature and electric fields); optics (sources, filters, cells, and sensors); control of electric fields; heat transfer and temperature control; motor control for mechanical and fluid movements. The molecular biology and engineering principles will be presented for each type of instrument or process. Students will be expected to analyze and evaluate commercially available systems, and propose design improvements.

#BIEN 175. Structure-Property Relationship of Biological Materials 3 sem. hrs.

This course is designed to critically review the structure-property relationships of biological materials. Structure-property relationships for skin, bone, ligaments, tendons, muscle, and organs will be discussed. The effect of pathology, state of the tissue, and age on material properties of tissues and organs will be discussed. This course also critically reviews the testing methods used to obtain mechanical behavior of the biological tissues and organs.

#BIEN 180. Systems Physiology 3 sem. hrs.

Analyses of the underlying physiologic and bioengineering aspects of the major cell and organ systems of the human from an engineer's point of view. Classic physiologic approaches used to introduce topics including cell functions, nervous system, nerve, muscle, heart, circulation, respiratory system, kidney, reproduction and biomechanics. Design problems including models of cell-organ-system function and problems in biomechanics illuminate topics covered. Computer techniques and relevant instrumentation are incorporated. Experts on related topics are invited to speak as they are available. *Prereq: Jr. stndg.*

#BIEN 182. Medical Imaging Physics

3 sem. hrs.

Students learn how light, x-rays, radio-pharmaceuticals, ultrasound, magnetic fields, and other energy probes are generated and how they interact with tissues and detectors to produce useful image contrast. Practical issues such as beam generation, dose limitations, patient motion, spatial resolution and dynamic range limitations, and cost-effectiveness will be addressed. Emphasis is placed upon diagnostic radiological imaging physics, including the planar x-ray, digital subtraction angiography mammography, computed tomography, nuclear medicine, ultrasound, and magnetic resonance imaging modalities. *Prereq: PHYS 004 or cons. of instr.; and Jr. stdng.*

#BIEN 183. Cardiopulmonary Mechanics

3 sem. hrs.

Examination of the physiological behavior of the cardiovascular and pulmonary systems from an engineering perspective. Emphasis is on understanding the mechanical basis of physiologic phenomena via experimental models. *Co-Prereq: BIEN 180 and BIEN 186 orequivalents or cons. of instr.*

#BIEN 184. Image Processing for the

Biomedical Sciences 3 sem. hrs.

This course serves as an introduction to biomedical image processing. Topics explored included the human visual system, spatial sampling and digitization, image transforms, spatial filtering, Fourier analysis, image enhancement and restoration, nonlinear and adaptive filters, color image processing, geometrical operations and morphological filtering, image coding and compression image segmentation, feature extraction and object classification. Applications in diagnostic medicine, biology and biomedical research are emphasized and presented as illustrative examples. *Prereq: MATH 081, knowledge of C programming or cons. of instr.*

BIEN 185. Computer Applications in

Biomedical Engineering 3 sem. hrs.

Design and implementation of personal computer (PC) techniques for data acquisition and analysis in the biomedical laboratory and clinical environments. Emphasis on data acquisition and algorithm design using the C language. Real time processing of analog signals accomplished during assigned projects on PC workstations. *Prereq: BIEN 002 or GEEN 021 or GEEN 040.*

BIEN 186. Transport Phenomena for

Biomedical Engineers 3 sem. hrs.

Applications of mass, momentum, and mechanical energy balances to biomedical fluid systems. Study of physiological phenomena with an emphasis on cardiovascular systems and blood rheology. *Prereq: Either ENME 020 or 022; or cons. of instr.*

#BIEN 187. Biomedical Instrumentation

Design 3 sem. hrs.

Problems in instrumentation relating to physiological measurements in the laboratory and clinic. Electronic devices for stimulus as well as measurement of physiological quantities. Design of actual instruments. Features include mechanical design, accessory design and safety requirements. *Prereq: BIEN100 and BIEN 155 or EECE 111 and EECE 113.*

BIEN 188. Biomedical Engineering Design Laboratory 1

2 hrs. lec., 3 hrs. lab., 3 sem. hrs.

The use of medical instruments in the hospital environment. Understanding the principles of operation, safe operating procedures and methods of instrument selection. Design of experiments to measure physiological parameters. Actual medical instruments used under approximate clinical conditions. Report writing. *Prereq: EECE 041, EECE 042 and EECE 111.*

BIEN 189. Biomedical Engineering Design Laboratory 2

2 hrs. lec., 3 hrs. lab., 3 sem. hrs.

Design of circuits used in research and clinical instrumentation. Experiments include the design, fabrication and evaluation of specific circuits. Typical projects include circuits used for: patient isolation from electrical hazard, measurement of heart rate, multiplexing and demultiplexing and analog to digital conversion. Design projects incorporating microprocessors are also included. Students required to submit reports. *Prereq: BIEN 188 and EECE 143.*

BIEN 191. Biomechanics Instrumentation Design Laboratory 1

2 hrs. lec., 3 hrs. lab., 3 sem. hrs.

Intended for those students pursuing the Biomedical Engineering Biomechanics option. The application of principles of engineering mechanics, data acquisition and basic electronics in the design and utilization of biomechanical instrumentation. Principles of transduction, mechanics, sampling theory, strain, temperature and flow measurement as applied to biomechanical systems. A background in data acquisition, electrical safety, operational amplifier and bridge circuits, and measurements is provided. Experiments investigate biomechanics of the musculoskeletal and cardiovascular systems and include design content. Report writing. *Prereq: ENME 020, ENME 130; and BIEN 100.*

BIEN 192. Biomechanics Design Laboratory 2

2 hrs. lec., 3 hrs. lab., 3 sem. hrs.

The Biomechanics Design Laboratory provides students with experience in the design and implementation of appropriate experimental procedures to analyze biomechanical problems. Students will become familiar with various types of advanced transducers which will be used in conjunction with data acquisition workstations to obtain thermal, flow, strain and related physiological data from biomechanical systems. Topics include mechanical properties of active muscle; analysis of human motion; postural stability; thermal regulation; cardiovascular mechanics; stress distribution in skeletal system; and comparison of static and dynamic biomechanical responses to load. *Prereq: BIEN 191.*

BIEN 193. Biocomputers Lab 1

3 sem. hrs. Hands-on experience in software design and validation, microprocessors, computer architecture, real-time computing, embedded software, graphical user interface and networking. An emphasis on medical devices with embedded software and hardware. Offered fall term. *Prereq: BIEN 100, 112, 155, 185.*

BIEN 194. Biocomputers Lab 2

3 sem. hrs. Continuation of BIEN 193 with emphasis on high performance computing in workstation

environments. Offered spring term. *Prereq: BIEN 193.*

BIEN 195. Independent Study and Research

1-4 sem. hrs.

Undergraduate independent study project of either a theoretical or experimental nature. Offered every term. *Prereq: Jr. or Sr. stdng.; cons. of instr. and dept. ch. 3.000 Q.P.A. required.*

Also carries graduate credit.

CIVIL AND ENVIRONMENTAL ENGINEERING (CEEN)

Chairperson, Associate Professor, and

Curriculum Coordinator: Wenzel

Professor and Director of Graduate Studies: Heinrich

Professor Emeriti: Faherty, Murphy, Zaroni

Professor: Karshenas, Novotny, Vinnakota

Adjunct Professor: Bauer, Goetsch, Kuemmel, Katz, Vogel

Associate Professor: Crandall, Croveti,

Drakopoulos, Foley, Melching, Zitomer

Adjunct Associate Professor: Sonntag

Adjunct Assistant Professor: Capodaglio,

Hajda, Jones, Meus

CEEN 032. Elementary Surveying

2 hrs. lec., 3 hrs. lab., 3 sem. hrs.

Fundamental concepts and theory of engineering measurements; adjustment and use of instruments; computations; errors; measurement of distance, difference in elevation, angles and directions; route surveying, construction surveys. Probability concepts and statistical analysis of field data. Offered fall term.

CEEN 043. Behavior and Properties of Engineering Materials

2 hrs. lec., 3 hrs. lab., 3 sem. hrs.

Introduction to the characteristic properties and the fundamental phenomenological behavior of the materials used by engineers with emphasis on steel, concrete, wood, and asphalt.

Laboratory experiment and testing is used to give knowledgeable perception of the behavior when materials are subjected to various loads. Probability concepts and statistical analysis of experimental data. Offered fall term. *Prereq: ENME 130 which may be taken concurrently.*

CEEN 091, 093, 095 and 097. Co-op Work Period #1, 2, 3, 4

No credit.

Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 091S, 092S, etc. Offered every term. *Fee.**

CEEN 092, 094, 096 and 098. Co-op Grading Period #1, 2, 3, 4

1 sem. hr.

Grading for preceding co-op work assignments is accomplished by review of Employer Evaluation Forms, Work Exit Reports, and other materials as required during each term in school following a work period. Offered every term. S/U grade assessment.*

**Anominal fee is charged for registration for work periods. No tuition is charged for grading periods.*

CEEN 110. Structural Analysis 3 sem. hrs.
Loads on structures, reactions, shears, axial forces and moments in statically determinate structures. Application of arithmetical and computer methods of analysis. Use of influence lines for moving loads. Study of methods for determining deflections in statically determinate structures. Offered spring term and summer. *Prereq: ENME130.*

#CEEN 111. Matrix Structural Analysis
3 sem. hrs.

The course provides a short review of symbolic and numerical linear algebra computations using commercial software, and introduces the principle of virtual work for solving statically determinate structural analysis problems. The course includes derivation of the stiffness equations for truss and frame members using the principle of virtual-displacements, and application of the matrix stiffness method for computing forces and displacements in two- and three-dimensional statically indeterminate structures. The course outlines proper use of commercial-grade software and includes discussion of approximate techniques that can be used to validate software-generated solutions. Offered fall term. *Prereq: CEEN 110.*

CEEN 113. Steel Design 1 3 sem. hrs.
Interpretation of current codes as related to the physical behavior of steel structures. Design of structural steel members: tension, compression, flexural and beam-columns. Introduction to design of connections. Offered fall term. *Prereq: CEEN 110.*

#CEEN 114. Steel Design 2
3 hrs. lec., 3 sem. hrs.

Continuation of CEEN 113. Design of beam-columns, plate girders, continuous beams, and composite beams. Design of connections and assemblages. Introduction to the plastic design method. Offered spring term of alternate years. *Prereq: CEEN 113.*

#CEEN 123. Urban Hydrology and Stormwater Management 3 sem. hrs.
Distribution and properties of waters on the earth. Concept of the hydrologic cycle, and basic principles of meteorology, precipitation, streamflow, evapotranspiration, and groundwater flow. Erosion and urban stormwater pollution. Design of urban flood protection and stormwater pollution abatement systems. Offered fall term. *Prereq: ENME 151.*

#CEEN 124. Air Pollution Engineering
3 sem. hrs.

Topics covered include: public health aspects of air pollution, stationary and traffic sources, chemistry of air pollutants and aerosols, air pollution meteorology, dispersion modeling, regulations and criteria regarding pollution emissions and pollution control engineering. *Prereq: Jr. stndg.*

CEEN 126. Hydraulic Engineering
2 hrs. lec., 2 hrs. lab., 3 sem. hrs.
Fundamentals and applications of hydrostatics and hydrodynamics including pipe flow and pipeline network design, open channel flow, gradually varied flow, hydraulic jump, and spillway design. Pumps and pumping station design. Groundwater flow and seepage. Laboratory assignments and demonstrations. Offered spring and summer terms. *Prereq: ENME 151.*

#CEEN 127. Water Resources Engineering
3 sem. hrs.
Surface waters, groundwater yields, probability concept in water resources design, water laws, reservoirs and dams, open channels and flow regulation, irrigation and drainage, flood damage mitigation, hydroelectric power, water resources economy and planning. Offered spring term alternate years. *Prereq: CEEN126.*

#CEEN 128. Groundwater Engineering
3 sem. hrs.
Physical and chemical properties and principles of groundwater. Groundwater geology and interaction with the hydrologic cycle. Groundwater movement and flow nets. Groundwater contamination. Offered spring term alternate years. *Prereq: CEEN 126 and CEEN 150.*

#CEEN 129. Geographical Information Systems in Engineering and Planning
3 sem. hrs.

Topics covered include: fundamentals of GIS, databases, data management, map projections, representations of spatial attributes, GIS analysis and GIS software systems such as ARC Info, ARC View, Grass. GIS use and expanded capabilities will be taught. Case studies including environmental, transportation and economic applications will be discussed. *Prereq: Sr. stndg.*

CEEN 139. Engineering Fundamentals Review 1 sem. hr.
Review of basic science, mathematics, engineering science and economics. Offered every term. S/U grade assessment. *Prereq: Sr. stndg.*

CEEN 144. Reinforced Concrete Design
3 sem. hrs.
Fundamental concepts of reinforced concrete theory and design. Use of current design code for the analysis and design of basic structural members; strength design for flexure, shear and development of reinforcement. Offered fall term. *Prereq: CEEN 110.*

#CEEN 145. Advanced Strength and Applied Stress Analysis 3 sem. hrs.
Basic concepts of mechanics of deformable bodies. Two- and three-dimensional stress-strain relationships and theories of failure. Unsymmetrical bending analyses. Shear flow and shear center. Torsion of thin-walled sections (tubular and non-tubular). Composite beams. Stress concentration. Energy principles: strain and complementary energy. Castigliano's theorem. Offered fall term. *Prereq: ENME 130.*

#CEEN 146. Advanced Concrete and Masonry Design 3 hrs. lec., 3 sem. hrs.
Continuation of CEEN 144, presenting advanced concrete theory and design: introduction to masonry design. Emphasis on code requirements and use of various design aids including computer-aided design. Design of two-way slabs and reinforced concrete structural systems. Design and layout of reinforced concrete and concrete masonry walls. Offered spring term alternate years. *Prereq: CEEN144.*

#CEEN 147. Prestressed Concrete Design
3 sem. hrs.
Introduction to the philosophy and concepts of prestressed concrete design. Study of the historical background, materials and methods of prestressing. Use of current code and basic principles and procedures for the design and analysis of pretensioned and post-tensioned members including calculation of loss of prestress, flexural analysis and design, shear, bond and anchorage requirements, member deflections and cable layouts. Offered spring term, alternate years. *Prereq: CEEN 144.*

#CEEN 148. Timber Structures
2 hrs. lec., 3 hrs. lab., 3 sem. hrs.
Study of basic wood properties and design considerations. Design and behavior of wood joints, beams, columns and beam columns. Introduction to plywood and glue laminated members. Analysis and design of structural diaphragms and shear walls. Offered fall term. *Prereq: CEEN 110.*

#CEEN 149. Bridge Design 3 sem. hrs.
Overview of the design and analysis of bridges in steel, concrete and timber. Determination of loads acting on bridges and the study of methods for their analysis. Review of different bridge types. Application of design codes for the design of bridge components in steel, concrete and timber. Offered every spring term, alternate years. *Prereq: CEEN 113 and 144.*

CEEN 150. Environmental Engineering
3 sem. hrs.
Introduction to current environmental problems, community public health and risk assessment. Water resources, the hydrologic cycle, public water supplies, storage and community water usage. Wastewater quantities and characteristics. Review of systems for the treatment of waters and wastewaters. An overview of community air pollution, solid waste, noise pollution and other environmental concerns. Offered fall term. *Prereq: Jr. stndg.*

#CEEN 154. Environmental Chemistry
3 sem. hrs.
Chemical stoichiometry, equilibrium, and kinetics relating to natural and engineered environmental systems. Basic concepts from organic and inorganic chemistry including oxidation-reduction reactions, acid-base chemistry, the carbonate system, alkalinity, and acidity. Equilibrium and kinetic theories of chemical partitioning among gas, liquid and solid phases governing chemical fate and transport in the environment. Coordination chemistry describing metal-ligand interactions, precipitation, and bioavailability of materials. Offered fall term. *Prereq: Sr. stndg. and CHEM002.*

#CEEN 155. Industrial Wastewater Management 3 sem. hrs.
Review of federal legislation and state regulations with regard to industrial wastewater management practices. Consideration of industrial process modifications and wastewater treatment options with respect to their effect on industrial user fees. Pretreatment standards and discharge permit requirements. Case studies of specific industrial applications. Offered spring term of alternate years. *Prereq: CEEN 150.*

#CEEN 156. Treatment Plant Design and Operation 3 sem. hrs.

Review of water and wastewater characteristics, drinking water, receiving water and effluent standards. Basic design methodology and operational features of common physical, chemical and biological processes for the treatment of waters and wastewaters. Introduction to the processing and disposal of sludges and other treatment plant residuals. Offered fall term. *Prereq: CEEN 150.*

#CEEN 157. Hazardous and Industrial Waste Management 3 sem. hrs.

Overview of hazardous waste management, disposal and soil and ground water remediation. Review of RCRA, CERCLA-SARA, TSCA and Wisconsin's NR 700 and other regulations. Definition of hazardous wastes and characterization of industrial waste stream. Chemical, physical and biological properties of hazardous wastes. Introduction to hazardous waste remediation/ treatment methods and technologies. Landfills and the RCRA Land Ban regulations. Site assessments, field investigations and laboratory analytical techniques. Environmental risk assessments, cleanup objectives and waste minimization. Offered spring term alternate years. *Prereq: Sr. stndg. or consent of instr.*

CEEN 162. Geotechnical Engineering

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Fundamental properties and the engineering characteristics of soil as a particulate mass aggregate. Origin, the formation and the development of soil deposits, the physical and hydraulic properties and the methods of predicting the behavior of soils for engineering applications are studied. Properties are investigated in the laboratory and reports are required. Offered spring term. *Prereq: ENME 130.*

#CEEN 163. Foundation Engineering

3 sem. hrs.

Design of foundation members subjected to vertical and eccentric loads. The effects of soil origin and deposition and the current codes and conventions are analyzed in relation to bearing capacity and settlement of structures. Offered fall term. *Prereq: CEEN 162.*

CEEN 170. Introduction to Transportation Engineering 3 sem. hrs.

Forecasting methodologies — emphasis on applications to transportation. Use of spreadsheets for simple and multiple linear regression, statistical charts. Airport airspace systems based on FAA guidelines. Road user and vehicle characteristics, geometric design of roadways including horizontal and vertical alignment and cross-sectional elements. Signalized intersections. Emphasis on technical-report writing. Offered spring term. *Prereq: Jr. stndg.*

#CEEN 172. Highway Planning and Design

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Highway planning, alternate highway alignments and alternate evaluation. Also geometric design of highways including horizontal and vertical alignment, cross-section design. Projects on detailed design of reverse curves (plan and profile views); intersection design; cross-section and earthwork quantities. Legal aspects of engineering. Use of American Association of State Highway and Transportation Officials design guidelines. Offered spring term. *Prereq: CEEN 170.*

CEEN 174. Pavement Design 3 sem. hrs.

Study of the behavior and properties of pavements with emphasis on asphalt and portland cement concrete pavements. Structural design of pavement systems using current design methods. Use of computer programs and their application in the design of pavements. *Prereq: CEEN 043 and 162.*

#CEEN 176. Traffic Characteristics and Design 3 sem. hrs.

Components of the traffic system: vehicle and road user characteristics, geometric design and traffic controls. Intersection types, cross-section design elements and typical dimensions. Basic variables of traffic flow, observed traffic flow values. Freeway operations. Signalized intersections: flow, capacity, level of service. Projects addressing: intersection existing conditions (traffic, geometry, signalization); approach delay; safety performance; capacity; suggestions for improvements. Use of the Highway Capacity Manual and the Highway Capacity Software. Emphasis on technical report-writing and presentation. Offered fall term. *Prereq: CEEN 170.*

CEEN 180. Introduction to Construction Management 3 sem. hrs.

Construction contracts, contract bonds, construction funding, cash flow analysis, labor productivity and cost, equipment productivity and cost. Analytical techniques for project planning and scheduling. Construction safety. Offered fall term. *Prereq: INEN 120; Sr. stndg. or cons. of instr.*

#CEEN 181. Construction Cost Estimating 3 sem. hrs.

A review of various cost estimating methods and their applications. Study of quantity take-off techniques used in construction cost estimating. Analysis of labor, material, equipment and indirect costs. Special attention will be given to the preparation of detailed estimates based on quantity take-off and construction productivity. Offered spring term. *Prereq: CEEN 180 or cons. of instr.; Sr. stndg.*

#CEEN 182. Computer Applications in Construction 3 sem. hrs.

Study of information technologies that can be used in supporting the managerial decision making. Computer applications in project scheduling and control. Computer applications in cost estimating. The application of digitizers, spreadsheets and database management systems in construction. Offered spring term. *Prereq: CEEN 180 and Sr. stndg.; or cons. of instr.*

#CEEN 183. Probability Applications in Engineering Planning and Design 3 sem. hrs.

Basic concepts of probability and statistics and their applications in modeling and solving engineering problems. The topics include: random variables, distributions, mathematics of probability, functions of random variables, regression analysis, quality assurance and acceptance sampling. *Prereq: MATH 083.*

#CEEN 184. Construction Seminars 3 sem. hrs.

Nature of the construction industry. Management and business principles. Risk management. Contractual and legal requirements. Types of construction projects. Labor

relations. Innovation and technology application. Offered occasionally. *Prereq: Sr. stndg. or cons. of instr.*

#CEEN 185. Urban Planning for Civil Engineers 3 sem. hrs.

Concepts and principles underlying urban planning and development. Land use, transportation, utility, community facility planning problems, procedures, and techniques. The master plan and implementation devices such as zoning, subdivision control, official mapping, capital budgeting, and urban renewal. Offered spring term. *Prereq: Cons. of instr.*

#CEEN 186. Law for Engineers 3 sem. hrs.

Basic legal principles and awareness of typical legal questions that arise when engineers and law interact. Topics include: American judicial system, law of contracts, forms of association, construction contracts, professional liabilities of engineers, and torts. *Prereq: Sr. stndg or cons. of instr.*

#CEEN 188. Topics in Civil Engineering

Variable sem. hrs. (1-3)

Course content announced each term. Topics may include optimal structural design; computer-aided design and analysis of structural, transportation and wastewater systems; soil structure interaction; structural design for random loadings. Offered occasionally. *Prereq: Cons. of instr.*

CEEN 189. Civil Engineering Design

3 hrs. lec., 3 hrs. lab, 4 sem. hrs.

Design of selected civil engineering project including planning, preliminary analysis and final design. Different projects are selected each year. Students are assigned to project teams with specific tasks under the direction of a faculty course coordinator. Professional engineer from local firm acts as client and consultant to design team. Emphasis is placed on student initiative, responsibility and resourcefulness in an open-ended project. A final group design report is required. Emphasis on technical communications, professional ethics and engineering practices. Offered spring term. *Prereq: CEEN 113 and 144; or cons. of instr.*

CEEN 190. Professionalism, Ethics and Management in Engineering Organizations 3 sem. hrs.

Fundamentals of engineering professional practice. Emphasis on ethics, codes, safety, consulting benefits and risks. Professional registration and licensing. Responsibilities in a technological society.

CEEN 192. Engineers and Technology Through History 3 sem. hrs.

The history, including individuals and tradition, that have contributed to the development and growth of technology and engineering in the United States. Topics include: ancient and medieval engineering, early U.S. engineers, the Industrial Revolution, railroads and engineers, transportation, urban growth, and engineers of the 20th century.

CEEN 195. Independent Study

1-3 sem. hrs.

Undergraduate independent study project of either a theoretical or experimental nature. Offered every term. *Prereq: Jr. or Sr. stndg. Cons. of instr. and dept. ch.; 3.00 Q.P.A. required.*

Also carries graduate credit.

ENGINEERING MECHANICS (ENME)

Curriculum Coordinator and Professor: Heinrich Professor: Nigro
Associate Professor: Nagurka, Schimmels, Stango, Weber
Assistant Professor: Drakopoulos, Foley, Majdalani
Adjunct Assistant Professor: Meus

ENME 010. Statics 3 sem. hrs.

Fundamentals of forces and force systems. Application to particles and bodies in equilibrium. Emphasizing vector methods in two and three dimensions. Free body diagrams with and without friction. Centroids and moment of inertia. Offered each term. *Prereq:* MATH 081.

ENME 020. Dynamics 3 sem. hrs.

Fundamentals of motion of particles and rigid bodies. Application of Newton's laws. Principles of position, velocity, and acceleration. Use of work-energy and impulse-momentum methods. Introduction to vibrations. Offered each term. *Prereq:* ENME 010.

ENME 022. Statics and Dynamics

4 sem. hrs.

Fundamentals of forces, force systems and their application to static and dynamic bodies and systems of particles emphasizing vector methods in two and three dimensions. Equations of equilibrium. Friction, applications of Newton's laws, energy and momentum methods. Offered each term. *Prereq:* MATH 081.

ENME 130. Mechanics of Materials

3 sem. hrs.

Fundamentals of stress, strain, axial loading, torsion, bending, transverse loading, stress and strain transformations, beam deflections, energy methods, columns. Offered each term. *Prereq:* ENME 010.

ENME 151. Mechanics of Fluids 3 sem. hrs.

Fundamental conservation laws of mass, momentum, and energy. Properties of fluids, hydrostatics, flow of real fluids in closed and open systems, dynamic similarity, dimensional analysis, compressible flow, and potential fluid flow. Offered each term. *Prereq:* ENME 022 or ENME 020; and MATH 082.

ELECTRICAL AND COMPUTER ENGINEERING (EECE) and (COEN)

Chair and Professor: Yaz
Associate Chair, Associate Professor, Electrical Engineering Curriculum Coordinator: Schneider
Associate Professor and Computer Engineering Curriculum Coordinator: Riedel
Professor Emeritus and Director of Undergraduate Studies: Moeller
Adjunct Associate Professor and Director of Undergraduate Electrical Engineering Laboratories: Jacoby
Assistant Professor and Director of Undergraduate Computer Engineering Laboratories: Pavinelli

Associate Professor and Director of Graduate Studies: Richie
Professor Emeriti: Heinen, Horgan, Ishii
Professor: Arkadan, Corliss, Demerdash, Green, Harris, Hock, Joshi, Jeutter, Josse, Matthys, Seitz
Associate Professor: Brown, Feng
Adjunct Professor: Lade
Adjunct Associate Professor: Branson, Davis, Jodat, Mendez, Schlager
Adjunct Assistant Professor: Doerr, Glusick, Hoepfner, Kennedy, Perez, Shana, Schmidt

Computer Engineering (COEN)

Curriculum Coordinator: Riedel

COEN 001. Freshman Seminar 0 sem. hrs.

Introduction to electrical engineering and computer engineering through presentations by faculty, graduate students, upper-class students, and alumni. A formal opportunity for EECE freshman to interact with their peers and other members of the EECE department.

COEN 020. Software Methodologies

3 sem. hrs.

The first course in software engineering, covering the software life cycle, proper selection of data structures and algorithms, and the availability and choice of programming paradigms for appropriate design and implementation of well-engineered software. An open laboratory and significant programming experiences form an integral part of this course. Offered spring term. *Prereq:* GEEN 051 or COSC 051.

COEN 030. Introduction to Computer Hardware and Software 3 sem. hrs.

Overview of computer hardware: information representation, the control unit, implementation of instruction sets, memories and storage devices, internal bus organization, the arithmetic/logic unit, the input/output unit, interfacing peripherals. Overview of computer software, operating system components: memory management, input/output, file management, scheduling, resource management. Layered operating system design, programming languages and language translators, application layer design, software tools, and system design and design process. Programming exercises in 80x86 assembly language and in the JAVA programming language. Offered fall term. *Prereq:* GEEN 051 or COSC 051.

COEN 091, 093, 095, and 097. Co-op Work Period #1, 2, 3, 4 No credit.

Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 092, 094, etc. Fee.*

COEN 092, 094, 096, 098. Co-op Grading Period #1, 2, 3, 4 1 sem. hr.

Grading for preceding co-op work assignments is accomplished by review of employer evaluation forms, work exit reports, and other materials as required during each term in school following a work period. S/U grade assessment.*

*Anominal fee is charged for registration for work periods. No tuition is charged for grading periods.

COEN 120. Data Structures for Engineers

3 sem. hrs.

Data structures and their applications. Includes the study of such data structures as lists, stacks, queues, and trees and their related algorithms. Knowledge of the JAVA programming language is a prerequisite. Same as COSC 154. *Prereq:* Either GEEN 051 or COSC 051.

COEN 121. Analysis of Algorithms

3 sem. hrs.

Computational complexity and types of algorithms such as divide-and-conquer, greedy, probabilistic, graph transversal, heuristic, and parallel algorithms. Same as COSC 151. *Prereq:* COSC 055 or COEN 120 or COSC 154; and either MATH 090 or MATH 145.

COEN 122. Formal Languages and Computability 3 sem. hrs.

The hierarchy of formal languages, automata, and grammars with application to parsing. Limitations of computational processes and the implications of the Church-Turing thesis. Same as COSC 157. *Prereq:* Either COSC 055 and MATH 090, or COEN 120, or COSC 154.

COEN 123. Compiler Construction

3 sem. hrs.

Techniques of lexical analysis, parsing, and code generation, including theoretical foundations and the practical concerns of implementations. Same as COSC 170. *Prereq:* Either COSC 148 and COSC 157, or COEN 120 or COSC 154, and COEN 122 or COSC 157.

COEN 130. Fundamentals of Artificial Intelligence 3 sem. hrs.

Survey of topics in the field of artificial intelligence with emphasis on the underlying concepts on which intelligent systems are developed (such as production systems, heuristics, the predicate calculus and theorem proving techniques). Same as COSC 159. *Prereq:* COSC 152.

#COEN 131. Neural Networks and Neural Computing 3 sem. hrs.

Introduction to artificial neural networks and neural computing. Multi-layer perception models and back propagation. Recurrent and feed-forward associative neural networks. Kohonen models and counter-propagation networks. Adaptive resonance theory and Boltzmann machines. Simulated annealing. Applications include: optimization, pattern recognition in signal processing and control algorithms. *Prereq:* COEN 030 or COSC 148, and Sr. stdng. with a 3.000 Q.P.A. or better; or cons. of instr.

#COEN 132. Expert Systems 3 sem. hrs.

Introduction to artificial intelligence and expert systems. Knowledge presentation and the knowledge base. Knowledge acquisition. Inference engines. Forward and backward chaining. Case-based reasoning and hybrid expert systems. Applications for expert systems. *Prereq:* COEN 030 or COSC 148, and Sr. stdng. with a 3.000 Q.P.A. or better; or cons. of instr.

COEN 140. Computer Engineering Laboratory

1 hr. lec., 3 hrs. lab., 2 sem. hrs.

This course reinforces concepts in computer architecture and systems software courses. Laboratory exercises include: designing, building, and testing circuits using SSI and MSI components, as well as design and implementation of a variety of operating system utility software. Topics include machine level representation of data, interfacing, communication, process synchronization, device management, and file systems. *Prereq: COEN 171, COEN 180 and EECE 143.*

COEN 146. Principles of Design

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Course content focuses on a structured product design and development process that includes project definition, customer needs identification, product specification, concept generation, and concept selection. Course also focuses on issues related to teamwork, project management, and effective communication. Student team design projects culminate in the development of a technically and economically viable concept and a proposal for future development of the concept (done in the second semester of this two-course sequence). Offered fall term only. *Prereq: Sr. stdng. or (Co-op students, Jr. stdng.). Crosslisted with BIEN 146, EECE 146, INEN 146 and MEEN 146.*

COEN 147. Senior Design Project

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Course focuses on detailed design, prototyping, and testing design concepts. Course includes topics directly relevant to student design projects and careers in engineering profession. Student team design projects culminate in a final report that documents the performance and details (engineering drawings and/or documentation) of their final design. Offered spring term only. *Prereq: COEN 146. Crosslisted with BIEN 147, EECE 147, INEN 147 and MEEN 147.*

COEN 150. Principles of Database Systems

3 sem. hrs.

The internal, conceptual, and external levels of database systems as reflected in the relational, network, and hierarchical database models. Query languages. File organizations appropriate for database systems. Principles and methods for database designs. Offered fall term. Same as COSC 153. *Prereq: COEN 120 or COSC 055 or COSC 154.*

#COEN 151. Introduction to Computer Graphics

3 sem. hrs.

Introduction to computer graphics algorithm design and implementation involving considerable actual computer graphics experience. Topics include: point-plotting and line-drawing techniques, two-dimensional curve fitting, two- and three-dimensional graphics, clipping, windowing, hidden line removal, modeling, input-output devices, and other topics as future trends dictate. DESIGN ELECTIVE. *Prereq: Proficiency in at least one high level computing language.*

#COEN 152. Microcomputer Interfacing

3 sem. hrs.

The study of microprocessors, memory, peripherals and integrated circuits used in the design of microcomputer systems. Examples, home-

work and design projects using specific devices from a variety of manufacturers. Design validation with computer-aided circuit simulation software. DESIGN ELECTIVE. Offered fall term. *Prereq: COEN 171.*

COEN 160. Numerical Analysis

3 sem. hrs. Numerical solution of algebraic and transcendental equations, linear systems and the algebraic equations, numerical solution of differential equations and finite difference methods. Offered fall term. Same as COSC 146 and MATH 146. *Prereq: MATH 081 and either COSC 051 or GEEN 051.*

#COEN 161. Information and Coding Theory

3 sem. hrs.

Introduction to information measure, mutual information, self-information, entropy, encoding of information, discrete and continuous channels, channel capacity, error detection, error correcting codes, group codes, cyclic codes, BCH codes, convolution codes, and advanced codes. Offered alternate years. *Prereq: Sr. stdng. with a 3.000 Q.P.A. or better or cons. of instr.*

#COEN 168. Topics In Computer Engineering

3 sem. hrs.

Course content is announced prior to each term. Students may enroll in the course more than once because subject matter changes. *Prereq: Cons. of instr.*

#COEN 170. Advanced Switching Theory and Design

3 sem. hrs.

Advanced topics applicable to the design of large-scale digital systems. Theory of synchronous and asynchronous functions. Algorithmic State Machine design methods. Concepts of state assignment. Implementation with MSI, LSI and programmable logic. Design of Linked Machines. Register Transfer Language description of processor control algorithms as a design tool. Reed-Muller algebraic descriptions. Linear sequential circuit design of digital filters. DESIGN ELECTIVE. *Prereq: EECE 143 which may be taken concurrently, and EECE 112.*

#COEN 171. Computer Hardware

3 sem. hrs. Overview of computer system design. Cost and performance specification. Design of arithmetic and logic units. Fundamentals of central processor architecture and a comparative study of computer instruction set architectures. Detailed study of microprocessors, including instruction, execution timing and other timing considerations. Discussions of memory and I/O devices, including the interfaces to the CPU and I/O transfer techniques. Study of common bus standards. DESIGN ELECTIVE for Electrical and Electronics major. Offered spring term. *Prereq: EECE 112 with a minimum grade of C and either COSC 148 or COEN 030. (With a minimum grade of C.)*

#COEN 172. Microprocessor System Design

3 sem. hrs.

The study of microprocessors, memory, peripherals and integrated circuits used in the design of microcomputer systems. Examples, homework, and design projects using specific devices from a variety of manufacturers. Design validation with computer-aided circuit simulation software. DESIGN ELECTIVE. *Prereq: COEN 171.*

#COEN 173. Computer Architecture

3 sem. hrs.

Review of basic computer architecture. Evaluation of architecture performance. Design and evaluation of instruction sets. Pipeline processors and instruction scheduling. Vector processors. Memory hierarchy and design including cache, main and virtual memories. Memory protection schemes. Input/output and its relation to system performance. Offered fall term. *Prereq: COEN 171, and Sr. stdng. with a 3.000 Q.P.A. or better or cons. of instr.*

#COEN 174. Fault-tolerant Computing

3 sem. hrs.

Goals and applications of fault-tolerant computing. Conventions in fault-tolerant computing. Design techniques using hardware, information, time and software redundancy. Evaluation of systems using quantitative and qualitative methods. Design of fault-tolerant systems. Testing and test pattern generation. Design for testability and testability analysis. Offered spring term alternate years. *Prereq: COEN 173 or EECE 217, and Sr. stdng. with a 3.000 Q.P.A. or better or cons. of instr.*

#COEN 175. Parallel Computing

3 sem. hrs. Basic approaches for parallel computing. Hypercubes, meshes, systolic arrays and general approaches. Algorithms for parallel computing systems. Advanced topics from recent research literature including memory and I/O design, proposed architectures and their implementation and other areas of current interest. Offered spring term alternate years. *Prereq: COEN 173 or EECE 217, and Sr. stdng. with a 3.000 Q.P.A. or better or cons. of instr.*

#COEN 180. Software Systems

3 sem. hrs. This course provides an overview of the major issues in the design and implementation of operating systems and language translators. Operating systems topics include: tasking and processing, process coordination and synchronization, scheduling and dispatch, physical and virtual memory organization, device management, file systems, security, communications and networking. Language translation topics include storage management, finite state automata and regular expressions, context-free grammars and push-down automata, code translation and optimization techniques, and programming language semantics. *Prereq: COEN 020; and either COEN 120 or COSC 154.*

#COEN 181. Software Engineering

3 sem. hrs.

Fundamental software engineering methodologies are emphasized. Structure program design and Warner/Orr diagrams, logical input/output definition and design, logical process design, coding and test, software life-cycle, software requirements and configurations, function-oriented and object-oriented approaches, user interface and real-time system designs, and Computer-Aided Software Engineering (CASE) tools. DESIGN ELECTIVE for ELECTRICAL ENGINEERING PROGRAM. *Prereq: COEN 030.*

#COEN 182. Algorithm Analysis and

Applications 3 sem. hrs.

Concepts of software design and problem solving methodologies. Review of data structures. Algorithm efficiency and correctness analysis. Stages in program design. Problem solving strategies using artificial intelligence concepts and non-algorithm approaches. Heuristic search and expert systems. Parallel algorithms. NP-completeness. Software life-cycle, requirements and configurations, function-oriented design and human interface design. Computer-Aided Software Engineering (CASE) tools. *Prereq: COEN 030 and either COEN 120 or COSC 154, and Sr. Stndg. with a 3.000 Q.P.A. or better or cons. of instr.*

#COEN 183. Operating Systems 3 sem. hrs.

Fundamental concepts of operating systems including: memory management, scheduling, concurrent processing, device management, file systems, networking, security, and system performance. Examples are drawn from legacy and modern operating systems. Same as COSC 149. *Prereq: Either COSC 055 and 148, or either COEN 120, or COSC 154.*

COEN 195. Independent Study

1-4 sem. hrs.

Undergraduate independent study project of either a theoretical or experimental nature. *Prereq: Jr. or Sr. stndg., cons. of instr. and dept. chr., and 3.000 Q.P.A.*

Also carries graduate credit.

Electrical Engineering (EECE)

Curriculum Coordinator: Schneider

EECE 001. Freshman Seminar 0 sem. hrs.

Introduction to electrical engineering and computer engineering through presentations by faculty, graduate students, upper-class undergraduate students and alumni. A formal opportunity for EECE freshmen to interact with their peers and other members of the EECE Department. S/U grade assessment.

EECE 010. Electronic Devices and

Applications 3 sem. hrs.

Electronic components are discussed including semiconducting diodes, bipolar junction transistors, field effect transistors, etc. These devices will be analyzed from their terminal characteristics and their behavior in representative electronic circuits. Applications for devices include simple power supply analysis and design, class A amplifier analysis including transistor biasing and stability analysis, simple digital logic gates, etc. Offered spring term. *Prereq: EECE 011 with a minimum grade of C.*

EECE 011. Electric Circuits 1 3 sem. hrs.

Kirchhoff's laws. Mesh, nodal, general nodal and loop analysis of resistive circuits. Linearity and superposition. Source transformations. Thevenin's and Norton's theorems. Natural and forced response of transient circuits of first and second order. Computer analysis and design of linear circuits. Offered fall term. *Prereq: MATH 081 which may be taken concurrently.*

EECE 012. Electric Circuits 2 3 sem. hrs.

Sinusoidal steady-state response. Frequency response. Average power and rms values.

Complex power. Polyphase circuits. Complex frequency and frequency response. Magnetically coupled circuits. Two-port networks. Laplace transform theory and applications. Computer analysis and design of linear circuits. Offered spring term. *Prereq: EECE 011 with a minimum grade of C.*

EECE 041. Circuits Laboratory 1

1 hr. lec., 2 hrs. lab., 1 sem. hr.

Introduction to circuit design, construction, and test. The basics of circuit construction techniques and electronic test measurement skills are covered. Circuit components such as resistors, inductors, capacitors and op-amps are used. Emphasis placed on DC and transient response of circuits. *Coreq: EECE 011.*

EECE 042. Circuits Laboratory 2

1 hr. lec., 2 hrs. lab., 1 sem. hr.

Circuit design, construction, and test skills are expanded to include diode circuits and transistor amplifiers as well as passive and active filters. Emphasis placed on DC, AC and transient response of circuits containing passive and active devices. *Prereq: EECE 011 with a minimum grade of C and EECE 041 with a minimum grade of C. Coreq: EECE 010 and EECE012.*

EECE 091, 093, 095, and 097. Co-op Work Period #1, 2, 3, 4 No credit.

Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 092, 094, etc. *Fee.**

EECE 092, 094, 096, 098. Co-op Grading Period #1, 2, 3, 4 1 sem. hr.

Grading for preceding co-op work assignments is accomplished by review of Employer Evaluation Forms, Work Exit Reports, and other materials as required during each term inschool following a work period. S/U grade assessment.*

**Anominal fee is charged for registration for work periods. No tuition is charged for grading periods.*

EECE 100. Electric Circuits and Electronics 4 sem. hrs.

An experience in electrical circuits (AC and DC), electronic devices (junction, transistor, operational amplifier), bridges, digital circuits and Boolean implementation, combinational and sequential logic, memories. Use of PSpice software and Laplace transform. Analysis and design. This course may not be taken for credit by students in the electrical engineering curricula. *Prereq: MATH083 and PHYS 004.*

EECE 109. Electric Circuits and Machinery 3 sem. hrs.

Circuit modeling; basic solution methods for d-c and a-c circuits; d-c and a-c machines. This course may not be taken for credit by students in the electrical engineering curriculum. *Prereq: PHYS 004.*

EECE 111. Analog Electronics 4 sem. hrs.

