Dear Student,

Congratulations on your decision to make Purdue University Calumet your educational destination for success and fulfillment!

As a regional university of the world-respected Purdue system, academic excellence is the foundation of the Purdue Calumet experience. Also distinguishing the Purdue education we provide is experiential learning—opportunities to apply what you learn in experience-rich, real-world environments. Whether conducting research, interning, performing service learning, partaking in cooperative education, studying abroad or designing special projects, you will obtain an education that is enriching and enlightening.

At Purdue Calumet, you also will benefit from a value-added education. In fact, The College Database has ranked Purdue Calumet one of Indiana’s top two institutions of higher learning for providing a quality education at an affordable price, resulting in best financial return on our students’ investment.

We offer 37 baccalaureate degree programs and more than a dozen master’s degree offerings. Our campus provides rich opportunities for you to spread your wings—in the tradition of our Peregrine athletics mascot—and grow.

Our dedicated faculty and staff are committed to your success. The vast array of services we offer, activities and organizations in which you can partake, and endless nurturing opportunities contribute to an engaging, satisfying campus experience.

I invite you to use this on-line catalog as a guide on your destination to goal achievement and personal fulfillment. Best wishes for much success!

Sincerely,

DR. THOMAS L. KEON
CHANCELLOR
Purdue University Calumet became a residential campus in Fall 2005 with the opening of its first student housing facility, The University Village (Phase I). In the Fall of 2009, Phase II, a second building was added to The University Village community providing space for a total of 745 residents and live-in residential staff members. In the Fall of 2013, these buildings were given the names Peregrine and Griffin Halls. The University Village community provides fully furnished apartment suite-style accommodations.

Each apartment suite features four private bedrooms, two bathrooms, a common living room and fully equipped furnished kitchen/dining room. The facilities are designed to provide convenience and comfort in an environment that supports the academic success of its residents.

The University Village community is overseen by the staff of the Department of Housing and Residential Education and is located at the south end of campus, along 173rd Street, east of the Fitness and Recreation Center. The Department of Housing and Residential Education offers three options for student housing contracts: an annual year (August to August), an academic year (August to May), and summer (May to August). Students interested in living on-campus are encouraged to visit the Department of Housing and Residential Education website at www.purduecal.edu/housing or call (219) 989-4150 for more information.

AMENITIES
- Furnished apartment suites with individual bedrooms
- Fully-equipped kitchens
- Laundry rooms on each floor
- Internet connectivity (living rooms, apartment suite common areas and bedrooms)
- Wireless internet in building common spaces
- Computer labs
- Music Practice Rooms (Griffin Hall)
- Satellite television
- Patio (Griffin Hall)
- Close proximity to the Fitness and Recreation Center
- Quiet study areas, group meeting spaces, and conference rooms
- Gated parking lot
DISCLAIMERS

The provisions of this publication are subject to change without notice and do not constitute an irrevocable contract between any student or applicant for admission and Purdue University Calumet. The University is not responsible for any misrepresentation of its requirements or provisions that might arise as a result of errors in the preparation of this publication.

Purdue University Calumet has reserved the right to add, amend, or repeal any of its regulations, rules, resolutions, standing orders, and rules of procedures, in whole or in part, at such times as it may choose. None shall be construed, operate as, or have the effect of any abridgement or limitation of any rights, powers, or privileges of the Board of Trustees.

Every effort has been made to assure the accuracy of the information in this publication. Students are advised, however, that such information is subject to change. Therefore, they should consult the appropriate academic department or administrative offices for current information.

Your Campus, Your Safety, Purdue University Calumet’s annual security and fire safety report, is now available. This report is required by federal law and contains policy statements and crime statistics for Purdue University Calumet. The policy statements address Purdue University Calumet’s policies, procedures and programs concerning safety and security, for example, policies for responding to emergency situations and sexual offenses. Three years’ worth of statistics are included for certain types of crimes that were reported to have occurred on campus, in or on off-campus buildings or property owned or controlled by the school and on public property within or immediately adjacent to the campus. The report is available online at (http://webs.purduecal.edu/police/yourcampus/your-safety). You may also request a paper copy from the Purdue University Calumet Police Department, located in the University Police Building (just south and east of the 169th St. entrance).

Nondiscrimination Policy Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue University views, evaluates, and treats all persons in any University related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications, and other relevant characteristics. Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Purdue’s Equal Opportunity, Equal Access and Affirmative Action policy Executive Memorandum No. D-1, which provides specific contractual rights and remedies. Additionally, the University promotes the full realization of equal employment opportunity for women, minorities, persons with disabilities and veterans through its affirmative action program.

Any question of interpretation regarding this Nondiscrimination Policy Statement shall be referred to the Vice President for Ethics and Compliance for final determination.
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General Physical Sciences - BS
http://purduecal.edu/catalog/pos/bs-general-physical-sciences-fall-2013.pdf

History - General History - BA
http://purduecal.edu/catalog/pos/ba-history-general-history-fall-2013.pdf

History - Social Studies Teaching - BA

Hospitality and Tourism Management - BS

Hospitality and Tourism Management - Fitness Management - BS

Human Development and Family Studies - Child and Family Services - BA

Human Development and Family Studies - Early Childhood - BA

Interdisciplinary Engineering - BS
http://purduecal.edu/catalog/pos/bs-interdisciplinary-engineering-fall-2013.pdf

Management - Business Economics - BS

Management - Finance - BS

Management - Human Resources - BS

Management - Management Information Systems - BS

Management - Marketing - BS

Mathematics - BS
http://purduecal.edu/catalog/pos/bs-mathematics-fall-2013.pdf

Mathematics - Secondary Teaching - BS

Mechanical Engineering - BS
http://purduecal.edu/catalog/pos/bs-mechanical-engineering-fall-2013.pdf

Mechanical Engineering Technology - BS
http://purduecal.edu/catalog/pos/bs-mechanical-engineering-technology-fall-2013.pdf

Mechatronics Engineering Technology - BS
http://purduecal.edu/catalog/pos/bs-mechatronics-engineering-technology-fall-2013.pdf

Medical Technology - BS
http://purduecal.edu/catalog/pos/bs-medical-technology-fall-2013.pdf

Nursing - Accelerated Bachelor's Second Degree - BS

Nursing - LPN Transitioning to BS

Nursing - Professional Nursing - BS
http://purduecal.edu/catalog/pos/bs-nursing-professional-nursing-fall-2013.pdf

Nursing - RNBS Completion - BS

Organizational Leadership and Supervision - BS

Organizational Leadership and Supervision - Environmental Health and Safety

Philosophy - BA
http://purduecal.edu/catalog/pos/bs-philosophy-fall-2013.pdf

Physics - BS

Physics - Computational Physics - BS

Physics - Engineering Physics - BS

Political Science - BA
http://purduecal.edu/catalog/pos/ba-political-science-fall-2013.pdf

Political Science - Criminal Justice - BA

Psychology - General Psychology - BA
http://purduecal.edu/catalog/pos/ba-psychology-general-psychology-fall-2013.pdf

Sociology - BA
http://purduecal.edu/catalog/pos/ba-sociology-fall-2013.pdf

Sociology - Criminal Justice - BA

Sociology - Gerontology - BA
About Purdue University Calumet

Purdue University Calumet is a comprehensive, regional university dedicated to serving the professional, cultural and general educational needs of the citizens of Northwest Indiana (and beyond) in the tradition of world-respected Purdue University quality. Purdue University Calumet offers 37 baccalaureate degree programs and more than a dozen master's degrees, as well as professional certificates.

From its World War II inception as a source of technical instruction for Northwest Indiana production workers in response to the war effort, Purdue University Calumet has become a comprehensive institution of higher education, enrolling more than 9,000 students. Located on a 167-acre wooded parcel of land in the Woodmar neighborhood of Hammond, Indiana, the Purdue Calumet campus features 17 buildings, including student residential apartments, and some of the finest cutting edge instructional facilities in the country.

As one of the regional campuses within the Purdue University system, Purdue University Calumet offers its undergraduate programs through a 1974 grant of academic autonomy within the Purdue system. Thus, Purdue University Calumet is able to offer programs specifically designed to address the special needs of the citizens it serves. As part of the Purdue system, Purdue University Calumet subscribes to the university-wide commitment to “the development and nurturing of a racially, socially and religiously diverse community which recognizes the inherent worth and dignity of every person, fosters tolerance, sensitivity, understanding, and mutual respect among its members, and encourages each individual to strive to reach his or her own potential.” Purdue University believes that cultural variety stimulates creativity, promotes an exchange of ideas, and enriches life. Purdue University also accepts the responsibility of serving as a positive example and helping to prepare men and women who will make a lasting contribution to society.

(Purdue University State of Principles, 1989)

Purdue University Calumet is a community committed to people as its most important resource. It strives to foster a supportive environment in which students, staff and faculty can learn, grow and thrive. Purdue University Calumet is committed to helping students succeed and encourages them by:

- placing primary emphasis on teaching and learning;
- offering reasonable in-state tuition rates, with state support covering a substantial portion of the cost of education;
- offering financial aid;
- providing strong student support services;
- scheduling classes to facilitate the teaching/learning process;
- offering flexible courses and scheduling;
- emphasizing lifelong learning; and
- requiring experiential learning that integrates traditional classroom and textbook learning with authentic work experiences.

Purdue University Calumet supports the educational process with a wide range of academic support services, and opportunities including: advising, tutoring, supplemental instruction, recreation and athletics, counseling and clinical health care, and residential life. Purdue University Calumet also provides considerable computing resources to support student learning. These include extensive computer labs, web-based learning software, electronic classrooms, high performance computing, visualization and simulation computing, on-line courses, and degree progress tracking software.

Purdue University Calumet supports the development of Northwest Indiana through participation in the Purdue Technology Center of Northwest Indiana, the Hammond Innovation Center, the Entrepreneurship Center and sponsorship of the Northwest Indiana Small Business Development Center. Purdue University Calumet also supports applied research to benefit our region through the Water Institute, the Center for Energy Efficiency and Reliability, the Joanna Briggs Center for Evidence-Based Practice in Nursing and the Center for Innovation in Visualization through Simulation among others.

Mission Statement

In 1974, the Board of Trustees of Purdue University granted academic autonomy to Purdue University Calumet Campus (now Purdue University Calumet) for its undergraduate programs by approving the Proposal for Academic Autonomy.

A part of that document is the Mission Statement for Purdue University Calumet. It reads as follows:

Purdue University Calumet provides a quality undergraduate education to students of Northwest Indiana and beyond who are ready for the world of work or graduate education. We selectively offer graduate education in areas of strong student interest and community need as well as faculty expertise. We are dedicated to economic development to create a more economically viable world community and to the Purdue system-wide land-grant mission.

Organization

A single Board of Trustees governs the entire Purdue University system through the President of the University. The Chancellor of Purdue University Calumet is the senior administrative officer on campus and reports to the President of Purdue University.

Serving the Chancellor are five Vice Chancellors:

- The Vice Chancellor for Academic Affairs and Provost is responsible for the academic programs and the Center for Learning and Academic Success.
- The Vice Chancellor for Administrative Services is responsible for the business affairs of the university, including budget and finance, human resources, buildings and grounds and campus police.
- The Vice Chancellor for Advancement is responsible for advancing the university to and through its various publics while overseeing alumni relations, fund raising, university and community relations, and marketing.
- The Vice Chancellor for Enrollment Management and Student Affairs oversees the many services and functions the university offers to advance student success and nurture student life and community on campus including enrollment related services.
- The Vice Chancellor for Information Services is responsible for connecting the changing, emerging needs of technology with the knowledge generated through library resources.

The Academic Colleges

Each degree and certification program offered at Purdue Calumet is housed in one of the Academic Colleges noted below:

The **College of Engineering, Mathematics, and Science** consists of the following departments:

- Department of Biological Sciences
- Department of Chemistry and Physics
- Department of Electrical and Computer Engineering
- Department of Mathematics, Computer Science, and Statistics
- Department of Mechanical Engineering

The **College of Liberal Arts and Social Sciences** consists of the following departments:

- Department of Behavioral Sciences
- Department of Communication and Creative Arts
- Department of English and Philosophy
- Department of Foreign Languages and Literatures
- Department of History and Political Science
The College of Technology consists of the following departments:
- Department of Construction Science and Organizational Leadership
- Department of Engineering Technology
- Department of Computer Information Technology and Graphics

The College of Education consists of the following departments:
- Department of Teacher Preparation
- Department of Graduate Studies in Education

The College of Business consists of the following departments:
- White Lodging School of Hospitality and Tourism Management
- Department of Marketing, Human Resources and Management
- Department of Finance and Economics
- Department of Accounting
- Department of Information Systems

The College of Nursing

The Graduate School

The Graduate School oversees all aspects of Graduate Education at Purdue University Calumet. This includes admissions and records, new courses and program development. As a unit of the system-wide Graduate Education, Purdue University Calumet Graduate School coordinates all activities with Purdue University Graduate School.