Analysis and design of analog electronic circuits. Low and high frequency models for both bipolar and field effect transistors. Design features and operating characteristics of inte-

grated linear circuits with emphasis on operational amplifiers and op-amp circuits. Offered spring term. *Prereq: EECE 010 with a minimum grade of C, and EECE 012 with a minimum grade of C.*

EECE 112. Digital Electronics 4 sem. hrs.

Introduces students to the basic principles of digital circuit analysis and design. Topics covered include: Boolean Algebra, number systems, basic logic gates, standard combinational circuits, combinational design, timing diagrams, flip-flops, sequential design, standard sequential circuits and programmable logic devices. Offered fall term. *Prereq: Jr. stndg.*

EECE 113. Linear Systems Analysis

4 sem. hrs.

Mathematical models of continuous-time and discrete-time signals and systems are studied in this course. The time domain viewpoint is developed for linear time invariant systems using the impulse response and convolution integral. The frequency domain viewpoint is also explored through the Fourier Series and Fourier Transform. Basic filtering concepts including simple design problems are covered. Application of the Laplace transform to block diagrams, linear feedback, and stability including Bode plots are discussed. The sampling theorem, the Z-Transform, and the Discrete Fourier Transform are introduced. Examples of electrical, mechanical, and biomedical signals and systems are used extensively throughout the course. *Prereq: EECE 012 with a minimum grade of C, or EECE 100 with a minimum grade of C, or BIEN 100 with a minimum grade of C, or EECE 109 with a minimum grade of C, and MATH 083.*

EECE 114. Physical Principles of Solid State Devices 3 sem. hrs.

Fundamental physical principles of solid state devices are presented. The operation of modern semiconductor devices is explained from first principles and these principles are used to extend the students' knowledge of devices used in electronic circuits. Offered fall term. *Prereq: PHYS 004, EECE 010 with a minimum grade of C, and EECE 121 with a minimum grade of C.*

EECE 121. Electromagnetic Fields 1

4 sem. hrs.

Development and use of the point and integral forms of Maxwell's equations for static and quasi-static electric and magnetic fields with emphasis placed on the vector nature of these fields. Includes analytic and computational solutions to field's problems. The wave equation for E.M. fields is derived and discussed. Offered fall term. *Prereq: MATH 082, PHYS 004, EECE 012, with a minimum grade of C, and knowledge of a higher level computer language.*

EECE 122. Electromagnetic Fields 2

3 sem. hrs.

Development and use of Wave Equations as derived from Maxwell's equations to explain the propagation of electromagnetic waves. Includes treatment of physical optics, antennas, waveguides and transmission lines. Offered spring term. *Prereq: EECE 121 with a minimum grade of C.*

EECE 123. Electromechanical Energy**Conversion** 3 sem. hrs.

Application of electromagnetic field and circuit theory to electromechanical energy conversion systems. Solutions for the magnetic fields, electromagnetic and electrostatic induced forces, and equivalent circuits using conservation of energy principles applied to electromagnetic, electrostatic-type electromechanical energy conversion devices. Offered spring term.

Prereq: EECE 121 with a minimum grade of C.

EECE 141. Electrical Instrumentation**Laboratory**

1 hr. lec., 3 hrs. lab., 2 sem. hrs.

Develops familiarity with typical electronic instruments and terminology. Combines theory with experience to analyze and design electrical networks. Learning experimental technique and documentation. Offered fall term. *Prereq: EECE 010 with a minimum grade of C; EECE 012 with a minimum grade of C, and EECE 041 with a minimum grade of C.*

EECE 142. Analog Electronics Laboratory

1 hr. lec., 3 hrs. lab., 2 sem. hrs.

Gaining experience in the design, assembly, testing, and trouble-shooting of analog electronic circuits. Experiments encompass a wide range of topics such as: amplifiers, filters, power supplies, power control, oscillators, and communication circuits. Transistors, op-amps, general purpose, and specific purpose devices are used. Offered fall term. *Prereq: EECE 111 with a minimum grade of C; EECE 141 with a minimum grade of C.*

EECE 143. Digital Electronics Laboratory

1 hr. lec., 3 hrs. lab., 2 sem. hrs.

Gaining experience in the design, assembly, testing, and trouble-shooting of digital electronic circuits. Experiments encompass a wide range of topics such as: basic logic gates, integrated circuit specifications, Boolean algebra implementations, standard combinational circuits, sequential circuit design, standard sequential circuits, programmable logic devices, digital interfacing, and microprocessors. 7400 series ICs, PALs, PROMs, and microprocessor devices are used. Offered both terms. *Prereq: EECE 112 with a minimum grade of C; EECE 041 with a minimum grade of C; and either COEN 030 or BIEN185 which may be taken concurrently.*

EECE 145. Advanced Electrical Engineering Laboratory

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Project-based laboratory experience in the design, assembly and testing of advanced electronic and electrical systems. Course content announced prior to each term. Students may enroll in the course more than once as the content of the course changes. Possible topics for the advanced laboratory experience include (but are not limited to) advanced electromagnetic system design, optical and high frequency electronics, nonlinear control systems, motor control circuits and systems, power electronics, communications circuits, integrated microelectronic circuit design and fabrication (VLSI), advanced analog system design, advanced digital system design, microprocessor system-level design. Instruction and use of the appropriate test and measurement tools for design, assembly and testing of systems. Offered

spring term. *Prereq: As appropriate to course content with cons. of instr.*

EECE 146. Principles of Design

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Course content focuses on a structured product design and development process that includes project definition, customer needs identification, product specification, concept generation, and concept selection. Course also focuses on issues related to teamwork, project management, and effective communication. Student team design projects culminate in the development of a technically and economically viable concept and a proposal for future development of the concept (done in the second semester of this two-course sequence). Offered fall term only. *Prereq: Sr. stdng. or (Co-op students, Jr. stdng.). Crosslisted with BIEN 146, COEN 146, INEN 146 and MEEN 146.*

EECE 147. Senior Design Project

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Course focuses on detailed design, prototyping, and testing design concepts. Course includes topics directly relevant to student design projects and careers in engineering profession. Student team design projects culminate in a final report that documents the performance and details (engineering drawings and/or documentation) of their final design. Offered spring term only. *Prereq: EECE 146. Crosslisted with BIEN 147, COEN 147, INEN 147 and MEEN 147.*

#EECE 150. Control Systems 3 sem. hrs.

Review of continuous-time linear systems. Time-domain system analysis. Time-domain design of lead/lag and PID controllers. Root-Locus technique. Frequency-domain system analysis including Nyquist, Bode, and Nichols analysis and relative stability. Frequency-domain design/lag and PID controllers. DESIGN ELECTIVE. *Prereq: EECE 113.*

#EECE 151. Topics in Computers and Control 3 sem. hrs.

Course content announced prior to each term. Student may enroll in the course more than once because subject matter changes. Possible topics include microprogramming, microcomputer topics, computer architecture, optimization techniques, random processes, nonlinear control systems, motor control circuits, and large scale systems design. *Prereq: Cons. of instr.*

#EECE 152. Introduction to Communication Systems 3 sem. hrs.

Orthogonality and signal representation. The Fourier transform and applications, power spectral density, amplitude modulation, angle modulation, pulse modulation, frequency modulation and digital transmission. *Prereq: EECE 113.*

#EECE 153. Digital Control Systems

3 sem. hrs.

Review of sampling processes, discrete time linear systems analysis and z-transforms. Discrete time and sampled data state-variable analysis. Stability analysis, time domain and frequency-domain analysis and design. Analysis, design and computer implementation of digital algorithms and control systems. DESIGN ELECTIVE. *Prereq: EECE 113 with a minimum grade of C.*

#EECE 157. Digital Signal Processing

3 sem. hrs.

Mathematical descriptions of discrete-time signals and systems are presented using block diagrams, signal flow graphs, and difference equations. The sampling and reconstruction of continuous-time signals is presented. Frequency analysis techniques are covered, including the z-transform, the Discrete Fourier Transform, and the Fast Fourier Transform. Simple digital filter design examples are presented. DESIGN ELECTIVE. *Prereq: EECE 113.*

#EECE 160. Electrical Properties of Solids

3 sem. hrs.

Electrical properties of solids are explained in terms of various physical models. The roles of crystallinity, defects (point, line, surface and volume), and microstructure are explored. *Prereq: EECE 114.*

#EECE 161. Dielectric Properties of Material

3 sem. hrs.

The principles governing dielectric breakdown and dielectric polarization in materials are explored. These are related to the microscopic and macroscopic nature of materials. *Prereq: EECE 012 and EECE 121.*

#EECE 162. Device Electronics 3 sem. hrs.

Analysis and design of solid state devices for use in integrated circuits. Topics covered include: physics of semiconductor materials, metal-semiconductor contacts, p-n junctions, bipolar transistors, properties of metal-oxide-silicon system, and MOS field effect transistors. Emphasis is placed on the design of solid state devices, and on their applications in integrated circuits. DESIGN ELECTIVE. *Prereq: EECE 111 and EECE 121.*

#EECE 164. Integrated Microelectronic Circuits 3 sem. hrs.

Basic processing technology of integrated circuits, passive components and their parasitic effects, MOS transistors, bipolar transistors and diodes, design of silicon integrated circuits. Emphasis is placed on the design of circuits to meet given requirements. DESIGN ELECTIVE. *Prereq: EECE 112 and EECE 010.*

#EECE 165. Design with Analog Integrated Circuits 3 sem. hrs.

This course focuses on the design of analog circuits using "standard" analog integrated circuits as building blocks. Since this course deals mostly with the design aspects, "rules of thumb" pertinent to the design process are described and discussed. The following topics are covered in this course: power supply design, op-amp circuit design, active filter design, analog and digital display circuits, passive component selection and miscellaneous analog integrated circuits and their applications. Students design a series of circuits during the course of the term which form the individual building blocks of a more complicated analog circuit package. DESIGN ELECTIVE. *Prereq: EECE 111 and EECE 142.*

#EECE 168. Topics in Electrical Engineering 3 sem. hrs.

Course content is announced prior to each term. Students may enroll in the course more than once because subject matter changes. *Prereq: Cons. of instr.*

#EECE 173. Optical Fiber Communications

3 sem. hrs.

Fundamental principles and theories of optical fiber systems are introduced and developed. Review of electromagnetic principles of waveguides. Step-Index and Graded-Index, single and multimode fibers. Signal analysis in optical fibers: mode interaction, attenuation, dispersion and pulse spreading. Operating characteristics of optical sources and photo-receivers with impact on system performance. Coupling to a fiber and distribution system. Optical fiber communication system design. DESIGN ELECTIVE. *Prereq: EECE 121 and Sr. stndg.*

#EECE 174. Antenna Theory and Design

3 sem. hrs.

Design and use of antennas of varying types, including wire, broadbands, horn, and reflector antennas in transmitting and receiving applications. The application and design of antenna arrays, and an introduction to diffraction theory. Offered occasionally. DESIGN ELECTIVE. *Prereq: EECE 122.*

#EECE 175. Wireless Communications

3 sem. hrs.

Fundamentals, analysis and design of cell systems, including trunking theory and grade of service. Large scale and small scale path loss analysis and modeling. Overview of modulation techniques, including amplitude and frequency modulating, and digital modulation techniques. DESIGN ELECTIVE. *Prereq: EECE 113 and EECE 121.*

#EECE 176. Sensor Devices: Theory, Design and Applications

3 sem. hrs.

Sensor classification and transduction principles. Fundamental principles and theory of operation of various types of sensors, based on various technologies which include optical, electrical, acoustical, thermal, magnetic, mechanical and chemical. Analysis of sensor signals. Study of sensor characteristics which include hysteresis, non-linearity, saturation, repeatability, sensitivity, selectivity and resolution. Design and practical implementations of various sensors for scientific, industrial and consumer applications. DESIGN ELECTIVE. *Prereq: Sr. stndg.*

#EECE 181. Power Electronics

3 sem. hrs.

Fundamental concepts, techniques, and methods for design and analysis of power electronic systems. Modeling of semiconductor switching devices for use in power electronic systems. Practical aspects and power electronic conversion techniques for rectifiers, DC-to-DC converters, DC-to-AC inverters and their applications in power electronic systems. DESIGN ELECTIVE. *Prereq: EECE 111 and EECE 113.*

#EECE 182. Power Systems

3 sem. hrs.

Elements of electric power systems; fundamental concepts and techniques for design and analysis; per unit system; load flow; economic dispatch; symmetrical components; balanced and unbalanced fault calculations, system instrumentation and power system protection. DESIGN ELECTIVE. *Prereq: EECE 012 and EECE 113.*

#EECE 183. Special Topics in Power Systems and Devices

3 sem. hrs.

Course content announced prior to each term. Students may enroll in the course more than

once because subject matter changes.

Possible course subjects are power electronics for machine and drive systems, electrical transients, faults and protection in power systems, and advanced topics in the electric power engineering area. *Prereq: Cons. of instr.*

#EECE 184. Applied Finite Elements in Electromagnetics

3 sem. hrs.

Introduction to finite element (FE) analysis as applied to linear and static electromagnetic field problems. Review of basic field formulations using Maxwell's electromagnetic field equations, solution of boundary value problems using the finite difference methods, FE formulations, assembly of elemental and global matrices, pre-processing, post-processing. Application of the FEmethod using one-dimensional and two-dimensional elements, magnetostatic and electrostatic analysis, and the use of commercially available software packages. *Prereq: EECE 121 or equivalent.*

#EECE 185. Design and Analysis of Electric Motors in Adjustable Speed Drives

3 sem. hrs.

Principles of design of ac and dc electric machines, in particular design of electric motors in power electronically controlled adjustable speed drives, torque and power to volume analysis under constant volts per hertz torque-speed control. Design of ac induction, synchronous, universal and dc conventional as well as brushless dc motors, and low horsepower motors in adjustable speed drives is covered. Effects of space and time harmonics on motor design and performance are covered including harmonic abatement for control of torque pulsation. Modern modeling techniques are studied and used throughout. DESIGN ELECTIVE. *Prereq: EECE 012, EECE 121, and EECE 123; or their equivalents.*

#EECE 186. Principles of Design of Power Systems Protection and Monitoring

3 sem. hrs.

Principles of design of relay and sensor systems for detection of faulty operating conditions in electric generators, transformers, power transmission lines, motors and other loads in power systems. Balanced and unbalanced faults include single and multiple unbalances. Design and hierarchical coordination of protection systems for interconnected generation, transmission and distribution facilities in power systems. This includes integrated generator-transformer-busbar-transmission line-load protection and analysis of operation under fault conditions. DESIGN ELECTIVE. *Prereq: EECE 012, EECE 121, and EECE 123; or their equivalents.*

#EECE 187. Electrical Transients and Surges in Power Systems and Devices

3 sem. hrs.

The study of microsecond fast transients in power systems and devices resulting from lightning strokes, switching surges in power systems and devices, as well as impulse surges resulting from pulse width modulation in modern adjustable speed drives, using distributed parameter models and analysis of transmission lines and windings of transformers, generators and motors. Successive reflections, transition points, wavefront flattening techniques and surge arrester design applications for voltage

buildup reduction and control are studied.

Polyphase multi-velocity multi-conductor system transients are included. DESIGN ELECTIVE. *Prereq: EECE 012 and EECE 121; or their equivalents.*

EECE 195. Independent Study

1-4 sem. hrs.

Undergraduate independent study project of either a theoretical or experimental nature. *Prereq: Jr. or Sr. stndg.; cons. of instr. and dept. ch.; 3.000 Q.P.A. required.*

Also carries graduate credit.

INDUSTRIAL ENGINEERING (INEN)

Chairperson and Professor: Kim
Curriculum Coordinator: Marklin
Associate Chairperson and Director of Undergraduate Studies: Fournelle
Director of Graduate Studies: Stango
Professor Emeritus: Matar
Associate Professor: Cariapa, Marklin, Rice
Assistant Professor: Domblesky
Adjunct Professor: Stilp

INEN 091, 093, 095 and 097. Co-op Work

Period #1, 2, 3, 4 No credit.

Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 092, 094, etc. Offered every term. *Fee.**

INEN 092, 094, 096 and 098. Co-op Grading

Period 1 sem. hr.

Grading for preceding co-op work assignments is accomplished by review of Employer Evaluation Forms, Work Exit Reports, and other materials as required during each term in school following a work period. Offered every term. S/U grade assessment.*

**Anominal fee is charged for registration for work periods. No tuition is charged for grading periods.*

INEN 120. Engineering Economy

2 sem. hrs.

Economic analysis for engineering and managerial decisions in the firm, value analysis, equipment replacement, evaluation of competing projects, inflation, cash flows, tax problems, depreciation, time value of money and various techniques of analyzing and reducing costs. Offered every term.

INEN 130. Optimization of Industrial Systems

3 sem. hrs.

Introduction to deterministic mathematical programming. Topics will include linear programming, duality, transportation problems, assignment problems, integer programming formulation, and goal programming. Offered spring term. *Prereq: GEEN 022, 023, MATH 083, and INEN 140; or equivalent.*

#INEN 131. Industrial Simulation 3 sem. hrs.
General principles of stochastic simulation. Use of FORTRAN and general purpose simulation languages to simulate integrated systems in manufacturing and service industry such as material handling, production and inventory

control, facility layout, and quality control. Offered fall term. *Prereq: GEEN 022, 023 and INEN 140; or equivalent.*

INEN 140. Engineering Statistics 3 sem. hrs. This course covers the solution of non-deterministic problems in engineering along with the application of statistics to engineering effort in areas such as design, tolerancing, material selection, process selection, and reliability and quality controls. The course will also cover the application and limitations of inferential statistics in engineering. Offered spring term. *Prereq: MATH 081.*

INEN 143. Manufacturing Engineering 1 2 hrs. lec., 2 hrs. lab., 3 sem. hrs. The types of processes available to manufacture various products. The characteristics of these processes and how they interact with design requirements, tolerances, safety and the environment. Integration of basic concepts into complete processes. Determination of the process to manufacture various assigned products. Offered fall term. *Prereq: MEEN 060.*

INEN 144. Manufacturing Engineering 2 2 hrs. lec., 2 hrs. lab, 3 sem. hrs. The types of systems and procedures which are relevant to the manufacture of products. Manufacturing and assembly systems; robotics; flexible manufacturing cells; system design and control (CAD/CAM); quality control and assurance; design of products for manufacturability. Offered spring term. *Prereq: INEN 143 and INEN 151.*

INEN 146. Principles of Design 2 hrs. lec., 2 hrs. lab., 3 sem. hrs. Course content focuses on a structured product design and development process that includes project definition, customer needs identification, product specification, concept generation, and concept selection. Course also focuses on issues related to teamwork, project management, and effective communication. Student team design projects culminate in the development of a technically and economically viable concept and a proposal for future development of the concept (done in the second semester of this two-course sequence). Offered fall term only. *Prereq: Sr. stndg. or (Co-op students, Jr. stndg.). Crosslisted with BIEN 146, COEN 146, EECE 146 and MEEN 146.*

INEN 147. Senior Design Project 2 hrs. lec., 2 hrs. lab., 3 sem. hrs. Course focuses on detailed design, prototyping, and testing design concepts. Course includes topics directly relevant to student design projects and careers in engineering profession. Student team design projects culminate in a final report that documents the performance and details (engineering drawings and/or documentation) of their final design. Offered spring term only. *Prereq: INEN 146. Crosslisted with BIEN 147, COEN 147, EECE 147 and MEEN 147.*

#INEN 148. Design of Engineering Experiments 3 sem. hrs. Application of statistical concepts to design engineering experiments to improve quality, production techniques, and reliability. Use and advantages of various models; factorial, fractional factorial, orthogonal arrays and fractional

factorial designs. Offered fall term. *Prereq: MATH 164 or INEN 140 or cons. of instr.*

INEN 151. Work Measurement and Workplace Design 2 hrs. lec., 2 hrs. lab., 3 sem. hrs. The major part of this course concentrates on how to quantify work and how to design workplaces, based on measurement and methods engineering, to achieve optimum efficiency. A minor part of this course will discuss methods used to analyze environmental stressors, such as noise and illumination, and the application of these methods in workplace design to reduce operator fatigue and to achieve optimum performance. Offered spring term. *Prereq: MATH 080.*

#INEN 159. Topics in Industrial Engineering 3 sem. hrs. Topics include: quality assurance, artificial intelligence, advanced production control methods, ergonomics and non-traditional manufacturing processes. Course content announced each term. Offered occasionally. *Prereq: Sr. stndg.*

#INEN 164. Ergonomics 2 hrs. lec., 2 hrs. lab, 3 sem. hrs. Ergonomics maximizes the health and safety of workers, while maintaining productivity and quality. This course will cover biomechanical and physiologic aspects of workplace design, such as engineering anthropometry, cumulative trauma disorders, (including carpal tunnel syndrome), low back injuries, handtool design and evaluation, methods of surveillance in industrial environments, modeling, and ergonomics guidelines. Laboratory sessions are offered to demonstrate ergonomic principles and also provide students with hands-on experience in collecting data and conducting experiments. Offered fall term. *Prereq: ENME 022 and INEN 140; or equivalents.*

#INEN 165. Stochastic Models in Operations Research 3 sem. hrs. Introduction to stochastic models in operations research; review of probability theory and statistical inference; introduction to Markov chains; queuing theory and its applications; dynamic programming; inventory theory and its applications; game theory decision analysis. Offered occasionally. *Prereq: INEN 130.*

#INEN 180. Metal Forming 1 3 sem. hrs. Bulk and sheet forming processes. Elementary plasticity theory, yield criteria, effective stress, strain, instability, and necking. Solutions to metal forming problems using upper and lower bound methods. Anisotropy and formability in metal forming. *Prereq: ENME 130 and INEN/MEEN 143.*

#INEN 185. Welding Engineering 3 sem. hrs. Arc welding physics, fundamentals of power supplies and welding circuits, fusion and solid-state welding processes, weld testing, analysis of welded joints. Laboratory demonstrations using various processes. *Prereq: INEN/MEEN 143, ENME 130.*

INEN 190. Engineering Fundamentals Review 1 sem. hr. Review of basic science, mathematics, engineering science, and economics. Offered every term. S/U grade assessment. *Prereq: Sr. stndg.*

INEN 191. Senior Seminar 1 sem. hr. Course will consist of lectures on state-of-the-art concepts in engineering management practice presented by industry personnel. Students will prepare critiques of lectures. S/U grade assessment. *Prereq: Sr. stndg.*

INEN 195. Independent Study 1-3 sem. hrs. Undergraduate independent study project of either a theoretical or experimental nature. Offered every term. *Prereq: Jr. or Sr. stndg, cons. of instr. and dept. ch.; 3,000 Q.P.A. required.*

Also carries graduate credit.

MECHANICAL ENGINEERING (MEEN)

Chairperson and Professor: Kim
Associate Chairperson and Director of Undergraduate Studies: Fournelle
Director of Graduate Studies: Stango
Curriculum Coordinator: Nigro
Professor: Brower, Fournelle, Gaggioli, Nigro, Seitz, Widera
Professor Emeriti: Brebrick, Blumenthal, Cartz, Elkouh, Matar
Associate Professor: Jensen, Nagurka, Schimmels, Stango, Weber
Associate Professor Emeriti: Bradish, Panlener
Assistant Professor: Madjalani
Adjunct Professor: Bishop, Janc, Stilp
Adjunct Associate Professor: Dunbar, Hoffmann, Toth
Research Associate Professor: Park
Research Assistant Professor: Huang
Visiting Assistant Professor: Paulus
Adjunct Assistant Professor: Braun, Schaefer

MEEN 060. Materials Science 3 sem. hrs. Atomic structure of matter, types of bonding, crystallography, role of imperfections, and ionic diffusion. Electric, magnetic, dielectric, and semiconducting properties. Mechanical properties, corrosion, and phase diagrams. Offered every term. *Prereq: CHEM 001.*

MEEN 091, 093, 095 and 097. Co-op Work Period #1, 2, 3, 4 No credit.

Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 091S, 092S, etc. Offered every term. *Fee.**

MEEN 092, 094, 096 and 098. Co-op Grading Period #1, 2, 3, 4 1 sem. hr.

Grading for preceding co-op work assignments is accomplished by review of Employer Evaluation Forms, Work Exit Reports, and other materials as required during each term in school following a work period. Offered every term. S/U grade assessment.*

**Anominal fee is charged for registration for work periods. No tuition is charged for grading periods.*

MEEN 104. Principles of Thermofluids

3 sem. hrs.

Elementary principles of thermodynamics, fluid flow, and heat transfer under conditions of constant composition. Applications to turbomachinery, power and refrigeration cycles, piping and duct networks, and heat exchange materials and equipment. Simple experiments including applications of dimensional analysis, are conducted, along with associated design problems. *Prereq: MATH 081 and PHYS 003.*

MEEN 106. Energy Conversion Processes

3 hrs. lec., 2 hrs. lab., 4 sem. hrs

Further development of thermofluids principles, including (a) compressible flow — with applications to nozzles, shock, friction (Fanno flow), heat addition (Rayleigh flow) and, (b) processes with variable composition, particularly psychrometrics and combustion, and (c) exergy analysis. Applications to combustion turbines, combustion equipment, combined cycles and cogeneration. Several experiments are carried out for testing the processes, equipment and cycles, and as a basis for associated design problems. *Prereq: MEEN 104.*

MEEN 108. Fundamentals of Heat Transfer

3 sem. hrs.

Principal mechanisms of heat transfer: conduction, convection, and thermal radiation. Applications to heat exchangers and thermal system design. *Prereq: MEEN 104, MATH 083.*

#MEEN 110. Two-Phase Flow and Heat Transfer

3 sem. hrs.

Principles of compressible two-phase flow. Flow patterns. Friction and acceleration effects. Choking phenomena. Heat transfer. Applications in engineering design and industrial processes. Offered occasionally. *Prereq: ENME 151 and MEEN 108; or cons. of instr.*

#MEEN 111. Applied Energy Conversion 1 - Equipment

3 sem. hrs.

Compressors, pumps, turbines, nozzles. Heat transfer equipment; mass transfer equipment. Heat generation equipment. Gas turbines; engines. Fuel cells; photoelectric cells and other modern converters. Energy storage. Offered occasionally. *Prereq: MEEN 104, ENME 151; Coreq: MEEN 108 or cons. of instr.*

#MEEN 112. Applied Energy Conversion 2 - Systems

3 sem. hrs.

Principles of modeling the processes, devices, and systems of energy-conversion, as well as chemical and metallurgical processing plants. Analysis of the processes, devices, and systems to quantitatively evaluate the sources of inefficiency and their monetary cost. The end objective is more effective design and operation of such plants, for economy of operation. Offered occasionally. *Prereq: MEEN 104, MEEN 111.*

#MEEN 117. Heating and Air-Conditioning Systems

3 sem. hrs.

Focus on components of heating, ventilating and air conditioning systems, their integration and control. Includes discussion of vapor compression refrigeration cycles, applied psychrometrics, heating and cooling loads, pump and fan systems and duct sizing. Student projects involve computerized building energy analysis procedures. Offered occasionally. *Prereq: MEEN 104.*

#MEEN 118. Power Plants

3 sem. hrs.

Exposition of how fossil and nuclear energy resources are converted to produce electric power in steam turbine and gas turbine power plants. Included are: cycle analysis, turbine blading, causes of non-ideal compression and expansion, exhaust-end turbine losses, turbine governing. Offered occasionally. *Prereq: MEEN 104 and ENME 151. Coreq: MEEN 108 or cons. of instr.*

#MEEN 119. Topics in Energy Conversion

1–3 sem. hrs.

Contents announced each term. For example, course could be devoted to one of the following subjects: internal combustion engines, direct energy conversion, principles of nuclear engineering, principles of solar engineering, heat exchange equipment, energy storage, cogeneration systems. Offered occasionally. *Prereq: Vary with topic offered.*

MEEN 120. Mechanical Measurements and Instrumentation

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Instrumentation systems including transducers, signal conditioners and readout devices. Oscilloscopes, recorders, bridges. Measurement of force, displacement, flow, temperature, pressure and other engineering parameters. Offered fall term. *Prereq: MATH 081; and either PHYS 004 or EECE 109.*

MEEN 128. Dynamics of Mechanical Systems

3 sem. hrs.

Kinematics of mechanisms, force analysis of four bar linkages, dynamic balancing, vibrations of single and multiple degrees-of-freedom, vibration isolation in design, and introduction to control of machinery. Offered spring term. *Prereq: ENME 020 and MATH 083.*

#MEEN 131. Products Liability and Engineering Safety

3 sem. hrs.

A study of the constraints society places on engineers and engineering managers to promote the safety of products, systems, processes and workplaces. Brief introduction to Products Liability Law and its impact on technical personnel and programs. Presentation of the design and promulgation of voluntary and mandatory safety standards codes and laws having local, state and federal origins. Selected regulatory bodies will be studied in depth. Experts on topics invited to speak as they are available. Analysis and design projects. Offered occasionally. *Prereq: Sr. stndg. and/or industrial experience.*

#MEEN 134. Intermediate Fluid Dynamics

3 sem. hrs.

Ideal fluid flows, one-dimensional compressible flow, including nozzles and propulsive thrust, simple viscous flows, the boundary layer, turbulence. Offered occasionally. *Prereq: MEEN 104 and ENME 151; or equivalents.*

MEEN 141. Computer-Aided Engineering

3 hrs. lec., 1 hr. lab., 3 sem. hrs.

Study of numerical algorithms for Computer-Aided Engineering (i.e., math analysis, optimization, data approximation). Development of computer programs (FORTRAN 90 and C) and use of special software (e.g., MATLAB) for implementation of these algorithms. Use of current industrial software (e.g., EUCLID, ANSYS, ADAMS) for solid modeling, finite

element analysis, and computational multi-body dynamics. Offered fall term. *Prereq: MATH 083, MEEN 128.*

MEEN 142. Design of Machine Elements

3 hrs. lec., 2 hrs. lab., 4 sem. hrs.

Detailed design of mechanisms, structural elements, shafts, gears, bearings and other machine elements. Final design of the element as an essential part of a mechanical system. Laboratories cover the theoretical and experimental analyses of machine elements including springs, shafts, gears, clutches, etc. Offered spring term. *Prereq: ENME 130.*

MEEN 143. Manufacturing Engineering 1

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

The types of processes available to manufacture various products. The characteristics of these processes and how they interact with design requirements, tolerances, safety and the environment. Integration of basic concepts into complete processes. Determination of the process to manufacture various assigned products. Offered fall term. *Prereq: MEEN 060.*

MEEN 144. Manufacturing Engineering 2

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

The types of systems and procedures which are relevant to the manufacture of products. Manufacturing and assembly systems; robotics; flexible manufacturing cells; system design and control (CAD/CAM); quality control and assurance; design of products for manufacturability. Offered spring term. *Prereq: MEEN 143.*

#MEEN 145. Reliability Engineering

3 sem. hrs.

Introduction to probabilistic models and reliability mathematics. Analyzing failure data. Load-strength interference models and reliability prediction and modeling. Reliability principles applied to mechanical and electrical systems. Reliability in design. Measuring and improving reliability. Reliability management. Offered occasionally. *Prereq: INEN 140 or MATH 164; and Sr. stndg.*

MEEN 146. Principles of Design

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Course content focuses on a structured product design and development process that includes project definition, customer needs identification, product specification, concept generation, and concept selection. Course also focuses on issues related to teamwork, project management, and effective communication. Student team design projects culminate in the development of a technically and economically viable concept and a proposal for future development of the concept (done in the second semester of this two-course sequence). Offered fall term only. *Prereq: Sr. stndg. or (Co-op students, Jr. stndg.). Crosslisted with BIEN 146, COEN 146, INEN 146 and EECE 146.*

MEEN 147. Senior Design Project

2 hrs. lec., 2 hrs. lab., 3 sem. hrs.

Course focuses on detailed design, prototyping, and testing design concepts. Course includes topics directly relevant to student design projects and careers in engineering profession. Student team design projects culminate in a final report that documents the performance and details (engineering drawings and/or documentation) of their final design. Offered spring term only. *Prereq: MEEN 146. Crosslisted with*

BIEN 147, COEN 147, INEN 147 and EECE 147.

#MEEN 148. Design of Engineering Experiments 3 sem. hrs.

Application of statistical concepts to design engineering experiments to improve quality, production techniques and reliability. Use and advantages of various models; factorial, fractional factorial, orthogonal arrays and fractional designs. Offered fall term. *Prereq: MATH 164 or INEN 140, or cons. of instr.*

#MEEN 150. Applied Stress Analysis 1 3 sem. hrs.

Review of beam theory; asymmetric bending, shear center, thin-walled sections; torsion of non-circular sections, open and closed thin-walled sections; energy methods, Castigliano's second theorem, statically indeterminate structures, internal static indeterminacy; curved beams. Offered occasionally. *Prereq: ENME130.*

#MEEN 151. Advanced Design of Machine Elements 3 sem. hrs.

Detailed design of gears and cams. Integration of dynamics into design of machinery is emphasized. Topics include balancing of machinery, selection of motors and critical frequency analysis, and miscellaneous power transmission components. Use of spreadsheets and computer programs to assist in the design of various components. Offered occasionally. *Prereq: MEEN 142 or equivalent.*

#MEEN 152. Experimental Stress Analysis 3 sem. hrs.

Analytical and experimental approaches to accurate stress determination. Photoelasticity, brittle lacquers, strain gage techniques and instrumentation, analogies and applied problems. Offered occasionally. *Prereq: ENME 130.*

#MEEN 153. Finite Element Method 3 sem. hrs.

Application of finite element method (FEM) to static and dynamic mechanical systems. Introduction to commercially available FEM programs. Offered occasionally. *Prereq: MEEN141.*

#MEEN 154. Introduction to Polymers and Polymer Composites in Design 3 sem. hrs.

Introduction to physical/chemical structure of polymers, polymer characterization, polymer material properties and mechanical testing methods, elastic and viscoelastic polymer response, processing methods, composite materials, and the selection of polymers in design applications. Offered occasionally. *Prereq: ENME 130.*

#MEEN 155. Fatigue and Fracture in Mechanical Design 3 sem. hrs.

Application of fatigue and fracture models to engineering design. Stress-life (high-cycle), strain-life (low cycle), and fatigue crack growth models for fatigue. Introduction to linear elastic fracture mechanics. Statistical considerations in failure. Fail safe design practices. Course includes illustrative case studies. Offered occasionally. *Prereq: MEEN 130.*

#MEEN 156. Optimal Design of Engineering Systems 3 sem. hrs.

Development of math models for optimal design of engineered systems. Development and use of algorithms for optimization. Linear and non-linear programming. Offered occasionally. *Prereq: MEEN 141 or equivalent.*

#MEEN 157. Perturbation Methods in Engineering 3 sem. hrs.

Solution of nonlinear problems in solid and fluid mechanics and dynamics by use of asymptotic perturbation techniques. Asymptotic expansions, regular and singular perturbations and applications in dynamics, celestial mechanics, potential, viscous and compressible flows. Uniformly valid approximations in various physical problems. Generalized boundary-layer techniques. Coordinate straining techniques; Poincare's method. Matched asymptotic expansions and multiple scales. Problems with several time or length scales. Examples taken from various fields of science. Offered occasionally. *Prereq: MEEN 134 or consent of instructor.*

#MEEN 158. Mechatronics 3 sem. hrs.

Mechatronics, as an engineering discipline, is the synergistic combination of mechanical engineering, electronics, control engineering, and computer science, all integrated through the design process. This course covers mechatronic system design, modeling and analysis of dynamic systems, control sensors and actuators, analog and digital control electronics, interfacing sensors and actuators to a micro-computer/microcontroller, discrete and continuous controller design, and real-time programming for control. Offered occasionally. *Prereq: MEEN 120 and MEEN 128.*

#MEEN 159. Topics in Mechanical Systems Analysis and Design 3 sem. hrs.

Topics may include: vibrations, multi-body dynamics, composite materials, polymers, physical systems modeling, and mechanical analysis of manufacturing processes. Offered occasionally. *Prereq: Vary with topic offered.*

MEEN 160. Materials Selection in Mechanical Design

3 hrs. lec., 3 hrs. lab, 4 sem. hrs.

Design methodology and the criteria for the selection of materials from the four classes of materials (metals, plastics, ceramics and composites) are discussed. Criteria include processing requirements, mechanical properties, and environmental resistance. A rationale for selecting materials based on materials selection charts is presented. The process-structure-property relationship for ferrous and non-ferrous alloys, plastics, ceramics and composites is presented from the point of view of understanding selection criteria. Considerations of cost and availability are also taken into consideration. Offered fall term. *Prereq: MEEN060.*

#MEEN 161. Failure Analysis 3 sem. hrs.

Methodology of failure analysis. Studies of brittle fracture, ductile fracture, fatigue, stress corrosion and electro-chemical corrosion as applied to the failure of metals. Involves some laboratory work and analyses of a variety of metallurgical failures. Offered occasionally. *Prereq: ENME 130 and MEEN 160.*

#MEEN 162. Introduction to X-Rays and Crystallography 3 sem. hrs.

Production and properties of X-rays. Scattering, introduction to crystal structure, and its determination by means of X-rays and X-ray spectroscopy. Offered occasionally. *Prereq: MEEN060 or cons. of instr.*

#MEEN 163. Powder Metallurgy 1 3 sem. hrs.

The course introduces a modern technology with growing importance. It covers the basics of powder metallurgy with main emphasis on sintered steel. The primary topics covered are powder production, die compacting, sintering theory and practice, full density processing, properties under static and dynamic loading conditions. Offered occasionally. *Prereq: MEEN060.*

#MEEN 164. Powder Metallurgy 2 3 sem. hrs.

This course introduces advanced powder metallurgy processes and products with emphasis on materials like ceramics, cermets, and special alloys. The main topics are special powder production techniques, cold and hot isostatic compaction, full density processing, mechanical properties under special loading conditions. Offered occasionally. *Prereq: MEEN 060 and MEEN 163.*

#MEEN 165. Surface Engineering 3 sem. hrs.

Structure, composition, and thermodynamics of the top several atom layers of solid interfaces and surfaces. Surface analytical techniques in ultra high vacuum. Curved and fractal surfaces, small particle effects in sintering and catalysis. Structure of adsorbed mono layers. Catalyzed surface reactions. Epitaxy in forming semiconductor layer structure. Offered occasionally. *Prereq: MEEN 060.*

#MEEN 166. Principles of Heat Treatment 3 sem. hrs.

Fundamental characteristics of carbon and low alloy steels. Effect of alloy elements on the heat treatment characteristics and mechanical properties of low alloy steels. Heat treatment, microstructure and properties of cast irons, stainless steels, tool steels and heat-resisting alloys. Offered occasionally. *Prereq: MEEN 160 or cons. of instr.*

#MEEN 167. Mechanical Behavior of Materials 3 sem. hrs.

Stress and strain relationships for elastic behavior. Theory of plasticity. Plastic deformation of single crystals and polycrystalline aggregates. Dislocation theory, fracture, internal friction, creep and stress rupture and brittle failure. Offered occasionally. *Prereq: ENME 130 and MEEN 160; or cons. of instr.*

#MEEN 168. Processing and Forming of Materials 3 sem. hrs.

Heat and mass transfer, thermodynamics, and stress analyses involved in materials forming process. Solidification and castings, vapor deposition of thin films and coatings. Sintering of powders and aggregates. Mechanical forming and drawing, forging, swaging, rolling. Absolute reaction rate theory for polymerization and chemical processes. Fabrication techniques for composite materials. Offered occasionally. *Prereq: MEEN 060.*

#MEEN 170. Introduction to Biomaterials

Science and Engineering 3 sem. hrs.
Introduction to the principal areas in Materials Science. Structure and bonding, crystallography and mechanical properties of materials. Techniques to study structure and properties of materials, structure and mechanical properties of bone and various implant materials and their mode of failures. Offered occasionally. Same as BIEN 170. *Prereq: MEEN 060.*

#MEEN 171. Topics in Materials Engineering

3 sem. hrs.
Different course content each term. Topics include: electron microscopy, biomaterials, surface treatment of metals and physical ceramics. Offered occasionally. *Prereq: Varywith topic offered.*

#MEEN 172. Electrical Properties of Solids

3 sem. hrs.
Electrical properties of solids are explained in terms of various physical models. The role of crystallinity, defects (point, line, surface and volume) and microstructure are explored. Offered occasionally. Same as EECE 160. *Prereq: EECE 010.*

#MEEN 180. Metal Forming 1 3 sem. hrs.

Bulk and sheet forming processes. Elementary plasticity theory, yield criteria, effective stress, strain, instability and necking. Solutions to metal forming problems using upper and lower bound methods. Anisotropy and formability in metal forming. *Prereq: ENME 130 and INEN/MEEN143.*

MEEN 190. Engineering Fundamentals

Review 2 hrs. lec., 1 sem. hr.
Review of basic science, mathematics, engineering science, and economics. Offered every term. S/Ugrade assessment. *Prereq: Sr. stndg.*

MEEN 195. Independent Study 1-3 sem. hrs.

Undergraduate independent study project of either theoretical or experimental nature. Offered every term. *Prereq: Cons. of instr. and dept. ch., Jr. stndg.; 3.000 Q.P.A. required.*

Also carries graduate credit.

SPECIAL PROGRAM

ENGINEERING ETHICS AND VALUES

ENEV 001. Ethics and Values Colloquium 1
0 sem. hrs.

The colloquium consists of a series of lectures, films and discussions involving social problems with significant technical components, societal values and engineering ethics. Students are required to meet approximately three to four times during the term. S/U grade assessment.

ENEV 002. Ethics and Values Colloquium 2
1 sem. hr.

The colloquium consists of a series of lectures, films and discussions involving social problems with significant technical components, societal values and engineering ethics. Students are required to meet approximately three to four times during the term. S/U grade assessment.

College of Health Sciences

The College of Health Sciences has the mission of preparing students for careers in the health sciences and as health care providers. It is dedicated to improving health care by educating excellent, ethical health care professionals through a program of teaching, research and service. Students are instilled with the Jesuit ideals of concern for the spiritual, emotional and physical development of the individual as well as a lifelong commitment to leadership in the advancement of their personal skills and profession.

DEGREES OFFERED

Marquette University confers the degree of bachelor of science on students who have satisfactorily completed the following majors: athletic training, biomedical sciences, clinical laboratory science, dental hygiene, exercise science, and speech pathology and audiology. Students who successfully complete the honors program may receive an honors bachelor of science in these majors.

The College of Health Sciences confers through the graduate school a master of science in speech-language pathology.

The college also offers a professional doctoral program in physical therapy and a masters in physician assistant studies. Upon successful completion of these programs the degree of doctor of physical therapy or master of physician assistant studies is conferred.

MAJORS/MINORS OFFERED

The College of Health Sciences offers majors in athletic training, biomedical sciences, clinical laboratory science, dental hygiene, exercise science, and speech pathology and audiology. Specific requirements and typical four-year programs are listed on the next several pages.

The College of Health Sciences offers two minors, biomedical sciences and speech pathology and audiology.

Students interested in minoring in **speech pathology and audiology** must complete 21 hours of speech pathology and audiology course work including SPPA 010, 031, and 036.

Requirements for a **biomedical sciences** minor are 18 credits selected from the following BISC 006, 007, 012, 110, 115, 120, 125, 126, 130, 135, 136, 145, 150, 160, 165, 180, 195, 198 and CLLS 010. A maximum of nine transfer credits can be awarded toward the requirement for the minor.

PRE-PROFESSIONAL HEALTH STUDIES

Pre-professional studies at Marquette means pursuing a bachelor's degree with the intent to enroll in a professional school following graduation. Choosing a major in the College of Health Sciences is one way to prepare for a career in medicine, dentistry, forensics, chiropractic medi-

cine, physical therapy, athletic training, physician assistant, occupational therapy, podiatry and optometry. The College of Health Sciences provides advising, career counseling, a resource library, seminars and recommendations to help you with the professional school application process.

Course requirements may vary among institutions and across disciplines. Students should consult graduate schools of interest to identify specific course requirements.

PRE-DENTAL SCHOLARS PROGRAM

The Pre-dental Scholars program is an accelerated program which allows students to receive an undergraduate degree with conditional acceptance to Marquette University's School of Dentistry, the only dental school in the state of Wisconsin. Pre-dental scholars complete a bachelors' degree and a dental degree in seven years rather than the eight years normally required.

Pre-dental scholars enroll in the College of Health Sciences, major in biomedical sciences and complete the undergraduate portion of their studies in three years. In the first three years of the pre-dental scholar program, students complete the core curriculum and major requirements. Courses taken in the fourth year (first year of dental school) count as requirements towards the bachelors' degree and also toward the completion of their dental degree.

ACADEMIC EXPECTATIONS FOR PRE-DENTAL SCHOLARS

1. Formally register with the assistant dean and/or biomedical sciences faculty designee prior to the first week of classes of the freshmen year.
2. Formally declare a Biomedical Sciences major within the College of Health Sciences.
3. Required to meet with the assistant dean and/or biomedical sciences faculty designee, during each semester's advising period to schedule a course of study for the following semester.
4. Achieve and maintain a minimum cumulative and science quality point average of 3.00 (B) each semester. Receive a minimum of a 3.00 (B) in any science or mathematics course. Failure to maintain these standards may result in being placed on probation in the program. Two semesters of probation will result in dismissal from the program.
5. May take the Dental Aptitude Test (DAT) as early as the spring semester of the sophomore year but no later than the fall semester of the junior year. Students must achieve at least a score of 15 for the perceptual Motor Abilities Test and at least 15 for the Academic Test.
6. To matriculate to the Dental School during their fourth year at Marquette, any undergraduate scholarships will be applicable for only three years.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

Candidates for a degree must earn the required number of credits for their major and a minimum number of quality points equal to twice the number of credit hours attempted at Marquette (C average). Students may earn credits but not quality points from another institution. All students must earn at least a C average in their Marquette work. A student must also earn a C or better in all their courses in their major.

Students must consult the area of the bulletin of their chosen major and minor for specific graduation requirements.

Although students may fulfill the core curriculum and major requirements and take elective courses within the number of credits required for graduation, certain combinations of major and minor fields may require more than the minimum number of credits. Students should consult an adviser before selecting a major and an optional minor.

Applicants for graduation must submit an application to the college dean's office one term prior to the term of graduation.

It is the responsibility of the student to know and fulfill all university, College of Health Sciences and major requirements.

ACADEMIC REGULATIONS

Students in the College of Health Sciences are expected to comply with the academic requirements and regulations listed in the University section of this bulletin.

Students in the professional phase of the Master of Physical Therapy or Doctorate of Physical Therapy programs **must** comply with the academic regulations listed in the *Physical Therapy Student Handbook*. The *Physical Therapy Student Handbook* is issued to students upon entering the professional phase of the curriculum (fourth year).

ADVISERS

Upon enrollment in the College of Health Sciences each student is assigned an adviser. The adviser will assist the student with course selection, sequencing of courses and academic matters related to their curriculum. It is the student's responsibility to monitor his/her own progress toward degree requirements.

CD AND D GRADES

Students must maintain a cumulative quality point average of at least 2.000. A term quality point falling below 2.000 for two consecutive terms will result in scholastic censure.

Courses completed with a grade of CD or D do not count toward the total hour requirement for a major or minor but do fulfill the subject matter requirement and do count toward the total number of credits hours for graduation.

Credit is never given twice for the same course. Students who received a grade of CD or D in a course in their major or minor may choose to repeat the course. Please see the repeated courses in the University section of the bulletin.

ABSENCE FROM FINAL EXAMINATIONS

A health sciences student who misses a final examination in any course must file a written excuse with the college office within 48 hours of the examination. Students with validated excuses may take make-up examinations during the following term at the time designated by the university. Clearance of temporary grades (I, X and IX) in all health sciences courses is administered through the College of Health Sciences office.

S/U OPTION

For enrichment purposes, junior and senior students are given an option to elect one course per term (to a maximum of four courses) for which only an S or U grade is assigned.

Eligible courses include only true electives in the individual's program selected from offerings by other divisions of the university. Courses excluded are all those taken in fulfillment of the requirements of the core curriculum and all offerings in their specific major.

ATTENDANCE

Courses in this college often include performance under the guidelines and supervision of faculty and staff in classroom, laboratory, clinic as well as on- and off-campus professional situations.

Students are expected to attend all meetings of the courses in which they are registered. Any absence, regardless of the reason will prevent the student from getting the full benefit of the course and can result in university censure. When a student is reported to have been excessively absent from class, the penalty of being withdrawn from the class with a grade of "WA" (withdrawal due to excessive absences) may be issued. Individual class offerings in the college may have more stringent policies which are clearly indicated in the syllabus and announced during the first week of class.

APPROVAL FOR SUMMER SESSIONS STUDY

Students who plan to take courses in summer school at another institution are required to obtain the approval from the deans office for such courses before the summer session begins. Approval will be based on course descriptions in the current bulletin of the college or university at which the courses will be attempted. The student is expected to present such information. If prior approval is not obtained, there is no guarantee that credits earned or course(s) will be accepted or transferred by Marquette University.

INDEPENDENT STUDY COURSES

Independent study courses (195) may be taken in the College of Health Sciences. The purpose of these courses is to provide an independent, guided study experience for qualified students. A student must have an overall Q.P.A. of 2.500 and have attained junior standing (60 credits). The purpose of an independent study course is to allow the student to pursue topics and issues in a course and/or a legitimate course of study for which no regularly scheduled course is offered. Permission and approval is contingent on the approval of the research proposal, the faculty's willingness to accept the proposal and to work with the student for the duration of the course. All 195's must have written approval from the instructor and department chairperson.

ACADEMIC LOAD

The academic load of a student is measured by credit hours assigned to each course. The normal College of Health Sciences program varies from 15 to 18 credit hours per term.

Request for permission to exceed 19 credit hours must have prior approval from the dean's office.

APPEALS PROCEDURE

If the student feels that the scoring and/or grading of an individual quiz, examination or assignment is in error, she/he should call it to the attention of the instructor of the course immediately upon receipt of the grade.

A student may appeal a final grade received in a course if the student believes the grade to be in error. The student is expected to exhaust all possibilities of resolving the problem with the instructor. If this does not lead to resolution, the student may initiate, in writing, a formal appeal of the grade to the Chairperson of the Department. The student's written request must state the reason he/she believes the grade should be changed. The Chairperson reserves the right to meet with the student and instructor separately and/or together. The Chairperson will make a final decision regarding the grade appeal. The student can appeal the decision of the Chairperson to the Dean of the College of Health Sciences. Normally no level of appeal is available beyond the Dean. No formal request for a grade appeal will be given consideration if the request is submitted later than the final day officially scheduled for the removal of incomplete grades, approximately four weeks after the beginning of the academic term immediately following the term in which the grade was assigned.

Individual programs in the College of Health Sciences may conduct hearing procedures related to academic or clinical deficiencies. An adviser is permitted at these hearings. If an adviser is an attorney, the hearing must be scheduled to allow the presence of Marquette University's legal counsel. An attorney may function as an adviser only and will not play an active role in the hearing or speak on behalf of the student. Since the academic standards hearing is not a legal proceeding, traditional rules of evidence do not apply.

ACADEMIC REGULATIONS

ACADEMIC DISHONESTY

The College of Health Sciences follows the university guidelines for cases of academic dishonesty that are defined in the University section of this bulletin. Cheating, plagiarism, unapproved collaboration or falsifying work in whole or in part are infractions that can result in failure in the assignment, failure in the course or even dismissal from the college or university. Allegations of clinical misconduct may result in immediate suspension from a clinical practicum. If evidence of academic/clinical dishonesty arises in the college, the student will be notified in writing by the departmental chairperson of the allegations and reasons for possible penalties or dismissal from the program. The chairperson will also notify the Professional Affairs Committee of these allegations and of proposed actions involving the student.

The Committee will investigate and evaluate the case and provide the student with an opportunity for a hearing before the Committee. The departmental chairperson will be present at the hearing. The student may present information to the investigating committee and may bring one person to the hearing to provide support or advice. If this person is an attorney, the student must so notify the chairperson of the Committee no later than three business days prior to the hearing so that university counsel may attend the hearing. If university counsel is unable to attend the hearing as scheduled, the hearing may be rescheduled to permit such attendance. The committee may pose questions to the student, review documentation presented by the student and/or the departmental chairperson and allow third parties to present relevant evidence, all at the sole discretion of the Committee.

The Committee will make its recommendation directly to the dean of the college. The dean shall determine whether academic dishonesty occurred and set the appropriate action or penalty. The dean's decision regarding the appeal shall be transmitted to the student in writing. Any appeal made beyond the college should be directed to the Office of the Provost.

TRANSFER CREDIT POLICY

The College of Health Sciences will grant credit for courses taken for a grade and completed with a C or better. Only credit will transfer, not grades. Courses completed on a quarter-hour system will be converted to semester credits, therefore reducing the total credits accepted. A Marquette equivalent will be specified for each transferable course. Courses awarded as 069 (lower division) or 169 (upper division) indicate courses that will transfer for which there is no discernable Marquette equivalent. These credits will count toward the degree however, they will not fulfill any requirement where a specific course number (i.e. ENGL 001 or BISC 015) has been indicated. Please contact the college office with any questions or concerns regarding the transfer of credits.

ORGANIZATIONS

COLLEGE STUDENT COUNCIL

All health sciences students are eligible for membership in the College of Health Sciences Student Council. The council functions as a liaison between the college and the Marquette University Student Government. The council serves as the coordinating instrument for all College of Health Sciences professional and social activities. Its purpose is to stimulate a professional attitude among health sciences students; to promote cooperation and understanding among health sciences students as well as with the faculty and administration; and an awareness and promotion of health education in the community.

CLINICAL LABORATORY SCIENCE

In addition to the university student organizations, clinical laboratory science students are eligible for membership in the Clinical Laboratory Science Student Council and the American Society for Clinical Laboratory Science.

DENTAL HYGIENE

The Department of Dental Hygiene encourages students to participate in professional association activities. Dental hygiene students are encouraged to join and actively participate in the Student American Dental Hygienists' Association. Through participation in this association, students have the opportunities to become familiar with functions and activities of the American Dental Hygienists' Association.

ATHLETIC TRAINING/EXERCISE SCIENCE

Students enrolled in exercise science are eligible for membership in the Health Sciences Student Council. Students may also be eligible for student membership in the American College of Sports Medicine, National Strength and Conditioning Association, American Society of Exercise Physiologists, National Athletic Trainers Association, and other fitness related organizations.

PHYSICAL THERAPY

Students enrolled in the Department of Physical Therapy are eligible for membership in the Physical Therapy Student Council and are eligible for student membership in the American Physical Therapy Association during the professional phase of the program.

PHYSICIAN ASSISTANTS STUDIES

The Student Association of the American Academy of Physician Assistants has awarded a charter membership to the Department of Physician Assistants Studies at Marquette University. All students in the program participate. The organization coordinates fund raising activities, hosts guest lecturers and interacts with other student groups as well as the Wisconsin Academy of Physician Assistants. A major goal of the group is to facilitate student involvement in the political process of their national organization.

SPEECH PATHOLOGY AND AUDIOLOGY

The Marquette University chapter of the National Student Speech-Language-Hearing Association is comprised of undergraduate and graduate students interested in the study of the normal communication process and the diagnosis and treatment of communication disorders.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

CURRICULA INFORMATION

DEPARTMENT OF BIOMEDICAL SCIENCES

The Marquette University Department of Biomedical Sciences offers a biomedical sciences major and minor area of study for undergraduate students interested in pursuing careers in or related to health care professions. The primary purpose of the major and minor are to provide human-oriented courses in anatomical sciences, biochemistry, nutrition, microbiology, pathology, pharmacology and physiology. The coursework will provide students with the opportunity to acquire the concepts, principles, facts, and terminology fundamental to all health care professions or to areas which require health related knowledge.

GRADUATION REQUIREMENTS

Candidates for the baccalaureate degree must complete a minimum of 128 credit hours including the following requirements:

<i>Area</i>	<i>Credit Hours</i>
Major	30
English Composition	6
Literature/Fine Arts	6
History	6
Social Sciences	6
Theology/Philosophy	15
Required Cognates	22-26

ENGLISH REQUIREMENT

All students must complete ENGL 001 and 002 for a total of six credit hours in English Composition.

LITERATURE REQUIREMENT

All students must complete six hours in literature or fine arts, six hours in English literature or three hours in English literature and three hours in fine arts.

HISTORY REQUIREMENT

All students are required to complete HIST 001 and 002.

SOCIAL SCIENCES REQUIREMENT

All students are required to take PSYC 001 and one of the following: SOCI 122, SOCI 125, SOCI 132, or SOCI 133 for a total of six credit hours.

THEOLOGY/PHILOSOPHY REQUIREMENT

All students are required to complete THEO 001, PHIL 050, PHIL 104, and either PHIL 191 and a theology elective or THEO 175 and a philosophy elective or PHAS 417 for a total of 15 credit hours.

REQUIRED COGNATES

All students are required to take BIOL 001, BIOL 004, CHEM 001, CHEM 002, CHEM 023 and CHEM 024 or BISC 005, one of the following laboratory science courses: BIOL 090, CLLS 010 or PHAS 440. Students are also required to take one of the following statistics courses: MATH 060, SOCI 060, or PSYC 060. Students who are interested in pursuing a professional or graduate education should also take the following courses: CHEM 023 and 024, PHYS 001 and 002, and MATH 073.

MAJOR AND MINOR REQUIREMENTS

Requirements for a biomedical sciences major: The following seven courses are required: BISC 135, BISC 145, BISC 115, BISC 120, BISC 150, BISC 160, and BIOL 100 or BISC 007. Additional courses must be selected from the following list to reach a total of 30 credits: BISC 105, BISC 110, BISC 125, BISC 012, BISC 126, BISC 136, BISC 165, BISC 180, BISC 195, BIOL 125, BIOL 135, BIOL 155, BIOL 185, COCO 513, COCO 515, CLLS 050, CLLS 160, HEAL 140, PHTH 458, PHTH 455.

Requirements for a biomedical sciences minor: 18 credits selected from the following list are required for a minor in biomedical sciences: BISC 006, BISC 007, BISC 135, BISC 145, BISC 012, BISC 126, BISC 110, BISC 115, BISC 120, BISC 125, BISC 130, BISC 136, BISC 160, BISC 165, BISC 195, BISC 198, BISC 150, BISC 180, CLLS 010. A maximum of nine transfer credit hours can be applied toward the requirements for a minor.

CURRICULA INFORMATION

TYPICAL PROGRAM FOR BIOMEDICAL SCIENCES MAJOR

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
CHEM 001.	4	CHEM 002	4
BIOL 001	3	BIOL 004.	3
THEO 001	3	PSYC 001	3
HIST 001	3	HIST 002.	3
	<hr/> 16		<hr/> 16

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature	3	Literature/Fine Arts elective.	3
CHEM 023*/BISC 005.	4/2	CHEM 024*/ elective	4/3
BISC 135	4	BIOL 090*/ CLLS 010	3
PHIL 050	3	BIOL 100*/BISC 007.	3
MATH 073*/elective.	3	Electives.	3-6
	<hr/> 17/15		<hr/> 16-18

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHYS 001*/elective	4/3	PHYS 002*/ elective	4/3
PHIL 104	3	BISC 145.	4
BISC 115	3	BISC 150.	3
Sociology Requirement.	3	Statistics	3
Biomedical Sciences elective.	3	Elective.	3
	<hr/> 16/15		<hr/> 17/16

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Theology (second or third level)	3	BISC 160.	3
Biomedical Sciences electives	4	BISC 120.	3
PHIL 191	3	Electives	10
Electives.	6		
	<hr/> 16		<hr/> 16

* Courses required for many post-graduate/professional programs.

Note: This is a suggested curriculum. Other course placements are possible.

Note: For those students admitted to the physical therapy program majoring in biomedical sciences, alternate course placements and additional courses are required. See the physical therapy section of this bulletin.

SOPHOMORE YEAR IN THE PRE-PROFESSIONAL PHASE OF THE PA PROGRAM

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature Elective	3	Literature elective	3
CHEM 023.	4	CHEM 024	4
PHIL 050	3	PHIL 104.	3
PHYS 001.	4	PHYS 002	4
SOCI 133.	3	Statistics	3
	<hr/> 17		<hr/> 17

BIOMEDICAL SCIENCES MAJOR CURRICULUM FOR DIRECT ADMIT PHYSICAL THERAPY STUDENTS

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 001	3	BIOL 004.	3
CHEM 001.	4	CHEM 002	4
ENGL 001	3	ENGL 002.	3
THEO 001	3	PSYC 001	3
Elective	3	Elective.	3
	<hr/> 16		<hr/> 16

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 005	2	BISC 007.	3
HIST 001	3	HIST 002.	3
PHIL 050	3	PHTH 001*.	1
Elective	3	Elective.	3
Literature	3	Literature	3
BIOL 090 / CLLS 010.	3		
	<hr/> 17		<hr/> 13

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHYS 001.	4	PHYS 002	4
PHIL 104	3	BISC 145.	4
BISC 115	3	BISC 150.	3
Theology (second or third level)	3	Statistics	3
Sociology Elective**.	3	BISC 160.	3
	<hr/> 16		<hr/> 17

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Biomedical Sciences Elective.	2-3	PHTH 555.	3
PHTH 512	3	PHTH 505.	3
BISC 125	4	PHTH 515.	3
PHIL 191/THEO 175	3	PHTH 518.	3
BISC 130	5	PHTH 525.	3
		BISC 120.	3
	<hr/> 17-18		<hr/> 18

*Students who are not direct admit PT students are not required to complete PHTH 001

**Requirement for biomedical sciences major

PRE-DENTAL SCHOLARS CURRICULUM BIOMEDICAL SCIENCES MAJOR

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002.	3
CHEM 001.	4	CHEM 002	4
BIOL 001	3	BIOL 004.	3
HIST 001	3	HIST 002.	3
THEO 001	3	PSYC 001	3
		BISC 030.	1
	<hr/> 16		<hr/> 16

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
CHEM 023.	4	PHIL 104.	3
PHIL 050	3	CHEM 024	4
BISC 135	4	BISC 007 or BIOL 100.	3
MATH 073/elective.	3	BISC 145.	4
LIT elective	3	Statistics *.	3
	<hr/> 17		<hr/> 17

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 160	3	PHYS 002	4
PHYS 001.	4	BISC 150.	3
Medical Ethics **	3	THEO elective.	3
BIOL 090	3	BISC 120.	3
Sociology requirement***	3	Literature/Fine Arts.	3
	<hr/> 16		<hr/> 16

Year One — Dental Curriculum

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 413	4	COCO 515	4
BISC 414	4	BISC 410.	4
Clinical Curriculum TBD		Clinical Curriculum TBD	

Years Two through Four — Dental Curriculum

Clinical Curriculum TBD

* MATH 060 or PSYC 060 or SOCI 060

**THEO 175 or PHIL 191

***SOCI 122, SOCI 125, SOCI 132, SOCI 133

DEPARTMENT OF CLINICAL LABORATORY SCIENCE

The Department of Clinical Laboratory Science educates persons who will be highly skilled in laboratory medicine and who will possess those professional qualities necessary for the practice of clinical laboratory science. It qualifies them to be employed as clinical laboratory scientists (medical technologists) in hospital laboratories, clinics, physicians' offices, research and teaching laboratories, as well as in biological and pharmaceutical companies, industry, and public health bureaus. The course work provides the foundations necessary for individuals to develop administrative and teaching skills, as well as qualify for medical and graduate schools.

The Clinical Laboratory Science major is an integrated four-year curriculum leading to a bachelor of science degree. The first three years are spent on campus. The first nine weeks of the fourth year are spent on campus while the remainder of the senior year is spent at a clinical site. Marquette University admits no more students in the major than can be accommodated during the senior year. Students are assigned to the clinical affiliation by a matching process using student preference, hospital preference and a ranking by lottery.

ACCREDITATION

The Clinical Laboratory Science Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences, 8410 West Bryn Mawr Ave., Suite 670, Chicago, Ill. 60631. Upon successful completion of the course work, students are eligible for the appropriate certifi-

cation and/or licensure examinations. The university assumes no responsibility for the success of its students in obtaining professional certification or other types of professional licensure.

ADMISSION REQUIREMENTS

Applicants to the Department of Clinical Laboratory Science are expected to fulfill the university admission requirements. In addition to these, they must have had two laboratory sciences, one of which must be chemistry. Three years of advanced high school mathematics and high school physics are recommended. Marquette University accepts freshman students for August and January enrollment, but students enrolling in clinical laboratory science are urged to begin college in the fall because of scheduling difficulties inherent in mid-year admission.

Certain essential functions represent the non-academic requirements of the program that a student must possess to successfully complete the program and become employable. These include the ability to distinguish colors, the ability to learn to perform and interpret highly complex testing methods, the ability to disseminate information in an accurate and confidential manner and the ability to become a competent phlebotomist. Students must have good tactile skills, possess adequate physical and emotional health to work under stress and demonstrate respect and care for others.

ADMISSION WITH ADVANCED STANDING AND TRANSFER WITHIN THE UNIVERSITY

For students applying for admission with advanced standing from another institution or as transfers from within the university, the general university regulations apply.

Ordinarily, the following courses are not accepted from other institutions: CLLS 010, CLLS 124, CLLS 127, CLLS 140, CLLS 173 and CLLS 174.

Due to the nature of the content of BIOL 100, BIOL 185, CLLS 124 and CLLS 127, a student who has already completed these courses must repeat them if five or more years will have lapsed between the time the course was completed and the date of enrollment in the senior year. Ordinarily, BIOL 185, CLLS 124, CLLS 127, CLLS 140, CLLS 173 and CLLS 174 must be taken during the year immediately preceding the senior year.

Applicants who are Certified Laboratory Assistants or Medical Laboratory Technicians are expected to complete all pre-senior course requirements or their equivalent. Credits can be transferred only if the institution from which the student received her/his training is accredited by appropriate accrediting agencies. Credits from junior colleges may not exceed one-half the number of credit hours required for graduation from the four-year curriculum at Marquette. Each individual applicant with previous laboratory training will be evaluated to determine whether or not any credit will be granted for clinical work completed in their previous training program.

The classification of advanced standing or transfer student does not depend upon the total number of credit hours the student has earned but rather upon the number of courses that a student must complete prior to the senior year. Only those courses that directly apply to the bachelor of science degree are used in determining the student's classification. However, the student record in the computer data base will reflect all course work transferred.

The number of students admitted with advanced standing or as transfers with any classification depends upon available openings in the class for which the applicant qualifies.

Advanced standing or transfer students are never accepted for admission to the senior year only.

ADMISSION AS A SPECIAL STUDENT IN CLINICAL LABORATORY SCIENCE

Students who are not in the Department of Clinical Laboratory Science may be permitted to take clinical laboratory science courses. Clinical laboratory scientists who are certified and/or licensed by an appropriate agency may enroll in certain components of the senior year.

Requests for permission to take these courses must be made to the Department of Clinical Laboratory Science chair. If permission is granted, the student must then make application to the university as a special student in the Department of Clinical Laboratory Science. The regular tuition is charged for these courses.

GRADUATION REQUIREMENTS

A candidate for a baccalaureate degree must earn at least 128 hours of credit and twice as many quality points as credit hours for those courses earning quality points, (*see S/U Grades*), ordinarily covering a four-year course. If credit hours in excess of 128 have been attempted, an excess of quality points equal to twice the excess of credit hours likewise must have been earned. Students in the Department of Clinical Laboratory Science must fulfill the non-science requirements which are stated in the bulletin issued for the year they entered the university. They must fulfill the current science, mathematics and pre-senior clinical laboratory science course requirements in effect as prerequisites for their senior year.

GENERAL DEGREE REQUIREMENTS

ACADEMIC REGULATIONS

Students in the Department of Clinical Laboratory Science are expected to comply with the academic requirements and regulations listed in the University section of this bulletin. Amplifications and additions to these requirements are detailed herein and govern only those students enrolled in the Department of Clinical Laboratory Science. Course requirements and regulations are subject to change on an annual basis and depend upon the demands of the profession. Students are subject to these changes regardless of the date of their matriculation in the major.

RESIDENCY REQUIREMENT

Clinical laboratory science students must spend the term immediately preceding the senior year in residency (attend as a full-time student). Ordinarily this is the second term of the junior year during which the student must take CLLS 127, CLLS 140, and CLLS 174.

PROFESSIONAL REGULATIONS

In addition to being evaluated through the use of written examinations and assignments, class participation and practical examinations, clinical laboratory science students are also evaluated with respect to their professional qualities. The instructors in most clinical laboratory science courses complete a written evaluation of each student.

During the senior year students are subject to the rules and regulations of the affiliating unit to which they are assigned.

SCHOLASTIC REGULATIONS

Essential Courses

There are certain cognate courses, the subject matter of which is deemed essential to the understanding of clinical laboratory science course work. Successful completion of subsequent courses is dependent upon the information learned in the prerequisite course(s). Therefore, grades of less than C in these "essential" courses are considered unacceptable to the fulfillment of the requirement. The following courses are included in this regulation: CHEM 002, BIOL 100, BIOL 185, and BISC 145.

To fulfill the degree requirements, major and essential courses (or their equivalent) in which unacceptable grades have been earned must be repeated or the student must demonstrate proficiency in the discipline by some other method as assigned by the promotions committee. Students who complete guided study (CLLS 101) to establish proficiency are issued a grade of CR. A student will not normally be permitted to repeat more than two of these courses.

JUNIOR AND SENIOR CRITERIA

To be classified as a junior in clinical laboratory science, students must meet the following criteria:

1. Completion of all lower division science, mathematics, and clinical laboratory science courses in addition to BIOL 100, BISC 135 and at least 27 credit hours of humanities.
2. Attainment of a cumulative quality point average of 2.200 as well as a 2.000 in science, mathematics, and clinical laboratory science courses.

To be classified as a senior in clinical laboratory science, the following criteria must be met:

1. Completion of all requirements through junior year which are in effect for the particular class beginning the senior year regardless of when the student matriculated in the major.
2. Attainment of a cumulative quality point average of 2.200 as well as a quality point average of 2.000 in the required science, mathematics, and clinical laboratory science courses.

Students who fail to meet the criteria for junior and/or senior classification due to serious reasons but whose deficiencies are minimal and who have shown potential for success may appeal. If the promotions committee upon review of the written appeal grant admission with PROBATION status, the student must make up his/her deficiencies. These students do not necessarily participate in the matching process but are accepted by an affiliation through individual negotiation between the university department chair and the affiliation's program director.

ACADEMIC ACTIONS

Students who fail to maintain a C or 2.000 cumulative quality point average are automatically warned on their grade reports. Their quality point average deficiency is calculated along with the grade point required in all future work to achieve the 2.000 required for graduation. For clinical laboratory science students, this action refers only to eligibility to continue at the university, rather than their eligibility to continue in the clinical laboratory science major. For requirements specific to students in clinical laboratory science, refer to the section on Scholastic Regulations.

Students who fail to comply with the rules and regulations of the department with respect to immunizations, health insurance, safety, honesty or whose conduct or health is unsatisfactory may be *required to withdraw*.

Students in the senior year who are in violation of the rules and regulations of the clinical facility are subject to dismissal from that facility. This action is under the jurisdiction of the authorities of that institution in consultation with the university department chair.

Students who fail to maintain progress necessary to meet the minimum requirements because of quality point average or excessive failure (F or U) grades are subject to review by the Academic Standards Committee, and they may be *required to withdraw from the college*.

During the senior year the academic actions taken are varied in severity dependent upon the scholastic and/or professional deficiency. These *actions* are the following: *clinical censure, clinical warning and required to withdraw*. The method of making up unacceptable grades during the senior year which have resulted in the issuing of an *action of clinical censure or clinical warning* will be determined by mutual agreement between the university department chair and the affiliation clinical program director. The Academic Standards Committee will prescribe, in writing, conditions under which these students will be allowed to continue. Students who do not meet the conditions thus stipulated will be *required to withdraw*.

ATTENDANCE

The attendance policy for senior year is stipulated by the rules and regulations of each of the affiliations.

RULES AND REGULATIONS

Employment During the Senior Year

The rigors of the program are such that it is highly recommended that senior students not be employed except on weekends. Eight hours of employment on the weekends are considered to be the maximum that a senior student can be employed.

Immunizations and Health Insurance

Prior to enrollment in the courses in medical microbiology, students are required to have appropriate immunizations and/or have tests to determine immune status. Students are not permitted to register for the senior year until they have presented evidence of adequate health insurance coverage.

Study Abroad

Refer to the University—Academic Programs section of the bulletin.

Clinical laboratory science students qualify for these programs. Usually science courses may not be taken during their studies abroad. Generally, study abroad will require additional time spent at the university beyond the usual four-year sequence.

Special Regulations

Students who withdraw during the senior year, must, if readmitted, repeat the entire senior year. Due to the nature of clinical laboratory work, students may be required to attend sessions scheduled outside of the regularly scheduled class times. These sessions are scheduled with advance notice to the students.

In clinical laboratory science courses, a student who in any way acts dishonestly in class assignments or examinations shall be liable to dismissal from the department and being issued a grade of F.

For the safety of patients, peers and themselves, students are required to dress appropriately while attending clinical laboratory science sessions for all courses.

Senior students who wish to be excused from class for participation in athletics, band or chorus must have a quality point average of 2.600 to qualify for this privilege.

FACILITIES AND LABORATORIES

The teaching laboratories on the university campus are structured to simulate a clinical setting and students have opportunities to experiment with modern technologies and diagnostic instrumentation.

The affiliating clinical laboratory sites are: ACL Laboratories, Dynacare Laboratories, Medical Associates, Moreland Medical Center Laboratory and the Clement J. Zablocki VA Medical Center. All affiliations are located in the Milwaukee area.

GENERAL DEGREE REQUIREMENTS

Candidates for a baccalaureate degree in Clinical Laboratory Science must complete the following requirements:

<i>Area of Study</i>	<i>Credit Hours</i>
Clinical Laboratory Science*	54
Chemistry	16
Biology	12
Biomedical Sciences	8
English	6
Social/Behavioral Sciences	6
Philosophy	6
Theology	6
Philosophy/Theology elective	3
Literature/Fine Arts	3
Mathematics 060	3
Electives	5-6
Minor (Although candidates for the degree of bachelor of science are not required to fulfill a minor requirement, they automatically qualify for a biology minor. Students wishing to fulfill another minor requirement may do so by completing the minor requirements in effect in the appropriate department at the time the student enrolls at the university).	

* A grade of C or better must be earned in these courses to qualify for graduation.

CLINICAL LABORATORY SCIENCE REQUIREMENTS

A student in clinical laboratory science is required to complete all of the following courses: CLLS 010, 124, 127, 140, 173, 174, 180, 181, 183, 184, 185, 186, 187, 188, and 189.

CHEMISTRY REQUIREMENTS

Sixteen credit hours of chemistry are required, including CHEM 001, 002, 023 and 024.

BIOLOGY REQUIREMENTS

Twelve credit hours of biology are required, including BIOL 001, 004, 100 and 185.

BIOMEDICAL SCIENCES REQUIREMENTS

Eight credit hours of biomedical sciences courses are required, including BISC 135 and 145.

ENGLISH REQUIREMENTS

All clinical laboratory science students must complete ENGL 001 and 002.

SOCIAL/BEHAVIORAL SCIENCES REQUIREMENTS

Six credit hours are to be selected from the following: anthropology, criminology and law studies, economics, history, political science, psychology and sociology.

PHILOSOPHY/THEOLOGY REQUIREMENTS

All students must take a total of 15 credits. PHIL 050, 104, THEO 001 plus a second- or third-level theology course are required. In addition, a philosophy or theology elective must be completed for graduation.

LITERATURE/FINE ARTS REQUIREMENT

Three credit hours of literature/fine arts are required. The course may be selected from the following choices: English literature, foreign language literature, fine arts, and theatre arts; literature, art, music, dance, drama as fine art cultural forms are included here. (Applied or technical level courses are not acceptable as fulfillment of this requirement).

MATHEMATICS REQUIREMENT

MATH 060 is required.

ELECTIVES

Students may choose from any university offerings to earn a total of 5-6 credits. The outline listed below indicates the usual sequence in which the required courses are taken. However, upon arrival at Marquette University the student's adviser will work out a program that is best suited to the needs of the student. The science requirements are subject to revision.

<i>Freshman</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 001	3	BIOL 004.	3
CHEM 001.	4	CHEM 002	4
ENGL 001	3	ENGL 002.	3
CLLS 010 ¹	3	MATH 060.	3
Social/Behavioral Sciences elective	3	THEO 001.	3
	16		16
<i>Sophomore</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 135	4	BIOL 100.	3
CHEM 023.	4	CHEM 024	4
PHIL 050	3	Theology (second or third level)	3
Social/Behavioral Sciences elective	3	Literature/Fine Arts elective.	3
	14	Elective	2-3
			15-16
<i>Junior</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BIOL 185	3	BISC 145.	4
CLLS 124 ¹	4	CLLS 127 ^{2,3}	4
Theology/Philosophy elective.	3	CLLS 140 ^{2,3}	4
PHIL 104	3	CLLS 174 ^{2,3}	4
Elective	3		
	16		16
<i>Senior⁴</i>			
<i>Summer Session</i>			
CLLS 173.	4		
CLLS 180	1	CLLS 186	6
CLLS 181	1	CLLS 187	2
CLLS 183	6	CLLS 188	6
CLLS 184	4	CLLS 189	2
CLLS 185	3		
			35

¹ Offered only in the Fall term of each academic year.

² Offered only in the Spring term of each academic year.

³ Must be taken in the term immediately preceding the senior year.

⁴ The senior year consists of 38 consecutive weeks usually beginning in July.

DEPARTMENT OF DENTAL HYGIENE

The Department of Dental Hygiene educates dental hygienists to a high degree of clinical competence and knowledge in the practice of dental hygiene. The professionally sequenced curriculum seeks to develop a professional who has the skills and academic background to continually broaden his/her interests through full and open inquiry into all facets of health, disease and education. In addition, the Department of Dental Hygiene prepares the dental hygienist for responsibilities and leadership in related career roles beyond the scope of the traditional dental hygiene practice. The Department of Dental Hygiene supports the educational philosophy of Marquette University and strives to uphold the tradition of Jesuit higher education by providing constant encouragement toward and examples of the highest moral and ethical standards.

Important Note: The Department of Dental Hygiene in the College of Health Sciences will be closing at the end of the 2003-2004 academic year. The final dental hygiene class (class of 2004) began its studies in fall 2000. In order to receive a bachelor of science degree fully accredited by the American Dental Association Commission on Dental Accreditation, students will be required to complete degree requirements and graduate by the end of spring term 2004. Student transfers into the program will be accepted only if they can complete their studies by spring term 2004.

DEGREE OFFERED

The Department of Dental Hygiene is the only dental hygiene program in Wisconsin that grants a bachelor of science degree and is affiliated with a school of dentistry.

ACCREDITATION

The Department of Dental Hygiene is on the approved list of schools accredited by the Commission on Dental Accreditation of the American Dental Association and holds membership in the American Association of Dental Schools.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

A candidate for the degree bachelor of science in dental hygiene must earn a minimum of 126 hours of credit and 252 quality points, ordinarily covering a four-year course. If credit hours in excess of 126 have been attempted, quality points earned must equal twice the number of credit hours. Normally a minimum of 45 credit hours in upper division courses is required.

EXAMINATIONS

Final examinations are held in all subjects. A student's grade of scholarship in each subject is determined by the combined results of his or her class work, course assignments and examinations.

STUDENT EVALUATION

A student may be dismissed from Department of Dental Hygiene who shows marked deficiency in certain courses of the curriculum which would indicate lack of ability to become a successful dental hygienist. The criteria by which the decision is guided cover the student's general fitness for the field of dental hygiene and include aptitude, character, general education, ethical standards, stability, diligence and cooperativeness.

The Dental Hygiene chair and dean of the College of Health Sciences will review written appeals of students. Refer to university regulations for procedures.

HEALTH PROFESSIONS INSTRUCTOR CERTIFICATE: DENTAL HYGIENE

Students who are enrolled in dental hygiene or who are graduates of the Department of Dental Hygiene, College of Health Sciences may apply for admission to an interdisciplinary course of study leading to the certificate for post-secondary instructor.

INTERRUPTION OF RESIDENCE

Students who interrupt their residence for one or more terms must meet the graduation requirements which prevail at the time of their readmission.

GENERAL DEGREE REQUIREMENTS

Candidates for a baccalaureate degree with a major in dental hygiene must complete the following requirements:

<i>Area of Study</i>	<i>Credit Hours</i>
Intro. to Health Sciences	1
Dental Hygiene	53
Biomedical Sciences	29
English	9
Sociology 001	3
Psychology 001	3
Communication 012	2
Philosophy 050 and Philosophy (upper division)	6
Theology 001 and Theology (second or third level)	6
History 001 or Anthropology 004 or Political Science 020	3
Electives	11

Baccalaureate Degree Completion Program requirements are the same as those for the four-year degree program. Each student's transcript is evaluated on an individual basis and credit is given for all dental hygiene and arts and sciences courses with college level transferability and a grade of C or better. The program is individually designed to meet graduation requirements. It may be completed on a full-time or part-time basis.

Dental Hygiene Requirements

A student in the degree program in dental hygiene is required to complete all the prescribed courses in the program as indicated in this bulletin.

A grade of C or better must be obtained in all dental hygiene clinical, laboratory and didactic course work. If a grade of C or better is not obtained, then it is the student's responsibility to enroll in and successfully pass the course the next time that it is offered. A student who receives less than a C in DEHY 070 (Oral Anatomy), DEHY 040 (Preclinic), DEHY 041 and DEHY 140 (Junior Clinic), and DEHY 141 and 142 (Senior Clinic) will not be able to continue in the regular sequencing of classes toward graduation and will need to repeat the year taking all courses

that were less than a C. Students need to receive a grade of D or better in all other academic course work which includes Biomedical Sciences and Arts and Sciences.

English Requirements

All dental hygiene majors must complete English 001 and 002 and three credits selected from courses 010 to 025, 030 to 044, offered through the College of Arts and Sciences for a total of nine credit hours.

Philosophy Requirements

Six credit hours of philosophy are required, including Philosophy 050 and one additional upper division course.

Theology Requirements

Six credit hours of theology are required, Theology 001 and Theology (second or third level).

Requirements for a Minor

An appropriate minor is encouraged or credits in the humanities, sciences and/or a foreign language may be taken in order to fulfill the hours of credit required for a bachelor of science with a major in dental hygiene.

STUDENT FINANCIAL AID

There are specific Marquette University Scholarship Funds which are designated solely for dental hygiene applicants and students on the basis of achievement. Interested applicants or students should contact the dental hygiene office.

LICENSURE EXAMINATIONS

In order to practice dental hygiene legally, the student must take and successfully pass a written examination known as the National Board Examination. This examination is prepared and evaluated by the American Dental Association and is administered to all dental hygiene students in the country approximately six weeks prior to graduation. The results of this national examination are sent to the Board of Dental Examiners of the state in which the student wishes to practice. The student must also successfully complete a clinical examination and an examination over the dental laws of the desired state of licensure. A license to practice dental hygiene will be issued by the State Board of Dental Examiners after all examinations have been successfully completed. Additional information regarding these examinations is provided to the students during the senior year.

Dental hygienists are eligible to be licensed after graduation from an accredited dental hygiene program and after successful completion of both a written National Board Dental Hygiene Examination and a clinical examination.

SPECIAL AND HEALTH REQUIREMENTS

All sophomore dental hygiene students must submit evidence of a negative tuberculin skin test (or negative chest x-ray as approved by their physician if the tine test was positive) within two years prior to beginning clinical courses and annually thereafter. A student exposed to a person with communicable tuberculosis must inform the clinical supervisor and will be referred to the university's Student Health Service for follow-up.

Within one year prior to beginning the clinical courses, students must meet the following requirements:

A. Health assessment and physical examination

A health history including a history of communicable disease and full immunizations and/or physical examination. (Per university guidelines, all full-time students must complete a Health Assessment Questionnaire or a physical examination form. It is a policy of Marquette University that every Marquette student provide one of these health history forms.)