Accreditations

Purdue University Calumet is accredited:
- The Higher Learning Commission
  A Commission of the North Central Association of Colleges and Schools
  230 South LaSalle St., Suite 7-500
  Chicago, IL 60604-1411
  Toll Free Phone: 800.621.7440  Phone: 312.263.0456
  http://www.ncahlc.org
- Engineering Technology Accreditation Commission of ABET,
  http://www.abet.org

See Departments of Construction Science and Organizational Leadership and Engineering Technology for specific program accreditations.

- Engineering Accreditation Commission of ABET (EAC-ABET)
  111 Market Place, Suite 1050, Baltimore, MD 21202-4012
  phone: (410) 347-7700  fax: (410) 625-2238

- National Council for Accreditation of Teacher Education (NCATE)
  2010 Massachusetts Ave., Suite 500, Washington, DC 20036-1023
  www.ncate.org

- Indiana Department of Education
  Office of Educator Licensing and Development
  151 West Ohio Street, Indianapolis, Indiana 46204

- National League for Nursing Accreditation Commission (NLNAC)
  3343 Peachtree Road NE, Suite 500, Atlanta, GA 30326
  phone: (404) 975-5000
  www.nlnac.org

- Professional Licensing Agency (Attn: Indiana State Board of Nursing)
  402 W Washington Street - Room W072, Indianapolis, IN 46204
  phone: (317) 234-2043
  www.in.gov/pla/nursing.htm

- American Chemical Society (ACS)
  1155 Sixteenth Street NW, Washington DC 20036

- The Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE)
  American Association for Marriage and Family Therapy
  112 South Alfred Street, Alexandria, VA 22314
  phone: (703) 838-9808  fax: (703) 838-9805
  e-mail: coa@aamft.org

- International Assembly for Collegiate Business Education
  P.O. Box 3960, Olathe Kansas 66063
  phone: (913) 631-3009
  www.iacb.org

- NAEYC (National Association of Education of Young Children)
  1313 L St. NW, Suite 500, Washington, D.C. 20005
  phone(s): (202)232-8777  | (800)424-2460
  webmaster@naeyc.org

Enrollment Services Center

The Enrollment Services Center located in Lawshe Hall room 130, offers one-stop help in all aspects of the enrollment process. By visiting the Center, you can...
- take advantage of our various transfer student services
- learn more about admission and Purdue Calumet’s programs
- apply for financial aid and check your financial aid status
- register for classes
- review your account (bill)
- pay your tuition and fees

Also, a student self-service area helps you do much of the enrollment process via the web. Here are some of the current enrollment services through the Purdue Calumet Home Page: www.purduecal.edu Check out MyPuc.

Through the WEB, you can...
- access your academic plan of study through the degree audit system DEGREEWORKS
- check current openings in classes
- check dates, times, and faculty teaching classes
- check your personal class schedule
- view your address information
- view e-mail address
- view unofficial transcript which includes:
  - grades and GPA
- view Blackboard Course Management system login information
- review your financial aid award
- review your student account (bill) and pay it online
- apply for undergraduate admission
- register for classes

The Enrollment Services Center and the highly trained staff have been recognized by IBM Corporation for Best Practice in Student Services (2000).
Admission to the University

The Office of Undergraduate Admissions offers View Purdue Calumet Open Houses and Information Sessions and provides guided campus tours and pre-admissions counseling appointments. For more information write or call:
Office of Admissions
Lawshe Hall, Room 130
Purdue University Calumet
2200 169th St
Hammond, Indiana 46323-2094
Phone: (219) 989-2213
Toll-free: 1-800-HI-PURDUE,* ext. 2213
Website: www.purduecal.edu/admissions/

Beginning students need to submit the following to be considered for admissions:
1. Completed Application, (A non-refundable $25 application fee is required. Students with transferable credit will pay an additional $30 for transcript evaluation.)
2. Official High School Transcript and/or GED Scores (Note: Domestic students with transcripts from international institutions must submit an official course by course evaluation of their foreign courses from a member of the National Association of Credential Evaluation Services (NACES).
3. Standardized Test Scores (SAT or ACT), including writing component (for recent high school graduates)
4. Indiana High School Core 40 or equivalent.

Acceptance

Admission to Purdue University Calumet is based on demonstrated academic quality rank factors, which includes a high school diploma or GED, meeting subject matter requirements, grade average in degree-related subjects, as well as overall grade average, class rank, SAT or ACT test scores and the strength of the college preparatory program.

Admissions Decisions

Recent Indiana High School Graduates are required to have at least a Core 40 to be accepted into Purdue University Calumet.

The Office of Undergraduate Admissions will evaluate applications and make one of the following determinations:
1. Regular admission. The applicant has met all conditions for admission to the college, department and curriculum specified in the letter of Admission.
2. Denied admission. The applicant will not be admitted to the university until adequate background and preparation for university work can be demonstrated.
3. Incomplete admission. The applicant has not provided all of the information or documentation necessary for the Office of Undergraduate Admissions to determine eligibility.
4. Pending admission. Additional information will be required at a later time, such as final grades from a semester currently in progress.

Direct Admission*

Applicants that meet all quality rank requirements for a particular program will be directly admitted into their choice of major and/or concentration.

Non-Direct Admissions. Applicants who DO NOT meet the quality rank requirements for a particular program may be offered admission into a preparatory program (within the College of Business, Technology, Liberal Arts and Sciences, Engineering, Math and Science) or the Center for Learning and Academic Success.

* The Nursing Program has limited enrollment and the BEST QUALIFIED applicants will be considered. STUDENTS ADMITTED TO THE PROGRAM GENERALLY EXCEED MINIMUM REQUIREMENTS. Applicants must apply NO LATER THAN February 1 for admission in August. Applicants approved for admissions by the Nursing Admissions Committee will begin their studies in August.

Indiana Core 40

Core 40 became Indiana’s required high school curriculum in Fall 2007. Starting Fall 2011 a Core 40 high school diploma became required for entrance to any four-year public Indiana college/university. In addition to considering high school courses, Purdue University Calumet will continue to use other factors such as grade point average, class rank, and test scores when reviewing applications for admission.

Indiana High School Dual Credit

Dual credit programs are partnerships between an individual high school or high school corporation and a particular college or university. Please contact the Office of Undergraduate Admissions to see if your school has entered into agreement with Purdue University Calumet.

In Indiana, dual credit courses are those which high school students may take to earn both high school and college credits. Dual credit courses are taught by high school faculty or by adjunct college faculty either at the high school, at the college or university, or through online courses or distance education. Dual credit is one of several options a high school student may use to fulfill Core 40 diploma requirements with Academic Honors or Technical Honors.

Students wishing to fulfill Core 40 with Academic Honors or Technical Honors diploma requirements are encouraged to choose dual credit courses from either the Core Transfer Library (CTL) or from the courses listed by the Independent Colleges of Indiana (ICI). Courses chosen from both the CTL and ICI list of courses may maximize the changes for the transferability of credit for courses and also meet the dual credit requirements necessary for Core 40 with Academic Honors or Technical Honors.

If students choose a dual credit course NOT on the CTL or on the courses listed by ICI, they should contact the college they plan to attend to see if that course can be transferred to that institution. Indiana colleges and universities provide many opportunities for students to earn college credit while still attending high school. For more information and the latest details visit: www.transferin.net/High-School-Students/Dual-Credit.aspx

National Test Requirements

Students who graduated from high school during or after 2006 are required to take the WRITING COMPONENT of the SAT or ACT in addition to the general exams. For applicants who graduated from high school within one year prior to their intended semester of enrollment, appropriate placement test results from the University’s Testing Services Center will substitute for SAT or ACT scores.

Degree-Seeking Transfer Students

An applicant transferring from another college (non-Purdue campus) must submit the following items:

- Completed application for admission. (a non-refundable $55 application fee is required.)
- Official high school transcript and/or, GED scores*, not required if applicant has obtain 24 transferable credit hours from a regionally accredited institution.
- Official college transcripts from each institution of higher education attended. All previous college coursework must be disclosed and submitted to the Office of Undergraduate Admissions.
- $30.00 Transfer Credit Evaluation Fee. (Admission decisions will be made only for students who provide official transcripts.)
- Domestic students with transcripts from international institutions must submit an official course by course evaluation of their foreign courses from a member of the National Association of Credential Evaluation Services (NACES).

* Exception: Applicants with at least an associate degree (documented) from a regionally accredited institution.
Transfer Student Admission Criteria

1) The applicant must submit official college transcripts showing at least 15 semester or semester-equivalent hours of college level work completed with a C or better.

2) The applicant must have successfully completed College Composition I (ENGL 10400) at a regionally accredited institution of higher education; and

3) The applicant must have earned a cumulative grade point average of 2.0 or above from the last institution attended.

Particular programs may require specific cumulative grade point averages for admission and/or additional successfully completed transfer courses for Transfer Student Admission.

Transfer credit is established through these procedures:

1. Applicants who have attended another college or university and have non-Purdue course-work must submit an official transcript(s).

2. Purdue University Calumet accepts credit from regionally accredited institutions for college level classes in which the student has received a grade of C- or better. The university reserves the right to determine the transferability and acceptance of transfer credit.

3. Course equivalencies are determined by respective academic departments (e.g. math course equivalencies are determined by the Department of Mathematics, Computer Science and Statistics)

4. Transfer courses will be evaluated by an Academic Advisor on an individual basis by program of study to determine how credits will apply toward plan of study and graduation requirements.

5. Purdue University Calumet accepts a maximum of 90 credits toward a baccalaureate degree from other regionally accredited colleges and universities.

TRANSFER CREDIT

Transfer Indiana – TransferIN and u.select

Purdue University Calumet supports and encourages prospective transfer students to visit the Indiana Commission of Higher Education Transfer Indiana website at http://www.transferin.net/ to view the Core Transfer Library (CTL) – a list of courses that will transfer among all Indiana public college and university campuses, assuming adequate grades.

Within Indiana’s TransferIN site, the program U.select allows prospective transfer students to view how credits may be evaluated and utilized by desired transfer institution(s).

TransferIN and u.select are free services for anyone interested in learning about:

- How courses transfer between participating college or universities
- The degree programs colleges and universities offer
- How to plan for transfer

TransferIN and u.select work best for students who:

- Already know where they are going to transfer or at least have their options narrowed down to a few colleges or universities
- Plan to take one or two classes at another college or university to transfer back to their native institution

TransferIN and u.select can show:

- If credits may have equivalents at another college or university
- How credits may be applied toward a degree at another college or university

TransferIN and u.select can also show:

- If there are courses you can take at another institution over the summer that will transfer back to your native college or university and how they may count toward your degree
- What course(s) you may need to graduate
- What course(s) you may need if you decide to change majors

You will find TransferIN and u.select helpful and efficient in your planning. However, you are encouraged to plan your course of study carefully and early. Seek detailed information from your advisor and the college or university to which you wish to transfer.

Transfer Student Services

Transfer students are encouraged to visit the Transfer Student Services Office located in the Enrollment Services Center in Lawshe Hall Room 130.

The Online Transfer Equivalency System

www.purduecal.edu/admissions/tces.html

Students and faculty now can efficiently evaluate transferring course credits through our Purdue University Calumet website. This system compares Purdue University Calumet course credits with that of other colleges and universities. If a course(s) is not listed in the report, this does not mean that the course is not accepted, it simply means that this course has not yet been articulated.

The distribution and applicability of equivalencies and UND credit toward your degree requirements are determined by the academic department responsible for your major.

Transfer credit is subject to departmental acceptance and distribution and equivalencies can be changed at any time. Please refer to admission policies regarding transferring credit for additional information.

Students Re-Entering Purdue University Calumet

Purdue Calumet students who have not attended for two years or longer but who were in good academic standing when they left must reapply for admission.

Those applicants who have attended another college or university since their last attendance at Purdue Calumet should refer to the Degree Seeking Transfer Student section on page 10 of this catalog.