B. Rubella (German Measles)

Each student must have documentation of immunity to rubella. A student not having immunity should be immunized upon the advice of his/her physician.

C. Rubeola (Measles)

A student born after 1956 must have either documentation of a positive rubeola (measles) antibody titer or documentation of rubeola immunization since Jan. 1, 1980.

D. Hepatitis B Virus (HBV)

Each student must complete the vaccination series for HBV. A student wishing an exemption from this requirement can complete a waiver form which will be retained in his/her student file. Sophomore dental students must show proof of completion of the series on the first day of class for DEHY 070, Oral Anatomy.

For information concerning health insurance and health services, see the University Resources section of this bulletin.

CPR Certification

Students must provide evidence of current CPR certification, including infant, child, adult (two-person and obstructed-airway resuscitation), prior to registration for DEHY 040 through DEHY 142. This certification must be maintained throughout the remainder of the program through recertification.

CURRICULA INFORMATION

TYPICAL PROGRAM FOR DENTAL HYGIENE MAJOR (see page 253 for note.)

<i>Freshman Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 006	3	ENGL 002.....	3
ENGL 001	3	SOCI 001	3
HIST 001 or ANTH 001 or POSC 020	3	BISC 007.....	3
PSYC 001.....	3	BISC 015.....	5
CMST 012	2	DEHY 050.....	1
THEO 001	3	HESC 001	1
	<hr/> 17		<hr/> 16

<i>Sophomore Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 020	3	BISC 012.....	1
BISC 115	3	BISC 150.....	3
DEHY 070	4	DEHY 040.....	5
English (Sophomore)	3	DEHY 051.....	1
BISC 110	3	BISC 120.....	3
		Electives	3
	<hr/> 16		<hr/> 16

<i>Junior Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
DEHY 181	2	DEHY 131.....	1
BISC 180	3	DEHY 140.....	5
DEHY 041	5	DEHY 185.....	2
DEHY 085	1	DEHY 150.....	2
DEHY 086	2	PHIL 050.....	3
DEHY 130	3	Electives	3
DEHY 160	1		
	<hr/> 17		<hr/> 16

<i>Senior Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
DEHY 151	2	DEHY 132.....	1
DEHY 141	6	DEHY 142.....	6
DEHY 153	1	DEHY 171.....	2
Philosophy (upper division).....	3	Electives	3
Theology (second or third level)	3		
Elective	2		
	<hr/> 17		<hr/> 12

TOTAL NUMBER OF CREDITS = 127

* Pre-dental dental hygiene candidates: In addition to the above listed courses, pre-dental dental hygiene students must complete Biology 001, Biology 002 or 004, Chemistry 001, 002, 023, and 024, and Physics 001 and 002. These courses may be taken as electives. Chemistry 001 can be substituted for BISC 006, Chemistry for the Health Professions.

DEPARTMENT OF PHYSICAL THERAPY

The field of physical therapy has traditionally included the evaluation and treatment of patients with physical disabilities. Recently the profession has expanded to encompass health promotion with anticipatory treatment and prevention of disease and injury. Physical therapy extends beyond direct treatment of patients, to consultation with other services and community agencies. The team concept of rehabilitation is paramount to the total welfare of the client and the client's family.

Marquette's Department of Physical Therapy provides the student with a post-baccalaureate curriculum for the practice of physical therapy, built on a liberal arts foundation. All students are encouraged to continue their professional development to enhance their skills and knowledge in the practice of physical therapy beyond their entry-level education.

DEGREE OFFERED

Students admitted to the Physical Therapy program are enrolled in a curriculum that culminates in a doctor of physical therapy degree. This is a six-year curriculum for a student admitted at the freshmen level. The student first will earn a baccalaureate degree of his or her choice and then be awarded the Doctor of Physical Therapy (DPT) degree at the end of the professional course work. Students admitted with a bachelor's degree will earn the Doctor of Physical Therapy degree after completing the three-year professional program.

ADMISSION REQUIREMENTS

Students may be admitted to the program as freshman with a guaranteed admission to the professional phase beginning fall of 2005 if the student successfully meets all requirements for advancement. Guaranteed admission cannot be extended if requirements are not successfully completed in the pre-professional phase.

High school applicants to the Department of Physical Therapy are expected to fulfill the general admissions requirements listed in the University section of this bulletin. In addition, the following specific items should be noted for admission to the Department of Physical Therapy:

1. One year of high school chemistry and biology is required. Applicants should include trigonometry among the three required units in mathematics because trigonometry is a prerequisite for Physics 001 and 002 at Marquette.
2. Freshman class enrollment is limited. College entrance exam results, transcripts and the application must be received at Marquette by Dec. 1 of the preceding academic year for which the student is applying.
3. The sequence of courses in the professional phase begins in August of each academic year.

Marquette students who were not admitted as freshmen may apply to transfer into the program. Further details of entrance requirements are available from Marquette's Office of Undergraduate Admissions.

A minimum of 10 spaces will be offered to Marquette pre-physical therapy students (PREP) wishing to transfer into Year Four. To apply for this window of admission, students need to complete at least 12 of the physical therapy prerequisite credits at Marquette University and meet or exceed all requirements for the undergraduate phase. External transfer students with degrees from other institutions are encouraged to apply for entry into the professional phase.

DPT Prerequisites required before admission to the professional phase:

<i>Area of Study</i>	<i>Credit Hours</i>
Biology	3
Chemistry 1 and 2	8
Introduction to Physical Therapy	1*
Physics 1 and 2	8
Statistics	3
<i>Total</i>	<i>23**</i>

* Waived for accepted transfer students but will need to document proficiency in medical terminology in lieu of Intro to PT Class. Completion of a programmed text and written departmental test in medical terminology would meet this requirement.

**External transfer students will need 12 credits of social sciences and/or humanities in addition to the DPT prerequisites. Three credits of cognitive and motor learning are strongly recommended, but not required.

ACADEMIC REGULATIONS

UNDERGRADUATE PHASE

Students admitted to the DPT Program as freshmen must have achieved a 2.400 or greater cumulative quality point average in the specified science prerequisite professional coursework (23 credits) and have a demonstrated plan to complete their bachelor's degree before the end of the 5th term of the professional phase (years 4, 5, and 6) of the program. Students who com-

plete pre-requisite science credits (biology, chemistry, physics) in summer school need to do so at a four-year institution. Following acceptance into the professional phase of the program, students follow the curriculum as outlined for the three-year professional phase unless prior approval is received from the department chairperson.

PROFESSIONAL PHASE

During the professional phase of the program, failure to meet the academic standards may result in the student being placed on probation or dismissed from the program.

A student is automatically placed on probation if, during the professional phase of the program, a single semester Q.P.A. falls within the range of 2.000 and 2.199, and the student does not meet any other criteria for probation as listed below. The average Q.P.A. of the semester that resulted in probation combined with the next academic semester, must be equal to or greater than 2.200.

A student is also subject to academic probation, with Conditions of Probation determined through a probationary hearing, for any of the following circumstances:

- A grade of D or lower is received in a single semester for any required course;
- A U grade is received for any one of the four clinical experiences in the physical therapy curriculum, in the absence of clinical misconduct (see Academic/Clinical Misconduct section);
- Failure to comply with learning objectives set forth in a formal learning contract between a faculty member and the student (See *Physical Therapy Student Handbook*).

A student is subject to dismissal from the Physical Therapy program, as determined by a dismissal hearing, if any of the following occur:

- If at any point within the professional phase, a semester Q.P.A. falls below a 2.000;
- A grade of D or lower is obtained in more than one course in a single semester during the professional phase of the program.
- A U grade is obtained in more than one clinical experience;
- Failure to respond to notification of Academic Probation or notification of Academic Probation conditions within the stipulated time frame;
- Failure to comply with any terms of Academic Probation;
- If a student's performance, while on Academic Probation, does not meet the standards listed in the Academic Probation section.
- Probation and dismissal hearing procedures are outlined in the *Physical Therapy Student Handbook*.

In addition to the above academic standards, the department expects its students to adhere to standards of conduct and professionalism. Professional behavior is vital to the success of every physical therapist. To assist each student in developing and refining their professional behaviors, the department will utilize the Generic Ability Assessment Tool, the American Physical Therapy Association (APTA) Code of Ethics and the APTA Guide for Professional Conduct throughout the curriculum in evaluating the student's performance. Students demonstrating behaviors inconsistent with the criteria may be given an opportunity to remediate, depending on the severity of the behavior (as outlined in the *Physical Therapy Student Handbook*).

The Department of Physical Therapy will allow only those students who have satisfactorily completed all academic and professional behavior requirements to attend a clinical affiliation. The department reserves the right to deny clinical placement to any student who has not satisfactorily met the requirements printed in the *Physical Therapy Student Handbook*. Cancellation or delay of a clinical experience may result in delayed graduation.

TUITION/FINANCIAL AID FOR PROFESSIONAL PHASE

Students enrolled in the Physical Therapy Program upon completion of their baccalaureate degree will be moved into the professional division of Health Sciences and will no longer be eligible for undergraduate financial aid.

ACADEMIC APPEALS PROCESS

Students who are cited for not meeting the academic standards and/or professional behaviors will be notified by certified mail. The appeal process is outlined in the *Physical Therapy Student Handbook*.

ACADEMIC/CLINICAL MISCONDUCT

Upon report of misconduct the student will be notified in writing by the departmental chairperson of the allegations and reasons for possible penalties or dismissal from the program. Findings of misconduct will be determined through a hearing conducted by the Professional Affairs Committee (See *Physical Therapy Student Handbook*). Student misconduct may include, but is not limited to:

- Academic dishonesty including cheating, plagiarism, unapproved collaboration or falsifying work in whole or in part;
- Conduct that constitutes harassment, threats or abuse of, or discrimination against, peers, faculty, patients, or others;
- Provision of physical therapy services, or participation in lab courses, while under the influence of an illegal substance and/or alcohol;
- Breach of patient/client confidentiality;
- Failure, during a clinical experience, to comply with the Policies and Procedures of the clinical facility;
- Failure to comply with the Physical Therapy Practice Act for the state in which a clinical experience is located;
- Failure to comply with the American Physical Therapy Association (APTA) Code of Ethics or the APTA Guide of Professional Conduct (www.apta.org).

EXAMINATIONS

Final examinations are held in all subjects. Mid-term examinations may be given as supplementary evidence of student achievement. A student's grade for each subject is determined by the combined result of class work, course assignments, and examinations.

A student who misses a final examination risks the loss of credit and the possibility of not being able to enroll in subsequent PHTH courses. All such cases will be judged by the departmental chairperson.

GRADE APPEAL

The Department of Physical Therapy follows the College of Health Sciences undergraduate grade appeal guidelines (See Appeal Procedures in the College of Health Sciences section of this bulletin).

CERTIFICATION IN BASIC LIFE SUPPORT

Certification in basic life support that includes child, infant and both one- and two-person adult CPR along with AED (automatic external defibrillator) training is required of all students prior to beginning the fourth year of the MPT program. Continued certification is required to be maintained by the student throughout the MPT curriculum. Failure to maintain current certification may jeopardize enrollment in subsequent PHTH courses and/or clinical assignments. Students should contact their local Heart Association or Red Cross offices.

HEALTH INSURANCE/HEALTH CERTIFICATION

All fifth-year students must present evidence of health insurance coverage to the academic coordinator of clinical education before each clinical assignment can be made. A TB screening and/or chest X-ray, if indicated, will be required of all students before each clinical assignment. Hepatitis B vaccination or waiver is required and students will be required to present evidence of appropriate immunizations and/or have tests to determine immune status. Failure to comply with health insurance/health certification requirements will affect the students ability to continue in the program.

LIABILITY INSURANCE

Even though the university has liability insurance on students while they are in clinical practice situations, some facilities require the student to have an additional liability policy. This type of insurance can be obtained through the insurance company used by the American Physical Therapy Association by student members of the association.

ABSENCES

Students who are ill or anticipate absence for a family emergency must contact the physical therapy office immediately. All students must consult with the instructor of the course(s) missed for makeup if necessary. Absences of two or more weeks during the fifth or sixth years of the program may be considered as grounds for repeating the entire term.

Anticipated absences from full-time clinic must be approved in advance by the academic coordinator of clinical education, the university, and the center coordinator of clinical education at the clinical site. Unapproved absences are not acceptable and may lead to dismissal from the clinical site. Emergency absences, illness, etc., are circumstances usually considered to be acceptable absences if they are substantiated by the coordinators.

WITHDRAWAL FROM THE PHYSICAL THERAPY PROGRAM

Withdrawal from the program is achieved through a written request submitted to the chairperson of the Department of Physical Therapy. Any student considering withdrawing from the physical therapy program is encouraged to meet with the chairperson of the Department of Physical Therapy or his/her adviser prior to making a final decision.

CURRICULA INFORMATION

DIRECT ADMIT CURRICULA INFORMATION

TYPICAL PROFESSIONAL PROGRAM — PHYSICAL THERAPY DEGREE: DPT

<i>Year Four</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHTH 512	3	PHTH 505.	3
BISC 125 **	4	PHTH 515	3
BIOL 172 ***	4	PHTH 518.	3
PHIL 191	3	PHTH 555.	3
BISC 130	5	PHTH 525	3
		BISC 120.	3
	<hr/> 19		<hr/> 18

<i>Summer Session</i>	
	SEM. HRS.
PHTH 508	3
PHTH 519	3
PHTH 522	2
PHTH 502	2
PHAS 444.	2
	<hr/> 12

<i>Year Five</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHTH 523	1	PHTH 552.	4
PHTH 528	2	PHTH 570.	4
PHTH 532	4	PHTH 558.	4
PHTH 535	2	PHTH 560.	2
PHTH 545	3	PHTH 564.	1
PHTH 536	4	PHTH 578.	3
	<hr/> 16		<hr/> 18

<i>Summer Session</i>	
PHTH 565.	10 Sem. hrs.

<i>Year Six</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHTH 598	2	PHTH 585.	8
PHTH 568	4	PHTH 586.	8
PHTH 572	3		
PHTH 575	3		
PHTH 582	3		
PHTH 584	1		
	<hr/> 16		<hr/> 16

* DPT students may take the two-credit BISC 013.

** Biomedical Sciences majors and Human Biology majors are required to take BISC 125 to complete requirements of the undergraduate degree.

*** BIOL 172 is required for Human Biology majors. BISC 145 may be taken in the spring of the DPT-third year by physical therapy students in other majors in lieu of BIOL 172.

Physical Therapy Credits — 103-105
External Components Credits — 18-21
Total Credits — 121-126

ATHLETIC TRAINING

Athletic training is an allied health profession within the Commission on Accreditation of Allied Health Education Programs. Its mission is to enhance the quality of health care for the physically active through prevention, evaluation, management, and rehabilitation of athletic injuries. Students wishing to become athletic trainers will receive an educational foundation in exercise and basic sciences as well as completing National Athletic Training Association (NATA) required cognates. Entrance into the athletic training major is limited to ensure a wide variety of practical experience with expert supervision. Applicants must meet retention criteria available in the Exercise Science/Athletic Training office or posted at www.marquette.edu/chs/es.

DEGREE OFFERED

Marquette University confers the degree bachelor of science with a major in athletic training on those students who have satisfactorily completed the required curricula.

ACCREDITATION

The athletic training major has been granted candidacy status.

ADMISSION REQUIREMENTS

Students interested in admission to the athletic training major must fulfill admission requirements listed in the University section of the Undergraduate Bulletin. The recommended high school preparation includes three years of high school math. If applicants do not meet this minimum requirement, they must complete one course of college-level math. Additional course work that is suggested includes high school general chemistry and biology.

Students wishing to pursue athletic training need to be aware of the significant time commitments involved. Advanced standing athletic training (ATTR) students, juniors and seniors, will be required to travel with teams to athletic competitions. Acceptance to the program requires students to read and sign a contract specifically stating these requirements and acknowledgment of technical professional standards. For further information see: www.marquette.edu/chs/es.

Retention in ATTR requires completion of a minimum of 30 hours of observation in the Athletic Treatment Center during the first term of the freshman year. These hours must be arranged with the Clinical Director.

Student athletic trainers must be able to travel with teams and, with instructor approval, miss classes as athletes do (these will be excused absences).

Student athletic trainers must be able to assist with athletic events on weekends and holidays, even when school is not in session as arranged as part of clinical course work.

Student athletic trainers must enroll in Clinical Competency Courses ATTR 107, 108, 120, 121, and 188 as described in the curricula understanding that these courses require a minimum of 10 hours/week of supervised clinical experience outside of formal class time.

Student athletic trainers must become familiar with and honor the Student Athletic Trainers Code of Ethics.

PROFESSIONAL CONDUCT AND ACADEMIC REGULATIONS

Students in the athletic training major are expected to comply with the academic requirements and regulations listed in the University and College of Health Sciences section of this Bulletin. In addition to the above, the program expects its students to adhere to standards of conduct and professionalism. Professional behavior is vital to the success of every health care provider. To assist each student in developing and refining their professional behaviors, students in Athletic Training are regularly evaluated during the Clinical Competency courses and Athletic Training Practicum. Violations and/or major deficiencies may prevent students from receiving clinical assignments, may be grounds for dismissal, or other penalties. Students demonstrating behaviors inconsistent with professional health care providers are subject to the academic standards process listed in the student handbook. Student athletic trainers must maintain an overall Q.P.A. of 2.700 or greater; possess current CPR/AED certification; and meet technical and professional standards to remain in the program. Failure to meet all of the academic, technical and professional requirements will result in dismissal from the program.

ACADEMIC PERFORMANCE

The department will only allow those students that have satisfactorily completed all academic, technical and professional behavior requirements to attend a clinical affiliation or practicum. The program reserves the right to deny practicum placement to any student that has not satisfactorily met the requirements printed in the *Athletic Training Student Handbook*. Cancellation or delay of a practicum may result in delayed graduation.

EXAMINATIONS

Final examinations are held in all subjects. A student's grade of scholarship in each subject is determined by the combined results of his or her class work, course assignments, and examinations as defined in the course syllabi. A student who misses a final examination in an ATTR or other course risks the loss of credit and the possibility of not being able to enroll in subsequent ATTR and/or EXSC courses. All such cases will be judged by the course instructor and program director who has jurisdiction over the student. Any student that misses a final exam in any course must file a written excuse with the College of Health Sciences office within 48 hours of the examination. Should the director judge that the absence was warranted, permission may be given for a delayed examination.

CERTIFICATION IN BASIC LIFE SUPPORT.

Certification in basic life support that includes child, infant and both one-and two-person adult CPR along with AED (automatic external defibrillation) training is required of all students. Certification may be obtained following successful completion of EXSC 010. Continued certification is required to be maintained by and is the responsibility of the student. Failure to maintain current certification may jeopardize enrollment in subsequent ATTR and/or EXSC courses and clinical/practicum assignments.

HEALTH INSURANCE/HEALTH CERTIFICATION

All students prior to clinical/practical experiences must present evidence of health insurance before a clinical/internship assignment can be made. A chest X-ray, vaccinations, and TB screening may be required prior to clinical assignment as dictated by the specific site. Hepatitis B vaccination is recommended.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

Candidates for a degree must earn a minimum of 130 semester hours of credit and a minimum of 356.4 quality points or a cumulative Q.P.A of 2.70. All students must comply with the College of Health Sciences graduation requirements. A student must earn a C or better in all of the courses in their major. Courses in the major completed with a CD or less do not count toward the total hour requirements and must be repeated prior to advancing in course sequence as described in the College of Health Sciences graduation requirements.

Candidates for the baccalaureate degree must complete a minimum of 129 credit hours including the following requirements:

<i>Area of Study</i>	<i>Credit Hours</i>
Major	69
English Composition	6
Literature/Fine Arts	6
History/Political Science	6
Psychology	7
Theology/Philosophy	12
Required Cognates	24

English requirements

All students must complete ENGL 001 and 002 for a total of six credit hours.

Literature/Fine Arts requirements

All students must complete six hours of literature or three hours of literature and three hours of fine arts.

History requirement

All students must complete HIST 001/002, 004/005 or six credits of sequences political science from POSC 020, 040, 060, 080 for a total of 6 credits.

Psychology requirement

All students must complete PSYC 001 and 060 for a total of seven credits.

Theology/Philosophy requirements

All students must complete THEO 001, PHIL 050, upper division theology and PHIL 104 for a total of 12 credits.

Required cognates

All students must complete BIOL 001, CHEM 001, 002, BISC 015, BISC 110, BISC 120, and HEAL 120 for a total of 24 credits. In addition, students that do not have a minimum of three years of high school math are required to complete three credits of MATH.

MAJOR REQUIREMENTS

The following ATTR and EXSC courses are required as major courses in which a C or better must be attained in order to progress to the next course in sequence.

ATTR 020, 107, 108, 120, 121, 130, 140, 150, 160, 170, 188, 189, 196

EXSC 010, 050, 090, 106, 110, 115, 170, 180, 187, 189, and 190

A total of 68 credits are required.

A curricula has been developed to accommodate the prerequisites for entrance into the DPT while meeting the required course work for the athletic training major. Students that are either direct admit DPT students or intend on applying to the DPT program must meet with an adviser as soon as possible to discuss programmatic differences that are required to meet entrance standards.

TYPICAL ACADEMIC PROGRAM FOR ATHLETIC TRAINING MAJOR

<i>Freshman Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
ENGL 001	3	ENGL 002.	3
HIST 001 or equiv	3	HIST 002 or equiv.	3
CHEM 001.	4	CHEM 002	4
EXSC 010.	2	BISC 015.	5
THEO 001	3	ATTR 020	2
EXSC 090.	2	EXSC 050.	1
	<hr/> 17		<hr/> 18
<i>Sophomore Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
EXSC 115.	5	PHIL 050.	3
PSYC 001.	3	EXSC 110	4
ATTR 130.	3	EXSC 106	3
ATTR 107.	1	ATTR 140	3
BIOL 001	3	ATTR 150	2
HEAL 120	2	ATTR 108	1
	<hr/> 17		<hr/> 16
<i>Junior Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
ATTR 160.	2	ATTR 170	3
ATTR 120.	1	EXSC 180	4
EXSC 190.	3	ATTR 121	1
PSYC 060.	4	Theology upper division	3
PHIL 104	3	BISC 120.	3
Literature	3	EXSC 189	3
BISC 110	3		
	<hr/> 19		<hr/> 17
<i>Senior Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
Literature/Fine Arts	3	ATTR 189.	14-16
EXSC 187.	3		
EXSC 170.	3		
ATTR 188.	1		
ATTR 196	2-4		
	<hr/> 12-14		<hr/> 14-16

Total — 130-134 credits

TYPICAL ACADEMIC PROGRAM FOR ATHLETIC TRAINING MAJOR AND DIRECT ADMIT DPT

<i>Freshman Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
ENGL 001	3	ENGL 002	3
HIST 001 or equiv	3	HIST 002 or equiv	3
CHEM 001	4	CHEM 002	4
EXSC 010	2	BISC 015	5
THEO	3	ATTR 020	2
EXSC 090	2	EXSC 050	1
	<hr/> 17		<hr/> 18

<i>Summer</i>	
Literature	3

<i>Sophomore Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
EXSC 115	5	PHIL 050	3
PSYC 001	3	EXSC 110	4
ATTR 130	3	EXSC 106	3
ATTR 107	1	ATTR 140	3
BIOL 001	3	ATTR 150	2
HEAL 120	2	ATTR 108	1
		PHTH 001	1
	<hr/> 17		<hr/> 17

<i>Summer</i>	
Literature/Fine Arts & PHIL 104	6

<i>Junior Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
ATTR 160	2	ATTR 170	3
ATTR 120	1	EXSC 180	4
EXSC 190	3	ATTR 121	1
PSYC 060	4	Theology upper division	3
PHYS 001	4	PHYS 002	4
BISC 110	3	EXSC 189	3
	<hr/> 17		<hr/> 18

<i>Senior Year — DPT</i>			
Students enrolled in the DPT program will follow the curricula as established by the Physical Therapy Department. All ATTR majors must also complete EXSC 170 in the fall of their senior year.			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
DPT course work		DPT course work	
EXSC 170	3		

Total — 116 credits plus DPT course work

EXERCISE SCIENCE

The Marquette University Exercise Science program provides an academic program of liberal arts and basic sciences for the student interested in exercise physiology, fitness and health/wellness. The sequenced curriculum seeks to develop a professional with the skills and academic background to pursue a career in the rapidly growing health and fitness industry. The demand for qualified fitness professionals is expanding as total health and fitness awareness increases. Students may pursue careers in community health, corporate wellness, strength and conditioning, sports management, research, cardiac rehabilitation and fitness. Employment opportunities may include positions with fitness/sports centers, private fitness consulting firms, hospital-based programs, health maintenance organizations, corporate or private fitness programs and YMCA and YWCAs. Students may pursue graduate work, professional education, physical therapy, sports medicine, occupational therapy, anatomy, kinesiology, exercise physiology, biomechanics, or related areas. Select students may combine the major with a recommended sequence of courses to prepare for the admission to the clinical doctorate in physical therapy (DPT).

DEGREE OFFERED

Marquette University confers the degree bachelor of science with a major in exercise science on those students who have satisfactorily completed the prescribed curricula.

ADMISSION REQUIREMENTS

Applicants to the College of Health Sciences with a major in exercise science are expected to fulfill the admission requirements listed in the University section of the Undergraduate Bulletin. The recommended high school preparation includes three years of high school math. If applicants do not meet the minimum requirement, they must complete one course of college-level math.

EXAMINATIONS

Final examinations are held in all subjects. A student's grade of scholarship in each subject is determined by the combined results of his or her class work, course assignments, and examinations as defined in the course syllabi. A student who misses a final examination in an EXSC or other course risks the loss of credit and the possibility of not being able to enroll in subsequent EXSC courses. All such cases will be judged by the course instructor and program director who has jurisdiction over the student. Any student that misses a final exam in any course must file a written excuse with the College of Health Sciences office within 48 hours of the examination. Should the director judge that the absence was warranted, permission may be given for a delayed examination.

CERTIFICATION IN BASIC LIFE SUPPORT

Certification in basic life support that includes child, infant and both one-and two-person adult CPR along with AED (automatic external defibrillation) training is required of all students. Certification may be obtained following successful completion of EXSC 010. Continued certification is required to be maintained by and is the responsibility of the student. Failure to maintain current certification may jeopardize enrollment in subsequent EXSC courses and clinical/practicum assignments.

HEALTH INSURANCE/HEALTH CERTIFICATION

All students prior to clinical/practical experiences must present evidence of health insurance coverage before a clinical/internship assignment can be made. A chest X-ray, vaccinations and TB screening may be required prior to clinical assignment as dictated by the specific site. Hepatitis B vaccination is recommended.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

Candidates for a degree must earn a minimum of 128 semester hours of credit and a minimum of 256 quality points or a cumulative Q.P.A. of 2.0. All students must comply with the College of Health Sciences graduation requirements. A student must earn a C or better in all of the courses in their major. Courses in the major completed with a CD or less do not count toward the total hour requirements and must be repeated prior to advancing in course sequence as described in the College of Health Sciences graduation requirements.

Candidates for the baccalaureate degree must complete a minimum of 128 credit hours including the following requirements:

<i>Area of Study</i>	<i>Credit Hours</i>
Major	55
English Composition	6
Literature/Fine Arts	6
History/Political Science	6
Psychology	7
Theology/Philosophy	12
Electives	15*
Required Cognates	21

English requirements

All students must complete ENGL 001 and 002 for a total of six credit hours.

Literature/Fine Arts requirements

All students must complete six hours of literature or three hours of literature and three hours of fine arts.

History requirement

All students must complete HIST 001/002, 004/005 or six credits of sequences political science from POSC 020, 040, 060, 080 for a total of six credits.

Psychology requirement

All students must complete PSYC 001 and 060 for a total of seven credits.

Theology/Philosophy Requirements

All students must complete THEO 001, PHIL 050, PHIL 104 and an upper division theology elective for a total of 12 credits.

Electives

All students must complete 15 credits of electives. *A minimum of two credits of advanced EXSC is required of all students. Electives may be used to complete DPT, pre-med, pre-dent or graduate school prerequisites or used to complete a minor of the student's choice.

Required Cognates

All students must complete BIOL 001, CHEM 001, 002, BISC 015, BISC 110, and HEAL 120 for a total of 21 credits. In addition, students that do not have a minimum of three years of high school math are required to complete three credits of MATH.

MAJOR REQUIREMENTS

The following EXSC courses are required as major courses in which a C or better must be attained in order to progress to the next course in sequence. A grade of less than a C does not count toward graduation and must be repeated.

EXSC 010, 050, 090, 100, 105, 106, 110, 115, 170, 180, 187, 189, 190 and 192

Minimum of two credits of advanced EXSC electives.

A total of 58 credits (56 plus two credits of EXSC electives) are required.

A curricula has been developed to accommodate the prerequisites for entrance into the DPT while meeting the required course work for the exercise science major. Students that are either direct admit DPT students or intend on applying to the DPT program must meet with an adviser as soon as possible to discuss programmatic differences that are required to meet entrance standards. Curricula have also been developed for those students interested in using Exercise Science as a pre-medical, pre-dental, pre-veterinary or pre-graduate school degree. Students are required to meet with an adviser to discuss programmatic differences based upon their unique circumstances.

TYPICAL ACADEMIC PROGRAM FOR EXERCISE SCIENCE MAJOR

Freshman Year

FIRST TERM	CREDITS	SECOND TERM	CREDITS
ENGL 001	3	ENGL 002.	3
HIST 001	3	HIST 002.	3
CHEM 001.....	4	CHEM 002	4
EXSC 010.....	2	BISC 015.....	5
EXSC 090.....	2	EXSC 050	1
THEO 001	3		
	<hr/> 17		<hr/> 16

Sophomore Year

FIRST TERM	CREDITS	SECOND TERM	CREDITS
EXSC 115.....	5	PHIL 050.....	3
PSYC 001.....	3	EXSC 110	4
HEAL 120	2	EXSC 106	3
BIOL 001	3	Literature/Fine Arts.....	3
Elective	3	PSYC 060	4
	<hr/> 16		<hr/> 17

Junior Year

BISC 110	3	Literature	3
EXSC 100.....	3	EXSC 180	4
EXSC 190.....	3	EXSC 189	3
EXSC 105.....	2	Theology upper division	3
Elective	3	Electives.....	3
PHIL 104	3		
	<hr/> 17		<hr/> 16

Senior Year

Elective	6	EXSC 186.....	14-16
EXSC 187.....	3		
EXSC 170.....	3		
EXSC 192.....	4		
	<hr/> 16		

Electives: minimum of 2 credits of advanced exercise science electives required

Total credits — 129-131

TYPICAL PROGRAM FOR EXERCISE SCIENCE MAJOR AND DIRECT ADMIT DPT

<i>Freshman Year</i>			
First Term	Credits	Second Term	Credits
ENGL 001	3	ENGL 002	3
HIST 001 or equiv.	3	HIST 002 or equiv.	3
CHEM 001	4	CHEM 002	4
EXSC 010	2	BISC 015	5
EXSC 090	2	PHTH 001	1
THEO 001	3	EXSC 050	1
	17		17
<i>Sophomore Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
EXSC 115	5	PHIL 050	3
PSYC 001	3	EXSC 110	4
HEAL 120	2	EXSC 106	3
BIOL 001	3	Literature	3
Literature/Fine Arts	3	PSYC 060	4
	16		17
<i>Junior Year</i>			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
BISC 110	3	PHIL 104	3
EXSC 100	3	EXSC 180	4
EXSC 190	3	EXSC 189	3
EXSC 105	2	Theology upper division	3
PHYS 001	4	PHYS 002	4
	15		17
<i>Senior Year — DPT</i>			
Students enrolled in the DPT program will follow the curricula as established by the Physical Therapy Department. All EXSC majors must also complete EXSC 170 in the fall of their senior year.			
FIRST TERM	CREDITS	SECOND TERM	CREDITS
DPT course work		DPT course work	
EXSC 170	3		

Total credits — 102 credits plus DPT course work

DEPARTMENT OF PHYSICIAN ASSISTANT STUDIES

The College of Health Sciences and the Department of Physician Assistant Studies are dedicated to preparing students for careers as physician assistants by educating them in the Jesuit tradition of *cura personalis*, where academic preparation is coupled to the spiritual, emotional and physical development of the students as they dedicate themselves to service to others. Academic experiences include the humanities, sciences and clinical medicine which prepare the students for the supervised practice of primary medicine within dynamic health care systems.

EDUCATIONAL GOALS

The department realizes its mission through a synergistic strategy of educational goals. These goals prepare each student intellectually, socially, effectively, and spiritually to:

1. Thoroughly interview and examine patients, order appropriate tests, assess their findings, and collaborate with the supervising physician, and whenever possible the patient, in determining the appropriate treatment plan.
2. Be effective communicators, listeners, observers and diagnosticians.
3. Instill the importance of counseling, educating, and motivating patients and their consequential others to take responsibility for their own physical, mental and spiritual health.
4. Instill the importance of furthering physician assistant and supervising physician relationship.
5. Instill the significance of identifying true emergencies and responding appropriately.
6. Instill the awareness of being responsive and committed members of the health care team and promote the team concept of health care delivery.
7. Develop a commitment to life long learning.

8. Acquire an allegiance to the physician assistant career by participation in professional organizations.
9. Impart the importance of contributing to the education of future P.A. students by participation in physician assistant training.

ADMISSION REQUIREMENT

Students apply for admittance into the Physician Assistant Studies program at the completion of the fall term of their sophomore year. They are required to follow the two-year Preprofessional Phase of the Physician Assistant Studies program and be enrolled in the College of Health Sciences to ensure that they have completed the appropriate prerequisite courses that will make them eligible for a degree in biomedical sciences at the end of the fourth year. Following acceptance into the program, students follow the curriculum as outlined for the three-year Professional phase.

The intensity of the program and the skills necessary for practice as a physician assistant require the program to seek applicants with an excellent academic background, along with strong interpersonal skills and maturity. Prior healthcare experience is also an indicator of a career commitment to clinical practice. The program's admission process will consider each applicant's strengths and select for admission applicants best qualified to meet the program's mission.

Selection factors considered in the admission process include the following:

1. Academic preparation and Q.P.A.
2. Motivation, maturity, ability to work with people, and suitability for clinical practice
3. Five hundred contact hours healthcare and other work experience
4. Knowledge of the PA profession and the profession's role in the healthcare system
5. Graduate Record Exam or Allied Health Professions Admission Test Scores
6. Three letters of recommendation
7. Personal interviews
8. Critical Thinking Exam (administered at interview)

RETENTION POLICY

Students in the pre-professional years in the Physician Assistant Program are subject to the general probation-drop policies at Marquette University.

Students enrolled in the professional program must earn a minimum overall Q.P.A. of 2.75 and earn no single course grade below CD. Professional students unable to meet this requirement will be placed on a **one term academic probation** and require to obtain a 2.75 cumulative Q.P.A., with no single course grade lower than a CD, the following term. If at the end of the following term the overall quality point is above or equal to 2.75 the academic probation is dropped. If the student is unsuccessful at obtaining a minimum cumulative Q.P.A. of 2.75 and no single grade below CD the following term the student will be dismissed from the program at the close of that term.

Students earning a final grade of D or F **in a professional phase course** will be dismissed from the program.

Students may not participate in Physician Assistant Preceptorships until they have completed all the required courses in the didactic professional curriculum.

TUITION/FINANCIAL AID FOR PROFESSIONAL PHASE

Students enrolled in the Physician Assistant Studies Program upon completion of their baccalaureate degree will be moved into the professional division of Health Sciences and will no longer be eligible for undergraduate financial aid.

CURRICULA INFORMATION

TWO-YEAR PREPROFESSIONAL PHASE FOR PHYSICIAN ASSISTANT PROGRAM

<i>First Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
ENGL 001	3	ENGL 002	3
CHEM 001	4	CHEM 002	4
BIOL 001	3	BIOL 004	3
HIST 001	3	HIST 002	3
THEO 001	3	PSYC 001	3
	<hr/> 16		<hr/> 16

<i>Second Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
Literature elective	3	Literature elective	3
CHEM 023	4	CHEM 024	4
PHIL 050	3	PHIL 104	3
PHYS 001	4	PHYS 002	4
SOCI 133	3	Statistics	3
	<hr/> 17		<hr/> 17

THREE-YEAR PROFESSIONAL PHASE

<i>Third Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 413	4	BISC 145	4
PHAS 446	2	PHTH 458	3
BISC 130	5	PHTH 459	1
BISC 110	3	BISC 410	4
THEO 175	3	BISC 165	1
	<hr/> 17	BISC 150	3
		PHAS 417	3
			<hr/> 19

Summer Session between third and fourth year

PHAS 440	3
PHAS 445	2
PHAS 405	4
PHAS 408	3
	<hr/> 12

<i>Fourth Year</i>			
FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 435	4	PHAS 411	5
PHAS 410	5	PHAS 421	1
PHAS 415	2	PHAS 435	3
PHAS 420	2	PHAS 441	2
PHAS 430	2	PHAS 455	3
PHAS 450	3	PHAS 460	3
PHAS 482	2	PHAS 483	2
	<hr/> 20	PHAS 422	2
			<hr/> 21

After four years a bachelor's degree with a major in biomedical sciences will be awarded.

Fifth Year

A master's degree in physician assistant studies will require a senior project plus completion of four eight-week clerkships and two four-week clerkships.

PHAS 470.	6	PHAS 480	3
PHAS 471.	6	PHAS 481	3
PHAS 472.	6	PHAS 490	6
PHAS 473.	6		
PHAS 474.	3		42 crs
PHAS 475.	3		
		PHAS 495	1

DEPARTMENT OF SPEECH PATHOLOGY AND AUDIOLOGY

The Marquette University Department of Speech Pathology and Audiology offers a major area of study for undergraduate students interested in pursuing graduate education in speech-language pathology or audiology. The undergraduate major program is preprofessional, meaning that a master's degree is necessary before a student is considered qualified for professional employment.

The primary purpose of the undergraduate program is to provide introductory level knowledge in speech-language pathology and audiology, within the context of a traditional liberal arts and sciences education, which prepares an individual for study in a professional graduate degree program. This liberal education is based on the philosophy that the individual with an educational foundation in the arts and sciences will have a broad appreciation for society and its values. Such a traditional undergraduate emphasis provides the needed foundation for more narrowly focused professional education at the graduate level and is suitable for careers in other communication, education, and health-related professions besides speech-language pathology and audiology.

The undergraduate major in speech pathology and audiology includes courses in the areas of normal speech production and development, disorders of speech, language and hearing, and methods of evaluation and therapy. Clinical practicum involves actual work with children and adults under the supervision of certified speech-language pathologists and audiologists. This work is accomplished at the Marquette University Speech and Hearing Clinic.

DEGREE OFFERED

The undergraduate curriculum in speech pathology and audiology is a four-year program leading to a bachelor of science degree. This program entails eight terms of course work, and includes approximately 50 clock hours of clinical practicum associated with various professional courses. Marquette University requires 128 credits of course work for the bachelor's degree, and a student generally carries between 15 and 18 credits per term. Since a B average or better is required for acceptance into most graduate programs, it is important that students majoring in speech pathology and audiology work toward maintaining high academic achievement throughout their undergraduate program.

BILINGUAL ENGLISH-SPANISH CERTIFICATE (BESC)

The Department of Speech Pathology and Audiology offers a Bilingual English-Spanish Certificate (BESC) as part of its master's degree program in Speech-Language Pathology. The BESC program prepares speech-language pathology students who are proficient in Spanish to evaluate and treat speech, language and hearing problems in individuals who are Spanish-dominant speakers in educational or medical settings. This certificate program consists of four courses as well as clinical work specifically designed to meet guidelines suggested by the American Speech-Language-Hearing Association (ASHA) for bilingual speech-language pathologists. Two of these courses (SPAN 142 Phonetics and SPPA 148 Multicultural Issues for Speech-Language Pathologists) may be taken at the undergraduate level.

Students who are Spanish-English bilingual and/or those who are considering a major or minor in Spanish are encouraged to meet with the director of the BESC program in the Department of Speech Pathology and Audiology and an academic adviser in the Department of Foreign Languages and Literatures for advising regarding potential admission to the BESC program at the graduate level.

STUDENTS WITH COMMUNICATIVE DISORDERS

The Department of Speech Pathology and Audiology is dedicated to graduating students with optimum preparation for successful careers in the profession of communication disorders. Since

voice, fluency, articulation, language or hearing impairments may interfere with a clinician's ability to effectively treat persons with communication impairments, we encourage students in our program with such impairments to seek treatment.

ENGLISH PROFICIENCY

Our department supports the position of the American Speech-Language-Hearing Association in encouraging persons of diverse backgrounds to enter the field of communication disorders. All students in the Department of Speech Pathology and Audiology must provide evidence of adequate written and verbal communication skills in Standard American English necessary to meet academic and clinical requirements. Non-native speakers of English will work closely with their advisers throughout the course of their study toward establishing this proficiency prior to enrollment in clinical practicums. Students who speak with accents and/or dialects may seek assistance in improving these skills at the recommendation of department instructional staff

ADMISSION REQUIREMENTS

Applicants to the Department of Speech Pathology and Audiology are expected to fulfill the admission requirements listed in the University section of this bulletin. Entering freshmen are accepted for the fall term.

An applicant for advanced standing in the curriculum may be admitted if he/she has a quality point average of at least 2.400 as a freshman, 2.600 as a sophomore, or 2.800 as a junior, based on a 4.000 system. A student should understand that a minimum quality point average of 3.000 is required for acceptance into most graduate programs.

Admission into the undergraduate major in speech pathology and audiology qualifies a student for the bachelor of science program; it does not extend to the graduate (master's degree) level. Separate application to the graduate school must be made, usually during a student's senior year.

Since admission requirements for master's degree programs may vary from one university to another, the applicant is responsible for meeting those requirements of the institution he or she desires to enter.

PROFESSIONAL STANDARDS

All papers produced by students in all classes under department jurisdiction are expected to conform to professional standards of lucidity, coherence, grammar, spelling, and punctuation. All oral presentations produced by students in all classes under department jurisdiction are expected to conform to professional standards of lucidity, coherence, and grammar. All instructors in all classes under department jurisdiction consider the factors listed above, as well as substance, in grading written and oral presentations.