Students re-entering who sought a degree from any Purdue campus must be in degree-seeking status upon return.

Degree-Seeking Transfer Students from other Purdue Campuses

Students who have attended or are currently attending another campus in the Purdue system may transfer* to Purdue Calumet by completing a regional-campus transfer application available at the Registrar’s Office of their original Purdue campus. Intercampus transfer students may also complete Purdue University Calumet’s online or paper application for admission or an undergraduate application for admission.

*Purdue University Calumet welcomes Purdue University transfer students in good academic standing. A Purdue University transfer student with a grade point average less than a 2.0 must be within 30 quality points of achieving a 2.0 for admission and must raise his or her grade point average to a 2.0 within the first 12 credit hours of enrollment at Purdue University Calumet.

Non-Degree Seeking Students

Purdue Calumet welcomes students pursuing studies for personal or professional enrichment. Students not pursuing a degree are admitted as non-degree students and may be admitted in the following circumstances: Note: Most non-degree seeking students are not eligible for consideration for financial aid.

1. Adult Learners: Adults 23 years of age or older with special interests and expertise who are enrolling for personal enrichment. Transcripts of credits and SAT/ACT or placement scores are recommended but not required.

2. Students applying for a Pre-Baccalaureate Certificate Program: A high school diploma (or equivalent) is required. Additional criteria, work experience, math skills, etc. will be discussed during your advisement appointment.

3. Students applying for Post-Baccalaureate Certificates: Transcripts from accredited institutions of higher education are required to verify receipt of a bachelor’s degree.

4. Company Employees: Employees of local businesses and industries who need further education in specific areas may enroll in selected courses with the recommendation of their employers. Transcripts of credits and SAT/ACT or placement scores are recommended and may be required for advising purposes.
5. **High School Students (Rule 10 Dual Credit and Concurrent Enrollment):**

High school students must meet the university's admission requirements as determined by the student's rank in class, test scores, and strength of college preparatory program.

High school students who have completed a minimum of four semesters of high school and who are interested in using their college credits to meet high school graduation requirements or get a head start on college, should contact their high school guidance counselor for a High School Application.

6. **Transient College Students:** Students pursuing degrees at non-Purdue campuses may enroll for continuously for up to two academic years.

Non-degree students who later wish to pursue degrees must apply for degree-seeking admission and are subject to admissions and degree requirements in effect for the semester in which they apply.

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### Advanced Credit and Advanced Placement

Advanced credit means that the university grants credit based on other outside academic work and records it on the student's record.

Advanced placement means that a student is placed in an advanced level course but may not have earned credit toward a degree for any prior courses. The Office of Admissions evaluates requests for advanced credit and advanced placement.

**There are six ways for a student to establish advanced credit or advanced placement:**

1. **Departmental/College Credit by Exam.** An individual college/department may establish an examination procedure to establish advanced credit. Students should consult with the college/department head or academic advisor for details.

2. **Departmental/College Credit without Exam** may be awarded on the basis of substantially equivalent experience or successful completion of a more advanced course. Students should consult with the college/department head or academic advisor for details.

3. **Departmental/College Credit in Mathematics, Computer Science, and Statistics.** Students may submit an application to the college/department for credit in basic mathematics courses numbered 13500 or above only if:
   - the basic course satisfies the mathematics requirement for the student’s curriculum;
   - the student is currently taking or has completed a subsequent course in the normal sequence of math courses in the college/department; and
   - the student has never received a grade other than W in the basic course.

4. **College-Level Examination Program (CLEP).** CLEP exams evaluate non-traditional college-level education, such as independent study, correspondence work, or credit earned at a non-regionally accredited institution. Purdue Calumet may accept CLEP credit if the student completes the subject matter examinations and sends the official score report with the qualifying exam and score to the Office of Undergraduate Admissions. (General examinations credit is not accepted.)

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### CLEP Scores Required for Equivalent Purdue University Calumet Credit

<table>
<thead>
<tr>
<th>CLEP Subject Exams</th>
<th>PUC Equivalent</th>
<th>Required Scores</th>
<th>Credit Granted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accounting</td>
<td>MGMT 20000</td>
<td>45+</td>
<td>3 credits</td>
</tr>
<tr>
<td>Principles of Management</td>
<td>MGMT 10100</td>
<td>45+</td>
<td>3 credits</td>
</tr>
<tr>
<td>Biology</td>
<td>BIOL 10100 &amp; BIOL 10200</td>
<td>48+</td>
<td>8 credits</td>
</tr>
</tbody>
</table>
| Chemistry | *CHM 11100
  CHM 11100 & CHM 11200
  *CHM 11500
  CHM 11500 & CHM 11600 | 50+ | 3 credits |
|  | 65+ | 6 credits |
|  | 55+ | 4 credits |
|  | 70+ | 8 credits |
| Calculus | MA 16300 & MA 16400 | 55+ | 10 credits |
| Pre-Calculus | MA 15900 | 57+ | 5 credits |
| College Composition with Essay | ENGL 10400 | 49+ | 3 credits |
| Human Growth & Development | CDFS UND | 45+ | 3 credits |
| Introductory Psychology | PSY 12000 | 45+ | 3 credits |

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### Introductory Sociology

<table>
<thead>
<tr>
<th>PUC Equivalency</th>
<th>Credit Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 10000</td>
<td>45+</td>
</tr>
</tbody>
</table>

---

### History of the United States

<table>
<thead>
<tr>
<th>PUC Equivalency</th>
<th>Credit Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 15100</td>
<td>50+</td>
</tr>
</tbody>
</table>

---

### History of the United States II

<table>
<thead>
<tr>
<th>PUC Equivalency</th>
<th>Credit Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 15200</td>
<td>50+</td>
</tr>
</tbody>
</table>

---

### Western Civilization

<table>
<thead>
<tr>
<th>PUC Equivalency</th>
<th>Credit Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 11000</td>
<td>50+</td>
</tr>
</tbody>
</table>

---

### Western Civilization II

<table>
<thead>
<tr>
<th>PUC Equivalency</th>
<th>Credit Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 10400</td>
<td>50+</td>
</tr>
</tbody>
</table>

---

*Sequence determined by applicant's major.

5. **College Board Advanced Placement Program.** Advanced Placement credit is awarded to students who have successfully completed college-level work in high school or through other non-traditional, college-level educational experiences. Students can establish credit by submitting an official score report with a qualifying score to the Office of Undergraduate Admissions.

### Advanced Placement and Advanced Credit

**(March 2011)**

<table>
<thead>
<tr>
<th>AP Exam Title</th>
<th>AP Score</th>
<th>PUC Equivalency</th>
<th>PUC Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History</td>
<td>3,4,5</td>
<td>A&amp;D 25500</td>
<td>3</td>
</tr>
<tr>
<td>Biology*</td>
<td>3</td>
<td>BIOL 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4,5</td>
<td>BIOL 10100, 10200</td>
<td>8</td>
</tr>
<tr>
<td>Calculus AB*</td>
<td>3</td>
<td>MA 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>4,5</td>
<td>MA 16300</td>
<td>5</td>
</tr>
<tr>
<td>Calculus BC*</td>
<td>3</td>
<td>MA 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>4,5</td>
<td>MA 16300, 16400</td>
<td>10</td>
</tr>
<tr>
<td>Calculus BC – AB subscore*</td>
<td>3,4,5</td>
<td>MA 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3</td>
<td>CHM 11100</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4,5</td>
<td>CHM 11500, 11600</td>
<td>8</td>
</tr>
<tr>
<td>Chinese Language and Culture</td>
<td>3</td>
<td>CHNS 10100</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4,5</td>
<td>CHNS 10100, 10200</td>
<td>6</td>
</tr>
<tr>
<td>Comparative Government and Politics*</td>
<td>3</td>
<td>POL 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td>Comparative Government and Politics</td>
<td>4,5</td>
<td>POL 14100</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science A*</td>
<td>3,4,5</td>
<td>CS 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td>English Language and Composition</td>
<td>3,4,5</td>
<td>ENGL 10400</td>
<td>3</td>
</tr>
<tr>
<td>English Literature and Composition*</td>
<td>3,4,5</td>
<td>ENGL 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Science*</td>
<td>3,4,5</td>
<td>SCI 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td>European History*</td>
<td>3</td>
<td>HIST 1XXXX</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4,5</td>
<td>HIST 10400</td>
<td>3</td>
</tr>
<tr>
<td>French Language</td>
<td>3</td>
<td>FR 10100, 10200</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>FR 10100, 10200, 20100</td>
<td>9</td>
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<tr>
<td></td>
<td>5</td>
<td>FR 10100, 10200, 20100, 20200</td>
<td>12</td>
</tr>
<tr>
<td>German Language</td>
<td>3</td>
<td>GER 10100, 10200</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>GER 10100, 10200, 20100</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>GER 10100, 10200, 20100, 20200</td>
<td>12</td>
</tr>
<tr>
<td>Human Geography*</td>
<td>3,4,5</td>
<td>EAS 1XXXX</td>
<td>3</td>
</tr>
</tbody>
</table>
You have two options for applying to Purdue University Calumet:

- **Apply online** at https://banwebf.purduecal.edu/pls/proddad/bwskalog_P_DisLoginNon
- **Apply by mail** using the application found at: http://webs.purduecal.edu/intl/files/Undergraduate-International-Student-Application-Form.pdf

Mail your application to:
Purdue University Calumet, Office of International Admissions
Classroom Office Building, Room 176
2200 169th Street; Hammond, Indiana 46323-2094

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**International Admission Requirements**

The following documentation must be submitted in order to apply for an undergraduate program at Purdue University Calumet:

### A. International Undergraduate Student Application

You have two options for applying to Purdue University Calumet:

- **Apply online** at https://banwebf.purduecal.edu/pls/proddad/bwskalog_P_DisLoginNon
- **Apply by mail** using the application found at: http://webs.purduecal.edu/intl/files/Undergraduate-International-Student-Application-Form.pdf

**Mail your application to:**
Purdue University Calumet, Office of International Admissions
Classroom Office Building, Room 176
2200 169th Street; Hammond, Indiana 46323-2094

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**B. Proof of graduation from a secondary school (high school):**

Original or attested copies of academic documents from all secondary schools attended should be mailed in a sealed envelope from the secondary school or the examination board. The record must be an official copy bearing an original stamp or seal. If the original is not in English, include a certified, detailed translation. A minimum of 2.25 grade point average is required for admission for those students applying to PUC directly from high school or without any college or university coursework completed.

**C. Proof of post-secondary school attendance:**

If any post-secondary schools were attended, transcripts must be mailed in a sealed envelope from the college, university, or examination board. The record must be an official copy bearing an original stamp or seal. If the original is not in English, include a certified, detailed translation.

**D. One of the following to establish English proficiency:**

- Test of English as a Foreign Language (TOEFL)
  - Score of 550 or higher, for Paper exam
  - Score of 79 or higher, for Internet Based TOEFL (iBT)
- International English Language Testing System (IELTS)
  - Score of at least 6.5 or higher
- Successful completion of the Purdue University Calumet English Language Program
- Ordinary Level of General Certificate of Education (G.C.E.)
- General Certificate of Secondary Education (G.C.S.E.)
- Scholastic Aptitude Test (SAT)
  - Reading (verbal) score of 480 or higher
- A minimum of 15 transferable credits from an accredited U.S.-based institution of higher education, including an English Composition course equivalent to Purdue University Calumet’s ENGL 10400.
- Transferable credit from an accredited U.S. institution of higher education equivalent to Purdue University Calumet’s ENGL 10400, English Composition course.

Purdue University Calumet’s school code is 001638 for all standardized tests including TOEFL, SAT, GRE and GMAT.

**E. Transfer Credit and Documentation Sheet:**

If you have attended any other college or university, submit a $30.00 transfer credit evaluation fee, and original academic transcripts from an accredited college or university along with the form found at this webpage: http://webs.purduecal.edu/intl/files/transfer-credit-and-documentation-sheet.pdf

**F. Application Deadlines and Mailing Address:**

Please note that Purdue University Calumet must receive all required application materials, on or before the dates indicated below.

- **April 1** - Summer Semester
- **June 1** - Fall Semester
- **November 15** - Spring Semester

Please mail your application materials to:
Purdue University Calumet, Office of International Admissions
Classroom Office Building, Room 176
2200 169th Street; Hammond, Indiana 46323-2094

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**International Educational Agents**

Purdue University Calumet is part of the internationally respected Purdue University System. Purdue is a public university system, which encourages international students to apply for admission on their own and NOT PAY FOR EDUCATIONAL AGENTS.
Fees for 2013-2014

Tuition and fees, set annually by the Purdue University Board of Trustees, are subject to change without notice. The fees listed below are for the 2013-2014 academic year.

**Tuition 2013-2014**

<table>
<thead>
<tr>
<th>Category</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Undergraduate fee per credit hour</td>
<td>$213.30</td>
</tr>
<tr>
<td>Nonresident Undergraduate fee per credit hour</td>
<td>$511.20</td>
</tr>
<tr>
<td>Resident Graduate fee per credit hour</td>
<td>$270.70</td>
</tr>
<tr>
<td>Nonresident Graduate fee per credit hour</td>
<td>$596.25</td>
</tr>
<tr>
<td>Laboratory fee per lab hour</td>
<td>$63.35</td>
</tr>
<tr>
<td>Registration for examination only</td>
<td>$204.32</td>
</tr>
<tr>
<td>Registration for degree only</td>
<td>$204.32</td>
</tr>
<tr>
<td>Technology fee per credit hour</td>
<td>$8.60</td>
</tr>
</tbody>
</table>

**Regular Fees**

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Fee for Undergraduate Programs</td>
<td>$25.00</td>
</tr>
<tr>
<td>Application Fee for Graduate School</td>
<td>$60.00</td>
</tr>
<tr>
<td>Undergraduate Student Service Fee</td>
<td>$5.80 per credit hour</td>
</tr>
<tr>
<td>Undergraduate Parking Fee</td>
<td>$5.40 per credit hour</td>
</tr>
<tr>
<td>Graduate Parking Fee</td>
<td>$5.40 per credit hour</td>
</tr>
<tr>
<td>Late Registration Fees:</td>
<td></td>
</tr>
<tr>
<td>For students who register after classes begin, an additional nonrefundable fee</td>
<td></td>
</tr>
<tr>
<td>of $8.50 per credit hour will be assessed.</td>
<td></td>
</tr>
<tr>
<td>Transcript Evaluation Fee:</td>
<td>$30.00</td>
</tr>
<tr>
<td>Fee is charged for evaluation of transfer credit. The fee is non-refundable</td>
<td></td>
</tr>
<tr>
<td>and will not be credited to tuition and fees associated with course enrollment.</td>
<td></td>
</tr>
<tr>
<td>Readmission Fee</td>
<td>$100.00</td>
</tr>
<tr>
<td>Those students dropped by the university for academic reasons are assessed a</td>
<td></td>
</tr>
<tr>
<td>fee before application for readmission will be processed.</td>
<td></td>
</tr>
<tr>
<td>Breakage Fees:</td>
<td></td>
</tr>
<tr>
<td>Usually included in course fees for the cost of normal breakage and wear and</td>
<td></td>
</tr>
<tr>
<td>tear on equipment. An additional charge will be levied against individuals for</td>
<td></td>
</tr>
<tr>
<td>excessive waste, loss or breakage, to be paid before course credit will be</td>
<td></td>
</tr>
<tr>
<td>given.</td>
<td></td>
</tr>
<tr>
<td>Replacement of Student Service Fee Card:</td>
<td>$15.00</td>
</tr>
<tr>
<td>Encumbrance Fee</td>
<td>$25.00</td>
</tr>
<tr>
<td>If a student fails to fulfill any financial obligation to any university</td>
<td></td>
</tr>
<tr>
<td>department, the student’s records will be encumbered and the fee assessed to</td>
<td></td>
</tr>
<tr>
<td>the student. Students will be notified in writing of the outstanding obligation</td>
<td></td>
</tr>
<tr>
<td>and will be given a specified time to settle the account prior to assessing the</td>
<td></td>
</tr>
<tr>
<td>fee.</td>
<td></td>
</tr>
</tbody>
</table>

An encumbered record means:

- The student may not be allowed to register for courses at any Purdue University Campus and
- The student's official transcript will not be released until the financial obligation is satisfied.

**Payment Responsibility/Payment Options**

It is the student’s responsibility to finalize payment options before the designated payment deadline date in order to prevent the cancellation of classes for the term enrolled. Students will save time and avoid lines by selecting a payment option before the designated payment deadline date.

Purdue University Calumet offers several convenient payment options to assist students to finance their educations.

- Web NBS/FACTS Payment Plan (see section entitled Purdue University Calumet’s NBS/FACTS Payment Plan for detailed information)
- Access PCSTAR (Purdue Calumet Student Access to Records) to easily and conveniently pay your bill for any semester that you are registered at Purdue University Calumet.
- Accepted payment options online:
  - MasterCard, Visa, Discover, or Webcheck
  - Access PCSTAR via the Web at: www.purduecal.edu
- Mail: Check to: Office of Financial Aid and Student Accounts
- Telephone: Credit Card (MasterCard, Visa, or Discover)
- Night Deposit Box (located at the north side of Lawshe Hall off of Woodmar Avenue or at the Schneider Avenue building):
- In Person: Credit Card (MasterCard, Visa or Discover), Debit Card, Cash, or Check. Students may select payment options in person at the Office of Financial Aid and Student Accounts located in the Enrollment Services Center, Lawshe Hall, Room 130.

For questions or concerns regarding payment responsibility and/or help with payment options, please contact the Office of Financial Aid and Student Accounts at 219-989-2560 or view their Web site at: www.purduecal.edu/finaid

**Purdue University Calumet’s NBS/FACTS Payment Plan**

Purdue University Calumet is pleased to offer the NBS/FACTS tuition payment plan to enable you to more easily afford your educational expenses. NBS/FACTS is a tuition management plan that provides you with a low cost plan for budgeting tuition and other educational expenses. It is not a loan program; therefore, interest and finance charges are not assessed, nor is a credit check required.

The NBS/FACTS payment plan is a convenient and inexpensive way for you to make your payments. Your tuition payment can be made by Automatic Bank Payment (ACH) from your checking or savings account or by credit card (Visa, MasterCard, or American Express). Debit Cards are not accepted.

The NBS/FACTS tuition payment plan schedule is designed to give you flexibility in meeting your financial responsibility to Purdue University Calumet. All monthly payments are withdrawn on the 5th of each month. If you elect to either the Automatic Bank Payment (ACH) or the credit card option, there is a $25 non-refundable enrollment fee per semester. All NBS/FACTS fees are processed directly from the account listed on the NBS/FACTS Agreement Form by either Automatic Bank Payment (ACH) or charged to your credit card, depending upon the payment option you select.

It is your responsibility to verify the NBS/FACTS plan balance by accessing MY-FACTS (www.Factstuition.com) and to notify Purdue University Calumet’s Office of Financial Aid and Student Accounts at 219-989-2560 should you wish to make any changes to your agreement after it is set up by NBS/FACTS. All changes must be made 10 business days prior to the scheduled payment date.

The Office of Financial Aid and Student Accounts may adjust your NBS/FACTS payment plan balance for any financial aid disbursed, as well as added or dropped classes.

If you have any questions please call either NBS/FACTS Tuition Management Company at 1-800-609-8056, or the Purdue University Calumet Office of Financial Aid and Student Accounts at 219-989-2560.
Refunds
Course fees, technology fees, and student services fees will be refunded for withdrawal from full term classes according to the following schedule:

- 100% Prior to the semester starting
- 80% During the first week of classes
- 60% During the second week of classes
- 40% During the third week of classes
- 20% During the fourth week of classes
- 0% After the fourth week of classes

Our policy during the summer semester is as follows:

- 100% Prior to session starting
- 80% During the first week of classes
- 40% During the second week of classes
- 0% After the second week of classes

Students must complete the withdrawal procedure by submitting a signed add/drop card to the Office of the Registrar (Enrollment Services Center — Lawshe Hall Room 130), to be eligible for a refund. A detailed schedule of the refund policy may be obtained from the Office of Financial Aid and Student Accounts. NOTE: By not attending classes, students have not officially withdrawn from classes at Purdue University Calumet. Students must follow the withdrawal procedure outlined above to be officially withdrawn from a course. Failure to do so could result in the student being charged and receiving a failing grade in the class. No refund will be given for courses dropped after the fourth week of the semester. Students whose registration is cancelled by the Dean of Students for disciplinary reasons will receive refunds based on this same schedule. Refunds of deposits on equipment are subject to regular service and breakage charges.

Return of Financial Aid (Title IV) Funds
For students who are the recipients of financial aid (Title IV) funds and withdraw from all of their classes prior to October 25, 2013 for the Fall 2013 semester, or March 19, 2014 for the Spring 2014 semester, or withdraw prior to the completion of more than 60% of any term, the institution is required to determine the amount of unearned financial aid funds that must be returned to the Title IV program(s). Depending on the amount of financial aid disbursed to students or onto students accounts, students may be liable for a portion of the amount of unearned financial aid that must be returned to the Title IV program(s). To fully withdraw from the university, students can initiate the withdrawal process by telephone by contacting the Office of the Registrar at (219) 989-2181 or by visiting the Enrollment Services Center located in Lawshe Hall, Room 130.

Classification of Students as Resident or Non-Resident
The assessment of tuition and fees for a given semester is based on the student’s residence classification on the first day of classes for that semester. Students who are not classified as residents of the State of Indiana are required to pay non-resident tuition. A student’s residence classification continues in effect for subsequent semesters unless and until the classification is changed.

Responsibility for Residence Classification
The Director of Admissions or a designee determines the initial residence classification of an undergraduate student at the point that the student is admitted or re-enters the university. The Executive Dean or a designee determines the initial residence classification of each Graduate student at the time the student enters or re-enters the university.

All reclassifications are determined by the Registrar or a designee. Any of these authorities are authorized to require certificates, affidavits, documents, or any other evidence they deem necessary. The burden of proof is always on the student making a claim to resident student status. In addition to the required proof, to be considered domiciled in Indiana, a person must reside continuously in the state for a predominant purpose other than attending an institution of higher education for at least 12 months immediately preceding the first day of classes of the term for which resident classification is sought. Students who have further questions about residency reclassification may request a brochure from the offices of any of these authorities.

Changes in Residence Classification for Tuition Purposes
Either the student or the university may initiate an inquiry of residency classification. The non-resident student has the responsibility to apply to the Registrar for reclassification if the student believes that changes in the situation justify reclassification.

To apply for a change
The student must apply in writing, using a form available from the Office of the Registrar, at any time after the requirements for domicile have been met, but no later than 15 days after the start of classes for the semester in which reclassification is sought. The Registrar will make a decision no later than 30 days after the completed application is filed.

Penalties for Failure to Provide Adequate Information
A student who fails to notify the university of a change of facts or provides false information which might affect classification or reclassification from resident to non-resident status will be required to pay retroactively any tuition fees which would normally have been assessed.

The student who provides false information or conceals information to achieve resident status may also be subject to disciplinary action as well as other penalties under the law.

Residence Classification Review
A student who is not satisfied with a determination concerning his/her residence classification may appeal the decision to the Residence Appeals Committee, which convenes on the Calumet campus. The appeal shall be in writing and shall include reasons for the appeal and a complete statement of the facts upon which the appeal is based, together with supporting affidavits, or other documentary evidence. The appeal must be filed within thirty days after the first day of classes of the academic session for which the determination is effective or within thirty days after the original decision has been reconsidered, whichever occurs later. Failure to file such an appeal within the specified time limit shall constitute a waiver of all claims to reconsideration for that academic session.
Financial Aid

To help students meet the cost of their education, Purdue University Calumet’s Office of Financial Aid and Student Accounts offers students financial assistance to meet educational costs beyond those which they and their families are able to afford.

Should I Apply for Financial Aid?

It is recommended that ALL Purdue University Calumet students apply for financial aid. (Never assume you don’t qualify for financial aid.) To find out if you are eligible for financial aid — federal, state, institutional, or private — YOU MUST APPLY! At Purdue University Calumet about 56% of all students enrolled receive some form of financial assistance.

Who is Eligible?

Prospective first-time freshman applying for financial aid are required to meet the following:

- Be a U.S. citizen or eligible non-citizen
- Have a valid Social Security Number
- Have a high school diploma or a General Education Development (GED) certificate
- Be a regular degree-seeking student
- Make satisfactory academic progress

Other requirements may apply. For more information, please contact the Office of Financial Aid and Student Accounts.

PROCESS

Prospective Students

1. Complete an undergraduate admissions application at www.purduecal.edu/apply/

Newly Admitted Students

1. Logon to PC ST AR at www.purduecal.edu
   PC ST AR is a secure Web site where students can access their university records — see your admissions acceptance letter for your user name and password.