GENERAL DEGREE REQUIREMENTS

Candidates for the baccalaureate degree must complete a minimum of 128 hours. Students are required to have a Q.P.A. of 2.800 at the conclusion of their sophomore year to continue in the program. Credits include the following requirements:

<i>Area</i>	<i>Credit Hours</i>
Major	38
English Composition	6
Literature	6
Fine Arts	2-3
Foreign Language	0-8
History/Social Sciences	12
Science/Mathematics	6-8
Philosophy	12
Theology	9

English Requirement

All students must complete ENGL 001 and 002 for a total of six credit hours in English Composition. Non-native speakers of English should consult the director of the English as a Second Language Program concerning concurrent registration in ESLP 010 and the section of the ENGL 001 designated for non-native speakers.

Literature Requirement

All students must complete six hours in either English literature or foreign language literature (original or translation).

Fine Arts Requirement

All students must complete a fine arts (dance, film, music, theatre, etc.) course for a total of two or three credit hours. Four terms of non-credit music courses (MUSI 010,015,016,020, 030 and/or 031) will satisfy the fine arts requirement.

Foreign Language Requirement

All students must demonstrate one-year college competency in a foreign language. This may be accomplished by placement or course work.

Students who have never studied a foreign language or who wish to pursue a new language must take levels 001 and 002 to complete this requirement. Students who wish to continue studying the same language begun in high school must fill out and return the Foreign Language Placement Questionnaire. On the basis of the achieved score, students will be placed in the appropriate language course. Students who are placed in 003 or higher are exempt from the foreign language requirement. For further details, see the University section on Placement Credit in Foreign Languages.

History/Social Science Requirement

All students are required to complete HIST 001 and 002 and PSYC 001 and 101.

Science and Mathematics Requirement

Completion of one course in the biological/physical sciences and one course in college-level mathematics. Remedial courses (skill improvement courses), historical courses and methodology courses (such as methods of teaching science or math) may not be used to satisfy this requirement.

Theology Requirement

All students must complete nine hours of theology: THEO 001, one second-level course (THEO 100-119), and one third-level course (THEO 120-199), in that sequence.

Philosophy Requirement

Twelve hours in philosophy must be completed, including PHIL 001, 050, and 104, plus a three-hour elective.

Philosophical Foundations of Education (EDUC 158) may be taken for philosophy credit.

GRADUATION REQUIREMENTS

Requirements for a Major: The following courses typically constitute the speech pathology and audiology major: SPPA 010, 031, 036, 134, 139, 140, 142, 143, 151, 153, 158, 172 plus a minimum of four elective credits. The selection of further elective courses in speech pathology and audiology will be influenced by the professional goals of the students. Consultation with an academic adviser is suggested in making these selections.

Requirements for a Minor: A minor is not required of students majoring in speech pathology and audiology. If the student chooses to select a minor, an interdisciplinary minor of his or her choice may be formulated, or a minor may be selected in any department of the university. In the latter instance, the minor requirements are subject to the regulations of the department involved.

Information Regarding Professional Certification and Licensure: Students completing professional training in speech-language pathology or audiology become eligible for certification by the American Speech-Language-Hearing Association (ASHA). This association awards the Certificate of Clinical Competence to educationally and professionally qualified applicants. The minimum academic requirement for this certification is completion of a master's degree program accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association. Most employers of speech-language pathologists and audiologists require this certification.

Students wishing to work as speech-language pathologists or audiologists in the public schools must qualify for licensure from the Department of Instruction in the state of Wisconsin, as well as meet the additional requirements of any other state in which they wish to practice. In most states, the master's degree is the minimum requirement for licensure as a speech-language pathology or audiology clinician.

Finally, most states require speech-language pathologists and audiologists to hold a license from the state's department of regulation and licensing. Typically, individuals having met the certification requirements for ASHA will be eligible for state licensing.

The speech and audiology curriculum is specifically structured to facilitate eventual fulfillment of ASHA certification and State of Wisconsin requirements. In anticipation of meeting these requirements, specific course work in speech-language pathology and audiology as well as course work in related areas such as psychology, education, social science, natural science and math are included in the speech pathology and audiology curriculum.

SUPPLEMENTAL COURSEWORK

The selection of elective courses will be determined by the professional goals of the student. An academic adviser should be consulted for recommendations concerning the appropriate program to follow.

The following suggestions are made for specific professional interests:

WISCONSIN DPI LICENSE:

The student planning to continue graduate work in speech-language pathology is advised to prepare for meeting requirements for licensure as a public school speech-language clinician. This significantly broadens the scope of professional employment opportunities upon completion of training. Undergraduate courses required for DPI License include:

- SPPA 148 Multicultural Issues for Speech-Language Pathologists (3)
- SPPA 152 Methods and Procedures in School Speech and Hearing Programs (3)
- EDUC 078 Psychology of Human Development and Learning (3)
- EDUC 158 Philosophy of Education (3)
- PSYC 001 General Psychology (3)
- PSYC 101 Developmental Psychology I: Conception Through Childhood (3)

One course from each of the following three categories:

- a. PSYC 107 Psychology of the Exceptional Child (3)
- EDUC 088 Exceptional Children and Youth (3)
- b. EDUC 192 Teaching Reading in Content Areas (3)
- c. PSYC 108 Behavior Problems in Children (3)
- PSYC 131 The Psychology of Individual Differences (3)
- PSYC 137 Abnormal Psychology (3)
- COUN 216 Introduction to Counseling (3) (graduate)
- COUN 217 Individual Counseling (3) (graduate)
- COUN 218 Group Counseling (3) (graduate)
- COUN 222 Theories of Personality in Counseling (3) (graduate)

The following courses are also required for state licensure. (While students are urged to enroll in these courses on the undergraduate level, they may be taken at the graduate level.)

- a. Six (6) additional hours of audiology, (i.e., 173, 174)
- b. Two (2) additional hours of clinical practicum (i.e., 154, 155, 179, 253, 254, 259).

RELATED FIELDS

Students wishing to pursue graduate studies in deaf education, learning disabilities, special education, and other related areas may need to supplement their program of studies with additional course work. Students interested in these areas should consult institutions conferring such degrees for prerequisites, requirements, etc.

LABORATORIES

Housed in Monitor Hall, the Marquette University Speech and Hearing Clinic serves as a working laboratory for speech pathology and audiology students. The clinic has therapy rooms, a diagnostic suite, pre-school language room, parent information center, child language laboratory, Clinical Aerodynamic Laboratory, voice laboratory, neurolinguistics laboratory, and an audiology suite. Other speech pathology and audiology laboratories include a speech science laboratory, student computer room and materials center.

CURRICULA INFORMATION

TYPICAL PROGRAM FOR SPEECH PATHOLOGY AND AUDIOLOGY MAJORS

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
SPPA 010	3	SPPA 036.	3
Foreign Language	3-4	Foreign Language	4
ENGL 001	3	ENGL 002.	3
HIST 001	3	Natural Science/Math.	3-5
Natural Science/Math	3-4	PSYC 001*	3
	<hr/> 15-17		<hr/> 16-18

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
SPPA 031	3	SPPA 140.	3
SPPA 139	3	SPPA 142.	3
Literature	3	EDUC 078*	3
PHIL 050	3	Literature	3
HIST 002	3	PHIL 001.	3
		THEO 001.	3
	<hr/> 15		<hr/> 18

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
SPPA 134	3	SPPA 143.	3
PSYC 101	3	SPPA 151	3
PHIL 104	3	SPPA 153.	1
EDUC 192*	3	SPPA 172.	3
Theology (second level)	3	PSYC 107* or EDUC 088*	3
Fine Arts.	2-3	Elective.	3
	<hr/> 17-18		<hr/> 16

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
SPPA 152*	3	SPPA 147.	3
SPPA 154	1	SPPA 158.	3
SPPA 173	3	SPPA 148*	3
PSYC 108, 131 or 137	3	EDUC 158*	3
Theology (third level)	3	Elective	3-5
Elective.	3-5		
	<hr/> 16-18		<hr/> 15-17

* Required for Public School Licensure

COURSE DESCRIPTIONS

HEALTH SCIENCES (HESC)

HESC 001. Orientation to Health Sciences

1 sem. hr.
Introduction to the health care fields. Orientation to college programs and resources. Information on Graduate and Professional schools and career awareness. Offered every term. S/U grade assessment. *Prereq: Frosh. stndg.*

HESC 010. Scientific Writing 3 sem. hrs.
Technical writing skills, literature searches and scientific references, review of the literature, evidence-based medical writing and structure of scientific journal papers.

HESC 100. International Study in Health Sciences 0-3 sem. hrs.
Structured travel, work and study programs in International Health Sciences with other colleges/universities. Program includes special advising. S/U grade assessment. *Prereq: Cons. of assistant dean. Approved full-time study abroad students only.*

HESC 198. Topics in Health Sciences
1-3 sem. hrs.
Selected topics in health sciences. Specific topics will be designated in the *Timetable of Classes*. Offered occasionally.

BIOMEDICAL SCIENCES (BISC)

Chair and Professor: Vaughn
Professor: Brooks

Associate Professor: W. Bell, Burke, Cullinan, Iorio, Kos, Rajala, Sadeghi, Siebenlist
Assistant Professor: Best, Jayaraman, Lobner, Mantsch

Clinical Assistant Professor: Carroll

Laboratory Supervisor: Franklin

Adjunct Professor: Farmer, Klitgaard, Raff

Adjunct Associate Professor: Biel, Curtis

Adjunct Assistant Professor: Basile, Berman, Brophy, Cimrmancic, Crow, Feldman, Jurken, LeFaivre, Levene, Romans, Roznik, Shinnars, Seeds, Troy

Adjunct Clinical Instructor: Wenninger

The department offers human-oriented courses in anatomy, biochemistry, microbiology, nutrition, pathology, pharmacology and physiology at the undergraduate and professional level. Courses available to undergraduates and professional students are described in this section.

BIOMEDICAL SCIENCES (BISC)

BISC 005. Organic Chemistry for the Health Sciences 2 sem. hrs.
An introduction to organic chemistry, stressing the physical properties and representative reactions of the common organic functional groups. Offered fall term. *Prereq: CHEM001 and CHEM 002.*

BISC006. Chemistry for the Health Professions 3 sem. hrs.
General and organic chemistry enrolled in the Dental Hygiene Program or the College of Nursing. Offered fall term. *Prereq: Enrollment indental hygiene or College of Nursing.*

BISC 007. Biochemistry for the Health Professions 3 sem. hrs.
Carbohydrates, lipids, proteins, enzymes, bioenergetics, metabolism of carbohydrates, lipids, proteins, and nucleotides. Emphasis placed on health and disease. Offered spring term. *Prereq: BISC006 or courses in general and organic chemistry; or cons. of instr.*

BISC 010. Contemporary Issues in Nutrition 3 sem. hrs.
Personalized nutrition applications for health promotion designed for non-science majors. Topics include nutrients, life cycle nutrition, weight management, disordered eating, and nutrition and fitness. Offered spring term.

BISC 012. Head and Neck Anatomy 3 sem. hrs.
Comprehensive review of neuroanatomy, sensory systems and speech, muscular and vascular systems, and osteology of the head and neck. An emphasis is placed on functional anatomy and significant clinical correlates. Laboratory included. Offered spring term. *Prereq: BISC 135 or BISC 015.*

BISC 013. Fundamentals of Microanatomy 2 sem. hrs.
Microscopic anatomy of special topics. Does not count toward biomedical sciences major requirements. *Prereq: Physical therapy major.*

BISC 015. Principles of Human Anatomy and Physiology 4 hrs. lec., 3 hrs. lab, 1 hr. quiz, 5sem. hrs.
Principles of Human Anatomy and Physiology is an introduction to the structures and functions of the human body. Laboratory included. Offered spring term.

BISC 030. Introduction to Dentistry 1 sem. hrs.
Introduction to laboratory techniques used in dentistry. Offered spring term. S/U grade assessment.

BISC 105. Co-op/Intern in Biomedical Sciences 1-3 sem. hrs.
Co-op or intern experience in the biomedical industry. Features educational activity and productive work related to health care delivery or industrial or administrative aspects of health care. S/U grade assessment. *Prereq: Cons. of internship dir.*

BISC 110. Nutritional Aspects of Health 3 sem. hrs.
Basic principles and fundamentals of human nutrition. Nutrients are discussed in terms of sources, absorption, metabolism and utilization, deficiency, requirements, and assessment of status. Life cycle nutrition and nutrition in disease states. Offered fall term. *Prereq: BISC007 or BIOL100; Biomedical Sciences major or cons. of instr.*

BISC 115. Human Microbiology 3 sem. hrs.
Cytology, physiology, genetics and ecology of bacteria, viruses, fungi and animal parasites of medical and dental importance. Basic identification procedures. Control of microorganisms; sterilization/disinfection, chemotherapy, immunization, epidemiology. Host-parasite interactions. The nature and the responses of the immune system. Study of the major infectious diseases. Offered fall term. *Prereq: BISC 007 or BIOL100 or cons. of instr.*

BISC 120. Pharmacology 3 sem. hrs.
Basic principles and fundamentals of human pharmacology, including a knowledge of the chemical and physical properties, biochemical and physiological effects, mechanism of action, absorption, distribution, biotransformation and excretion, therapeutic use and adverse reactions of drugs commonly used in therapeutics. Offered spring term. *Prereq: BISC 007 or BIOL 100 and BISC 145 or BISC 015.*

BISC 125. Human Microanatomy 4 sem. hrs.
A study of the microscopic structure of cells, tissues and organs of the human body. Emphasis is placed on structure-function relationships and on the interaction of various celltypes, tissues and organ systems. Includes laboratory. Offered fall term.

BISC 126. Oral Histology 2 sem. hrs.
The microscopic anatomy of the oral cavity, the developmental sequences leading to the appearance of the mature structures and developmental errors which result in pathology, and distinctions between structures in the oral cavity and similar tissue in the rest of the body. Offered spring term. *Prereq: BISC 125.*

BISC 130. Human Gross Anatomy 5 sem. hrs.
A human gross anatomy course including lecture and a cadaver dissection laboratory. Anatomy of the limbs, back, thorax, abdomen, pelvis, and head and neck is approached on a regional basis. Functional aspects of musculoskeletal structures are emphasized. Offered fall term. *Prereq: Enrolled in PHTH or PA major. Fee.*

BISC 135. Human Anatomy 4 sem. hrs.
A regional approach to human anatomy where all body systems are integrated. Correlations between structure and function are emphasized. Laboratory included. Offered fall term.

BISC 136. Advanced Human Anatomy 2 sem. hrs.
This laboratory course takes a regional approach to the dissection of human cadaveric material and includes all body structures/systems. Enrollment is limited based upon specimen availability. Offered spring term. *Prereq: BISC 135 and cons. of instr.*

BISC 145. Human Physiology 4 sem. hrs.
Human physiology including blood and circulation, muscular, neuronal and sensory systems, renal and respiratory systems, digestion, metabolism, reproduction, and their control by the endocrine and central nervous systems. Offered spring term. *Prereq: BISC135, CHEM 001 and CHEM 002, and biochemistry.*

BISC 150. General Pathology 3 sem. hrs.
The course begins with an overview of cellular degenerations, inflammation and neoplasia. Various organ systems and their primary disease states will then be presented. These systems include musculoskeletal, nervous, cardiovascular, pulmonary, reproductive, digestive, endocrine, and integument. This course is taught using lecture note handouts, video tapes, slides and examination objectives. Offered spring term. *Prereq: BISC 145, which may be taken concurrently, and BISC 135; or BISC 015; or cons. of instr.*

BISC 160. Molecular Pathology 3 sem. hrs.
Fundamental molecular concepts involved in genetic and cellular disorders discussed within the framework of specific diseases, therapeutic interventions and current research. Topics include cloning, stem cell therapies, gene therapy, oncogenesis, mechanisms of cell death, metabolic disorders and neuroplasticity. *Prereq: BISC 007 or BIOL100; and/or concurrent BISC 150.*

BISC 165. Microbiology Laboratory
1 sem. hr.
Introduction to various topics of microbiology laboratory including the isolation, cultivation, enumeration and characterization of bacteria of human medical importance. Brightfield, dark-field, and phase contrast microscopy are utilized. Specialized techniques include antibiotic susceptibility testing, anaerobic cultivation and immunological assays. Offered spring term. *Prereq: BISC 410, which may be taken concurrently or BISC 115.*

BISC 180. Oral Pathology 3 sem. hrs.
Lesions, tissue changes, clinical symptoms, signs and manifestations occurring in diseases which affect the oral cavity. Offered fall term. *Prereq: BISC 020 and BISC 150.*

BISC 195. Independent Study 1-6 sem. hrs.
A reading and/or research program under the direct supervision of a faculty member of the Department of Biomedical Sciences. *Prereq: Cons. of dept. ch.*

BISC 198. Topics in Biomedical Sciences
0-2 sem. hrs.
Selected topics in biomedical sciences. Specific topics will be designated in the *Timetable of Classes*. Offered occasionally.

BISC 410. Microbiology 4 sem. hrs.
This course focuses on infectious agents of human medical importance and on the host pathogen interaction. Topic areas include the general characteristics of bacteria, viruses, fungi and parasites as well as the etiology, pathogenesis, laboratory identification, and epidemiology of selected diseases. Control of microorganisms is discussed in terms of sterilization, disinfection, chemotherapy and immunization. The immune system and the immune response are discussed. Offered spring term. *Prereq: BISC 413.*

BISC 413. Biochemistry 4 sem. hrs.
Biochemistry of microbial cells and human cells are compared and contrasted. The chemistry of proteins, carbohydrates, lipids and nucleic acids, metabolic regulation of human cells as well as changes in diseases are discussed. Offered fall term. *Prereq: CHEM 023 and 024 and cons. of instr.*

BISC 414. General Histology 4 sem. hrs.
This course is a study of the normal microscopic structure and function of human cells, tissues and organs. The structural basis for various physiological and pathological processes such as inflammation and endocrine cycles is presented. The student is also introduced to tissues of the oral region that are studied in detail in COCO 512. Laboratory exercises promote visual identification of structure. Offered fall term.

BISC 415. Biomedical Systems 1 3 sem. hrs.
Module 1 of a systems-based course integrating anatomy, physiology and pathology including dental clinical correlates.

BISC 416. Biomedical Systems 2 3 sem. hrs.
Module 2 of a systems-based course integrating anatomy, physiology and pathology including dental clinical correlates.

BISC 418. Gross Anatomy 6 sem. hrs.
This course is a comprehensive lecture and laboratory survey of human structure with special emphasis in head and neck regions. It is designed to give the student a structural basis upon which to build clinical studies and gives a thorough background in terminology. Offered spring term. *Fee. Prereq: Enrolled in dental school.*

BISC 421. Advanced General Pathology
4 sem. hrs.
The etiology, development, gross and microscopic alterations, pathological changes and laboratory diagnosis of disease. Basic medical concepts, facts, theories and vocabulary. Offered fall term.

BISC 423. Physiology 4 sem. hrs.
The course first considers the principles of cellular physiology and progresses to human physiological systems, including blood and circulation, renal and respiratory systems, digestion, metabolism, reproduction and their control by the endocrine and central nervous systems. Normal function of these systems is presented along with selected dysfunctions which illustrate physiological principles. Offered fall term.

BISC 425. Biomedical Systems 3 4 sem. hrs.
Module 3 of a systems-based course integrating anatomy, physiology and pathology including dental clinical correlates.

BISC 426. Biomedical Systems 4 4 sem. hrs.
Module 4 of a systems-based course integrating anatomy, physiology and pathology including dental clinical correlates.

BISC 435. Pharmacology 4 sem. hrs.
Pharmacological and toxicological actions and therapeutic effects of drugs used in medical practice. *Prereq: BISC 423 or BISC 145 and BISC 413.*

BISC 450. Remediation
Variable credits. Variable titles.

BISC 495. Independent Study (elective)
1 to 6 sem. hrs.
Prereq: Cons. of dept. ch.

CONJOINT COURSES (COCO)

The following courses are presented jointly by faculty from the Department of Biomedical Sciences and the School of Dentistry.

COCO 513 Craniofacial Development and Genetics

2 sem. hrs.

Embryological development from fertilization to birth with emphasis on development of the stomatognathic system to provide the student with a basis for understanding the etiology and treatment of developmental abnormalities of the oral tissue. The theoretical and pragmatic concepts of growth changes provide an understanding of how the head, face and occlusion form and develop from conception to adulthood. A summary of genetic/hereditary principles is designed to provide the background necessary to understand the underlying causes of inherited disorders related to dentistry. Offered fall term.

COCO 515. Oral Biology 4 sem. hrs.
This course covers oral histology and oral microbiology/immunology, correlating this information with clinical situations and focusing on the immunopathology of periodontal disease. An overview of current and accepted treatment modalities will be covered, including oral immunity and caries immunization. Offered spring term. *Prereq: BISC 125 or BISC 414, BISC 410 which may be taken concurrently, and cons. of instr.*

CLINICAL LABORATORY SCIENCE (CLS)

Chairperson and Associate Professor: Milson
Associate Professor: Laatsch
Adjunct (clinical) Assistant Professor: Maticsek, Schmus
Laboratory Supervisor: Kirchner
Medical Advisor: Dunn

These courses are open to students enrolled in the Department of Clinical Laboratory Science, and to others by special permission of the department chairperson. Successful completion of individual courses does not qualify persons to work in a medical laboratory. For a description of courses in the major which are offered in the College of Arts and Sciences, see the College of Arts and Sciences section of this bulletin.

Courses listed as "coreq" must be taken concurrently.

CLLS 001. Introduction to Clinical Laboratory Methods

1 sem. hr.

Fundamental concepts in laboratory analysis and data correlation. Topics limited to specific disease entities. Laboratory exercises include certain aspects of clinical chemistry, clinical hematology and clinical microbiology. Offered occasionally (Saturdays). *Prereq: High school biology; Upper 25% of high school class (not open to college students).*

CLLS 010. Concepts in Clinical Laboratory Medicine

2 hrs. lec.; one 2 1/2-hr. lab.;
1 hr. disc.; 3 sem. hrs.

Introduction to pathophysiology and the basic laboratory techniques of clinical pathology. Lecture and laboratory sessions limited to selected topics in hematology, immuno-

hematology and clinical chemistry. Offered fall term. *Prereq: CLLS major; high school chemistry and biology with laboratory, BIOL001 and CHEM001, both which may be taken concurrently.*

CLLS 050. Introduction to Forensic Science
3 sem. hrs.

An introduction to the principles of forensic science. An overview of criminal law, the crime scene, evidence collection and processing, forensic medicine (pathology) drugs and toxins, firearms, questioned documents, trace evidence, fingerprints and DNA evidence. Emphasis on the investigatory role of the forensic scientist. Laboratory sessions reinforce information from lectures and provide hands-on experiences, including homicide scene investigation techniques, molecular biology procedures. Offered annually.

CLLS 060. Public Health 3 sem. hrs.

An exploration and overview of public health medicine and its contribution to prevention and control of disease. Provides familiarization with epidemiology surveillance and investigation methods, including statistical tools. Included is an introduction to the following components of public health medicine: communicable and non-communicable disease diagnosis and monitoring, environmental and foodborne health concerns, social and behavioral health issues, community health services, and the bioterrorism response network.

CLLS 101. Guided Study 0-4 sem. hrs.

Analysis of selected topics under faculty supervision. Primarily for undergraduate students who wish to enhance their knowledge in selected disciplines through guided study. For sections of 0 credit, the grade CR will be used. *Prereq: CLLS major or cons. of dept. ch.*

CLLS 124. Medical Bacteriology 3 hrs. lec.; two 2-hr. labs.; 1 hr. disc.; 4 sem. hrs.

Emphasis on the theoretical foundations and methodologies needed in a medical bacteriology laboratory. Topics include cultivation, isolation, microscopy, and antibiotic susceptibility testing. Morphological, cultural, biochemical, and immunological characteristics of bacteria examined as a basis for their differentiation and identification. Epidemiology, pathogenicity, and treatment of aerobic bacteria examined. Offered every fall. *Prereq: CLLS major; BIOL 100; and BIOL 185, which may be taken concurrently.*

CLLS 127. Medical Microbiology 3 hrs. lec.; two 2-hr. labs.; 1 hr. disc.; 4 sem. hrs.

Study of the identification and differentiation of pathogens and normal flora of humans based upon correlation of morphological, biochemical, immunological, and molecular characteristics. Epidemiology, pathogenicity, and treatment modalities are also investigated. Fungi, parasites, viruses, and bacteria are included. Laboratory involves isolation and identification of medically important microorganisms, including proper patient specimen processing. Offered spring term. *Prereq: CLLS major; BISC 145 which may be taken concurrently; CLLS 124.*

CLLS 140. Laboratory Instrumentation

3 hrs. lec.; one 4-hr. lab.; 4 sem. hrs.

The application of the principles of basic electronics, spectrophotometry, nephelometry, reflectance photometry, fluorometry, electrochemistry, flame emission and atomic absorption to medical laboratory instruments used in diagnostic and research laboratories. Experiments investigate these applications as related to clinical chemistry and hematology. Experience with state-of-the-art automated instruments and background in quality assurance is provided. Course focuses on team problem-solving and instrument trouble-shooting. Offered spring term. *Prereq: CLLS major; must be taken concurrently with CLLS 174.*

CLLS 160. Molecular Diagnostics 3 sem. hrs.

Medical and forensic molecular biology, including a review of DNA/RNA structure and function, will be covered. Relevant laboratory techniques include isolation of genomic DNA from various tissue samples, PCR RFLP, molecular diagnosis of cancer, detection of infectious agents and identification of inherited diseases. *Prereq: BIOL 100 or BISC 007.*

CLLS 173. Analytical and Clinical Chemistry
4 sem. hrs.

Concepts of analytical chemistry including mathematical treatment of data, chemical and acid-base equilibria, buffers and electrochemistry. Application of theoretical aspects to measurement and evaluation of acid-base and electrolyte balance in the human body. Principles and application of electrophoretic and chromatographic analysis of clinical specimens. The components of blood and body fluids and their chemical analysis in disease states. Selected laboratory exercises emphasize quality assurance and integration of automated and manual clinical methods. Offered annually. *Prereq: CLLS major; Jr. stndg.*

CLLS 174. Clinical Hematology 1 3 hrs. lec.; two 2-hr. lab.; 1 hr. disc.; 4 sem. hrs.

Study of identification and differentiation of blood and bone marrow cells with emphasis on morphology, function and pathology of these cells. Included is the study of blood parasites. Principles of methodologies used and their relationship to diagnosis and treatment of disease. Laboratory provides experience in identification of cellular elements in normal and disease states. Offered spring term. *Prereq: CLLS major; CLLS 010; coreq: CLLS 127, CLLS 140, BISC 145.*

CLLS 180. Basic Concepts in Clinical Education Methods—Practicum
1 sem. hr.

Educational concepts especially appropriate to instruction in a clinical setting using clinical materials. The concepts discussed include: writing learning objectives, learning styles, testing and evaluation methods and use of audio-visuals. Offered annually. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stndg. and CLLS major.*

CLLS 181. Modern Management Concepts for the Clinical Laboratory Practicum
1 sem. hr.

Comparison of management theories and styles for effective leadership. Principles and methods of communication essential to the

delivery of quality health care. Strategic financial planning ensuring cost effectiveness in the diagnostic laboratory. Statistical analysis comparing alternative methodologies for selection of reliable laboratory procedures. Selected projects relating managerial practices to clinical laboratory organization and use of laboratory data systems for health care delivery. Offered annually. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stndg. and CLLS major.*

CLLS 183. Clinical Chemistry—Practicum
6 sem. hrs.

The chemical constituents of blood and other body fluids in health and disease. Principles of the methods used in qualitative and quantitative determination of these constituents. Treatment of the theoretical aspects of instrumentation used in these determinations. Offered annually. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stndg. and CLLS major.*

CLLS 184. Clinical Hematology 2—Practicum 4 sem. hrs.

Quantitative and qualitative study of blood, bone marrow and body fluid cells and alterations present in disease. Principles of procedures used. Methods of obtaining and preserving blood specimens with consideration of the theory and practice of aseptic technique. Offered annually. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stndg. and CLLS major.*

CLLS 185. Clinical Hemostasis—Practicum
3 sem. hrs.

The components in the blood related to the hemostatic mechanisms, the principles of the procedures involved and their relationship to the diagnosis and treatment of disease. Offered annually. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stndg. and CLLS major.*

CLLS 186. Clinical Immunohematology—Practicum 6 sem. hrs.

Therapeutic and diagnostic aspects of immunohematology. Aspects of blood transfusion and of methods used in preservation and selection of properly matched blood for transfusion. Offered annually. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stndg. and CLLS major.*

CLLS 187. Clinical Immunology and Serology—Practicum 2 sem. hrs.

The mechanisms of resistance to disease, especially the antigen-antibody reactions and the diagnostic procedures used in determining this resistance. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stndg. and CLLS major.*

CLLS 188. Clinical Microbiology—Practicum
6 sem. hrs.

Advanced study of pathogenic and normal flora microorganisms having medical importance. Includes methods for obtaining and handling specimens for culture as well as principles of current instrumentation. Identification protocol include cultural, morphological, biochemical, immunological, and molecular characteristics. Pathophysiology of infectious diseases caused by bacteria, fungi, parasites and viruses is examined. *Prereq: Sr. stndg. and CLLS major.*

CLLS 189. Clinical Urinology Practicum

2 sem. hrs.

Physical, chemical and microscopic study of urine with emphasis on the changes exhibited in disease with related physiology. Individual assignments at clinical laboratory affiliations. *Prereq: Sr. stdng. and CLLS major.*

CLLS 195. Independent Study in Clinical Laboratory Science 1-4 sem. hrs.

Offered annually. *Prereq: Cons. of dept. ch.*

CLLS 198. Topics in Clinical Laboratory Science 1-4 sem. hrs.

Selected topics in clinical laboratory science. Specific topics determined each term. Offered annually.

DENTAL HYGIENE (DEHY)

Chairperson and Clinical Professor: Halula
Assistant Professor: Bell
Professor Emerita: Ginsberg
Faculty from the Department of Biomedical Sciences and School of Dentistry.

Important Note: The Department of Dental Hygiene in the College of Health Sciences will be closing at the end of the 2003-2004 academic year. The final dental hygiene class (class of 2004) began its studies on Aug. 28, 2000. In order to receive a bachelor of science degree fully accredited by the American Dental Association Commission on Dental Accreditation, students will be required to complete degree requirements and graduate by the end of spring term 2004. Student transfers into the program will be accepted only if they can complete their studies by spring term 2004.

DEHY 040. Dental Hygiene 1 5 sem. hrs.

Introduction to the dental hygiene profession. Role of the dental hygienist in oral health maintenance. Lecture, laboratory and clinical experience in the preclinical aspects of preventive periodontics. *Prereq: DEHYMajor and DEHY070.*

DEHY041. Dental Hygiene 2 5 sem. hrs.

Clinical application of skills and knowledge in preventive periodontics. Students complete a designated number of oral services for clinical patients. Selected assisting assignments in Oral Surgery, Pedodontics and Periodontics. Experience in radiography. *Prereq: DEHY040.*

DEHY050. Foundations of Dental Hygiene 1 sem. hr.

Introduction to dental hygiene as a health profession, with emphasis on basic dental terminology, personal oral hygiene, and career opportunities. *Prereq: DEHYMajor.*

DEHY051. Dental Health Education 1 sem. hr.

Goals, concepts and techniques of the presentation and evaluation of health education. Major emphasis of dental health education of groups and individuals of all ages, backgrounds and interests. *Prereq: DEHY050.*

DEHY 070. Oral Anatomy 4 sem. hrs.

Functions and characteristics of the primary, mixed and permanent dentitions. Form and position of individual teeth and oral tissues and their relationship. Seminars and laboratory/clinical exercises in the recognition and description of teeth and oral tissues in a functioning dentition. Laboratory projects in restoring tooth contour for a representative number of teeth. *Prereq: DEHYMajor.*

DEHY085. Periodontics 1 1 sem. hr.

A thorough study of the supporting structures of the teeth in health and disease will be covered. The etiology of periodontal diseases, to include local factors, occlusion, immunology and systemic diseases, will be presented. The role the dental hygienist plays in disease management will be alluded to throughout the discussion. *Prereq: DEHYMajor.*

DEHY086. Oral Radiology 1 2 sem. hrs.

Fundamental course in dental radiology that describes the physical aspects of ionizing radiation. Includes a historical review, physics of electricity, generation and characteristics of x-rays, radiation hazards and hygiene, x-ray film and processing, radiographic exposure factors, imaging systems and techniques, and an introduction to normal anatomical landmarks and film mounting. *Prereq: DEHYMajor.*

DEHY130. Dental Therapy 3 sem. hrs.

Principles of expanded functions with emphasis on technical accomplishment of procedures utilizing basic material systems learned in Dental Materials. The current legal and ethical status of therapists. Laboratory instruction consists of completing selected expanded procedures on manikin-mounted typodonts. *Prereq: DEHY040 and DEHY070. Must be taken concurrently with DEHY160.*

DEHY131, 132. Adjunct Clinical Procedures 1, 2 1 sem. hr. each

Clinical application of theory and skills acquired in DEHY130. Students complete assignments in various clinical departments, performing as therapists in each assigned area. S/U grade assessment for DEHY132 only. *Prereq: DEHY130.*

DEHY140. Dental Hygiene 3 5 sem. hrs.

A continuation of DEHY041 with emphasis on increasingly more difficult assignments. Includes a weekly seminar in which clinical situations are discussed. *Prereq: DEHY040, 041.*

DEHY141. Dental Hygiene 4 6 sem. hrs.

Advanced clinical practice, including a weekly seminar. *Prereq: DEHY 140.*

DEHY142. Dental Hygiene 5 6 sem. hrs.

Continued advanced clinical practice, including a weekly seminar. A culmination in preparation for graduation and assuming roles in health professions. *Prereq: DEHY 141.*

DEHY 145. Comprehensive Clinical Skills 2 sem. hrs.

Comprehensive clinical skills for the returning dental hygienist. Current clinical concepts and procedures in health assessment, patient education, prevention and periodontic procedures. *Prereq: DEHY142 or enrollment in Baccalaureate Degree Completion Program.*

DEHY150. Public Health 2 sem. hrs.

Known methods of preventive dentistry. Current public health concepts and practices and their relation and significance to the dental hygienist. The role of the dental health team as related to the concept of community dental health. Public health administration, organizations and their functions and services. *Prereq: Jr. stdng. and DEHYMajor.*

DEHY 151. Research Methods in the Health Professions 2 sem. hrs.

Introduction to the scientific methods, documentation, problem formulation, legal and ethical concerns, variables, data collection, introduction to statistical analysis and interpretation. Student will develop a research protocol, complete the project and prepare a final report.

DEHY153. Geriatric Dentistry 1 sem. hr.

Social, physical and psychological aspects of aging. Special emphasis on dental conditions of aging, problems in providing services to the elderly and the dental hygienist's involvement in programs for the aged. *Prereq: DEHY 150.*

DEHY 160. Dental Biomaterials 1 sem. hr.

The physical and chemical properties of some of the most important materials used in dentistry. Emphasis on proper manipulation of these materials for optimum mechanical properties. *Prereq: Must be taken concurrently with DEHY130.*

DEHY171. Practice Administration 2 sem. hrs.

Administration of a dental office. Practice building patient relations and management, and office records. The dental health team, employer-employee relationships and responsibilities. Interviewing and accepting positions. The meaning of professionalism, dental ethics, and jurisprudence, including the laws regulating the practice of Dental Hygiene. *Prereq: Sr. stdng. and DEHYMajor.*

DEHY179. Practicum in Teaching 3 sem. hrs.

A one term (eight hours each week) teaching experience in dental hygiene education in lecture, laboratory and clinical areas. Weekly seminar include a discussion of the application of teaching concerns to practical teaching experience. S/U grade assessment. *Prereq: Sr. stdng., education minor.*

DEHY181. Behavioral Sciences for the Dental Hygienist 2 sem. hrs.

Didactic study, small group discussions and clinical application of topics relating to human relations and behavior. Communication skills, treatment of anxious patients, behavior change techniques, child development, and sociological information related to the dental hygiene profession are included. *Prereq: DEHY050, 051.*

DEHY185. Periodontics 2 2 sem. hrs.

The clinical management of the periodontal diseases will be covered in detail, discussing all accepted surgical modalities thoroughly. The role that other specialties of dentistry play in the overall management of a case will be included, with the important contribution that the dental hygienist makes in prevention and treatment being woven throughout the lecture series. Students will be given the opportunity to observe and assist periodontic faculty and

dental students in the surgical treatment of periodontal disease. *Prereq: DEHY085.*

DEHY 195. Independent Study 1-3 sem. hrs. Independent study and research in areas of interest to Dental Hygiene. Arrangements for faculty direction must be made prior to registration. Offered every term. *Prereq: Sr. stndg.; cons. of dept. ch.*

PHYSICAL THERAPY (PHTH) / ATHLETIC TRAINING (ATTR) EXERCISE SCIENCE (EXSC)

Chairperson, Department of Physical Therapy and Program in Exercise Science and Associate Professor: L. Pan
Director of Exercise Science and Associate Professor: Papanek
Professor: Kloth
Associate Professor: Neumann, Nosse, Rajala, Simoneau, Sobush
Adjunct Associate Professor: Aubert
Assistant Professor: Ng
Clinical Assistant Professor: Kontney, Schuh, Stoeckmann
Clinical Instructors: Bielefeld, Brown, Collopy, M.Diamond, T. Diamond, Ebben, Falkner, Fantazzi, Leigh, Marshall, Millington, Myklebust, Olsen, J.Pan, Pollard, Quick, Seeds, Simenz, Thorman, Wenninger, Wilk

NOTE: PHTH courses numbered below 530 may count toward completion of the undergraduate degree.

PHYSICAL THERAPY

PHTH 001. Introduction to Physical Therapy

1 sem. hr.
Lecture course with two components. The first will focus on medical terminology pertinent to the health care professions. The second will provide career exposure to physical therapy and include current topics of interest in the field. *Prereq: Second year direct admit PT student and others by cons. of instr.*

PHTH 402. Professional Interactions

2 sem. hrs.
General survey of the profession with emphasis on the history and development of physical therapy. Professional interactions are explored with emphasis on the student as a learner and teacher. *Prereq: PHTM major or cons. of instr.*

PHTH 405. Patient Management/Mobility

2 sem. hrs.
Lecture/lab. Basic patient management skills are presented and practiced including transfers, gait training, activities of daily living, range of motion and muscle reeducation. Direct access in physical therapy, interpreting referrals, written communication and time management will be integrated with the overall functional analysis of providing basic care. *Prereq: PHTM major or cons. of instr.*

PHTH 408. Physical Agents/ Wound Healing

3 sem. hrs.
Lecture/lab. Principles and methods underlying the physical and physiological basis for therapeutic application of soft tissue mobilization,

massage, hydrotherapy, cryotherapy, ultraviolet radiation, pneumatic intermittent compression, spinal traction, pulsed electromagnetic fields and many thermal agents. Evaluation and treatment of chronic wounds will be presented along with infection control and aseptic techniques. *Prereq: PHTM major or enrolled in Health Sciences—Professional, or cons. of instr.*

PHTH 412. Psychosocial Aspects of Disability

2-3 sem. hrs.
Discussion of the psychosocial influences affecting clients and care providers. *Prereq: PHTM major or enrolled in Health Sciences—Professional.*

PHTH 415. Aging

2 sem. hrs.
Course details background information on the aging process. Combines lecture, interactions with aged clients and clinical visits. Age-related and pathological changes which occur in the major physiological systems over time are compared and contrasted. Modes of providing service to aged clients is explored. *Prereq: PHTM major or enrolled in Health Sciences—Professional.*

PHTH 418. Physiology of Activity

3 sem. hrs.
This lecture/laboratory course will concentrate on the assessment of activity tolerance in, and basic principles of, exercise prescriptions for normal healthy individuals who are either trained or untrained. A functional approach will be emphasized and factors that enhance or impede performance will be examined. Various training strategies will be introduced. *Prereq: PHTM major or enrolled in Health Sciences—Professional, and current certification in CPR for the health care provider.*

PHTH 422. Research

1 sem. hr.
Lecture course focusing on the elements of research. Students apply the concepts of validity, reliability and objectivity to research articles to critically analyze literature, and design a research study for an identified problem. *Prereq: 4th year PHTM major or cons. of instr.*

PHTH 425. Kinesiology 1

3 sem. hrs.
Lecture/laboratory experiences. Anatomy of themuscular and joint systems in normal and abnormal conditions in the upper extremities. Course includes the biomechanics of normal and abnormal muscle and joint action. *Prereq: PHTM major.*

PHTH 428. Physical Therapy Measurement/Assessment

2 sem. hrs.
Lecture and clinical laboratory course. The students will learn the general concepts and specific techniques of measurement of motion, flexibility and strength using diverse instrumentation. *Prereq: PHTM major.*

PHTH 432. Orthopedics 1

2 sem. hrs.
Lecture, demonstration and laboratory experiences. General concepts of evaluation and treatment of musculoskeletal conditions are taught. Includes joint mobilization techniques, therapeutic exercise prescription and concepts of tissue healing. *Prereq: PHTM major.*

PHTH 435. Practicum 1 Seminar

2 sem. hrs.
Lecture and clinical laboratory course with emphasis on communication in a professional manner with patients, family and staff. Student

will have an opportunity to perform skills from patient management/mobility and physical agents/wound healing. *Prereq: PHTM major. Must be taken concurrently with PHTH 436.*

PHTH 436. Practicum 1 Clinical

4 sem. hrs.
Four weeks of clinical experience after 12 weeks of classroom PHTH 435 (see PHTH 435 description). S/U grade assessment. *Prereq: PHTM major. Must be taken concurrently with PHTH 435.*

PHTH 442. Medical/Surgical

Pathophysiology 2 sem. hrs.
Lecture/clinical observations course will present the pathophysiology of cardiovascular, respiratory, renal, endocrine and immune system disorders. Medical and surgical perspectives of treatment intervention in an acute environment will be presented. Guest presenters will be utilized. *Prereq: PHTM major.*

PHTH 445. Kinesiology 2

3 sem. hrs.
Continuation of PHTH 425 with emphasis on head, trunk and lower extremities, including gait and posture. Lecture, demonstration and laboratory practice. *Prereq: PHTM major. PHTH 425.*

PHTH 452. Orthopedics 2

4 sem. hrs.
Continuation of PHTH 432 with an emphasis on the evaluation and treatment of specific musculoskeletal injuries/dysfunctions. Includes surgical, non-surgical, traumatic, chronic and sports-related conditions. *Prereq: PHTM major. PHTH 432.*

PHTH 455. Human Growth/Development

2 sem. hrs.
Selected aspects of normal human growth and motor development focusing on prenatal, infancy and childhood years. Lecture and interactions with infants and toddlers. *Prereq: PHTM major.*

PHTH 458. Human Neuroanatomy

4 sem. hrs.
Structure and function of the central nervous system (CNS). Lecture, clinical problem solving sessions to predict symptoms given a certain lesion within the CNS. *Prereq: PHTM major or PHAS major.*

PHTH 462. Medical/Surgical: Rehabilitation

2 sem. hrs.
Lecture/laboratory course concentrates on chronic diseases and conditions that will necessitate long-term therapeutic intervention. Special attention will be paid to pain management techniques, orthotic fabrication for specific disease conditions, (arthritis and rheumatic diseases), prosthetics, and prosthetic training. *Prereq: PHTM major.*

PHTH464. Clinical Seminar 1

1 sem. hr.
A clinical seminar course to discuss issues related to Practicum 435 and to prepare for Practicum 465. Topics to include communication in a professional manner with patients, family and staff, evaluation tools, documentation, treatment planning skills, chart review, siteselection and evaluation of ability based assessment. S/U grade assessment. *Prereq: PHTM major. PHTH 435.*

PHTH 465 Practicum 2 0 sem. hrs.