Can I Estimate My Financial Aid?

You certainly can!
An on-line Financial Aid Estimator is available to help students and families plan for educational costs at Purdue University Calumet.
http://webs.purduecal.edu/ofasa/net-price-calculator/

How Do I Apply?

A single application called the FAFSA (Free Application for Federal Student Aid) is used to apply for all federal, state and institutional financial aid at Purdue University Calumet, including federal student and parent loans.

Students are encouraged to access www.fafsa.gov to file online. Filing online allows your application information to be processed faster (days vs. weeks). Edit checks built into software help prevent errors that could lead to processing delays.

Filing online is a two-step process:

STEP 1: Obtain a PIN (Personal Information Number) at www.pin.ed.gov
Note: If parent information is required on the FAFSA, the parent should also obtain a PIN. (The PIN serves as an electronic signature and allows viewing of FAFSA data online.)

STEP 2: Complete a FAFSA online at www.fafsa.gov
Note: A “pre-filled” FAFSA application is available on-line for students who submitted a FAFSA the prior year enabling them to “pre-fill” their FAFSA application with data from the prior year’s FAFSA.

Although it is recommended you file online, a paper FAFSA can be requested by calling the Federal Student Aid Information Center at 1-800-4-FED-AID (1-800-433-3243) or 1-319-337-5665.

Note: Expect a longer processing time when submitting a paper FAFSA. If you are hearing impaired, please contact the TTY line at 1-800-730-8913.

In lieu of filing the FAFSA online or mailing in a paper FAFSA, students and parents can call the Federal Student Aid Information Center (FSAIC) and file by phone (1-800-4-FED-AID; 1-800-433-3243). FAFSA on the Phone (FOTP) provides applicants with real-time assistance from a customer service representative in completing the FAFSA. This new service is designed for applicants who do not have access to FAFSA on the Web and who are facing fast-approaching state application deadlines.

Remember:
- Applying for financial aid is FREE!
- You must reapply for financial aid every year!

When Do I Apply?

Apply as soon AFTER January 1 as possible for the upcoming academic year (i.e. January 1, 2013 for 2014-2015). Do not submit your FAFSA before January 1 for the upcoming academic year. While it is easier to complete the FAFSA once you have filed your federal tax return, you can provide estimated tax information on your FAFSA and update your FAFSA data once you have completed your federal tax return. Submit your FAFSA so it is RECEIVED by the Federal Processor by March 10th for the upcoming academic year. Applications RECEIVED AFTER March 10th will be considered only for Federal Pell Grant, Federal Stafford Loan and Federal PLUS (parent/graduate) Loan funds.

Am I Eligible?

When you complete the FAFSA, the information you report is used in a formula established by the federal government that calculates your Expected Family Contribution (EFC), an amount you and your family are expected to contribute toward your education. The formula considers many factors including income, taxes paid, assets, family size and number of family members in college when determining the family’s ability to contribute. If you feel you or your family have unusual circumstances or expenses that may affect your EFC, contact the Office of Financial Aid and Student Accounts at Purdue University Calumet.

Eligibility for financial aid is based upon a determination of your financial need, which is the difference between the total cost of your education and your Expected Family Contribution (EFC).

<table>
<thead>
<tr>
<th>TOTAL COST OF EDUCATION</th>
<th>MINUS (-)</th>
<th>EXPECTED FAMILY CONTRIBUTION (EFC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EQUALS (=)</td>
<td>FINANCIAL NEED</td>
</tr>
</tbody>
</table>

To receive financial aid, you must:
- Have a high school diploma or a General Education Development (GED) certificate
- Be enrolled or accepted for enrollment as a regular degree-seeking student
- Be a U.S. citizen or eligible non-citizen
What are the Types of Financial Aid?

The U.S. Department of Education offers the following student federal financial aid programs: Federal Pell Grant, Federal Supplemental Educational Opportunity Grant (FSEOG), Federal Work-Study (FWS), Federal Stafford Loan, Parent Loan for Undergraduate Students (PLUS), Grad PLUS Loan, and Perkins Loan.

The State of Indiana offers the following major student financial aid programs: Frank O’Bannon Grant, Twenty-first Century Scholars Program, National Guard Scholarship, State Nursing Scholarship, Children of Veteran and Public Safety Officer (CVO) benefits, and part-time grants.

These programs represent four basic types of aid: grants, scholarships, loans and employment.
- Grants are need-based aid which do not have to be re-paid
- Scholarships are merit or need-based aid that do not have to be re-paid
- Loans are borrowed money that you must repay with interest
- Employment (work-study) provides the opportunity for students to work and earn money

Graduate students may receive loans and/or FWS, as well as scholarships, but are not eligible for any grants. (See chart of financial aid programs available to students attending Purdue University Calumet on pages 21-23.) Purdue University Calumet offers numerous Merit and Need-Based Scholarships in addition to the federal and state funds awarded through the University. A scholarship search using the Internet is available at the following address: http://webs.purduecal.edu/ofasa/scholarships-2/

How Much Does it Cost to Attend? Determining a Financial Aid Budget

The exact educational cost of attending Purdue University Calumet differs from student to student depending upon many factors, such as the number of classes taken each semester, transportation costs, and whether or not you live at home with your parents, or on campus.

The undergraduate financial aid budget chart shown below provides a sample of the estimated costs during the academic year.

Undergraduate Financial Aid Budget Chart and What Might a Financial Aid Package Look Like?

<table>
<thead>
<tr>
<th>UNDERGRADUATE FINANCIAL AID BUDGET — 2013 - 2014 ACADEMIC YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESTIMATED COSTS (per credit hour)</strong></td>
</tr>
<tr>
<td><strong>ON CAMPUS</strong></td>
</tr>
<tr>
<td><strong>OFF CAMPUS</strong></td>
</tr>
<tr>
<td><strong>WITH PARENTS</strong></td>
</tr>
<tr>
<td><strong>Tuition-Undergraduate ($ 213.30)</strong></td>
</tr>
<tr>
<td>$5,972</td>
</tr>
<tr>
<td>$5,972</td>
</tr>
<tr>
<td>$5,972</td>
</tr>
<tr>
<td><strong>Tuition-Graduate ($ 270.70)</strong></td>
</tr>
<tr>
<td>6,497</td>
</tr>
<tr>
<td>6,497</td>
</tr>
<tr>
<td>6,497</td>
</tr>
<tr>
<td><strong>Nonresident (Out-of-State) Tuition ($511.20)</strong></td>
</tr>
<tr>
<td>14,314</td>
</tr>
<tr>
<td>14,314</td>
</tr>
<tr>
<td>14,314</td>
</tr>
<tr>
<td><strong>Nonresident (Out-of-State) Tuition ($596.25)</strong></td>
</tr>
<tr>
<td>14,310</td>
</tr>
<tr>
<td>14,310</td>
</tr>
<tr>
<td>14,310</td>
</tr>
<tr>
<td><strong>Fees - Undergraduate ($23.30 per credit hour)</strong></td>
</tr>
<tr>
<td>652</td>
</tr>
<tr>
<td>652</td>
</tr>
<tr>
<td>652</td>
</tr>
<tr>
<td><strong>Graduate</strong> ($157.50 per credit hour)**</td>
</tr>
<tr>
<td>420</td>
</tr>
<tr>
<td>420</td>
</tr>
<tr>
<td>420</td>
</tr>
<tr>
<td><strong>Books &amp; Supplies</strong></td>
</tr>
<tr>
<td>1,570</td>
</tr>
<tr>
<td>1,570</td>
</tr>
<tr>
<td>1,570</td>
</tr>
<tr>
<td><strong>Room ($5,325 for 9 months) and Board</strong></td>
</tr>
<tr>
<td>7,915</td>
</tr>
<tr>
<td>8,094</td>
</tr>
<tr>
<td>3,432</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
</tr>
<tr>
<td>2,891</td>
</tr>
<tr>
<td>3,360</td>
</tr>
<tr>
<td>3,360</td>
</tr>
<tr>
<td><strong>Personal Expenses</strong></td>
</tr>
<tr>
<td>2,119</td>
</tr>
<tr>
<td>2,119</td>
</tr>
<tr>
<td>2,119</td>
</tr>
<tr>
<td><strong>Loan Fees</strong></td>
</tr>
<tr>
<td>102</td>
</tr>
<tr>
<td>102</td>
</tr>
<tr>
<td>102</td>
</tr>
<tr>
<td><strong>Cost of Attendance</strong></td>
</tr>
<tr>
<td><strong>Undergraduate</strong></td>
</tr>
<tr>
<td>21,221</td>
</tr>
<tr>
<td>21,870</td>
</tr>
<tr>
<td>17,208</td>
</tr>
<tr>
<td><strong>Nonresident (Out-of-State) Undergraduate</strong></td>
</tr>
<tr>
<td>29,563</td>
</tr>
<tr>
<td>30,211</td>
</tr>
<tr>
<td>25,549</td>
</tr>
<tr>
<td><strong>Graduate</strong></td>
</tr>
<tr>
<td>21,513</td>
</tr>
<tr>
<td>22,162</td>
</tr>
<tr>
<td>17,500</td>
</tr>
<tr>
<td><strong>Nonresident Graduate</strong></td>
</tr>
<tr>
<td>29,327</td>
</tr>
<tr>
<td>29,975</td>
</tr>
<tr>
<td>25,313</td>
</tr>
</tbody>
</table>

*Does not include any applicable lab fees

<table>
<thead>
<tr>
<th>What might a Financial Aid Package look like to a First Year Student?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost of Education</strong></td>
</tr>
<tr>
<td>$17,454</td>
</tr>
<tr>
<td>minus Expected Family Contribution (EFC) (-) $1,000</td>
</tr>
<tr>
<td>equals Financial Need</td>
</tr>
<tr>
<td>$16,454</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Important Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
</tr>
<tr>
<td>FAFSA forms available. Parents and students should file their 2012 Tax forms this month. Complete the FAFSA online at <a href="http://www.fafsa.gov">www.fafsa.gov</a>. This Web site may be accessed also to obtain a PIN.</td>
</tr>
<tr>
<td>February</td>
</tr>
<tr>
<td>Financial Aid Awareness Month! Attend special programs offered to assist you in completing your FAFSA such as “College Goal Sunday,” a statewide initiative held in more than thirty Indiana locations.</td>
</tr>
<tr>
<td>March</td>
</tr>
<tr>
<td>Students whose FAFSA has been received by the Federal Processor by March 10th will receive priority consideration for State and institutional assistance for the upcoming academic year. Complete your financial aid file with the Office of Financial Aid and Student Accounts.</td>
</tr>
<tr>
<td>April/May</td>
</tr>
<tr>
<td>The first round of Award Notification notices are e-mailed to the student’s PUC e-mail account and the e-mail address listed on the student’s 2013-2014 FAFSA, if provided. Accept your award online via PCSTAR within 14 days of receipt of your award notification e-mail. Awarding occurs on a weekly basis as files become complete.</td>
</tr>
</tbody>
</table>

Important Notes
- If you are a financial aid recipient and intend to fully withdraw from the university, you must initiate the withdrawal process by calling the Office of the Registrar at (219) 989-2210 or by visiting the Enrollment Services Center located in Lawshe Hall, Room 130. Remember, it is your responsibility to verify your account status with the Office of Financial Aid and Student Accounts and fulfill your payment obligation prior to the Priority Final Payment Date or your classes may be cancelled. If your Authorized Aid (aid ready to be disbursed onto your account) is less than your bill, you must pay the balance owed at the Office of Financial Aid and Student Accounts prior to the Priority Final Payment Date or your classes may be cancelled.
Purdue University Calumet Scholarships

The Purdue University Calumet scholarships offer numerous scholarships ranging from $100 to $18,700 per academic year. Awards are based on academic merit and/or financial need. All students meeting scholarship criteria will be considered for Purdue University Calumet scholarships. A FAFSA must be submitted in order to be considered for all scholarships. Separate scholarship applications are required for certain scholarships.

Who Can I Call for Help?

Purdue University Calumet
Enrollment Services Center
Office of Financial Aid and Student Accounts
Lawshe Hall, Room 130
2200 169th Street
Hammond, IN 46323-2094
Phone: (219) 989-2301
Fax: (219) 989-2141
E-mail address: finaid@purduecal.edu
Web: www.purduecal.edu/finaid/

Federal Student Aid Information Center
1-800-4-FED-AID (1-800-433-3243). This is a toll-free number. Call this number for FAFSA assistance/status

TDD number at the Federal Student Aid Information Center
1-800-730-8913. Call this number for help with any federal student aid questions.