Clinical laboratory course. Student has opportunity to apply course work with supervision and assistance including but not limited to: orthopedic evaluations, note writing, goal setting, treatment modification, measurement, history taking, chart reading, manual therapy, and assessment of the development sequence. S/U grade assessment. *Prereq: PHTM major.*

PHTH 468 Neurological Rehab 4 sem. hrs.

Physiology of neurological disorders including mechanisms of disease and treatment. Lecture, lab and clinic visits. *Prereq: 6th year PHTM major.*

PHTH 472. Contemporary Issues and Management Principles 3 sem. hrs.

Discussions of recent historical and current external environmental factors affecting the delivery of health care services are interwoven with discussions of business, management, and supervisor/leadership principles applicable to the health care service industry. Particular attention is focused on the delivery of physical therapy services under changing environmental conditions. *Prereq: 6th year PHTM major or cons. of instr.; open to practicing physical therapists.*

PHTH 475. Pediatric Disorders and Intervention Strategies 3 sem. hrs.

Lecture/discussion of developmental disabilities and other selected pediatric disorders. Concepts of physical therapy assessment, goalsetting and treatment of the pediatric patient; common treatment theories and techniques and their application to children. *Prereq: 6th year PHTM major.*

PHTH 478. Electrotherapy/ Electrophysiological Testing 3 sem. hrs.

Lecture/lab. Principles and methods related to the physical and physiological basis for electrotherapeutic interventions for clinical treatment of individuals with musculoskeletal dysfunction, chronic wounds, motor control deficits, acute and chronic pain, and other selected conditions. Electrophysiological testing will include electromyography and nerve conduction velocity evaluation. *Prereq: 6th year PHTM major.*

PHTH 482. Cardiopulmonary Rehabilitation 3 sem. hrs.

Lecture/laboratory course will focus on recuperative/restorative management of clients having primary or secondary involvement of the cardiovascular and/or pulmonary systems. A total gas delivery approach will be emphasized through case presentations. *Prereq: 6th year PHTM major. Certification in Basic Life Support (CPR).*

PHTH 484. Clinical Seminar 2 1 sem. hr.

A clinical seminar course to discuss issues related to Practicum 465 and to prepare for Practicum 485. Topics to include evaluation tools, documentation, treatment planning skills, site selection, expectations of entry-level ability to practice the profession of physical therapy in various health care settings, and evaluation of ability based assessment. S/U grade assessment. *Prereq: PHTM major. PHTH 465.*

PHTH 485. Practicum 3 8 sem. hr.

Supervised physical therapy clinical experience on a regular workday basis. Student will

demonstrate entry-level ability to practice the profession of physical therapy in various health care settings. S/U grade assessment. *Prereq: 6th year PHTM major.*

PHTH 486. Practicum 4 8 sem. hrs.

Supervised physical therapy clinical experience on a regular workday basis. Student will demonstrate entry-level ability to practice the profession of physical therapy in various health care settings. S/U grade assessment. *Prereq: 6th year PHTM major.*

PHTH 487. Practicum 5 0-6 sem. hrs.

Supervised physical therapy clinical experience on a regular workday basis. Student will demonstrate entry-level ability to practice the profession of physical therapy in various health care settings. S/U grade assessment. *Prereq: 6th year PHTM major.*

PHTH 495. Independent Study

1-3 sem. hrs.

Independent study and research in special areas of interest to physical therapy under faculty supervision. Offered every term. Nomid-term assessment assigned. *Prereq: PHTM major, cons. of instr. and dept. ch.*

PHTH 498. Topics in Physical Therapy in the Professional Phase 0-3 sem. hrs.

Selected topics not a part of the regular course work taught because of a special need, interest or opportunity. *Prereq: PHTM major. or cons. of instr.*

PHTH 502. Patient Management 2 2 sem. hrs.

Lecture/laboratory course simulating patient interactions and discussing learning units that enforce application of coursework to clinical practice. *Prereq: PHTH major.*

PHTH 505. Patient Management 1 3 sem. hrs.

Lecture/lab course. Patient management skills are presented and practiced with emphasis on professional behaviors with patient interactions and technical skills in patient care delivery to include the generic abilities, transfers, gait training, activities of daily living, range of motion and muscle re-education. Personal insights into basic awareness of self, family, values, morals and ethics will be explored in the context of how they shape and impact our clinical decisions, interactions and skill development. *Prereq: PHTH major or cons. of instr.*

PHTH 508. Physical Technologies/Wound Management 3 sem. hrs.

Lecture and clinical laboratory course presenting the principles and methods (based on research evidence and/or best practice) and the physical and physiological basis and clinical outcomes for the therapeutic application of thermotherapy, cryotherapy, actinotherapy and mechanotherapy in the treatment of disorders involving the musculoskeletal, neuromuscular, and integumentary systems. Course continues with management of wounds along with infection control and aseptic technique. *Prereq: PHTH major. or enrolled in Health Sciences Professional or cons. of instr.*

PHTH 512. Culture and Disability 3 sem. hrs.

The human dignity of persons with disability is the focus of this course. Psycho-social-cultural perspectives of persons with disabilities, as well as their caregivers, are explored. Particular

emphasis is given to illness, impairment, disability, aging, health and health care with a Psycho-Neuro-Immunological framework. *Prereq: PHTH major or enrolled in Health Sciences Professional.*

PHTH 515. Pathophysiology and Aging 3 sem. hrs.

Lecture/clinical observations course will present the pathophysiology of cardiovascular, respiratory, renal, endocrine and immune system disorders. Course details background information on the aging process. Age-related and pathological changes, which occur in the major physiological systems over time, are compared and contrasted. Modes of providing service to aged clients is explored. *Prereq: PHTH major. or enrolled in Health Sciences Professional.*

PHTH 518. Physiology of Activity 3 sem. hrs.

This lecture/laboratory course will concentrate on the assessment of activity tolerance in, and basic principles of, exercise prescriptions for normal healthy individuals through the life span who are either trained or untrained. A functional approach will be emphasized and factors that enhance or impede performance will be examined. Various training strategies will be introduced. *Prereq: PHTH major or enrolled in Health Sciences Professional, and current certification in CPR for the health care provider.*

PHTH 519. Diagnostic Imaging and testing 3 sem. hrs.

Study of diagnostic imaging techniques as they relate to physical therapy practice areas. Includes study of common medical tests.

PHTH 522. Evidence Based Decision Making 1 2 sem. hrs.

Lecture course focusing on the elements of research. Students apply the concepts of validity, reliability and objectivity to research and critically analyze literature. Evidence based decision making is examined and applied to practice patterns. *Prereq: PHTH major or cons. of instr.*

PHTH 523. Evidence Based Decision Making 2 1 sem. hr.

Evidence based practice applied to clinical content areas, including orthopedics. Web based assignments. Students will complete individual projects and present their work. *Prereq: PHTH major.*

PHTH 525. Kinesiology 1: The Upper Extremity 3 sem. hrs.

Anatomy of the muscular and joint systems in normal and abnormal conditions in the upper extremities. Course includes surface anatomy, the biomechanics of normal and abnormal muscle and joint action. Lecture, demonstration and laboratory practice. *Prereq: PHTH major.*

PHTH 528. Physical Therapy Evaluation, Tests, and Measures 2 sem. hrs.

Lecture and clinical laboratory course. The students will learn the general concepts and specific techniques of physical therapy evaluation including tests and measures including range of motion, flexibility and strength using diverse instrumentation. *Prereq: PHTH major.*

PHTH 532. Orthopedics 1 4 sem. hrs.

Lecture, demonstration and laboratory experiences. The elements of patient/client management (examination; evaluation; diagnosis; prog-

nosis, and intervention) are applied to musculoskeletal conditions. *Prereq: PHTH major.*

PHTH 535. Patient Management 3 2 sem. hrs.
Lecture and clinical laboratory course with emphasis on preparation for the first clinical experience. Documentation, and issues of patient care are examined including treatment planning skills, chart review, discharge planning, site selection and evaluation of ability based assessment. Reimbursement, ethical and legal issues as they relate to clinical decision making. *Prereq: PHTH major.*

PHTH 536. Clinical 1 4 sem. hrs.
Four-week clinical experience in physical therapy practice at various clinical sites throughout the United States. Students complete specific learning units. S/U grade assessment. *Prereq: PHTH major; must be taken in PHTH course sequence.*

PHTH 545. Kinesiology 2: The Spine and Lower Extremity 3 sem. hrs.
Continuation of PHTH 525 with emphasis on head, trunk and lower extremities, including an introduction to normal gait, posture, and surface anatomy. Lecture, demonstration and laboratory practice. *Prereq: PHTH 525.*

PHTH 552. Orthopedics 2 4 sem. hrs.
Continuation of PHTH 532 with an emphasis on the evaluation and treatment of specific musculoskeletal injuries/dysfunction. Includes surgical, non-surgical, traumatic, chronic and sports-related conditions. 500 level course contains enhanced content. *Prereq: PHTH 532.*

PHTH 555. Life Span Development 3 sem. hrs.
Lecture/discussion/lab. Normal growth and motor development from prenatal development to motor adaptation and functional changes in adult years. Special focus on motor behaviors across the life span and implications for the physical therapist, as well as potential influence of motor development in the presence of injury, disease, and disability. Opportunity for interaction with infants, toddlers, children, teens and adults. *Prereq: PHTH major and BISC 130.*

PHTH 558. Neuroanatomy 4 sem. hrs.
Structure and function of the central nervous system (CNS). Lecture, clinical correlation, clinical problem solving to predict signs and symptoms in patients with PNS and CNS lesions. *Prereq: PHTH major or PHAS major.*

PHTH 560. Integrated Medical Neuroscience 2 sem. hrs.
Current topics in medical neuroscience that apply to clinical practice. *Prereq: PHTH major.*

PHTH 564. Evidence Based Decision Making 3 1 sem. hr.
Evidence based practice applied to clinical content areas, including orthopedics, orthotics, prosthetics, and electrotherapy. Web based assignments. Students will complete individual projects and present their work. *Prereq: PHTH 535.*

PHTH 565. Clinical 2 10 sem. hrs.
Clinical course in physical therapy practice at various clinical sites throughout the United States. Students complete specific learning units. Student has opportunity to apply course work with supervision and assistance including

but not limited to: orthopedic evaluations, note writing, goal setting, treatment modification, measurement, history taking, chart reading, manual therapy, and assessment of the development sequence. S/U grade assessment. *Prereq: PHTH major; must be taken in PHTH course sequence.*

PHTH 568. Neurological Rehabilitation 4 sem. hrs.
Physiology of neurological disorders including mechanisms of disease and physical therapy interventions based on research evidence and/or best practice. Lecture, lab and clinic visits. *Prereq: PHTH major.*

PHTH 570. Motion, Gait Analysis and Rehabilitation 4 sem. hrs.
Advanced analysis of human movement including gait, orthotics and prosthetics. Rehabilitation focuses on physical therapy interventions for patients/clients with chronic diseases and other conditions necessitating long-term therapeutic intervention. *Prereq: PHTH major.*

PHTH 572. Health Care Policy/Management 3 sem. hrs.
Contemporary Issues and Management Principles in physical therapy practice. Discussions of recent historical and current external environmental factors affecting the delivery of health care services are interwoven with discussions of business, management, and supervisor/leadership principles applicable to the health care service industry. Particular attention is focused on the delivery of physical therapy services under changing environmental conditions. 500 level course contains enhanced content. *Prereq: PHTH major.*

PHTH 574. Evidence Based Decision Making 4 1 sem. hr.
Evidence based practice applied to clinical content areas, including cardiopulmonary, pediatric and neurologic practice areas. Web based assignments. Students will complete individual projects and present their work. *Prereq: PHTH major.*

PHTH 575. Pediatric Disorders and Intervention Strategies 3 sem. hrs.
Lecture/discussion of developmental disabilities and other pediatric disorders. Concepts of physical therapy management including assessment, goal setting and treatment of the pediatric patient, common treatment theories and techniques and their application to children in relation to evidence based and/or best practice. *Prereq: PHTH major; PHTH 555.*

PHTH 578. Electrotherapy/ Electrophysiological Testing 3 sem. hrs.
Lecture and clinical laboratory course presenting the principles and methods (based on research evidence and/or best practice) and the physical and physiological basis for electrotherapeutic interventions for clinical treatment of individuals with musculoskeletal dysfunction, chronic wounds, motor control deficits, acute and chronic pain, and other selected conditions. Electrophysiological testing will include electromyography and nerve conduction velocity evaluation. 500 level course contains enhanced content. *Prereq: PHTH major.*

PHTH 582. Cardiopulmonary Physical Therapy 3 sem. hrs.
Lecture/laboratory course will focus on recuperative/restorative management of clients having primary or secondary involvement of the cardiovascular and/or pulmonary systems. A total gas delivery approach will be emphasized through case presentations. Clinical skills to be taught will be consistent with nationally published Clinical Practice Guidelines that are evidenced-based. 500 level course contains enhanced content. *Prereq: PHTH major. Certification in Basic Life Support (CPR).*

PHTH 584. Clinical Seminar 1 sem. hr.
Lecture course with occasional joint labs with the DPT-5 students during class time. Emphasis will be placed on clinical decision making utilizing past courses and clinical experiences as resources. Students will engage in clinical decision making for patients with multi-system involvement and incorporate all aspects of patient management examination, evaluation, diagnosis, prognosis, interventions and outcomes in designing, implementing and adjusting a plan of care. S/U grade assessment. *Prereq: PHTH 565.*

PHTH 585. Clinical 3 8 sem. hrs.
Clinical experience in physical therapy practice at various clinical sites throughout the United States. Students complete specific learning units. Student will demonstrate entry-level ability to practice the profession of physical therapy in various health care settings. S/U grade assessment. *Prereq: PHTH 584. Must be taken in the PHTH course sequence.*

PHTH 586. Clinical 4 8 sem. hrs.
Clinical experience in physical therapy practice at various clinical sites throughout the United States. Students complete specific learning units. Student will demonstrate entry-level ability to practice the profession of physical therapy in various health care settings. S/U grade assessment. *Prereq: PHTH 585.*

PHTH 598. Special Topics in Physical Therapy 0-4 sem. hrs.
Advanced clinical electives in specific areas of physical therapy practice. *Prereq: PHTH major or cons. of instr.*

ATHLETIC TRAINING

ATTR 020. Prevention and Care of Athletic Injuries 2 sem. hrs.
Lecture/Lab. Common athletic injuries and illnesses will be presented with emphasis on prevention and care. Principles and techniques of athletic taping and bracing as well as equipment fitting, blister and wound care will be discussed. *Prereq: ATTR major.*

ATTR 107. Clinical Competencies in Athletic Training 1 1 sem. hr.
Clinical Skills will be assessed via practical experiences. Taping, bracing, and evaluation will be emphasized. Includes observation, field work and hands on experience in University and high school training rooms and sports medicine clinics under the direct supervision of a certified athletic trainer. S/U grade assessment. *Prereq: ATTR major; ATTR 130 which may be taken concurrently; and current CPR and first aid certification; or cons. of instr.*

ATTR 108. Clinical Competencies in Athletic Training 2 1 sem. hr.

Continuation of ATTR 107. Clinical Skills will be assessed via practical experiences. Taping, bracing, and evaluation will be emphasized. Includes observation, field work and hands on experience in training rooms and sports medicine clinics under the direct supervision of a certified athletic trainer. S/U grade assessment. *Prereq: ATTR 107 and ATTR 140 or concurrent; Soph. stndg.*

ATTR 120. Clinical Competencies in Athletic Training 3 1 sem. hr.

Continuation of ATTR 108. Clinical Skills will be assessed via practical experiences. Taping, bracing, and evaluation will be emphasized. Includes observation, field work and hands on experience in training rooms and sports medicine clinics under the direct supervision of a certified athletic trainer. S/U grade assessment. *Prereq: ATTR 108, 150, 160 or concurrent, and current CPR and first aid certifications; Jr. stndg.*

ATTR 121. Clinical Competencies in Athletic Training 4 1 sem. hr.

Continuation of ATTR 120. Clinical Skills will be assessed via practical experiences. Taping, bracing, and evaluation will be emphasized. Includes observation, field work and hands on experience in training rooms and sports medicine clinics under the direct supervision of a certified athletic trainer. S/U grade assessment. *Prereq: ATTR 120, 170 or concurrent, and current CPR and first aid certifications; Jr. stndg.*

ATTR 130. Athletic Training Evaluation 1 3 sem. hrs.

Lecture/Lab. Pre-season screening and evaluation procedures will be discussed. Concepts of evaluation will be emphasized. Common medical diagnostic procedures will be reviewed and evaluation of the lower extremity will be introduced. Includes screening of internal injuries in athletic participation. *Prerequisites: Anatomy and physiology, concurrent enrollment in EXSC 115 and cons. of instr.*

ATTR 140. Athletic Training Evaluation 2 3 sem. hrs.

Lecture/Lab. This course is a continuation of Evaluation I and includes assessment of the trunk, back, neck, head and upper extremity. *Prereq: ATTR 130 and cons. of instr.*

ATTR 150. Therapeutic Modalities 2 sem. hrs.

Lecture/Lab. This course will present current concepts in the use of modalities treatment of athletic injuries and pathophysiology of tissue injury. *Prereq: ATTR 140 and cons. of instr.*

ATTR 160. Rehabilitative/Therapeutic Exercise in Athletic Training 2 sem. hrs.

Lecture/Lab. This course will present current concepts in the design and administration of rehabilitation/ therapeutic exercise in the treatment of athletic injuries and illnesses, and the use of therapeutic agents for the treatment of athletic injuries. *Prereq: ATTR 140.*

ATTR 170. General Medicine in Athletic Training 2 sem. hrs.

Lecture/lab. Course is designed to describe and assess common general medical conditions

seen in athletics and includes: common ear and mouth pathologies, description of and assessment of respiratory conditions, common conditions such as diabetes mellitus, urinary tract infections, reproductive abnormalities and viral/infective disorders will be discussed. Common clinical skills (auscultation, vital signs, otoscope, chemstrips, ocular motor function, and spirometry) will be demonstrated and mastered. *Prereq: ATTR 140, ATTR 150 or cons. of instr.*

ATTR 188. Clinical Competencies in Athletic Training 5 1 sem. hrs.

Clinical Skills will be assessed via practical experiences. Basic injury assessment techniques and competency testing of modalities, advanced evaluation and rehabilitation will be emphasized. Includes observation, field work and hands-on experience in university and high school training rooms and sports medicine clinics under the direct supervision of a certified athletic trainer. S/U grade assessment. *Prereq: ATTR major with Sr. stndg; ATTR 107; and cons. of instr. Current CPR and first aid certifications.*

ATTR 189. Practicum in Athletic Training 14-16 sem. hrs.

Students will experience field work, hands-on clinical experience, event coverage and preparation over an entire semester. Injury assessment, use of modalities, evaluation and rehabilitation skills will be strengthened. Practicum will be under the direct supervision of a certified athletic trainer. S/U grade assessment. *Prereq: ATTR major with Senior standing; or consent of program director. Current CPR and first aid certifications.*

ATTR 195. Independent Study in Athletic Training 1-4 sem. hrs.

Independent study under direction of select faculty. *Prereq: cons. of instr.*

ATTR 196. Topics in Athletic Training 1-4 sem. hrs.

Selected topics, not a part of the regular course work taught because of a special need, interest or opportunity. *Prereq: Cons. of instr.*

EXERCISE SCIENCE

EXSC 010. Emergency Care, CPR and AED 2 sem. hrs.

This course is designed to give an overview of principles and techniques of first aid, emergency care, cardiopulmonary resuscitation and automatic external defibrillation. Competency in skills leads to American Heart Association Health Care Provider CPR, first aid and AED Certifications. Lecture/lab. *Prereq: EXSC major or cons. of instr.*

EXSC 050. Surface Anatomy and Palpation 1 sem. hr.

Laboratory course designed to define and analyze the forces influencing movements, describe body planes and axes, and identify anatomical structures through palpation. Lab. *Prereq: Anatomy and physiology or concurrent with anatomy and physiology, EXSC major or cons. of instr.*

EXSC 090. Introduction to Exercise Science 2 sem. hrs.

Exposure to the fields of exercise science. Current topics of interest including certification requirements and professional development.

EXSC 100. Exercise Leadership 3 sem. hrs. Lecture/Lab. A study of the necessary leadership qualities and skills expected for leading exercise activities. Will develop expertise in the instruction of a wide variety of fitness related programs. *Prereq: EXSC 115.*

EXSC 105. Exercise Science Practicum 1 2 sem. hrs.

Work experience in approved fitness-related agencies. Experience may include fitness testing, evaluation, exercise prescription, instruction, leadership or management in different settings. S/U grade assessment. *Prereq: EXSC major, and current CPR and first aid certifications. May be dependent on space.*

EXSC 106. Cognitive and Motor Learning 3 sem. hrs.

Lecture/Lab A study of the principles of human motor learning development from infancy through adulthood. Instructional emphasis is given to those factors which have implications for exercise and training.

EXSC 110. Kinesiology/Biomechanics 4 sem. hrs.

Lecture/Lab. Study of human motion emphasizing skeletal structure. Mechanical principles which influence human exercise are examined. Identification of the origin, insertion, and function of major muscles is included along with surface anatomy. *Prereq: EXSC 115 and BISC 015.*

EXSC 115. Exercise Biochemistry and Physiology 5 sem. hrs.

Lecture/Lab. Protein, carbohydrate and lipid metabolism in relation to energy production including anaerobic and oxidative pathways with an emphasis on exercise and health. A study of the effects of exercise on the major systems of the human body including the cardiorespiratory, and neuromuscular systems. *Prereq: BISC 015; CHEM 001 and/or concurrent CHEM 002.*

EXSC 170. Exercise Program Management 3 sem. hrs.

Study of the strategies and considerations involved in the successful management of a fitness and athletic training facility. Areas include program planning, budgeting, facility design and organization. *Prereq: EXSC 115.*

EXSC 180. Exercise Testing, Prescription and EKG 4 sem. hrs.

Lecture/lab. Practical experience in fitness testing/assessment, program design and instruction in a wide variety of fitness related programs. Emphasis on test protocols for evaluating health related components of physical fitness. *Prereq: EXSC 115.*

EXSC 186. Exercise Science Practicum 2 14-16 sem. hrs.

Work experience in approved fitness-related agencies. Experience may include fitness testing, evaluation, exercise prescription, instruction. Leadership or management in different settings. S/U grade assessment. *Prereq: EXSC major with Senior standing; or consent of program director. Current CPR and first aid certifications; may be dependent on space.*

EXSC 187. Exercise for Special Populations

3 sem. hrs.

Lecture. A study of program modifications and techniques for various populations. May include the use of aquatics, and exercise prescription throughout the lifespan. *Prereq: EXSC 115.*

EXSC 189. Nutrition and Exercise

Performance 3 sem. hrs.

Lecture. A study of the basic nutritional concepts, principles and current issues. Emphasis on nutrition for training and conditioning related to health and wellness, including ergogenic aids. *Prereq: BISC 110 and EXSC 115.*

EXSC 190. Principles of Strength Training and Conditioning

3 sem. hrs.

Lecture/Lab. A study of muscle physiology and strength training principles. Popular training programs and techniques will be discussed. *Prereq: EXSC 115.*

EXSC 192. Advanced Exercise Physiology

4 sem. hrs.

Lecture/lab. Advanced course in the study of the body's response to physical activity. Focus is on laboratory techniques standard in exercise physiology research. *Prereq: EXSC major, EXSC 115 and senior status, anatomy and physiology; or cons. of instr.*

EXSC 195. Independent Study

1-4 sem. hrs.

Independent study under the direction of faculty. *Prereq: Cons. of instr.*

EXSC 198. Topics in Exercise Science

1-4 sem. hrs.

Selected topics, not a part of the regular course work taught because of a special need, interest or opportunity. *Prereq: Cons. of instr.*

PHYSICIAN ASSISTANT STUDIES (PHAS)

Chairperson and Assistant Professor:

Gengembre

Assistant Professor: Kazik, Lombardo, Schabla, Smith

Medical Director: Coogan

NOTE: PHAS courses may only be taken by PHAS majors admitted to the professional phase of Physician Assistant Studies.

PHAS 405. Clinical Skills 1

4 sem. hrs.

This course consists of two phases. The first portion of the course develops the student's interviewing skills eliciting a complete medical history. The second portion of the course instructs the student in the methods and modalities to complete an entire adult, wellness exam. At the conclusion of the course, the student is expected to be competent in eliciting a complete medical history and physical exam, appropriately documenting the exam including all positive and negative findings. Medical terminology is reviewed throughout the course. The student will acquire basic life support certification (CPR).

PHAS 408. Medical Study and Investigation

2 sem. hrs.

This course instructs the student in strategies for interpretation of the medical literature and research. This is accomplished through reviewing the foundations of research methodology as they relate to the study of disease distribution,

and issues of study design, data collection and methods of analysis. This course draws heavily on Internet access and requires the student to be familiar with Netscape and electronic mail technologies. Completing the course require an on-line medical topic search, a review of these findings, and a classroom presentation. The student is encouraged to select an area of interest that may be utilized for PHAS 490.

PHAS 410. Primary Medicine 1

5 sem. hrs.

This course provides a comprehensive presentation of the various disease processes commonly encountered in primary care across the spectrum of clinical medicine. The course employs a system-oriented, problem based approach and clinical information is presented in conjunction with appropriate, correlative lectures or labs in anatomy, physiology, pharmacology, pathology, radiology, laboratory diagnostics, and nutrition.

PHAS 411. Primary Medicine 2

5 sem. hrs.

This course is a continuation of PHAS 410. It provides a comprehensive presentation of the various disease processes commonly encountered in primary care across the spectrum of clinical medicine. The course employs a system-oriented, problem based approach and clinical information is presented in conjunction with appropriated, correlative lectures or labs in anatomy, physiology, pharmacology, pathology, radiology, laboratory diagnostics, nutrition, and preventative approaches.

PHAS 415. Clinical Decision Making 1

2 sem. hrs.

This course is designed to expand the student's medical knowledge base and facilitate critical thinking and clinical diagnostic skills. Patient case histories are presented in correlation with topics from PHAS 410. The student will develop and demonstrate problem-solving skills. The Student will develop differential diagnoses and order and interpret appropriate laboratory and imaging studies. Finally, students will demonstrate the ability to succinctly present a working diagnosis, treatment plan, and prognosis.

PHAS 416. Clinical Decision Making 2

2 sem. hrs.

This course is designed to expand the student's medical knowledge base and facilitate the student's critical thinking and clinical diagnostic skills. Patient case histories are presented in correlation with topics from PHAS 411. The student will develop and demonstrate problem-solving skills. The Student will develop differential diagnoses and order and interpret appropriate laboratory and imaging studies. Finally, students will demonstrate the ability to succinctly present a working diagnosis, treatment plan, and prognosis.

PHAS 417. Ethics & Diversity in Health Care

3 sem. hrs.

Introduction to healthcare delivery to diverse patient. *Prereq: Prof. phase PA student.*

PHAS 420 Clinical Skills 2

2 sem. hrs.

This course is an advanced continuation of Clinical Skills I, PHAS 405. The interviewing portion of this class will prepare students to negotiate the behavioral aspects of medicine. It is intended to introduce the skills, knowledge, and sensitivity needed to communicate and

intervene effectively in a wide variety of psycho-social situations. The physical examination portion is intended to familiarize and then test the student in advanced examination techniques including muscular-skeletal, neurological, obstetrical, pediatric, and geriatric examination. Appropriate interpretation and documentation are stressed. It is at this time during their academic training that students will be assigned patients in a variety of settings and be asked to complete a history and physical exam.

PHAS 421. Complementary and Alternative Medicine

1 sem. hr.

This course provides an introduction to the current forms of alternative and complementary medicine, which are being used in conjunction with traditional medicine to obtain optimum health. This course is a survey course, which reviews herbal and vitamin therapies, chiropractic medicine, and the eastern arts of acupuncture and various forms of stress reduction. Specific attention is given to the areas where CAM complements traditional medicine and counteract traditional medicine.

PHAS 422. Clinical Pharmacology

2 sem. hrs.

A focused clinical pharmacology course designed specifically to develop an extensive understanding of the medications routinely used in inpatient and outpatient care. Presented in a case study format using patient scenarios to develop clinical pharmacology knowledge.

PHAS 430. Geriatric Medicine

2 sem. hrs.

An introduction into the biological aspects of aging, latency of disease, organic brain syndromes, cardiac disease, drug prescribing and home health care of the elderly issues necessary for PAs to provide optimal care to elderly patients.

PHAS 435. Emergency Medicine

3 sem. hrs.

Describes a variety of neonatal, pediatric, and adult emergencies including emergency assessment, diagnoses, and treatment. This course is intended to introduce the student to the basic principles of emergency medicine, specifically, the PA's role in triage, assessment, and emergency management.

PHAS 440. Diagnostics Technology

3 sem. hrs.

This course consists of three distinct class sections: a 12-Lead ECG interpretation section, a radiology section, and a laboratory section. The course provides a broad introduction to these topics that are expanded upon in PHAS 410, 411, 415, and 416.

The ECG interpretation section will provide students with a systematic methods of interpreting a 12-Lead ECG with respect to rate, rhythm and blocks, electrical axis determination, hyperlophy (atria and ventricles), ischemia/injury/infarction, and miscellaneous drug, electrolyte, disease, and pacemaker effects.

The radiology section will provide students with a systematic method of interpreting common radiographic studies seen in primary care.

The laboratory section emphasizes the utilization of laboratory methods for the diagnosis and treatment of disease. The content focuses

on those aspects pertinent to the provision of ambulatory, primary care.

PHAS 441. Behavioral Medicine 2 sem. hrs.
An introduction to the skills, knowledge and sensitivity needed to communicate and intervene in a wide variety of psychosocial situations. Topics to be covered: clinical presentation, diagnosis, and management of mental disorders commonly encountered in primary care, personal growth and development, normal growth and development of children and adolescents, human sexuality, psychiatric reactions to disease, counseling skills, and death and dying. Teaching methods to include lectures, discussion, small group discussions, handouts and reading assignments.

PHAS 445. Health Care Dynamics and the PA Profession 2 sem. hrs.

A professional issues review. This course emphasizes current issues facing the profession, including legal and ethical problems, and the unique place of PAs within the health care system. It familiarizes students with the history and traditions of the PA profession. This is complemented by information about certification and registration, employment, economics, professional organizations and political/legislative topics. A significant portion of the course confronts ethical issues facing today's non-physician providers.

PHAS 446. Practice Management and Health Care Systems 3 sem. hrs.

This course familiarizes the student with the ever changing health care marketplace. The course begins with the formation of health insurance companies and rapidly moves to the current health care arena where the student becomes familiar with large health care networks, prepaid options, and cost effective health care theory.

PHAS 450. Surgical Principles and Procedures 3 sem. hrs.

An introduction to the role of the physician assistant in surgery and surgical procedures commonly performed in post-operative care. The course employs a system-oriented, problem based approach and clinical information is presented in conjunction with appropriate, correlative lectures or labs in anatomy, physiology, pharmacology, pathology, radiology, laboratory diagnostics, and nutrition.

PHAS 455. Obstetrics and Gynecology 3 sem. hrs.

The course explores various gynecological diseases, and the need for preventive medicine in obstetrics and gynecology. It employs a system-oriented, problem based approach and clinical information is presented in conjunction with appropriate, correlative lectures or labs in anatomy, physiology, pharmacology, pathology, radiology, laboratory diagnostics, and nutrition.

PHAS 460. Pediatrics 1 3 sem. hrs.

An introductory pediatrics course which covers problems encountered in the general pediatric population and reinforces basic primary care clinical principles. The course employs a system-oriented, problem based approach and clinical information is presented in conjunction with appropriate, correlative lectures or labs in anatomy, physiology, pharmacology, pathology, radiology, laboratory diagnostics, and nutrition.

PHAS 470. Family Practice 6 sem. hrs.

The eight-week family practice rotation provides students with experience refining their skills in performing the history and physical exam, ordering and interpreting diagnostic tests, and developing treatment plans for the diversity of patients in a typical family practice. The student begins to appreciate the long term impact of health care on patients' lives, and becomes more skilled in preventive health care and the long term management of chronic medical problems. Where possible, students participate in grand rounds, noon conferences and other clinically relevant didactic presentations. A set of cognitive objectives guides student reading in preparation for a written examination at the middle and end of the preceptorship.

PHAS 471. Internal Medicine 6 sem. hrs.

During the eight-week internal medicine rotation, physician assistant students become a part of an internal medicine practice caring for adult and geriatric patients. Students perform patient history and physical examinations, obtain diagnostic testing and present data to their precepting physician with a proposed differential diagnosis and treatment plan. Students function in a role similar to the intended role of a practicing physician assistant, including participation in hospital rounds where diagnostic and therapeutic plans for acutely ill patients are discussed, performing and observing various clinical procedures, and preparing written and oral communication about patients. Where possible, students participate in grand rounds, noon conferences and other clinically relevant didactic presentations. A set of cognitive objectives guides student reading in preparation for a written examination at the end of the rotation.

PHAS 472. Surgery 6 sem. hrs.

The eight-week surgical rotation is designed to prepare the student to function as an assistant to the surgeon in the primary or secondary care setting. Students assist in surgical procedures in the operating room, the diagnostic evaluation of surgical patients, with post operative care and with the ambulatory care of surgical patients. Proficiency is to be developed in suturing, incision and drainage, excision and the biopsy of simple wounds and lesions. Where possible, students participate in grand rounds, noon conferences and other clinically relevant didactic presentations. A set of cognitive objectives guides student reading in preparation for a written examination at the end of the rotation.

PHAS 473. Emergency Medicine 2 6 sem. hrs.

This eight-week rotation allows the student to develop skills in managing patients in the emergency room setting. These skills include those necessary for appropriate triage, stabilization, and initial management of patients with traumatic injuries and illnesses, the management of the less life threatening problems which present to the emergency room, working with the pre-hospital emergency medical service team, and making appropriate secondary referrals. Where possible, students participate in grand rounds, noon conferences and other clinically relevant didactic presentations. A set of cognitive objectives guides student reading in preparation for a written examination at the end of the rotation.

PHAS 474. Pediatrics 2 3 sem. hrs.

During the four-week pediatric rotation the PA student has an intense exposure to primary care of common pediatric illnesses. These experiences are obtained primarily in the outpatient setting, although students are also exposed to the acute care of hospitalized pediatric patients. The student also develops appreciation for working with many professionals, such as teachers, psychologists, speech and hearing pathologists, nurses and social workers, involved in the care and evaluation of children. Where possible, students participate in grand rounds, noon conferences and other clinically relevant didactic presentations. A set of cognitive objectives guides student reading in preparation for a written examination at the end of the rotation.

PHAS 475. Geriatrics 3 sem. hrs.

This four-week geriatric rotation is designed to prepare the student to manage primary medical illnesses found in the geriatric population. Students will perform history and physical examinations, obtain diagnostic testing, and present information to precepting physicians with proposed differential diagnosis and treatment plans. Students will evaluate patients both in the outpatient setting as well as inpatient and nursing home facilities. Whenever possible, the student will be exposed to the multidisciplinary team of providers who deliver care in the geriatric environment. When possible, students participate in grand rounds, noon conferences, and other clinically relevant didactic presentations. A set of cognitive objectives guides the student's reading in preparation for written exams at the end of the rotation.

PHAS 480. Elective 1 3 sem. hrs.

This four-week elective may be obtained at the student's choice in a variety of medical specialty environments. These include, but are not limited to, psychiatric/AODA, orthopedics, oncology, endocrinology, dermatology, OB/GYN, and advanced surgical subspecialties.

This elective is intended to offer the student a greater exposure and understanding in specific subspecialties of medicine of the student's interest. The student is encouraged to utilize this elective for sub-specialty exposure.

PHAS 481. Elective 2 3 sem. hrs.

This four-week elective may be obtained at the student's choice in a variety of medical specialty environments. These include, but are not limited to, psychiatric/AODA, orthopedics, oncology, endocrinology, dermatology, OB/GYN, and advanced surgical subspecialties.

This elective is intended to offer the student a greater exposure and understanding in specific subspecialties of medicine of the student's interest. The student is encouraged to utilize this elective for sub-specialty exposure.

PHAS 482. Patient Advocacy Practicum 2 sem. hrs.

Clinical experience as patient advocate among underserved. *Prereq: Prof. phase P.A. student.*

PHAS 483. Clinical/Advocacy Practicum 2 sem. hrs.

Clinical experience as patient advocate among underserved. *Prereq: Prof. phase P.A. student.*

**PHAS 485. Remembering Why You Came:
Poetry and the Art of Patient Care**
1 sem. hrs.

Through readings of poetry and short prose, and through the perspectives of experienced clinicians and creative writers, this course explores patient care as a human art. It provides an opportunity for those students committed to a career in healthcare to engage in a personal exploration of the primary place that attentiveness, compassion and creativity occupy in facing the human challenges of their professions. S/U grade assessment.

PHAS 490. Research Project 6 sem. hrs.
This course is a program-long requirement. The project is initially discussed in PHAS 408: Medical Study and Investigation, is interwoven throughout the remainder of the fall and spring curriculum, and it is to be completed during their final clinical year.

The student is to complete a scholarly paper which is a culmination of their entire educational experience. Their work is presented in a poster board forum during the final week of class. Students are encouraged to apply for consideration at the National AAPA annual meeting in May.

PHAS 495. Clinical Independent Study
1 sem. hr.

SPEECH PATHOLOGY AND AUDIOLOGY (SPPA)

Chairperson, Director of M.S. Program and Associate Professor: Korabic
Dean/Professor Emeritus: Sokolnicki
Professor Emeritus: Trotter
Professor: Silverman
Associate Professor Emerita: Moller
Associate Professor: Bhatnagar, Kelly, Linville
Clinical Instructors: Berman, Erdman, Hallen, Krueger, Puglisi-Creegan, Wood

SPPA 010. Introduction to Communicative Disorders 3 sem. hrs.

An introduction to the disorders of speech, language, and hearing with emphasis on types, etiology, and symptoms. Offered every term.

SPPA 031. Phonetics 3 sem. hrs.
Overview of descriptive phonetics emphasizing its clinical application to communication disorders. Students will learn how speech sounds are produced and the phonetic symbols used to transcribe them; and acquire practical experience in phonetic transcription according to the International Phonetic Alphabet. Offered fall term. *Prereq:* SPPA majors only, or cons. of instr.

SPPA 036. Anatomy and Physiology of Speech and Hearing Mechanisms
3 sem. hrs.

Anatomy and physiology of the oral and aural mechanisms. Neural bases for phonation, articulation, breathing, and audition. Offered every term. *Prereq:* Majors or minors only or cons. of dept. ch.

SPPA 134. Speech Science 3 sem. hrs.
Study of the speech code. Linguistic, physiological, and acoustical components of the code are considered in relation to both speech production

and recognition. Instrumentation useful in the clinical and laboratory analysis of speech is considered. Offered fall term. *Prereq:* SPPA 036 and majors only; or cons. of dept. ch.

SPPA 139. Normal Speech and Language Development 3 sem. hrs.

Introduction to current theories of language acquisition, a detailed examination of the language acquisition sequence (English) from infancy through school age, and practice with preschool language sample analysis. Information pertaining to cross-linguistic and multicultural issues as they relate to language acquisition is provided throughout the term. Offered fall term. *Prereq:* SPPA majors only, or cons. of instr.

SPPA 140. Language Disorders in Children
3 sem. hrs.

Survey of the linguistic and developmental characteristics of children with special needs who have primary or secondary difficulties acquiring their native language. An overview of descriptive assessment of language profiles and language intervention issues. Multicultural issues related to child language differences and disorders also are studied. Offered spring term. *Prereq:* SPPA 010, 139 and SPPA majors only, or cons. of dept. ch.

SPPA 142. Articulation and Phonological Disorders 3 sem. hrs.

Evaluating and treating children and adults with speech disorders. Theories of normal speech sound acquisition are introduced and applied to our understanding of speech disorders. Information on etiological factors and classification of speech disorders. Offered spring term. *Prereq:* SPPA 010, 031, 036; SPPA majors only, or cons. of dept. ch.

SPPA 143. Stuttering and Other Fluency Disorders 3 sem. hrs.

Introduction to the symptomatology, phenomenology, etiology, assessment and management of stuttering and other fluency disorders in children and adults. Offered spring term. *Prereq:* SPPA 010 and majors only; or cons. of dept. ch.