Satisfactory Academic Progress Policy
(REVISED EFFECTIVE SUMMER 2011)

Both Federal statutes and U.S. Department of Education regulations require institutions of higher education to establish minimum standards of Satisfactory Academic Progress for students receiving federal aid. In addition all State Student Assistance Commission of Indiana (SSACI) program regulations (Frank O’Bannon Grant, Twenty-First Century Scholars, etc.) require students to meet the Satisfactory Academic Progress criteria established for federal student aid.

Satisfactory Academic Progress means a student is proceeding in a positive manner toward fulfilling degree or certification requirements. Satisfactory Academic Progress consists of two components of measurement, quantitative and qualitative, which measure:

1. Pace — Minimum Overall Completion Rate (67%)
   a. Overall Earned Credit Hours >= .67 x Overall At tempted Credit Hours
2. Timeframe — Maximum Total Attempted Hours Percentage (150%)
   a. Undergraduate: 192 overall attempted credit hours maximum (128 credit hours x 150%)
   b. Graduate: Calculated by program
3. GPA — Minimum Cumulative GPA (range 1.5 to 1.7)
   a. Based on Classification

A student’s Satisfactory Academic Progress status is reviewed at the end of each semester, including the summer term.

Quantitative Measurement

1. Pace – Minimum Overall Completion Rate Percentage (67%)
   Number of overall earned credit hours must equal at least 67% of overall attempted credit hours

Student financial aid recipients must demonstrate measurable progress toward earning a degree by successfully completing 67% of all hours at Purdue Calumet, including all hours accepted in transfer and all hours included in an approved financial aid consortium agreement. The chart below shows whether a course with a specific course grade or course registration is included when determining attempted or earned credit hours or in the GPA calculation.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Course Registration Status</th>
<th>Counted In Attempted Credit Hours</th>
<th>Counted In Earned Credit Hours</th>
<th>Counted In GPA Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+, A-, A-, B+, B-, C+, C+, C-, D+, D, D-</td>
<td>RE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>I, SI, PI, LL, IN, E, IN, IU, IX</td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>F, IF</td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>S, P</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Incomplete – once grade assigned</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CD, CA, CX, CL (dept credit)</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Transfer Credits</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>WN, CN, CD, DQ, D1, D4, D6, D8</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>W</td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>WA, WR, DQ, D2</td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Non-Credit Courses</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Repeat Courses (grade removed from prior course)</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Courses part of a financial aid consortium</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

2. Timeframe – Maximum Total Attempted Hours Percentage (150%)
   Maximum of 192 attempted credit hours allowed for a 128 credit hour program

Student financial aid is available for up to 150% of the number of hours required to complete the degree program. For most undergraduate programs of this provides up to 192 attempted semester hours for student financial aid recipients to complete a 128 semester hour program. Students in undergraduate programs of study requiring more than 128 hours may have their eligibility for student financial aid extended proportionately upon appeal. All hours attempted and hours accepted in transfer by Purdue Calumet (including those for which the student did not receive financial aid), as well as all credit hours included as part of an approved financial aid consortium agreement, count toward the 150% maximum total attempted hours. Note: During the last semester of eligibility a student may only receive financial aid for the total number of credit hours remaining in their maximum timeframe.

Students who have attempted the number of credit hours needed to complete a degree may no longer be eligible for student financial aid. In addition, if it can be shown that the student will not be able to complete an undergraduate degree within the 150% maximum timeframe (generally 192 semester hours) student aid may be revoked.

Note: Graduate students may receive financial aid based on length of program.
EVALUATION OF SATISFACTORY ACADEMIC PROGRESS

Financial Aid Warning Status — Students failing to meet Satisfactory Academic Progress standards will be placed on Financial Aid Warning for the following semester during which time they remain eligible to receive student financial aid.

Academic Re-Admission — University approval of Academic Re-Admission does not supersede Satisfactory Academic Progress requirements.

STUDENT INFORMATION | 2013-2014 | 19
RE-ESTABLISHING ELIGIBILITY WITHOUT AN APPROVAL APPEAL
Other than when an appeal is approved for unusual or mitigating circumstances and a student is placed on an Academic Advisor Assessment, a student may re-establish eligibility by taking action that brings the student into compliance with the qualitative and quantitative components of the school’s Satisfactory Academic Progress standard, including the maximum time frame. A student’s Satisfactory Academic Progress status is reviewed at the completion of each semester, including Summer.

REGAINING YOUR STUDENT FINANCIAL AID ELIGIBILITY
A student may be awarded Federal Pell Grants, Federal Perkins Loans, Federal Supplemental Educational Opportunity Grants, and State financial aid (Frank O’Bannon Grant, Twenty-First Century Scholarship, etc.) for the payment period in which the student resumes Satisfactory Academic Progress or as the result of an approved appeal. For Federal Direct Loans the student regains eligibility for the entire period of enrollment in which the student again meets Satisfactory Academic Progress standards. Other rules and regulations governing federal and student financial aid programs still apply.

This policy pertains to applicants for federal, state of Indiana, and Purdue University Calumet-controlled aid programs, including most student loan programs. If you have questions about the monitoring of Satisfactory Academic Progress not addressed in this policy please contact the Office of Financial Aid at 219/989-2301.
Financial Aid Programs Offered at Purdue University Calumet

(additional criteria may apply/programs are subject to change)

Please contact the Office of Financial Aid and Student Accounts for additional information.

Visit: Enrollment Services Center, Lawshe Hall, Room 130  |  Access: www.purduecal.edu/finaid  |  Call: 219/989-2301

It is recommended that ALL students file the FAFSA (Free Application for Federal Student Aid). Students who file by March 10 and have a completed file at the time our first Award Notifications are emailed/mailed to students receive priority consideration for state and institutional assistance for the upcoming academic year.

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>Application</th>
<th>Annual/Aggregate Amounts</th>
<th>Eligibility</th>
<th>Repayment Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Pell Grant</td>
<td>Grant program (portable)</td>
<td>FAFSA required annually</td>
<td>Annual minimum and maximum vary; $605 minimum for 2013-2014; $5,645 maximum for 2013-2014; Award adjusted based on actual enrollment each term; Receive for a maximum of 18 semesters</td>
<td>Undergraduate students with 1st baccalaureate or professional degrees; Based on need</td>
<td>No</td>
</tr>
<tr>
<td>Federal Supplemental Educational Opportunity Grant (FSEOG)</td>
<td>Campus-based grant program, funds awarded by institution</td>
<td>FAFSA required annually</td>
<td>$100 annual minimum</td>
<td>Undergraduate students without baccalaureate or professional degree; First priority given to Federal Pell Grant recipients with “exceptional financial need” (defined by law)</td>
<td>No</td>
</tr>
<tr>
<td>Federal Work-Study (FWS)</td>
<td>Campus-based employment program, awarded by institution</td>
<td>FAFSA required annually</td>
<td>No minimum or maximum; Award amount dictated by school policy</td>
<td>Undergraduate and graduate students; Based on need</td>
<td>No</td>
</tr>
<tr>
<td>Federal Perkins Loan</td>
<td>Campus based loan program, funds awarded by institution; 5% interest</td>
<td>FAFSA required annually, Master Promissory Note (MPN)</td>
<td>Award amount dictated by school policy</td>
<td>Undergraduate and graduate students; First priority given to students with exceptional need (defined by school); Must first have determination for eligibility/ineligibility for Federal Pell Grant</td>
<td>Yes; begins 9 mos. after cessation for at least half-time enrollment; deferment and cancellation provisions available</td>
</tr>
<tr>
<td>Federal Direct Student Loan – Subsidized and Unsubsidized Stafford Loans</td>
<td>Direct Loan funds from federal government; 3.4% fixed interest rate for undergrad, subsidized loans; 6.8% fixed interest rate for grad and unsubsidized loans</td>
<td>FAFSA required annually; MPN obtained from Direct Loan servicer</td>
<td>$3,500 1st year undergraduates; $4,500 2nd year undergraduates; $5,500 each remaining undergraduate year; Undergraduate annual limits prorated for programs and remaining periods of enrollment less than an academic year; $5,500/year for teacher certification if already have baccalaureate; $20,500 unsub/grad year for graduate and professional students</td>
<td>Undergraduate and graduate students enrolled at least half-time; Must first have determination of eligibility/ineligibility for Federal Pell Grant; Must determine eligibility for subsidized Stafford Loan before determining eligibility for unsubsidized Stafford Loan; Interest subsidy based on need; Unsubsidized funds may be used to replace EFC</td>
<td>Yes; begins 6 mos. after cessation for at least half-time enrollment; deferment possible; no interest subsidy on unsubsidized loan</td>
</tr>
</tbody>
</table>
## Federal Direct Student Loan — Additional Unsubsidized Stafford Loan
- **Program**: Federal Direct Student Loan
- **Description**: Same as subsidized Stafford Loan
- **Application**: FAFSA required annually; MPN obtained from Direct Loan servicer
- **Annual/Aggregate Amts**: NG
- **Eligibility**: Must have demonstration of eligibility/inelegibility for Federal Pell Grant
- **Repayment Required**: Yes; same as subsidized Stafford Loan

## Federal Direct PLUS Loan
- **Program**: Federal Direct PLUS Loan
- **Description**: Direct Loan funds from federal government, 7.9% fixed interest rate for Direct PLUS loan
- **Application**: Purdue Calumet requires the student to submit a FAFSA; PLUS MPN from Direct Loan servicer
- **Annual/Aggregate Amts**: No annual or aggregate amounts, except parent or graduate or professional student may not borrow more than difference between cost of attendance and other financial assistance student expects to receive
- **Eligibility**: Natural or adoptive parents (and step-parents if included on FAFSA) of eligible dependent undergraduates enrolled at least half time and graduate/professional students
- **Repayment Required**: Yes; begins 60 days after fully disbursed

## State Aid Programs

### Frank O’Bannon Grant (formerly the Indiana Higher Education Grant)
- **Program**: State aid administered by the State Student Assistance Commission of Indiana (SSACI), targeted to tuition and regularly assessed fees based on financial need
- **Application**: FAFSA received by the federal processor after Jan 1, 2012 but on or before March 10, 2012 for 2013-2014. (must be an error-free FAFSA by the May 15th receipt date deadline of the filing year)
- **Annual/Aggregate Amts**: Dollar value of state grants vary from year to year due to variations in appropriations, the number of fillers and the “need” of the filler base.
- **Eligibility**: Indiana resident U.S. citizen or eligible noncitizen
- **Repayment Required**: No

### Twenty-First Century Scholars Program
- **Program**: Guarantees eligible students up to 4 years of undergraduate college tuition at any participating university in Indiana
- **Application**: FAFSA received by the federal processor after Jan 1, 2012 but on or before March 10, 2012 for 2013-2014. (must be an error-free FAFSA by the May 15th receipt date deadline of the filing year)
- **Annual/Aggregate Amts**: Undergraduate tuition and regularly assessed fees at an approved public institution (up to a maximum of 15 credit hours per term). Does not cover the cost of books, room and board, parking fees, lab fees or any other fees assessed that are not assessed to ALL students.
- **Eligibility**: Be a resident of Indiana (determined by residency of parent/legal guardian)
- **Repayment Required**: No