SPPA 147. Introduction to Neurological Disorders of Communication
3 sem. hrs.

The neurological basics of brain behavior will be introduced. An overview of common neurogenic disorders of communication including aphasia, apraxia, dysarthria, dementia and linguistic cognitive symptoms of traumatic brain injuries will be discussed. Offered spring term. *Prereq:* SPPA 036 and SPPA majors only, or cons. of dept. ch.

SPPA 148. Multicultural Issues for Speech-Language Pathologists 3 sem. hrs.

Offered for undergraduate or graduate credit. The study of culture and communication in linguistically diverse populations [i.e., Non-Standard American English speakers, Native Americans (with emphasis on Wisconsin Native tribes) Asians, and Latinos]. The course will include L1 and L2 acquisition profiles and information pertaining to service delivery with non-native English speakers. The U.S. Latino population will be emphasized. Students' knowledge and understanding of racism will be explored. This course will meet the multicultural course

requirements for Wisconsin Department of Public Instruction licensing in speech-language pathology. Offered annually. *Prereq:* Jr. stndg.

SPPA 151. Clinical Procedures and Management 3 sem. hrs.

Clinical procedures and management techniques for diagnosis and remediation of clients in a variety of clinical settings are taught. Topic areas include therapy settings serving birth to three, multicultural and adult neurological populations, report writing/documentation, professional issues and ethics. Offered every term. *Prereq:* SPPA 142 and 25 supervised observation hours (diagnostic or therapy) and concurrent with SPPA 153; SPPA majors only and cons. of dept. ch.

SPPA 152. Methods and Procedures in School Speech and Hearing Programs
3 sem. hrs.

Speech therapy principles and theories as they apply to public school therapy are presented. Issues relative to school therapy and the function of speech therapy as an Exceptional Education Needs (EEN) program within the total school program are studied. The student is assigned school settings for observation of active school therapy programs. (Use of private car possibly required for observation assignments which may be inaccessible to public transportation. Student is responsible for transportation costs.) Offered every term. *Prereq:* SPPA 151 and majors only; or cons. of dept. ch. Fee.

SPPA 153. Clinical Practicum—Speech Pathology 1 1 sem. hr.

Offered every term. Performance in this course is assessed using S/U grades. *Coreq:* Taken concurrently with SPPA 151; majors only or cons. of dept. ch.

SPPA 154. Clinical Practicum—Speech Pathology 2 1 sem. hr.

Offered every term. Performance in this course is assessed using S/U grades. *Prereq:* SPPA 153 and majors only; or cons. of dept. ch.

SPPA 158. Diagnostic Methods in Speech-Language Pathology 3 sem. hrs.

The purpose of this course is to provide the students with an understanding of the components inherent in the diagnostic process. These include but are not limited to: a) an overview of diagnostic models, b) sources of delays and disorders, c) purposes of assessment, d) interviewing techniques, e) testing and measurement caveats, f) framework for analysis of the data, g) interpretation of results to families or referral sources, and h) report writing. Offered every term. *Prereq:* SPPA 139; majors only or cons. of dept. ch.

SPPA 161. Use of Computer and Other Instrumentation in Speech Pathology
3 sem. hrs.

Practical information about electronics and software is offered that allows clinicians to feel comfortable and be effective using computers and other clinical instrumentation. No previous knowledge of electronics, computers or clinical instrumentation is assumed. *Prereq:* majors only or cons. of dept. ch.

SPPA 172. Introduction to Audiology

3 sem. hrs.

Principles and techniques of audiometric testing; study of basic acoustics; review of anatomy and physiology of the hearing mechanism; introduction to pathologic conditions of the hearing mechanism; laboratory work in basic audiometric test procedures. Offered spring. *Prereq: SPPA 036 and 134 and majors only; or cons. of dept. ch.*

SPPA 173. Hearing Problems

3 sem. hrs.

Extensive study of hearing disorders and the psychological and social implications of hearing impairment. Habilitation/rehabilitation strategies are discussed. Offered fall term. *Prereq: SPPA 172; Majors only or cons. of dept. ch.*

SPPA 174. Aural Rehabilitation

3 sem. hrs.

An in-depth look at the process of adult aural rehabilitation and how amplification, assistive listening devices, sensory aids, visual communication training, auditory training and counseling contribute to that process. Offered spring term. *Prereq: SPPA 173 or cons. of instr. Majors only or permission of dept. ch.*

SPPA 179. Clinical Practicum—Audiology

1 sem. hr.

Supervised clinical experience with hearing-impaired individuals both on campus and in off-campus affiliated centers. May be repeated up to a maximum of three credits. Performance in this course is assessed using S/U grades. Offered every term. *Prereq: SPPA 172 and cons. of instr. Majors only or cons. of dept. ch.*

SPPA 194. Special Institute/Workshop/

Project 1-3 sem. hrs.

Offered occasionally.

SPPA 195. Independent Study in Speech

Pathology and Audiology 1-3 sem. hrs.

Offered every term. *Prereq: Cons. of dept. ch.*

SPPA 196. Seminar in Speech Pathology and Audiology

1-3 sem. hrs.

Specific subjects of seminars to be announced in the *Timetable of Classes*. Variable topics. Offered occasionally.

SPPA 199. Senior Thesis

1-3 sem. hrs.

The application of rigorous methodology in developing and writing a thesis under the direction of an adviser. Offered every term. *Prereq: Cons. of dept. ch.*

College of Nursing

The mission of the College of Nursing emerges from the mission of the university to provide a rigorous liberal education grounded in Judeo-Christian ideals and disciplined in the Jesuit tradition. Marquette University nursing students are prepared for lives of faith and service and to promote the worth of all persons, to assure professional competence, to respect the pursuit for truth, and to uphold a high standard of personal integrity. The faculty recognize their central responsibilities as influencing health, health care, and health care policy through quality instructional programs, generation and dissemination of nursing knowledge, active involvement in the community and the profession, and collaborative endeavors. Faculty recognize caring as the driving force for preparation for professional nursing practice. This preparation includes liberal and professional knowledge; clinical, cognitive and leadership skills; and personal and professional values.

DEGREES OFFERED

Marquette University confers the degree bachelor of science in nursing on those students who have satisfactorily completed the prescribed curriculum of the College of Nursing.

The degree master of science in nursing is offered through the Marquette University Graduate School. Details on the master's program in nursing are contained in the *Graduate Bulletin*.

ADMISSION REQUIREMENTS

Applicants to the College of Nursing are expected to fulfill the admission requirements listed in the University section of this bulletin. Acceptance as a freshman in the College of Nursing assures placement in clinical nursing courses provided the student remains in good standing.

Registered nurse applicants follow general admission procedures. Transcripts from nursing programs and/or colleges must be sent to the Office of Undergraduate Admissions. The applicant must be a graduate of a program accredited by the National League for Nursing Accrediting Commission or Commission on Collegiate Nursing Education, have a cumulative Q.P.A. of 2.500 or higher and be currently licensed to practice as a registered nurse. Transfer of credit will be based on individual evaluation.

Students who interrupt their academic program for two or more consecutive terms must meet the graduation requirements which prevail at the date of their readmission.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

A candidate for a baccalaureate degree in nursing must have completed 128 credits including all the required courses in the curriculum as indicated in this bulletin. The candidate shall have earned quality points which equal at least two times the number of credit hours credited and shall have at least a 2.000 quality point average per term actually taken at Marquette.

GENERAL DEGREE REQUIREMENTS: NURSING MAJOR

A candidate for a baccalaureate degree in nursing must complete the following requirements:
General Education and elective courses—58 credits.

Area of Study

1. Physical-biological sciences
 - a. Chemistry for Health Professions
 - b. Biochemistry
 - c. Anatomy
 - d. Physiology
 - e. Microbiology
 - f. Normal and Therapeutic Nutrition
2. Social-behavioral sciences
 - a. Introductory Psychology
 - b. Sociology of the Family
 - c. Culture and Health
 - d. Life-span Developmental Psychology
3. Humanities
 - a. English—6 credits
 - b. Philosophy—9 credits (PHIL 050, PHIL 104, PHIL 192 Health Care Ethics)
 - c. Theology—9 credits (All students must complete nine hours of theology: THEO 001, one second-level course [THEO 100-119], and one third-level course [THEO 120-199], in that sequence.)
4. Electives—12 credits (3 credits must be in history or political science, 3 credits must be in nursing)

Nursing Major—70 credits.

NURSING/PSYCHOLOGY DOUBLE MAJOR

The College of Nursing offers a double major to meet the interests of students who want to combine nursing and psychology. The program can be completed in four years. The curriculum plan indicating course requirements and sequencing is available from the College of Nursing, Clark Hall, (414) 288-3809.

MINOR IN HEALTH STUDIES

The College of Nursing offers an 18-credit-hour minor in health studies open to all other undergraduate students at Marquette University. The minor is not available to students in the College of Nursing.

NURSING AND DOCTORATE IN PHYSICAL THERAPY

The College of Nursing offers a program option to meet the needs of students who wish to combine their nursing studies with preparation for the doctorate in physical therapy. The program plan indicating course requirements and sequencing is available from the College of Nursing, Clark Hall, (414) 288-3809.

NURSING AND PREMEDICAL STUDIES

The College of Nursing offers a program option to meet the needs of students who wish to combine their nursing studies with preparation for medical school. The program plan indicating course requirements and sequencing is available from the College of Nursing, Clark Hall, (414) 288-3809.

ACADEMIC REGULATIONS

Students in the College of Nursing are expected to comply with the academic requirements and regulations listed in the University section of this bulletin.

PROGRESSION

GENERAL REQUIREMENTS

The following general requirements must be met for progression into and through the clinical portion of the nursing major.

- a. A grade of at least a CD is required in the following courses:
BISC 006 - Chemistry for Health Professions
BISC 007 - Biochemistry
BISC 015 - Principles of Human Anatomy and Physiology
PSYC 001 - General Psychology
- b. A grade of C or better is required in the following courses:
BISC 115 Microbiology
PSYC 078 Introduction to Life-span Developmental Psychology
PHIL 104 Theory of Ethics
SOC 021 The Family (sociology)
PHIL 192 Health Care Ethics
- c. A grade of C or better (or S where applicable) in all required NURS and HEAL courses.
- d. Students must have a 2.000 cumulative quality point average to enroll in NURS 050 or NURS 055 and to continue to progress in the nursing program.
- e. Any I, X, IX grade which is not removed by the required time (see academic calendar) will be viewed as an F.
- f. A student who earns less than the required grades in two required courses as defined above will be required to withdraw from the College of Nursing.
- g. No required cognate or required nursing course may be repeated more than one time.
- h. Permission to repeat a required nursing course must be formally requested from the associate dean for undergraduate programs by the student.
- i. It is required that all senior students complete an external standardized comprehensive nursing examination. The examination is a condition of graduation.
- j. Students must meet health requirements as specified in the *Health Requirements for Undergraduate Students* found in this bulletin.
- k. Health reports and CPR certification must be on file in the office of the associate dean for undergraduate programs prior to attendance in classes for which these requirements are needed.
- l. Standardized examinations are to be taken as required by the Undergraduate Program and Curriculum Committee.
- m. The college has additional limitations for substitute repeat courses.

PROGRESSION INTO NURS 050

The following required courses or their equivalents must be completed prior to entering NURS 050: BISC 006 Chemistry for the Health Professions, BISC 007 Biochemistry, BISC 015 Principles of Anatomy, and Physiology, PSYC 001 General Psychology, NURS 015 Dimensions of Professional Nursing.

PROGRESSION INTO NURS 055

The following required courses or their equivalents must be completed prior to entering NURS 055: NURS 050 Health Assessment, BISC 115 Microbiology and HEAL 045 Normal and Therapeutic Nutrition.

PROGRESSION INTO NURS 105 THROUGH NURS 143

The following required courses or their equivalents must be completed prior to entering courses NURS 105 through NURS 143: NURS 110 Pharmacotherapeutics for Nursing Practice, NURS 055 Foundations of Nursing Practice, NURS 100 Pathophysiology 1, HEAL 025 Culture and Health, PSYC 078 Introduction to Life-span Developmental Psychology, SOC 021 The Family.

PROGRESSION INTO NURS 160 OR HIGHER NURSING COURSES

The following required cognate and nursing courses or their equivalents must be completed prior to entering NURS 160 or higher nursing courses: HEAL 140 Primary Health Care Concepts, NURS 105 Pathophysiology 2, NURS 120 Introduction to Nursing Research, NURS 130 Nursing Care of Adults/Theory, NURS 131 Nursing Care of Adults/Practicum, NURS 138 Childbearing Family Nursing/Theory, NURS 139 Childbearing Family Nursing/Practicum, NURS 142 Mental Health Nursing/Theory, NURS 143 Mental Health Nursing/Practicum.

The remaining required cognate and nursing courses or their equivalents which must be completed include: PHIL 104 Theory of Ethics, PHIL 192 Health Care Ethics, NURS 160 Nursing Care of Acutely Ill Adults/Theory, NURS 161 Nursing Care of Acutely Ill Adults/Practicum, NURS 171 Family Centered Nursing of Children/Theory, NURS 172 Family Centered Nursing of Children/Practicum, NURS 178 Nursing of Communities/Theory, NURS 179 Nursing of Communities/Practicum, NURS 184 Synthesis Practicum, and NURS 188 Nursing Leadership.

WITHDRAWAL FROM THE NURSING PROGRAM

The following criteria are used in recommending that a student should withdraw from the nursing program:

- a. If the student has earned less than the required grades in two required courses as defined in the general progression requirements.
- b. If the student has less than a 2.000 cumulative grade point average effective at the end of the freshman year or at any time thereafter.
- c. If the student's performance suggests that the student is unlikely to succeed in the program.

No student in nursing is required to withdraw without a careful review of his or her entire record and total overall performance as well as any extenuating circumstances that might exist.

ATTENDANCE

Attendance is mandatory in all scheduled classes and practica. In the event of absence, progress and continuation in the course will be considered individually. The reason for absence, academic performance of the student, past record of absenteeism, and other relevant factors will be considered. The student is required to provide prior notice to faculty of absence or tardiness. No student will be allowed to accumulate excessive absences before intervention by the faculty. A student may be asked to withdraw from a course with a laboratory or clinical practicum if the following absences or tardiness are exceeded.

Absence—Two absences from scheduled laboratory or clinical experience regardless of time involved or clinical allocation.

All clinical time is essential and absences will need to be made up. The faculty member will decide what learning assignments or experiences will be required of the student to achieve the course objectives. Make-up experiences will be arranged. Students are responsible for their own transportation to and from all clinical facilities.

A student may be asked to withdraw from a non-clinical nursing course if the following maximums are exceeded:

Absence

In a two-credit course, maximum of three class hours.

In a three-credit course, maximum of four class hours.

In a four-credit course, maximum of five class hours.

For additional information, see the attendance policy located in the University section of this bulletin.

APPEALS PROCEDURE

GRADE APPEALS

A student may appeal a final course grade that he or she believes to be in error. The student must exhaust all possibilities of resolving the problem with the pertinent instructor. If this does not lead to resolution, the student may initiate, in writing, the formal procedure for appealing the grade to the dean stating the reason it is believed the grade should be changed. The dean will appoint an ad hoc appeals committee to consider the appeal in order to assure a fair consideration of the student's appeal.

TERMINATION FROM THE PROGRAM

If a student does not meet criteria for progression, a subcommittee of the Undergraduate Program and Curriculum Committee will recommend to the dean that the student withdraw or be terminated from the College of Nursing. A student who is asked to terminate from the program may submit a petition, in writing, to the committee requesting exemption from the stated policies or regulations of the program. The student is expected to identify the unique, unusual or uncontrollable circumstances which led to the petition and to formulate a plan to resolve issues. The petition is to be submitted within 30 days of notification of termination and before late registration. A student may petition the committee only once for a specific situation.

Once a decision has been made by the committee regarding the student's petition, a recommendation will be forwarded to the dean. If the student is dissatisfied with this decision, the final recourse within the College of Nursing is a petition to the dean.

APPROVAL FOR SUMMER SESSION STUDY

Students who plan to take courses in summer school at another institution are required to obtain the approval from the associate dean for undergraduate programs for such courses before the summer session begins. Approval will be based on course descriptions in the current bulletin of the college or university at which the courses will be attempted. The student is expected to present such information. If prior approval is not obtained, there is no guarantee that credits earned will be accepted by Marquette University. Approval forms may be obtained at the college office. Transcripts must be sent to the Marquette University Office of the Registrar after successfully completing the course with a minimum grade of C.

SPECIAL AND HEALTH REQUIREMENTS

Within one year prior to beginning practicum courses, students must meet the following requirements:

- A. Health assessment and physical examination.
 - 1. A health history including a history of communicable disease and immunizations,
 - 2. A physical examination by a physician or registered nurse practitioner indicating whether the student's health status is satisfactory to continue in the nursing program, and
 - 3. A statement from the student regarding his/her communicable disease status will be on file.
- B. Rubella (German Measles).
Each student must have documentation of immunity to rubella. A student not having immunity should be immunized upon the advice of his/her physician or nurse practitioner.
- C. Rubeola (Measles).
A student born after 1956 must have either documentation of a positive rubeola (measles) antibody titer or documentation of rubeola immunization since January 1, 1980.
- D. Chickenpox.
Since nursing students may be exposed to chickenpox, each student should be aware whether he/she has had chickenpox and is therefore immune. A student who has no record or recollection of having had chickenpox is advised to be screened for immunity.
- E. Tetanus.
Each student must have documentation of tetanus within the last 10 years.
- F. Latex Allergy.
Students will provide documentation if a latex allergy exists.

In the term prior to enrolling in nursing courses with clinical practicum (NURS 050 and subsequent nursing courses), the following health requirements must be completed:

- A. All students must submit evidence of a negative tuberculin skin test (or negative chest x-ray approved by their physician, if the tine test was positive). A student exposed to a person with communicable tuberculosis must inform the associate dean for undergraduate programs and will be referred to Student Health Service for follow-up. (Tuberculin testing and evidence of a negative result is required annually.)
- B. Hepatitis B Virus (HBV)
Each student must complete the vaccination series for HBV. (A student wishing an exemption from this requirement must complete a waiver form which will be retained in his/her student file.)

Health requirements for RN students must be completed prior to enrollment in NURS 179 or 191.

CPR CERTIFICATION

Students must provide evidence of current CPR certification, including infant, child, adult (two person and obstructed airway resuscitation), prior to the first clinical experience in the sophomore year. This certification must be maintained throughout the remainder of the student's program through annual recertification. Documentation of such certification from the American Heart Association is required and must be submitted to the Office of the Associate Dean for Undergraduate Programs, Room 251. (Red Cross not accepted.) Questions regarding CPR certification should be directed to this office, 288-3809.

ACCREDITING COMMISSION

Verification of accreditation status may be obtained from: National League for Nursing Accrediting Commission; 350 Hudson Street; New York, NY 10014; (212) 989-9393 and the Commission on Collegiate Nursing Education; 1 DuPont Circle NW; Washington, DC 20036-1120; (202) 887-6791.

STUDENT ORGANIZATIONS

COLLEGE ORGANIZATION AND PROFESSIONAL ASSOCIATION

The Marquette University College of Nursing Student Nurses Association functions as a liaison between the college and the Marquette University Student Government. It coordinates and promotes student activities within the college. The Association also is the university chapter of the Wisconsin Student Nurses Association, a constituent organization of the National Student Nurses Association.

HONOR SOCIETY

Sigma Theta Tau is an international professional honor society with constituent chapters in collegiate schools of nursing. The Delta Gamma Chapter at the College of Nursing is open to students, faculty, and community leaders. Candidates enrolled in the College of Nursing must have junior or senior standing and are selected on the basis of superior scholastic achievement, potential leadership qualities and desirable personal qualifications.

Faculty and registered nurses in the community are selected on the basis of special interest in Sigma Theta Tau and marked achievement in the field of nursing.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

CURRICULA INFORMATION

BACHELOR OF SCIENCE IN NURSING: PRELICENSURE

An eight-term program leads to the degree of bachelor of science in nursing. The College of Nursing encourages applications from qualified students from all cultural, racial, religious, and ethnic groups of either sex. The curriculum includes courses in general education and nursing courses.

The college reserves the right to amend the program and courses offered from year to year.

Freshman

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
BISC 006 Chemistry for Health Professions	3	BISC 015 Principles of Human Anatomy and Physiology	5
ENGL 001 Expository Writing 1	3	ENGL 002 Expository Writing 2	3
PSYC 001 General Psychology	3	BISC 007 Biochemistry	3
THEO 001 Introduction to Theology	3	PHIL 050 Philosophy of Human Nature	3
NURS 015 Dimensions of Professional Nursing	3	*Elective	3
	15		17

Sophomore

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PSYC 078 Introduction to Life-span Developmental Psychology.	3	NURS 110 Pharmacotherapeutics for Nursing Practice	3
BISC 115 Microbiology.	3	SOCI 021 The Family	3
HEAL 025 Culture and Health	3	NURS 055 Foundations of Nursing Practice . .	3
HEAL 045 Normal and Therapeutic Nutrition	3	NURS 100 Pathophysiology 1	3
NURS 050 Health Assessment	3	*Elective	3
	15		15

Junior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHIL 104 Theory of Ethics.	3	NURS 138 Childbearing Family Nursing— Theory	2
NURS 105 Pathophysiology 2.	3	NURS 139 Childbearing Family Nursing— Practicum	3
NURS 120 Introduction to Nursing Research	2	NURS 142 Mental Health Nursing—Theory . .	2
NURS 130 Nursing Care of Adults—Theory	3	NURS 143 Mental Health Nursing—Practicum	3
NURS 131 Nursing Care of Adults— Practicum.	3	HEAL 140 Primary Health Care Concepts . . .	3
NURS 135 Essentials of Gerontological Nursing	2	Theology.	3
	16		16

Senior

FIRST TERM	SEM. HRS.	SECOND TERM	SEM. HRS.
PHIL 192 Health Care Ethics	3	NURS 160 Nursing Care of Acutely Ill Adults—Theory.	3
NURS 171 Family Centered Nursing of Children—Theory	2	NURS 161 Nursing Care of Acutely Ill Adults—Practicum	3
NURS 172 Family Centered Nursing of Children—Practicum	3	NURS 184 Synthesis Practicum.	3
NURS 178 Nursing of Communities—Theory	2	NURS 188 Nursing Leadership	3
NURS 179 Nursing of Communities— Practicum.	3	Theology.	3
*Elective	3	*Elective	3
	16		18

TOTAL CREDITS 128 (Nursing = 69 and Non-nursing = 59)

* One (1) elective to be in history or political science, one (1) elective to be in nursing

BACHELOR OF SCIENCE IN NURSING: REGISTERED NURSE OPTION

The following courses are required. Equivalent courses may be accepted in transfer if they have been completed at an accredited college or university with a grade of C or better.

NURSING REQUIREMENTS

REQUIRED NURSING COURSES - PHASE I

All RN/BSN students are required to complete Phase I nursing courses.

	CREDITS
HEAL 025 Culture and Health	3
NURS 120 Introduction to Nursing Research	2
NURS 162 Health Assessment for Registered Nurses	3
NURS 173 Professional Issues in Nursing	3
Total	11

NURSING CREDITS BY ADVANCED COURSE VALIDATION

Upon completion of Phase I courses, as well as graduation from an NLN accredited diploma or associate degree program and possession of a valid RN license, credits for the following courses will be awarded and placed on the student's transcript.

	CREDITS
NURS 015 Dimensions of Professional Nursing	3
HEAL 045 Normal and Therapeutic Nutrition	3
NURS 055 Foundations of Nursing Practice	3
NURS 100 Pathophysiology 1	3
NURS 105 Pathophysiology 2	3
NURS 110 Pharmacotherapeutics of Nursing Practice	3
NURS 130 Nursing Care of Adults—Theory	3
NURS 131 Nursing Care of Adults—Practicum	3
NURS 138 Childbearing Family Nursing—Theory	2
NURS 139 Childbearing Family Nursing—Practicum	3
NURS 142 Mental Health Nursing—Theory	2
NURS 143 Mental Health Nursing—Practicum	3
NURS 160 Nursing Care of Acutely Ill Adults—Theory	3
NURS 161 Nursing Care of Acutely Ill Adults—Practicum	3
NURS 171 Family-centered Nursing of Children—Theory	2
NURS 172 Family-centered Nursing of Children—Practicum	3
Total	45

REQUIRED NURSING COURSES - PHASE II

All RN/BSN students begin Phase II courses after completing Phase I and receiving credit for course validation.

	CREDITS
NURS 178 Nursing of Communities—Theory	2
NURS 179 Nursing of Communities—Practicum	3
NURS 188 Nursing Leadership	3
NURS 191 Professional Nursing—Practicum	3
Nursing elective	3
Total	14

ARTS AND SCIENCES

BIOMEDICAL SCIENCES

BISC 015 Principles of Human Anatomy and Physiology	5
BISC 115 Human Microbiology	3
BISC 006 Chemistry for Health Professions	3
BISC 007 Biochemistry for Health Professions	3
Total	14

PSYCHO-SOCIAL ISSUES		THEOLOGY	
PSYC 001 General Psychology	3	THEO 001 Introduction to Theology	3
PSYC 078 Intro to Life-span Development Psychology	3	Theology electives	6
SOCI 001 The Family	3	Total	9
Total	9	ELECTIVES	
ENGLISH/COMMUNICATION		Total	12
Total	6	[One elective must be in history or political science]	
PHILOSOPHY		Total Credits	128
PHIL 050 Philosophy of Human Nature	3	Required for Graduation	
PHIL 104 Theory of Ethics	3		
PHIL 192 Health Care Ethics	3		
Total	9		

This program may be completed on a full-time or part-time schedule. An accelerated RN to BSN to MSN program is available to qualified students.

MASTER OF SCIENCE IN NURSING

Concentrations are offered in nursing administration and advanced practice nursing: nurse-midwifery, children, adults, older adults and acute care nurse practitioner.

Additional information about the master of science in nursing program will be found in the *Graduate Bulletin*.

MASTER OF SCIENCE PROGRAM FOR NON-NURSING GRADUATES

The master's program for non-nursing graduates is designed for those individuals who hold baccalaureate degrees in fields other than nursing and who wish to become nurses. The program builds upon the student's broad educational preparation and provides an intense, accelerated, and specialized nursing curriculum to meet the student's career goals. Students complete the nursing requirements and meet the BSN program objectives in an intense 15 month pre-MSN phase and progress to graduate study. Students are then prepared in the MSN program for nursing administration or advanced nursing practice roles in: adult, older adult, pediatrics or nurse-midwifery.

ADMISSION REQUIREMENTS

1. Baccalaureate degree
2. Undergraduate Q.P.A. of 3.000 or greater
3. Graduate Record Examination
4. Completion of three recommendation forms
5. Completion of the following prerequisite courses with grade of C or better:

Anatomy and Physiology	5-6 credits
Chemistry/Biochemistry/Biology/Microbiology	5-6 credits
Behavioral Sciences (e.g., psychology, sociology)	3 credits
Statistics (including inferential)	3 credits

MINOR IN HEALTH STUDIES

Completion of the minor will be noted on a student's transcript if the following requirements are met:

The minor requires 18 credit hours. At least six credits must be selected from each of the following groups:

GROUP 1		CREDITS
HEAL 025	Culture and Health	3
HEAL 045	Normal and Therapeutic Nutrition	3
HEAL 120	Personal Health	2/3
HEAL 122	Women's Health	3
HEAL 123	Men's Health	3
HEAL 130	Substance Abuse	3
HEAL 131	Urban Health	3
HEAL 150	Alternative and Complementary Therapies	3
HEAL 198	Topics in Health Care	2-3
GROUP 2		
HEAL 140	Primary Health Care Concepts	3
HEAL 141	Introduction to Health Care Systems	3
HEAL 144	International Health	3
HEAL 155	Environmental Health	3
SOCI 133	Medical Sociology	3
PHIL 192	Health Care Ethics	3
CMST 146	Health Communication	3
JOUR 173	Health and Science Journalism	3

Students should indicate their intention to work toward a minor as early as possible in their academic studies. To do so, students must complete the course study card available from the College of Nursing, Clark Hall, (414) 288-3809.

COURSE DESCRIPTIONS

NURSING (NURS)

Dean and Professor: Wake

Associate Dean for Graduate Program and

Research and Professor: Miller

Associate Dean for Undergraduate Programs

and Assistant Professor: Lough

Professor: Bull, Schank

Associate Professor: Coenen, Fehring, Frenn, Krejci, Kunert, Tobin, Weiss, Wilson, Winters

Assistant Professor: Hanson, Malin, O'Brien,

Ryan, Schoneman, VandeVusse

Clinical Associate Professor: Shaw

Clinical Assistant Professor: Dressler, Gosline,

Kosmoski-Goepfert, Maguire, McShane

Clinical Instructor: Ivantic-Doucette, Jansen,

Kowatsch, Matheus, Salentine, Stroupe

For a listing of the courses offered by the College of Arts and Sciences, see the College of Arts and Sciences course descriptions section of this bulletin.

Approximately three hours of clinical practice are equivalent to one credit hour.

NURS 015. Dimensions of Professional Nursing 3 sem. hrs.

An introduction to the discipline of professional nursing with an emphasis on caring and therapeutic relationships. Offered every term.

NURS 050. Health Assessment 3 sem. hrs.
Introduction to systematic data gathering, analysis and documentation of nursing assessment data with an emphasis on cultural and age-related diversity. Includes a lab component. Offered every term. *Prereq: BISC 006, 007, 015; or concurrently with BISC 115, HEAL 045, NURS 015.*

NURS 055. Foundations of Nursing Practice 3 sem. hrs.

Acquisition of foundational nursing concepts and skills supportive of holistic nursing care for clients and families. Includes 2 credits theory; 1 credit lab. *Prereq: BISC 006, 007, 015; or concurrently BISC 115, HEAL 045, NURS 015.*

NURS 100. Pathophysiology 1 3 sem. hrs.
A study of the pathogenesis of select disorders and related diagnostic and treatment modalities as a basis for nursing practice. Focuses on genetic, neoplastic, immunologic, hematologic, endocrine and mental health disorders across the life span. Includes a discussion of temperature regulation, inflammatory and tissue healing process, the stress response and cardiovascular shock. Offered annually. *Prereq: BISC 006, 007, 015; PSYC 001. Prereq or concurrent: NURS 110.*

NURS 101. International Study in Nursing 0-3 sem. hrs.

Structural travel and study programs in International Nursing. Program includes continuous enrollment for students studying abroad in non-Marquette programs and/or special advising, reading, and required paper(s). *Prereq: Consent of associate dean; Approved for full-time study at another college/university abroad, but will NOT be certified as full-time by Marquette University.*

NURS 105. Pathophysiology 2 3 sem. hrs.
A study of the pathogenesis of select diseases and common diagnostic and treatment modalities as a basis for nursing practice. Focuses on select cardiovascular, respiratory, renal, digestive, musculoskeletal and neurologic diseases across the life span. Offered annually. *Prereq: NURS100; PSYC 078.*

NURS 108. Individual Study and Practice 1-3 sem. hrs.

Individual study and practice with a client or a selected group of clients. Arrangements for guidance of a preceptor must be made prior to registration. May be taken twice. *Prereq: Cons. of instr.*

NURS 110. Pharmacotherapeutics for Nursing Practice 3 sem. hrs.

Basic principles of pharmacology and pharmacotherapeutics as applied to patients across the life span. Includes nursing implications for administration, patient teaching, and evaluation of safety and effectiveness. *Prereq: BISC 007 and 015.*

NURS 120. Introduction to Nursing Research 2 sem. hrs.

Overview of research in nursing and its application to nursing practice. May be taken by nursing graduate students. *Prereq: Jr. stndg.*

NURS 124. Special Institutes 1-3 sem. hrs.
In depth study of concepts and research related to a specialty area in nursing. Offered occasionally.

NURS 130. Nursing Care of Adults—Theory 3 sem. hrs.

Focus on critical thinking and clinical judgment with adults and older adults related to wellness and common chronic illnesses. Emphasis is on health promotion, health maintenance, and health restoration. *Prereq: NURS 055, 100, 110, and HEAL045. Prereq. or coreq: NURS 105 and either HEAL025 or 140. Must be taken concurrently with NURS 131.*

NURS 131. Nursing Care of Adults—Practicum 3 sem. hrs.

Application of clinical judgment with adults and older adults related to wellness and common chronic illnesses. Emphasis is on health promotion, health maintenance, and health restoration for persons from diverse contexts across health care delivery settings. *Coreq: NURS 130.*

NURS 135. Essentials of Gerontological Nursing 2 sem. hrs.

Emphasis is on factors influencing the health and functional ability of older adults. Normal physiological, social and psychosocial changes of aging are presented. Common problems that compromise health care discussed with an emphasis on health promotion, nursing assessment and nursing management. *Prereq: NURS 050, 055, 100, 110; or concurrently with NURS 105.*

NURS 138. Childbearing Family Nursing—Theory 2 sem. hrs.

Study of human responses of diverse families during childbearing period. Focus is on nursing process, health promotion, and families in

transition and adaptation from pre-conception through post-partum. Offered every term.

Prereq: HEAL140 (which may be taken concurrently), HEAL025, 045, NURS 055, 100, 110; SOCI 021; PSYC 078. Must be taken concurrently with NURS139.

NURS 139. Childbearing Family Nursing—Practicum 3 sem. hrs.

Guided experience in the care of diverse families from preconception through the post-partum period. Focus on the application of nursing process in assisting families to meet their unique developmental needs and to foster family health. *Must be taken concurrently with NURS138.*

NURS 142. Mental Health Nursing—Theory 2 sem. hrs.

An introduction to concepts, principles, and processes of mental health nursing with a focus on human responses across the life span and the health care continuum. *Prereq: NURS 055, 100, 110; PSYC 078; SOCI 021; HEAL025, 045. Prereq or concurrent: HEAL140. Must be taken concurrently with NURS143.*

NURS 143. Mental Health Nursing—Practicum 3 sem. hrs.

Clinical practice to promote the development of the professional role and the application of concepts, principles, and processes of mental health nursing. Emphasis on therapeutic nursing interventions in caring for individuals, families, and communities across varying health care delivery settings. *Must be taken concurrently with NURS142.*

NURS 160. Nursing Care of the Acutely Ill Adult—Theory 3 sem. hrs.

Nursing care of adults and older adults experiencing acute and complex illness with alterations in multiple body systems. Focus is on critical thinking, collaboration with interdisciplinary health care professionals, restoration, and rehabilitation. *Prereq: NURS120, 130, 131, 138, 139, 142, 143; HEAL140. Must be taken concurrently with NURS161.*

NURS 161. Nursing Care of the Acutely Ill Adult—Practicum 3 sem. hrs.

Application of critical thinking with adults and older adults experiencing acute and complex illness. Emphasis is on restoration, rehabilitation, and coordination of health care in the acute care setting. *Must be taken concurrently with NURS160.*

NURS 162. Health Assessment for Registered Nurses 3 sem. hrs.

Learning and using assessment skills in systematically gathering, validating, and labeling health status, developmental status and self-care deficits. Offered occasionally. *Prereq: R.N. students, graduate students or cons. of instr.*

NURS 164. Process of Patient/Family Teaching 3 sem. hrs.

An analysis of the teaching-learning process as it is applied to teaching patients and families in a health care setting. Discussion of the most appropriate media and methods used in various health teaching situations. Offered occasionally. *Prereq: Second term Jr. or Sr. stndg.*

NURS 165. Oncology Nursing 3 sem. hrs.
In-depth exploration of nursing needs of the patient with cancer, designed for the student with basic understanding of the pathophysiology of cancer and the classical treatment modalities. Offered occasionally. *Prereq: Second term Jr. stndg., R.N.; or cons. of instr.*

NURS 166. Critical Care Nursing Practicum 3 sem. hrs.
Focuses on application of specialized care given to clients with critical health care needs; includes examination of the physical, psychosocial and spiritual needs of clients and families and how various settings impinge on those needs. Offered occasionally. *Prereq: Sr. stndg., cons. of instr.; NURS 167 (which may be taken concurrently).*

NURS 167. Critical Care Nursing 3 sem. hrs.
Integration of pathophysiologic concepts and psychosocial variables unique to caring for critically ill adults. Offered occasionally. *Prereq: Sr. stndg., or R.N. students.*

NURS 168. AIDS Care 3 sem. hrs.
Comprehensive analysis of issues relating to HIV infection and AIDS including epidemiology, pathophysiology, prevention strategies and nursing care of the client throughout the infection continuum. *Prereq: NURS 055, NURS105 or cons. of instr.*

NURS 170. Trends and Issues in Nursing 2 sem. hrs.
Forces influencing nursing including: health care systems and technology, legal issues, and professional movements. Offered occasionally. *Prereq: Jr. stndg.*

NURS 171. Family Centered Nursing of Children—Theory 2 sem. hrs.
Family centered nursing of children and adolescents in diverse populations. Focus on health promotion, maintenance, acute and chronic health problems. *Prereq: Sr. stndg., NURS 130, 131, 138, 139, 142, 143, HEAL140. Must be taken concurrently with NURS172.*

NURS 172. Family Centered Nursing of Children—Practicum 3 sem. hrs.
Emphasis on application of theory and the planning and provision of care to healthy and ill children. *Prereq: Sr. stndg. Must be taken concurrently with NURS171.*

NURS 173. Professional Issues in Nursing 3 sem. hrs.
The impact on professional nursing of external and internal forces including law, ethics, education, and nursing process. Offered occasionally. *Prereq: R.N. students only.*

NURS 178. Nursing of Communities—Theory 2 sem. hrs.
Nursing and community health concepts are integrated to provide a theory base for aggregate level care. Emphasis is on planning with communities for provision of care which may include healthy, vulnerable and ill persons within the context of dynamic systems. *Prereq: NURS 130, 131, 138, 139, 142, 143 and HEAL 140; Sr. stndg. Must be taken concurrently with NURS179.*

NURS 179. Nursing of Communities—Practicum 3 sem. hrs.
Application of the nursing and community health concepts for aggregate level care. Emphasis is on planning with communities for provision of care which may include healthy, vulnerable and ill persons within the context of dynamic systems. *Prereq: Sr. stndg. Must be taken concurrently with NURS178.*

NURS 184. Synthesis Practicum 3 sem. hrs.
Synthesis and application of clinical knowledge through intensive practicum in a selected setting. Development of entry level competence in nursing practice with an emphasis on skill in clinical decision making. *Prereq: NURS 120, 130, 131, 138, 139, 142, 143 and HEAL140 and Sr. stndg.*

NURS 188. Nursing Leadership—Theory 3 sem. hrs.
Analysis of organizational, management and leadership theories. Focus on development of leadership roles in diverse environments. Includes political, social, cultural, economic, and technological influences on health care. *Prereq: Sr. stndg.; NURS120, 130, 131, 138, 139, 142, 143, HEAL140. Must be taken concurrently with either NURS161, 172, or 179.*

NURS 190. Nursing Undergraduate International Exchange No credit.
Study abroad as part of an international student exchange program. Upon approval students are enrolled in a college or university abroad as a full-time student for one term or one year. Course credits transfer to Marquette. *Prereq: Cons. of assoc. dean.*

NURS 191. Professional Nursing Practicum 3 sem. hrs.
Guided experience in caring for clients with complex health problems in a variety of settings. Focus on the professional nurse's role as a provider and manager of client care with emphasis on nursing process. Offered occasionally. *Prereq: R.N. students only; Jr. stndg.; 90 hours practicum total.*

NURS 195. Independent Study 1-3 sem. hrs.
Intensive library search or a research project relative to a specific area of interest. Arrangements for faculty direction must be made prior to registration. May be taken twice. *Prereq: Cons. of instr.*

NURS 198. Topics in Nursing 2-3 sem. hrs.
Special topics in nursing and health care as identified in the *Timetable of Classes*. Offered occasionally.

HEALTH (HEAL)

The following HEALTH (HEAL) courses are offered by the College of Nursing and open to all students of the university.

HEAL025. Culture and Health 3 sem. hrs.
Cultural perspective of concepts of health and illness including the relationship of health care behaviors and beliefs to culture and social structure. Foster an appreciation for human diversity related to culture and health. Offered every term.

HEAL045. Normal and Therapeutic Nutrition 3 sem. hrs.
Nutritional aspects of health promotion. Therapeutic dietary needs of clients with various health status deviations. Offered annually. Not open for credit to students who have completed BISC 110. *Prereq: BISC 006, 007, 015; Soph. stndg.*

HEAL120. Personal Health 2/3 sem. hrs.
An overview of current health issues which impact on the individual. The focus is on self-responsibility and decision-making for one's own health. Offered occasionally.

HEAL122. Women's Health 3 sem. hrs.
A self-care approach to health maintenance, the physical and psychosocial changes during the life cycle, and the health care system as these pertain to women in our society. Offered occasionally.

HEAL123. Men's Health 3 sem. hrs.
A self-management approach to health maintenance, physical fitness and psychosocial changes throughout the life cycle pertinent to men.

HEAL130. Substance Abuse 3 sem. hrs.
A comprehensive overview of substance abuse throughout the life span. Addresses the physiological, psychological, sociological and spiritual perspectives. Offered occasionally.

HEAL131. Urban Health 3 sem. hrs.
Exploration of social, organizational, political and environmental factors impacting the health of urban populations. Offered occasionally. *Prereq: Jr. stndg. or cons. of instr.*

HEAL140. Primary Health Care Concepts 3 sem. hrs.
Exploration of primary health care principles and models. Focus is on multidisciplinary approaches to the examination of interacting factors contributing to the health of populations. Offered every term. *Prereq: Jr. stndg.*

HEAL141. Introduction to Health Care Systems 3 sem. hrs.
Concepts of health, health care, care delivery systems, and health professional roles. Offered occasionally.

HEAL144. International Health 3 sem. hrs.
Overview of international health goals, issues, problems and programs. Includes factors influencing health, comparisons of health indicators and health systems, and global health interventions. *Prereq: Jr. stndg.*

HEAL150. Alternative and Complementary Therapies 3 sem. hrs.
Exploration of alternative approaches to health beyond usual therapies of Western medicine. Emphasis on body-mind-spirit interconnections and multicultural perspectives. *Prereq: Jr. stndg.*

HEAL155. Environmental Health 3 sem. hrs.
Study of biological, psychosocial, physical, and chemical threats affecting individuals and communities. Examines person-environment interactions, ethical, social, and legal perspectives. *Prereq: Jr. stndg.*

HEAL160. Epidemiology 3 sem. hrs.
Analysis of occurrence and patterns of disease in populations including prevention and control strategies.

HEAL 164. Natural Family Planning

3 sem. hrs.

Physiological, behavioral, and spiritual aspects important to teaching and using natural family planning. *Prereq. Jr. stndg.*

HEAL165. Natural Family Planning**Practicum** 3 sem. hrs.

Practical application of theory and skills for teaching natural family planning.

HEAL198. Topics in Health Care

2-3 sem. hrs.

Special topics in health care as identified in the *Timetable of Classes*. Offered occasionally.



College of Professional Studies

The College of Professional Studies is designed to serve the busy lifestyles of working adults. This premier college for adult learners offers convenient weekend and weeknight classes with a curriculum focused on the changing needs of a changing society. Classes are held at three locations: Kenosha, Milwaukee and Waukesha.

For individuals pursuing or advancing their careers in or aspiring to leadership roles in business, social and professional organizations, this college offers its graduates the credentials needed for career advancement. Adult learners will find the College of Professional Studies an excellent way to ease into today's business world. Becoming a Marquette University student offers you the advantage of a quality education you can put to immediate use. In keeping with Marquette's Jesuit mission, the college educates the whole person in a value-centered and professionally oriented applications-based curriculum.

The mission of the college is to provide accessible, quality education that empowers non-traditional students to become life-long learners.

DEGREES OFFERED

Marquette University confers the degree of bachelor of arts on those students who have satisfactorily completed the following majors: criminology and law studies, psychology and professional communication as well as a bachelor of science on those students who have satisfactorily completed requirements for the organization and leadership major.

ADMISSION REQUIREMENTS

All students, freshman or advanced standing, applying to the College of Professional Studies must submit a completed application, writing sample, official transcripts from a high school or institution granting GED and, if appropriate, official transcripts from all post secondary institutions. An applicant's entire academic performance will be evaluated in making an admissions decision.

If an applicant was enrolled or registered at another institution since graduating from high school, official transcripts from such schools must be sent to the College of Professional Studies. Generally a minimum average of 2.000 (on a 4.000 scale) in college work is needed for consideration.

Non-degree applicants to the College of Professional Studies should refer to the admissions requirements listed in the University section of this bulletin.

ACCELERATION OPPORTUNITIES

Marquette recognizes that adults have knowledge from personal and professional experiences that enrich their college experience significantly. Academic advisers evaluate each student's background to design a personalized plan for completing the degree. Students have a variety of ways to apply credit toward their degree:

TRANSFER CREDITS

Transfer credits will be accepted on the basis on their relevance to the requirements of the program. Up to 60 credits may be accepted from accredited two-year community and technical colleges and up to 90 credits from accredited four-year colleges and universities.

CLEP TESTS

Degree credits may be earned for certain college courses through the College Level Examination Program (CLEP). Individuals who have acquired relevant knowledge outside the college classroom are encouraged to take the appropriate CLEP test(s). A maximum of 30 credits earned through CLEP examinations may be applied to a Marquette degree. Credit is granted for approved subject examinations only. Students can ask their academic adviser for a listing of the approved exams. Marquette University is a CLEP testing center for its matriculated students. Please see the College of Professional Studies in Room 103 of the 1212 Building or call (414) 288-3153 for test and schedule information.

OPTION TO TAKE OTHER COURSES

Should schedules permit, students may enroll in traditional day and evening classes. Please consult the *Timetable of Classes* or see your academic adviser.

GRADUATION REQUIREMENTS

AMOUNT AND QUALITY OF WORK

In addition to graduation requirements listed in the University section of this bulletin students in the College of Professional Studies must comply with the following graduation requirements:

1. Students must earn a minimum of 126 credit hours, including all core requirements, a minimum 18 credit hours minor, and a minimum of 30 credit hours in a major, as defined by degree requirements offered through the college. *Note: Depending on the major/minor selected, credit hours required for graduation may be greater than 126.*
2. Students must earn a minimum of a 2.000 Q.P.A. in their Marquette work.
3. Students must complete a minimum of 36 credit hours of upper division course work.
4. A minimum 15 credits in the major and at least nine credits in the minor normally must be completed at Marquette University.
5. A grade of C or higher normally must be earned in each of a student's major courses.
6. Students may present credits but not quality points from another institution toward graduation requirements.
7. It is the candidate's responsibility to meet all university academic, financial and administrative requirements and procedures as outlined in this bulletin.
8. A student in the College of Professional Studies who is not enrolled in Marquette courses for a total of one academic year (either two consecutive terms, five consecutive modules or any combination of terms and modules which total one academic year) or longer, must meet the graduation requirements which apply at the time of readmission.

GENERAL DEGREE REQUIREMENTS

All degree candidates in the College of Professional Studies must complete the following requirements in the core curriculum.

<i>Area</i>	<i>Credit Hours</i>
Liberal Arts Core Classes	
Principles of Liberal Studies	3
Introduction to Information Systems	3
English Composition/Communication	12
History	6
Literature	6
Mathematics	6
Natural Science	3
Philosophy	6
Social/Behavioral Sciences	6
Theology	6
Total Credit Hours—Liberal Arts Core Classes	57
Major	30–35
Minor	18–21
Elective Credits	18–24

FOUNDATIONS SEMINAR (3 credit hours)

For increased success some new students may be required to complete this course. This course is considered an elective.

PRINCIPLES OF LIBERAL STUDIES (3 credit hours)

All students are required to complete this course sometime during their first two years at Marquette University. Please see course description for further information.

INTRODUCTION TO INFORMATION SYSTEMS (3 credit hours)

All students are required to complete PRST 029 Introduction to Information Systems for three credit hours.

ENGLISH COMPOSITION/COMMUNICATION (12 credit hours)

All students must complete six credit hours of English composition as well as six credit hours of communications-based courses for a total of 12 credit hours. The specific courses that all College of Professional Studies students need to complete this requirement are: ENGL 001 and 002, Expository Writing 1 and 2; ENGL 105, Writing for the Professions; and CMST 155, Business and Professional Speaking.

HISTORY (6 credit hours)

All students must complete six credit hours of history. Generally, students complete their history requirement with HIST 001 and 002, Growth of Western Civilization 1 and 2.

If students are interested in exploring alternative options to complete their history requirement they should contact their adviser. Once a history sequence is selected and started, whether it is HIST 001 and 002 or a preapproved alternative sequence, the student must complete that sequence to fulfill the history requirement.

LITERATURE (6 credit hours)

All students must complete six credit hours of literature courses. It is strongly suggested that a student enroll in a survey course (generally a course number less than 100) prior to enrolling in an upper division (numbered higher than 100) literature course. Course offerings through the College of Professional Studies:

<i>Course</i>	<i>Credits</i>
ENGL 022 Survey of English Literature I	3
ENGL 032 Survey of American Literature I	3

MATHEMATICS (6 credit hours)

All students must complete six credit hours of mathematics, of which three credit hours must be ORLE 060, Research and Statistical Methods. The remaining credit hours selected depend on the student's individual needs.

<i>Course</i>	<i>Credits</i>
MATH 020 College Algebra	3
PRST 020 Foundations of Applied Mathematics	3
PRST 060 Research and Statistical Methods	3

NATURAL SCIENCE (3 credit hours)

All students must complete PRST 018, Aspects of Modern Science for three credit hours. Additional and/or different natural science course may be approved by college.

PHILOSOPHY (6 credit hours)

All students must complete PHIL 050, Philosophy of Human Nature, and one upper division philosophy course for a total of six credit hours. PHIL 104, Theory of Ethics, is suggested.

SOCIAL-BEHAVIORAL SCIENCES (6 credit hours)

All students must complete six credits hours of social-behavioral science, of which three credit hours must be PSYC 001, General Psychology. Students may choose one of the following courses for the remaining three credit hours.

<i>Course</i>	<i>Credits</i>
SOCI 001 Principles of Sociology	3
ANTH 001 Introductory Anthropology	3
CRLS 051 Introductory Criminology	3
POSC 020 American Politics	3

THEOLOGY (6 credit hours)

All students must complete THEO 001, Introduction to Theology, and one second-level theology course (THEO 100-119) for a total of six credits. THEO 115, Christian Discipleship, is suggested.

MAJOR AND MINOR REQUIREMENTS

All students in the College of Professional Studies must complete a major to fulfill graduation requirements. It is required that students declare a major and minor prior to the end of their sophomore year or the completion of 60 credit hours. Students failing to do so jeopardize completing core requirements in a timely fashion. A minor is not required but is available in most disciplines offered through the College of Professional Studies. Credit hours required for the various minors is indicated in the sections that follow.

The College of Professional Studies offers majors in the following areas: criminology and law studies, organization and leadership, professional communication and psychology as well as minors in criminology and law studies, organization and leadership, professional communication, psychology, interdisciplinary fields, and the professional minor. For interdisciplinary field minors please contact the college for current information.

The following are the courses required for each major and minor. Course descriptions for criminology and law studies, professional communications and psychology are listed in the respective area of this bulletin. Course descriptions for organization and leadership and the professional minor will follow this section.

Criminology and Law Studies (CRLS)

Major: Requires 30 credit hours, 10 courses in CRLS including CRLS 051, 152, 156, 157 (or 159), 168, 186, 187 and three of the following five courses: CRLS 163, 167, 181, 193, 198.

Minor: Requires 18 credit hours, six courses in CRLS including CRLS 051.

(Course descriptions are found in this bulletin in the criminology and law studies section of the College of Arts and Sciences.)

Professional Communication (PRCO)

Major: Requires 30 credit hours, including CMST 010, 052, 053, 131, 154 and five of these six courses, CMST 132, 134, 140, 165, ADPR 008 and JOUR 166.

Minor: Requires 21 credit hours, including CMST 010, 052, 131, 134, 154, JOUR 166 and one three-credit course in CMST. This CMST course must be a course other than CMST 155.

(Course descriptions are found in this bulletin in the communication studies section of the College of Communication.)

Psychology (PSYC)

Major: Requires 35 credit hours including PSYC 001, 060, 090 and at least one course from at least five the following eight content areas: developmental (101, 103); social (111); learning (121, 122); assessment (127, 131); history and systems (128); personality theories (132); physiological (129, 135); and abnormal (137).

Minor: Requires 18 credit hours; six courses in psychology including PSYC 001.

(Course descriptions are found in this bulletin in the psychology section of the College of Arts and Sciences.)

Professional Minor (PRMI) (MINOR ONLY)

Minor: Requires 21 credit hours, seven courses in organization and leadership, ORLE 032, 034, 036, 038, 129, 136 and 138.

Organization and Leadership (ORLE)

Major: Requires 30 credit hours, ORLE 090, 091, 120 or 121, 132, 134, 135, 197, CMST 134 and two of the following courses: ORLE 133, 137, 139, and one upper division CMST course. This CMST course must be a course other than CMST 155.

Minor: Requires 21 credit hours, seven courses in organization and leadership, ORLE 090, 091, 120 or 121, 132, 134, 135 and CMST 134.

ACADEMIC REGULATIONS

Students in the College of Professional Studies are expected to adhere to the academic requirements and regulations listed in the University section of this bulletin.

ACADEMIC PERFORMANCE/CENSURE

Students admitted to the College of Professional Studies are expected to meet the college's academic standards. Academic performance of students in the college will be monitored closely. Any student who does not maintain the academic standards of the college, progress steadily toward graduation, or demonstrate adequate achievement will be required to withdraw from the college.

Academic progress of students will be reviewed each eight-week module, or as indicated by the college, by means of special conditions. Special conditions will be given in writing to the student at the time of admission, readmission, or transfer to the college. Anytime during the student's attendance in the college when academic progress is in question, special conditions may be required of the student to continue to enroll. Failure to adhere to the terms of the special conditions will result in academic withdrawal.

ACADEMIC DISHONESTY

The College of Professional Studies complies with the policy on academic dishonesty found in the University section of this bulletin. Professionalism in the university setting encompasses the ethical responsibility of each student to complete his/her own course work. Any student who plagiarizes, cheats or falsifies work or takes part in such activities may fail the assignment or the course or be dismissed from Marquette University.

ADVISERS

Each student admitted to the College of Professional Studies is assigned a professional adult student adviser with whom the student should make contact at least once every eight-week module. The adviser is a resource to assist the student in planning his/her specific program of study and to assist the student in clarifying and achieving specific educational goals. Note that it is the responsibility of the student to understand and complete requirements for graduation, specific to the program selected.

ATTENDANCE POLICY

Student attendance in each class per eight-week module is deemed necessary for the successful completion of the course. The College of Professional Studies acknowledges that individual circumstances may prevent a student from attending a particular class period. Whenever possible, an absence should be prearranged with the professor. The student is responsible for all materials covered and announcements made during his/her absence. It should be noted that the college does not differentiate between excused and unexcused absences.

Multiple absences may compromise the integrity of the learning experience. Therefore, students with two absences from a class may, at the recommendation of the instructor, be withdrawn from the course. The College of Professional Studies reserves the right to automatically withdraw any student who has three or more absences from a course. In the event of a withdrawal from a course the grade of W will appear on the official transcript.

Tardiness and leaving early from class affect student performance. The student's grade and/or standing in the class may be adjusted accordingly.

In order to administer this policy effectively, each instructor will take attendance at every class. The College of Professional Studies provides sign-in attendance sheets for each class, and it is the student's responsibility to sign in or they will be counted as absent.

The College of Professional Studies advising staff will contact new students during their first term of enrollment if the sign-in attendance sheets reflect an absence. The attendance policy will be explained, as well as ramifications of additional absences. After a student's first term of enrollment, the student will be responsible for full familiarity with the college's attendance policy and ALL ramifications of absences.

All students enrolled in courses offered by the College of Professional Studies are expected to adhere to the college's attendance policy, even though they are registered through another college, department, or program at the university.

INCOMPLETES

A student who does not complete course assignments, tests, quizzes, presentations, etc., prior to the end of the module must arrange with the instructor, in advance, an incomplete grade. If course work is not completed and submitted prior to the deadline, the grade will automatically be changed to a failing grade. Arrangements to extend the deadline must be made prior to the original deadline date.

CD AND D GRADES

Courses completed with a grade of CD or D generally do not count toward the total hour requirement for a major but do fulfill the subject matter requirement and do count toward the total hours required for graduation.

Credit is never given twice for the same course. Students who received a grade of CD or D in a course specific to their major may need to repeat the course. Please see Repeated Courses in the University section of this bulletin.

GRADE APPEALS PROCEDURE

A student in the College of Professional Studies may appeal a grade that he/she feels was assigned in error. The student may initiate the process only after all possibilities of resolution have been explored with the course instructor. If a satisfactory resolution is not agreed upon, or if the student still believes that the course grade is in error, the student must submit in writing—to the associate dean a formal letter of appeal. The appeal letter should include, but is not limited to, the following:

1. Course name and number.
2. Term the course was taken and completed.
3. Grade received.
4. Rationale for grade dispute.
5. Steps taken to resolve the grade dispute.

Consideration will be given to each appeal received by the associate dean prior to the end of the following term.

Further appeal may be made to the dean of the college, who will consider the grade appeal based on university and college procedures and has the right to assign the final grade for the course.

MAILING AND FAXING ASSIGNMENTS TO INSTRUCTORS

Students may use the U.S. Postal Service to submit assignments to their instructors, only if the instructors agree to this arrangement prior to mailing. The student should be aware that, if the assignment is not received, measures taken to rectify the situation are at the discretion of the instructor, which may result in a failing grade or a final grade determined based on the missing assignment.

It is the student's responsibility to retain a copy of his/her assignment for his/her records. This will ensure that, if the copy is not received, an additional copy can be submitted in a timely manner, replacing the original.

The same guidelines apply to faxed assignments. Each student should call the receiver of the faxed assignment to verify it was received.

MAKE-UP EXAMINATIONS

At various times during the academic year, circumstances may prevent a student from taking an examination at the regularly scheduled examination time. At the discretion of the instructor, the student may take the examination at an alternative pre-arranged time. This rescheduled test/quiz/exam must be arranged prior to the regularly scheduled test/quiz/exam. In most instances, it is expected that the examination is completed prior to the next class meeting. The instructional assistant is responsible for facilitating and proctoring the examination. This make-up examination can be done during the review session time or at a time both the instructional assistant and the student can meet.

Instances in which a student is absent from a final examination and no prior arrangements were made will be referred to the college office. All students must submit a written request to the dean to reschedule an examination.

PRE-ASSIGNMENTS

Prior to each eight-week module students receive syllabi and textbook lists for the courses they are taking. Students are expected to complete the assignments for the first class and come prepared to participate.

For information, contact: College of Professional Studies; Marquette University; 1212 Building, Room 103; P.O. Box 1881; Milwaukee, WI 53201-1881; (414) 288-3153; Fax: (414) 288-3298; Internet: (mcps@Marquette.edu).

REMOVAL OF INCOMPLETE GRADES

The dates to complete and submit all course work for a class that a student originally received an incomplete grade is listed in the front section of this bulletin. Any student that must remove an incomplete has until 5 p.m. of the deadline date to submit all coursework for the class, this includes completing all papers, homework assignments, quizzes and tests. Students should contact the college office for proper procedures for incomplete grades.

BACKGROUND CHECKS, DRUG TESTING

Some degrees, majors and/or courses may require a student to submit to a criminal background check and/or drug testing. The results of those checks and/or tests may affect the student's eligibility to continue in that degree, major and/or course.

FINANCIAL AID INFORMATION AND APPLICATION PROCEDURE

Marquette University's Office of Student Financial Aid and the College of Professional Studies staff encourage you to apply for financial aid. It is in your best interest to apply. In doing so you may be considered not only for federal money but also for additional resources and private scholarships.

Students wishing to apply for financial aid should make note of the following steps involved:

1. File a Free Application for Student Aid (FAFSA) form.
2. Complete the College of Professional Studies Financial Aid Application.
3. Once the form(s) above are submitted, and you have been accepted as a degree seeking student to the university, our office will notify you in writing of the aid for which you qualify. Of the sources listed, you will have the opportunity to decline any type of aid according to your financial needs.

If you have questions about how much you might be eligible to receive or need any of the forms mentioned above, please call Marquette's Office of Student Financial Aid at (414) 288-7390.

FEDERAL AID SOURCES

Federal Pell Grant—Recipients must show financial need, be enrolled at least half-time, and not hold a prior bachelor's degree. Annual amounts range from \$400-\$3,750.

Wisconsin Tuition Grant—Recipients must be Wisconsin residents, show financial need, be enrolled at least half-time, not hold a prior bachelor's degree, and be certified as eligible by the Wisconsin State Higher Education Aids Board. Wisconsin Tuition Grant may be received for a maximum of 10 terms. Annual amounts range from \$250-\$2,300.

William D. Ford Federal Direct (Stafford) Loan—The Stafford Loan Program has two components: The subsidized loan (which accrues no interest while the student is in school) is for those who demonstrate financial need; the unsubsidized loan (on which interest accrues from the time of disbursement) is for those who do not demonstrate need or who do have need but wish to borrow more than the subsidized loan can offer them.

Both loans have a variable interest rate set at T-bill plus 1.7% while in school, grace, or deferments; and T-bill plus 2.3% in repayment (not to exceed 8.25%). Repayment begins six months after the student is no longer enrolled half-time. Annual loan limits vary according to the student's grade level.

Independent undergraduates can borrow up to \$6,625 for the first academic year, \$7,500 for the second academic year and \$10,500 for each of the final two years of study. The exact amount will vary depending upon financial need.

ADDITIONAL RESOURCES

PRIVATE SCHOLARSHIPS

If you are interested in pursuing private scholarship options but are not sure where to begin, our office may be of some help. Although there is currently no central database containing information on all of the private scholarship money available, there are resources to get you started.

To obtain private scholarship information log into the Marquette University Web site at www.marquette.edu and connect with the Office of Student Financial Aid site, or call or stop by the office for a list of Internet sites.

STUDY GRANTS

The College of Professional Studies has study grants available for adult learners at Marquette. Grants are available for students who have a cumulative quality point of 2.500 or better.

Students applying for the study grants must have applied for financial aid by filing the FAFSA form, and must demonstrate financial need. Applications, deadline dates and additional eligibility information can be obtained by contacting the college office at (414) 288-3153.

ALTERNATIVE LOANS

If you have applied for financial aid and find that you still may need additional resources to cover your educational costs, the Office of Student Financial Aid may have some resources to help. There are a number of alternative loans available, through various private banks, that may meet your needs.

These loans may often be borrowed in addition to the Federal Grants and Loans you are already receiving. Typically, these loans require that you be employed, or have an employed, credit-worthy co-signer. Terms vary, and most will allow you to defer repayment until after graduation, although interest will accrue during the in-school period.

For information on alternative loan options, contact the Office of Student Financial Aid, (414) 288-7390, or visit their Web site at www.marquette.edu/Financialaid.

SPECIAL ACADEMIC PROGRAMS

To further meet the needs of the working adult in Southeastern Wisconsin, the College of Professional Studies has expanded its outreach in three distinct venues, which enhances the existing college and the Part-time Studies Program.

HARLEY-DAVIDSON MOTOR COMPANY

In 1995, the College of Professional Studies joined with Harley-Davidson Motor Company in developing an on-site undergraduate degree program. Qualified students who are Harley-Davidson employees are eligible to attend Marquette classes held at Harley-Davidson. Further information regarding participating in this program can be obtained by calling the Harley-

Davidson academic adviser who is located on Marquette's campus in the 1212 Building, 1212 W. Wisconsin Ave., Room 103 or call (414) 288-3153.

MARQUETTE UNIVERSITY KENOSHA CENTER

The College of Professional Studies offers credit and non-credit courses at various sites in the Kenosha area. To learn more about course and program offerings through the College of Professional Studies contact the program manager at (414) 288-3153.

WAUKESHA COUNTY

The College of Professional Studies offers courses at the Country Inn Hotel and Conference Center in Pewaukee, Wis. The Country Inn Hotel and Conference Center is located off Interstate 94, exit Hwy T to Golf Road in Waukesha County. For information on this scheduling option, contact the adult student adviser assigned to students interested in the Waukesha site at (414) 288-3153.

PART-TIME STUDIES PROGRAM

The Part-time Studies Program, in conjunction with the various colleges at Marquette University, offers an array of undergraduate degrees. If a student has the flexibility to enroll in day-time courses, the majority of Marquette University degree programs are available to them. However, many working adults are restricted to evening or weekend programs. If you are interested in the evening degree options, please consult an adviser in the College of Professional Studies.

The College of Professional Studies provides a professionally-trained academic advising staff to assist the student in the Part-time Studies Program. The adult student adviser is a resource to guide the student in planning, clarifying and achieving specific educational goals. For information regarding the Part-time Studies Program, call (414) 288-7499.

COURSE DESCRIPTIONS

PROFESSIONAL STUDIES (PRST)

PRST 001. Foundations Seminar 3 sem. hrs.
Orientation to the environment and demands of the college classroom and a Marquette education; readings and discussion in literature and humanities; exploration of the learning skills needed for academic success; critical thinking, writing, studying memory, note and test taking, library and others.

PRST 010. Principles of Liberal Studies
3 sem. hrs.

Considered the cornerstone of the College of Professional Studies curriculum, this course is an introduction to the disciplinary frameworks of the liberal arts core curriculum offered by Marquette University. Its purpose is to promote lifelong learning, and enhance the skills of analysis, problem solving, critical thinking, writing and communication needed for successful academic achievement in a liberal arts education. The course develops a common ground of understanding and values among students through shared knowledge of the liberal arts. The course offers students an opportunity to enhance their critical thinking, oral expression and writing. This course is required for all students in the College of Professional Studies. All students must complete this course prior to the completion of their sophomore year. *Prereq: ENG 001, 002 and HIST 001 and three required courses from the liberal arts core curriculum.*

PRST 018. Aspects of Modern Science
3 sem. hrs.

An interdisciplinary, integrated study of processes and principles of modern biology, chemistry, and physics. Scientific inquiry as a means of knowledge; major technological contributions to modern societies: stability, information transfer, and evolution of biological systems, emphasizing relevant chemical and physical processes in specific environments. Accepted as natural science requirement for Organization and Leadership Program students ONLY.

PRST 020. Foundations of Applied Mathematics 3 sem. hrs.

This course includes the development of computational skills and the application of mathematics in business and other organizational disciplines. Topics will include algebraic operation, formula use and interpretation, equations and inequalities, graphs and functions, probability concepts, mathematics of finance, linear systems and linear programming.

PRST 029. Introduction to Information Systems 3 sem. hrs.

Fundamental information technology concepts and processes. An introduction to the major productivity application software packages and computer-based research.

PRST 060. Research and Statistical Methods
3 sem. hrs.

Introduction to research and statistical methods used in business-related decisions; descriptive statistics; probability theory and distributions; sampling and sampling distributions; estimations and inferences; hypothesis testing; chi-squared and testing goodness-of-fit; contingency tables; correlation and regression. *Prereq: MATH020 recommended.*

ORGANIZATION AND LEADERSHIP (ORLE)

Faculty for the Organization and Leadership Program are drawn from the Colleges of Arts and Sciences, Business Administration and Communication.

ORLE 032. Accounting Principles and Applications 3 sem. hrs.

Measurement of income/expenses and the valuation of assets and equities under various kinds of organizations; structuring data to aid management decisions. *Prereq: MATH 020 or equivalent.*

ORLE 034. Economic Theory and Practice
3 sem. hrs.

The Economic way of thinking (principles, analytic concepts and techniques) applied to consumer choice, resource use and the organization's pricing/hiring/production decisions; the operation of markets and the economic role of government; determinants of aggregate production, employment and the pricing level. *Prereq: MATH 020 or equivalent.*

ORLE 036. Principles of Financial Management 3 sem. hrs.

Acquisition and utilization of funds to support the production, personnel and marketing functions; theory of finance in relation to planning, control, risk and optimum capital structure. *Prereq: MATH 020 or equivalent.*

ORLE 037. Personal and Family Financial Planning 3 sem. hrs.

The course focuses on the financial planning needs of individuals, families and working professionals. Specific emphasis is given to contemporary issues facing individuals and households by providing a general overview across a broad range of topics. These topics include family budgeting, personal investing, consumer purchasing, credit, home purchasing/mortgages, employee benefit selection and estate planning. Students will also develop detailed individual and family financial plans.

ORLE 038. Marketing Concepts and Applications 3 sem. hrs.

Market function and its role in the economy; the role of marketing in achieving corporate objectives; market structure and demand characteristics; market research, development and distribution problems; promotion programs; pricing alternatives.

ORLE 090. History and Theories of Leadership 3 sem. hrs.

Analysis of the historical concepts and contemporary theories of leadership; emphasis on the application of leadership concepts to actual leadership situations.

ORLE 091. Leading Teams and Groups
3 sem. hrs.

Team building and group theory, concepts, research and principles and applications; understanding how teams and groups function; development of skills needed to lead and work effectively in teams and groups; exercises, simulations, experiential learning.

ORLE 111. Social Psychological Principles Applied to Leadership 3 sem. hrs.

Basic social psychology theory and principles, such as attribution theory, persuasion and attitude change, group behavior applied to leadership. This applications-based social psychology course will specifically encompass organizational leadership.

ORLE 120, 121. Issues in Organizational Leadership 1, 2 3 sem. hrs. each

The study of selected topics and applications including ethics and leadership, leading individuals, decision making and problem solving, leadership in formal organizations, leader as change agent, leadership and motivation, policy and leadership, entrepreneurial leadership and leadership in non-Western cultures. *Prereq: ORLE 090.*

ORLE 129. Information Systems for Management 3 sem. hrs.

An overview of the technological, managerial and organizational factors which impact information systems. The critical role of information systems at the operational, tactical and strategic levels of the organization will be examined. Advanced productivity application software projects. *Prereq: PRST 029, and three of the four classes ORLE 032, 034, 036, 038.*

ORLE 132. Organizational Behavior
3 sem. hrs.

The behavior of people as individuals and in groups with emphasis on supervision, productivity and the organizational environment; the fundamentals of organizational theory, structure and administration. *Prereq: ORLE 091.*

ORLE 133. Organization Development and Change 3 sem. hrs.

This course reviews the broad background of organizational development (OD) and examine the assumptions, strategies, models, intervention techniques and other aspects of organizational development. The fundamental theories that underlie planned change are examined. The process of planned changes is then studied through a look at how OD practitioners enter and contract with client systems to diagnose organizations, groups and jobs; collect, analyze and feed back diagnostic data; design interventions; manage change; and evaluate and institutionalize change. Major OD methods — human process, techno structural, human resource management and strategic interventions are deliberated. Students learn through

case studies how different OD techniques or interventions are used by actual organizations. *Prereq: ORLE 134.*

ORLE 134. Organizational Processes
3 sem. hrs.

Analyzes the major organizational processes and the role that managers play in changing those processes to increase organizational effectiveness. Course material presents the concepts of leadership, teamwork and communication within an organizational setting and requires students to design an organizational structure that effectively considers the environment, technology, goals, profile and stage of growth of the organization. *Prereq: ORLE 132.*

ORLE 135. The Culturally Diverse Organization 3 sem. hrs.

Examination of interpersonal patterns of selected ethnic groups, races and social classes in the U.S.; gender differences and considerations; exploration of cultural diversity in the workplace: understanding appropriate behaviors; managing diversity in achieving the goal of the organization. *Prereq: ORLE 091.*

ORLE 136. Principles of Human Resource
3 sem. hrs.

Examines the principles, methods and practical applications of human resource management. Issues concerning the effective, equitable, ethical and legal treatment of employees will be reviewed related to attracting, selecting, developing, retaining, evaluating and utilizing human resources.

ORLE 137. Organizational Strategies
3 sem. hrs.

This course investigates how to craft, implement and execute organization strategies. The importance of identifying and determining the value-creating potential of a firm's resources, capabilities and core competencies is examined. The dynamics of strategic change in the complex global economy and at the corporate level are studied. *Prereq: ORLE 134.*

ORLE 138. Leading Continuous Quality Improvement 3 sem. hrs.

In-depth review of Continuous Quality Improvement (CQI) philosophies and guiding principles set the framework for this course. Interactive, hands-on learning of tools and techniques utilized in a CQI environment will occur. Case studies highlight systems and structures employed in multiple organizations. *Prereq: Completion of ORLE 060 or equivalent is suggested.*

ORLE 139. Communicating Leadership: Issues and Applications 3 sem. hrs.

This course moves beyond the study of what a leader is to how a leader accomplishes. While examining how leaders use communication students will critically analyze these questions. What is the relationship between leadership and communication styles? What communication competencies are needed by organizational leaders? How do leaders use communication to facilitate change in organizations? How does an individual's gender, race and/or ethnicity affect leadership and communication behaviors. *Prereq: CMST 010 and ORLE 090.*

ORLE 140. Interpersonal Conflict Management 3 sem. hrs.

The theories and principles of interpersonal conflict will be explored. Emphasis on effective application of conflict management techniques, negotiation and resolution strategies in the workplace.

ORLE 141. Leaders in Literature 3 sem. hrs.

In a world of increasing technological power and political and cultural divisiveness, the human questions still prevail: how do we exist together in a democratic and just society? How do we create and lead communities that are connected and tied together in a unified vision of commonweal? How do such communities, professional, personal, or cultural, find their leaders? Perhaps the most enduring characteristic of what it means to be human is that complex questions about how we live and work continue and prevail.

Through a variety of literary texts, this course will provide perspectives on leadership by examining past examples of leaders who have emerged from the imagination of writers past. As we read these texts, we will examine and debate the relevance of leadership figures in literature as embodiments of great ideas and moral concerns. We will contrast them to contemporary experiences and conduct, both professional and personal, as a means for establishing the value of such literary constructs to the formation of our own ideas and understanding of leadership.

Study of leaders in literature will expand to the historical and literary contexts in which the works were created and from which the authors are writing. Students will develop an increasingly sophisticated understanding of literary period, and will be challenged to see the value of such literary work as powerful constructions of human imagination and spirit. Exposure to a variety of literary constructions of leadership can challenge students to develop a richer sense of their own leadership qualities and a method for reflecting upon, and analyzing the instances of leadership in their own workplaces and communities. *Prereq: ENGL002.*

ORLE 142. Historical Leadership During World Conflicts 3 sem. hrs.

This is one of a series of five courses that examine leadership through the lens of liberal arts. These five courses are the first round of courses in a curriculum designed to provide a unique leadership program to students in the Marquette University College of Professional Studies. This portion of the curriculum will align with the newly created core curriculum goals and will greatly enhance the education of adults studying leadership.

This course requires the student to examine leadership events during world conflicts and analyze them using leadership theories that elucidate the critical elements of leadership and decision making. These elements include how the leader(s) and followers exerted influence, decided upon goals and objectives, developed courses of action to attain those goals, and how they developed a shared sense of purpose to successfully implement a course of action. Students will develop case studies of key events and decisions. *Prereq: ORLE 090, HIST 001 and 002.*

ORLE 143. Leaders in Social Movements
3 sem. hrs.

This course will focus on the manifestation of social movements, with a special emphasis on the leaders in these movements. Through readings, film, primary and secondary research, as well as class participation, students will discover how social movement leaders emerge and the roles these leaders play in social movements and societies. *Prereq: ORLE 090 and 091.*

ORLE 144. Political Leadership: Theory and Reality 3 sem. hrs.

Basic political theory and principles will be examined using the writings of Plato, Aristotle, Marcus Aurelius, St. Augustine, St. Thomas Aquinas, Machiavelli, Hobbes, Locke, Montesquieu, Rousseau, Bentham, Marx, Spencer, and Gandhi. These theories will then be compared to the actions of political leaders during crises times, such as the U.S. Civil War, World Wars I and II, the Vietnam War, Civil Rights Movement, the Cold War, and the Suffrage Movement.

ORLE 145. Integrity in Leadership — Religious Perspectives 3 sem. hrs.

This course will consider the lives and teachings of some of history's outstanding religious leaders, including Jesus of Nazareth, David, St. Augustine, St. Ignatius of Loyola, Dietrich Bonhoeffer, Dorothy Day, Mahatma Gandhi, Martin Luther King, Jr., Thomas Merton, and Pope John Paul II. Through critical analysis of autobiographical, biographical, and primary texts, the course will examine the manner in which each figure exemplifies the theological virtues of faith, hope, and love, and how these virtues guide, drive, and inform their respective lives and leadership. *Prereq: THEO 001.*

ORLE 146. Systems Thinking 3 sem. hrs.

The interconnections of infinitely complex networks of systems in organizational life will be explored. Basic concepts and principles of systems thinking will be explored. Application of such tools as behavior-over-time-graphs and causal loops will be a focus, as will strategies to see how various kinds of power flow through a system. Complex systems will be studied.

ORLE 195. Independent Study 1-3 sem. hrs.
Offered every quinmester. *Prereq: Cons. of college dean.*

ORLE 197. Integrating Seminar 3 sem. hrs.
Interdisciplinary, capstone experience; concentration on leadership as an integrated theme; shaping individual theories and applications across the curriculum into a holistic approach; using leadership skills to promote the advancement of community and organizational goals. Completion of all previous coursework required.

ORLE 198. Topics in Organization and Leadership 1-3 sem. hrs.

Special topics selected from one of the various within the organization and or leadership. Specific topics to be announced in the *Timetable of Classes*.

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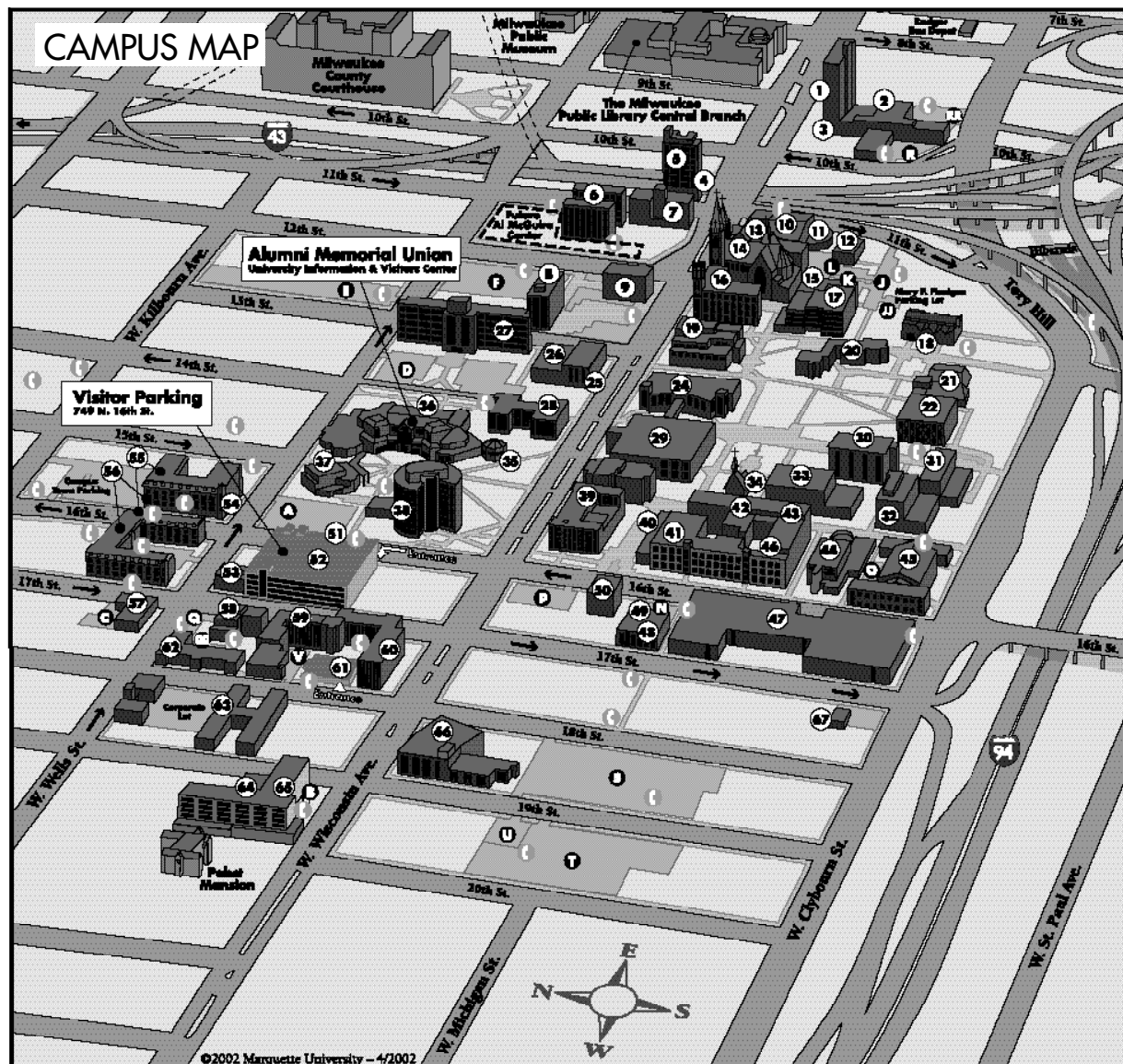
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Academic/Administrative Buildings

- 7 707 Building
- 9 1212 Building, College of Professional Studies
- 57 1700 Building
- 59 Academic Support Facility
- 49 Carmel Hall East
- 4 M. Carpenter Tower
- 44 Emory T. Clark Hall, College of Nursing
- 20 Charles L. Coughlin Hall
- 19 Katharine Reed Cudahy Hall
- 41 School of Dentistry (moving to #66, Aug. 2002)
- 66 School of Dentistry (opening Aug. 2002)
- 39 Patrick E. Haggerty Hall, College of Engineering & Olin Engineering Center
- 62 Helfaer Building
- 26 Holthusen Hall, Graduate School
- 28 Jesuit Residence
- 13 Robert A. Johnston Hall, College of Communication
- 58 Krueger Parent & Child Center
- 22 Lalumiere Language Hall
- 16 Marquette Hall, College of Arts and Sciences
- 63 Mashuda Hall, Corporate Outreach and Professional Development
- 50 Monitor Hall
- 12 O'Hara Hall
- 51 Public Safety/Transportation Services
- 40 Schroeder Complex Annex

- 42 Walter Schroeder Health Sciences & Education Complex, College of Health Sciences, School of Education
- 10 Sensenbrenner Hall, Law School
- 31 Service Building
- 67 Service Garage
- 17 David A. Straz, Jr. Hall, College of Business Administration
- 3 David A. Straz, Jr. Tower (formerly East Hall)
- 43 Student Health Service
- 30 Todd Wehr Chemistry
- 32 Wehr Life Sciences
- 33 William Wehr Physics

Churches/Chapels

- 35 The Chapel of The Holy Family
- 14 Gesu Church
- 15 Gesu Parish Center
- 34 St. Joan of Arc Chapel

Libraries

- 11 Law Library/Legal Research Center
- 29 Memorial Library
- 24 John P. Raynor, S.J., Library (opening Aug. 2003)
- 46 Science Library

Parking Structures

- 52 Parking Structure 1
- 61 Parking Structure 2

Art/Entertainment/Recreation Facilities

- 36 Alumni Memorial Union, University Information & Visitors Center
- 56 Campus Town
- 45 Gymnasium
- 18 Patrick & Beatrice Haggerty Museum of Art
- 47 Helfaer Tennis Stadium & Recreation Center
- 21 Evan P. & Marion Helfaer Theatre
- 2 Rec Plex
- 54 Union Sports Annex
- 25 Varsity Theatre
- 37 Tony & Lucille Weasler Auditorium

Residence Halls

- 5 M. Carpenter Tower
- 6 Cobeen Hall
- 64 Mashuda Hall
- 38 McCormick Hall
- 63 O'Donnell Hall
- 27 Schroeder Hall
- 1 Straz Tower (formerly East Hall)

University Apartment Buildings

- 8 Abbottsford Apartments
- 55 Campus Town Apartments
- 48 Carmel Apartments
- 53 Gilman Building
- 60 Humphrey Hall Apartments