### Part-time State Grant Program
- **Program**: Designed to help those undergraduates who are taking at least 2 but less than 12 credit hours per term at an eligible institution.
- **Application**: FAFSA received by the federal processor after Jan 1, 2012 but on or before March 10, 2012 for 2013-2014
- **Annual/Aggregate Amts**: Need-based award Minimum award is $50 per term
- **Eligibility**: Meet state residency requirements
- **Repayment Required**: No
<table>
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<tr>
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<th>Eligibility</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Child of Veteran and Public Safety Officer Supplemental Grants Program</td>
<td>Provides tuition and fee assistance at public colleges for eligible children of disabled Indiana veterans, eligible children and spouses of certain members of the Indiana National Guard killed while serving on state active duty, and eligible children and spouses of certain Indiana public safety officers killed in the line of duty.</td>
<td>CDV application required&lt;br&gt;File the FAFSA each year at least 2 weeks before the start of classes</td>
<td>As a supplement to other state financial aid, the grant pays 100% of tuition and program related mandatory fees; it does not cover other fees such as room and board. Pays Undergraduate rate for Graduate students.&lt;br&gt;Same program restrictions apply and financial assistance is limited to a maximum of 124 of credit hours.</td>
<td>Veteran must meet certain Indiana residency requirements&lt;br&gt;Child must be the biological child or legally adopted dependent child of the veteran&lt;br&gt;Covered student must be regularly admitted as an in-state student to an Indiana public college&lt;br&gt;Must maintain Satisfactory Academic Progress (as defined by the college)</td>
<td>No</td>
</tr>
<tr>
<td>Indiana National Guard Supplemental Grant</td>
<td>Guarantees up to 100% of certain tuition costs will be met by the State of Indiana for eligible members of the Indiana Air and Army National Guard; covers only certain tuition charges and does not cover other expenses such as room and board and textbooks. Subject to available funds.</td>
<td>FAFSA must be filed every year so that it is received by March 10th of each year the student intends to enroll in college (must be an error-free FAFSA by the May 15th receipt date deadline of the filing year).</td>
<td>Grant amounts based on 30 hours of enrollment per academic year, or 15 hours per semester.&lt;br&gt;Students enrolled in at least 12 but less than 15 credit hours per semester will have their grants reduced if the actual tuition falls below the approved tuition used to estimate the grant.</td>
<td>Applicant must be certified by both SSACI and the Indiana National Guard (ING)&lt;br&gt;Attend a state funded university&lt;br&gt;Can be used only in the fall and spring semesters&lt;br&gt;State residency requirements apply&lt;br&gt;High School graduate or have a GED.&lt;br&gt;Student must be seeking first associate or bachelor degree (cannot be used for graduate school)&lt;br&gt;Students can receive a total of 8 semesters of state aid in any combination&lt;br&gt;Must certify each term of enrollment meets National Guard Eligibility</td>
<td>No</td>
</tr>
<tr>
<td>Minority Teacher/Special Education Services Scholarship (MTS)</td>
<td>Created to address the critical shortage of Black and Hispanic teachers in Indiana.</td>
<td>FAFSA required&lt;br&gt;Awards made by the colleges&lt;br&gt;Financial need may be considered but not a requirement&lt;br&gt;Award maximum: $1,000&lt;br&gt;Up to $4,000 if minority student applicant demonstrates financial need</td>
<td>Minority student (Black or Hispanic) seeking a teaching certification; or student seeking a Special Education teaching certification; or student seeking an Occupational or Physical Therapy certification&lt;br&gt;Indiana resident and a US Citizen&lt;br&gt;Admitted to eligible institution as a fulltime student&lt;br&gt;Pursing a course of study that would enable the student upon graduation to teach in an accredited elementary or secondary school in Indiana&lt;br&gt;Not be in default on a student loan&lt;br&gt;Meet all minimum criteria&lt;br&gt;Maintain a 2.0 GPA</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Program</td>
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</tbody>
</table>
| **Merit Scholarships**                 | ■ Scholarships awarded based on student’s academic strength and/or other criteria  
■ Not need-based.                                                                                                                                          | ■ No separate application required for a majority of the scholarships.  
■ A separate application is required for a few scholarships:  
http://webs.purduecal.edu/ofasa/scholarships-21  
■ View a complete listing of scholarships at:  
http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp  
■ A separate application is required for a few scholarships:  
www.purduecal.edu/finaid/scholarshipinfo/index.html  
■ Award amount determined by Purdue University Calumet depending on fund availability  
| All students admitted to Purdue University Calumet are automatically considered.  
■ Eligibility criteria established by scholarship donor(s)  
■ View a complete listing of scholarships and selection criteria at:  
http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp  
| No                                                                          |                                                              |
| **Need-based Scholarships**            | ■ Scholarships awarded based on academic strength AND financial need  
■ FAFSA required  
■ View a complete listing of scholarships at:  
http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp  
■ A separate application is required for a few scholarships:  
www.purduecal.edu/finaid/scholarshipinfo/index.html  
■ Award amount determined by Purdue University Calumet depending on fund availability  
| Eligibility criteria established by scholarship donor(s)  
■ View a complete listing of scholarships and selection criteria at:  
http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp  
| No                                                                          |                                                              |
| **Chancellor’s Scholars**              | ■ Recognizes students who graduate as Valedictorian or Salutatorian of their high school class  
■ No application required.  
| No application required:  
http://webs.purduecal.edu/admissions/scholarships/  
■ Recipients selected by Office of Undergraduate Admissions based on fund availability and the Office of Financial Aid runs a weekly report.  
■ 100% of tuition and fees, 50% of the rental at the University Village, and a monetary allowance toward the purchase of course books and supplies  
■ Award adjusted if student is in receipt of other tuition-specific aid or scholarships  
■ Restricted to fall and spring semesters only  
■ High School graduate from a secondary institution that offers competitive class rankings.  
■ High School Valedictorian or Salutatorian as determined by a final official high school transcript  
■ Minimum SAF score of 1100 (CR&M) or equivalent ACT exam  
■ Minimum high school GPA of 3.5/4.0 (five subject GPA – math, English, lab science, social studies and foreign language)  
■ U.S. Citizen  
■ Full-time degree-seeking undergraduate student  
■ Begin classes within one year of graduation from high school  
■ Recipients must maintain a graduate index of 3.0 or higher  
■ Eligible for a maximum of 4 consecutive academic years, or if enrolled in a cooperative education program a maximum of 5 consecutive years, starting with the first semester the award is scheduled to begin  
| No                                                                          |                                                              |
| **Academic Achievement Scholarship**   | ■ Awarded to recent high school graduates for a maximum of four (4) consecutive years  
■ None                                                                                           | ■ $2,000 per year (Indiana residents) - $8,000 over four years  
■ $4,000 per year (non-Indiana residents) - $16,000 over four years  
■ Minimum SAF score of 1100 (CR&M) or equivalent ACT exam  
■ Minimum overall high school GPA of 3.0/4.0  
■ Direct admission into program of study at Purdue Calumet  | Direct admit into program of study at Purdue Calumet  
| No                                                                          |                                                              |
| **Purdue Calumet Transfer Scholarship**| ■ Awarded to any transfer student with 60 transferable hours to Purdue Calumet for a maximum of two (2) consecutive years  
■ Yes - http://www.purduecal.edu/finaid/PUC_TRANS.pdf  
■ Minimum cumulative GPA of 3.0/4.0  
| Minimum cumulative GPA of 3.0/4.0  
| No                                                                          |                                                              |
| **Graduate Distinction Scholarship**   | ■ Awarded to postgraduate students for a maximum of three (3) consecutive years  
■ Yes - http://www.purduecal.edu/finaid/GRAD_DIST.pdf  
| Minimum cumulative GPA of 3.0/4.0  
| No                                                                          |                                                              |
| **Phi Theta Kappa**                    | ■ Awarded to any transfer student with 60 transferable hours to Purdue Calumet for a maximum of two consecutive semesters  
■ $4000 for Indiana residents  
$8000 over 2 year period  
$6500/year for out-of-state residents  
$13,000 over 2 year period.  
| Proof of membership in Phi Theta Kappa  
Minimum cumulative GPA of 3.5/4.0  
Direct admission  
Maintain a minimum gpa of 3.0 out of 4.0  
| No                                                                          |                                                              |
Honors Scholarship
- Awarded to those Honors students who meet eligibility requirements. For more information send an e-mail to honorsprogram@purduecal.edu
- $3,000 annually (in-state)
- $4,000 annually (out-of-state)
- Restricted to payment of tuition and fees

**Required**
- Honors Scholarship
  - Awarded to those Honors students who meet eligibility requirements.
  - For more information send an e-mail to: honorsprogram@purduecal.edu

**Annual/Aggregate Amts Eligibility Repayment**

**HONORS PROGRAM PARTICIPATION**
- **Entering 1st year students:**
  - 3.5/4.0 High School GPA AND 1100 SAT CR&M, including minimum score of 450 in each of these two areas OR
  - ACT composite score of 25 including a minimum score of 21 on each component (CR&M).
- **Current Purdue Calumet Students or transfer students:**
  - 3.5/4.0 cumulative GPA based on a minimum of 30 credit hours of college coursework
  - Complete at least 10 volunteers hours per year and at least 50 volunteer hours during their undergraduate program
  - Renewable for up to 4 years as long as you remain academically qualified

**To maintain the Scholarship:**
- Complete at least 2 Honors courses per academic year and tally 100 participation points
- For further information go to: http://webs.purduecal.edu/honors/

Enrollment Incentive Award
- Program offering selected students with the opportunity to pursue a bachelor's degree at Purdue Calumet at in-state tuition rates for certain courses
- Separate application required available at http://webs.purduecal.edu/admissions/transfer-student/eiap/
- Covers the difference between the out-of-state tuition and the tuition for Indiana residents for 30000 and/or 40000 level courses.
- For an academic year the value of this program exceeds $1,700 per semester when enrolled in 9 credits at the 300 level or 40000 level.
- Award is restricted to fall and spring semesters only
- Limited to 4 out of 6 continuous enrollment periods, excluding summer and co-op
- Purdue Calumet may only offer a limited number of Awards each semester. Purdue Calumet may discontinue the program at any time. Should the program be discontinued awards will cease for the current program participants. There is no guaranteed entitlement of an award for 4 enrollment periods.
- First time Purdue Calumet student
- Must have a minimum of 60 transferable college credits to Purdue Calumet
- Must have a minimum cumulative GPA of 3.0 in all previous college coursework
- Must be enrolled for a minimum of 9 credit hours at the 30000 and/or 40000 level per semester at Purdue Calumet for the award to apply to their tuition

**PUC Enrollment Guidelines for Financial Aid purposes:**
- Undergraduate Student: Full-time is 12 or more credit hours; ¾ time is 9-11 credit hours; ½ time is 6-8 credit hours
- Graduate Student: Full-time is 8 or more credit hours; ¾ time is 6-7 credit hours; ½ time is 4-5 credit hours


Academic Regulations

Students who enter institutions of higher education agree to know and abide by the rules of their institutions. Listed in this section of the catalog are some of the specific regulations which govern student and academic programs. Other regulations are listed in the Student Handbook, which is available to students via the Web at www.purduecal.edu/stuserve/A complete set of academic regulations is available to students in the Office of the Dean of Students, SUL (Student Union and Library), Room 314.

Academic Advising and Program Requirements

Students are expected to know the requirements for the degree(s) in which they are pursuing. Students can view their program requirements on-line by using the DegreeWorks application. Students can access DegreeWorks from PCTAR or MyPUC portal.

Within DegreeWorks Students and Advisors can:
- Track progress toward a degree.
- Plan class schedules for future semesters.
- Consider ‘What-if’ in terms of changing majors to another program.
- DegreeWorks will show how coursework will be applied.

Students are also expected to meet with their academic advisor periodically in order to ensure continued progress toward their program of student degree requirements.

Academic Calendar

The academic calendar shall consist of two, 16-week semesters and one summer session. Refer to our website at www.purduecal.edu/Registrar for exact dates.

Majors and Degree Programs

Students are assigned to an academic advisor based upon their major. Students opting to change their major may do so by completing a Change of Degree Objective form available online at www.purduecal.edu/Registrar.

Registration for Classes

There are three registration periods for the fall, spring, and summer sessions.

PRIORITY REGISTRATION: allows students an opportunity to pre-register in order to enroll in the courses they need.

OPEN REGISTRATION: for students unable to register early and for students who may need to adjust their schedules.

LATE REGISTRATION: held during the first week of classes (special schedule for summer) and to allow students to make section and class changes. A penalty fee is charged to students who enroll during this period. (See p. 16 for late registration fees.)

Adding Courses

Students may add courses during the first four weeks of the semester by submitting a completed add/drop card to the Office of the Registrar. The signatures of both the academic advisor and instructor of the class being added are required during the second, third, and fourth weeks of the semester. Student Athletes must contact the Athletic Department in order to process changes to their semester schedule. Signatures are required for these changes.

Dropping Courses

Students may withdraw from courses by submitting an add/drop card to the Office of the Registrar. The time period in which a student withdraws from a course determines the recording of the course on the student’s transcript. The following guidelines apply to the sixteen week Fall and Spring semesters only. Accelerated term and Summer term refund schedules are calculated based upon a modified schedule.
- Weeks one through three—no grade recorded on academic record
- Weeks four through twelve—W grade recorded on academic record
- After the twelfth week—no withdrawals are allowed

Attendance

Failure to attend does not constitute an official withdrawal from a course. Students are expected to be present for every meeting of a class in which they are enrolled. At the beginning of each semester, instructors are responsible for clarifying their policy for handling class absences and the impact absences will have in the determination of course grades.

Students with loans making a change in enrollment may revise their financial aid award. The student should notify the Office of Financial Aid immediately if there is a change in enrollment.

Excessive Absence. A student may be administratively withdrawn from a course for excessive absences upon recommendation of the instructor. Grades of W, WN, or WA may be assigned.

Grades

Students must complete all required work for courses by the last scheduled class. The only exception is if the course has been cancelled. At the end of each semester, students will receive a grade from the instructor for each course they enroll in. The grade indicates the student’s level of achievement of the objectives of the course. Grades offered at Purdue Calumet are listed below.

For Credit Courses

A+1A — highest passing grade
A -
B +
B -
C +
C -
D +
D -

E — conditional failure, meaning failure to achieve minimum objectives, but only to such limited extent that credit can be obtained by examination or otherwise without repeating the entire course.

This grade represents failure in the course unless the record is changed within one semester by examination or otherwise. In any case, the grade cannot be changed to any other grade but a D.

F — failure to achieve minimum objectives of the course. The student must repeat the course and complete it satisfactorily in order to establish credit for it.

For courses in the pass/not pass option

P — passing grade, equivalent to A, B, or C.
N — not passing

For zero credit courses (includes thesis research but not laboratory portions of courses which are scheduled by separate designations)

S — satisfactory; meets course objectives.
U — unsatisfactory; does not meet course objectives.

For incomplete work, credit or noncredit:

I — incomplete, no grade; a temporary record of work which was passing when interrupted by unavoidable absence or other causes beyond a student’s control.

An instructor may require a recommendation from the Dean of Students or a designee that the circumstances warrant a grade of I. The student must achieve a permanent grade in the course no later than the twelfth week of the second semester subsequent to the enrollment. If not, the I will become IF.

If the student is not enrolled for a period of three years following the semester in which the incomplete is given, the incomplete grade will be permanent. The grade will not revert to a failing grade, nor will the student be able to earn credit.
for the course by completing the work. THIS ACADEMIC REGULATION DOES NOT APPLY TO INCOMPLETES RECEIVED PRIOR TO SUMMER 1999.

FI — incomplete, no grade; same as F for student enrolled in pass/not pass option.
SI — incomplete, no grade; same as I for student enrolled in zero-credit course.

Other

The Registrar records the following grades and symbols in special circumstances:

W — withdrew; grade records that student was enrolled in a credit course and withdrew or cancelled the course after the third week (see Registration for summer schedule).

IF — assigned by the Registrar. Failure to complete an I grade by the twelfth week of the second semester subsequent to enrolment in a credit course. Counted as F in the scholarship index.

IN — unremoved incomplete and failing; failing to complete a pass/not pass course in which the student received a P by the twelfth week of the second semester subsequent to enrolment in the course. Does not affect scholarship index.

IU — unremoved incomplete and failing; failing to complete a zero-credit course in which a student received an SI by the twelfth week of the second semester subsequent to enrolment in the course. Does not affect scholarship index.

IX — assigned by the Registrar. Student not enrolled three years after incomplete was given, then incomplete will be permanent. Does not affect scholarship index.

NS — assigned by the Registrar for those course grades not submitted by the instructor.

Pass/Not Pass Option

The Pass/Not Pass option provides students with the opportunity to broaden their educational foundations with less concern for the grades they earn. Grades earned under this option are not used in computing scholarship indexes. The option is open to students according to the guidelines established for their majors.

Students may choose this option in any course which does not already appear on the academic record and in which the student is otherwise eligible to enroll for credit with a letter grade. Students choose this option when they register for the course; they cannot change to the pass/not pass option after the fourth week of the semester nor can they change the Pass/No Pass option to a letter grade beyond the fourth week of the term. The Office of the Registrar will indicate which students have elected this option. A student who enrolls in a course under this option has the same obligation as one who is enrolled for credit with a letter grade.

When instructors report final grades, they report that any student who would have earned a grade of A, B, or C has passed the course, and that any other student has not passed. The Registrar makes an appropriate notation on the student’s academic record in place of a letter grade but does not use the course grade in computing scholarship indexes.

In addition to these regulations, the following colleges and departments have established their own rules for the types and uses of courses elected under this option.

Communication and Creative Arts, English and Philosophy, Foreign Languages and Literatures, History and Political Science, Behavioral Sciences:
1. Semester classification of three and above.
2. Graduation index of 2.00 and above.
3. Only for courses outside departmental and college requirements for electives.
4. Standard registration procedures must be followed, including regulations, such as add/drop procedures, withdrawal from courses, and so on.
5. Students must indicate upon registering which courses they wish to take using the pass/not pass option.
6. Students may elect courses given in other colleges under the pass/not pass option.
7. Students transferring from another discipline who pass a course required by the major under the pass/not-pass option will be considered, upon transfer, to have satisfied the requirements.

Biological Sciences, Chemistry and Physics Mathematics, Computer Science, and Statistics:
1. Semester classification of three and above.
2. Graduation index of 2.50 and above.
3. Students may not use pass/not pass credits for more than 20% of the total credit hours required for graduation.
4. No more than two such courses per year. Courses taken in summer sessions apply to the year preceding the summer session.
5. Only free electives and courses in the humanities and behavioral and social sciences core may be taken under the pass/not pass option. Such courses may be used to satisfy that portion of the core only if they are more advanced than those usually elected at the student’s level.

Construction Science & Organizational Leadership, Engineering Technology, Computer Information Technology and Graphics
1. Students may use the pass/not pass option in any course which does not already appear on the students’ academic record, and in which the students are otherwise eligible to enroll for credit with letter grade.
2. Students may not use pass/not pass credits for required courses for graduation from a College of Technology degree or certificate.
3. Students will not be permitted to use the pass/not pass option until the students’ advisor agrees that the course is desirable for the students to take, given the students’ particular situations.

Education:
1. Semester classification of three and above.
2. Graduation index of 2.00 and above.
3. Students may elect the pass/not pass option only in courses outside departmental and college requirements.
4. Students may elect courses given in other colleges of the university under the pass/not pass option.
5. Students transferring from another discipline who pass a course required by the major under the pass/not pass option will be considered, upon transfer, to have satisfied the requirements.

Engineering: Electrical and Computer Engineering or Mechanical Engineering
* This option is available to students only for Humanities/Social Sciences electives.

Management:
1. Semester classification of four and above. Students with a semester classification of three may select the pass/not pass option under special circumstances only.
2. Students in Management programs may elect the pass/not pass option for no more than two courses. The two courses that may be taken under this option are restricted to free electives in the program.
3. Students on academic probation must complete at least 12 credit hours with letter grades in one semester before taking courses under the pass/not pass option. Students on academic probation for a second consecutive semester may not elect the pass/not pass option until they are removed from probationary status.

Nursing:
** Students may elect the pass/not pass option for elective courses only.

Center for Learning and Academic Success:
Not available to students in the Center for Student Achievement.
Students in Good Standing

For reports and communications to other institutions and agencies, students are considered in good standing unless they are dismissed, suspended, or academically dropped from the university without being formally readmitted.

Scholastic Indexes

The scholastic standing of all students in programs leading to an undergraduate degree is determined by two indexes.

SEMESTER INDEX. An average determined by weighting each grade received during a semester by the number of credit hours in the course.

GRADUATION INDEX. A weighted average of all the student's grades in all courses accepted by the college in which the student is enrolled, plus all other grades received in courses taken in other curricula properly transferred.

SUBSTITUTION OF GRADES. With the advisor's consent, a student may repeat a course and substitute the most recent grade, unless it is an I.

Semester/Cumulative Grade Point Average Scale Information

Quality points are allocated to each recorded grade according to the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
</tr>
</tbody>
</table>

To determine your semester grade point average, you will need to determine the number of total semester points you earned this semester and the total credit hours you had attempted.

Semester Points/Semester Credits Attempted = Semester GPA

Example below:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
<th>GRADE</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 10000</td>
<td>3</td>
<td>A</td>
<td>3x4=12.0</td>
</tr>
<tr>
<td>CHM 11500</td>
<td>4</td>
<td>C</td>
<td>4x2.3=9.2</td>
</tr>
</tbody>
</table>

Sem. Credit Hours = 7 Sem. Grade Points = 21.2

Sem. Grade Points/Semester Credits Attempted = Sem. GPA

Example: 21.2 / 7 = 3.03

To determine your overall grade point average, you will need to determine the number of total grade points you have earned and the total credits you have attempted beginning with your first semester of attendance.

Total Grade Points/Total Credits Attempted = Cumulative GPA

Please note: Instructors have autonomy in determining the grading scale they wish to use for their courses.

MINIMUM GRADUATION INDEX.

Bachelor’s Degree: 2.0. Associate Degree: 2.0.

Scholastic Deficiency

A student will be placed on Scholastic Probation if either the semester or graduation index at the end of a regular semester falls below the levels in the following table for academic classification.

Index Level for Probation

<table>
<thead>
<tr>
<th>Classification</th>
<th>Sem. Index Less than</th>
<th>Graduation Index Less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 and 1</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>3</td>
<td>1.6</td>
<td>1.7</td>
</tr>
<tr>
<td>4</td>
<td>1.6</td>
<td>1.8</td>
</tr>
<tr>
<td>5</td>
<td>1.7</td>
<td>1.9</td>
</tr>
<tr>
<td>6 and up</td>
<td>1.7</td>
<td>2.0</td>
</tr>
</tbody>
</table>

If a student is already on scholastic probation, the student will be dropped from the university if, at the close of a semester, the graduation index falls below the level in the following table, or if the student receives failing (F) grades in six credit hours or more for the semester.

Index Level for Dropping

<table>
<thead>
<tr>
<th>Classification</th>
<th>Graduation Index Less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 and 1</td>
<td>1.3</td>
</tr>
<tr>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>5</td>
<td>1.7</td>
</tr>
<tr>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>7</td>
<td>1.9</td>
</tr>
<tr>
<td>8</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Courses with grades of Incomplete (I, PI) are not included in semester index computations for honors and deficiencies. Completion grades for courses with prior Incompletes are included in the graduation index and will affect honors and scholastic deficiency. The above academic regulations apply only during a regular semester. Students cannot earn scholastic honors, be placed on scholastic probation, or be dropped from the university at the end of a summer session.

Readmission Procedure

For Students Who are Academically Dropped for Scholastic Deficiency

Purdue University Calumet welcomes Purdue University students in good academic standing. According to University regulations, when academically dropped a student is required to sit out one regular semester. If dropped more than once, a student is required to sit out at least one calendar year. After completing the required sit out period, a student may petition for readmission to the Purdue campus he or she wishes to attend.

Purdue students requesting readmission must complete an online readmission application and pay a $100 non-refundable fee to Student Accounts by phone at (219) 989-2560 or in person in the Enrollment Service Center located in Lawshe Hall, Room 130. The fee must be paid by the designated deadline in order for the application to be processed.

For additional information contact the Office of the Dean of Students at (219) 989-4141, email dos@purduecal.edu, or stop by the Student Union Library Building Room 313.

READMISSION FEE: Students must pay a $100 non-refundable fee to the Enrollment Services Center - Student Accounts. Applications and procedures for readmission are available in the Office of the Dean of Students located in SUL (Student Union and Library Building), room 313.

For inquiries regarding the readmission process, please call the Office of the Dean of Students at (219) 989-4141; toll-free from within northwest Indiana and Chicagoland area) at 1-800-HI PURDUE (1-800-447-8738).

Graduation Requirements

For the Bachelor's Degree

1. Completion of the plan of study for the degree, either by resident course work, examination, or credit accepted from another institution.

Ten Year Rule. The dean of the college which administers the student’s major can refuse to accept for graduation credit any course completed 10 or more years ago. Re-entering students will be notified immediately of all such decisions.

Substitution of Courses. The dean of the college which administers the student’s major may authorize substitutions for courses for graduation.

Experiential Learning. Experiential learning is a graduation requirement for students who started with Purdue University Calumet Fall 2008. This approach to teaching allows students to go beyond theory based learning and explore ways to gain practical knowledge within their program of study. Students will enroll in two experiential learning courses while completing their degree. Experiential learning is offered through undergraduate research, internships, service learning, cooperative education, cultural immersion/study abroad, design project or practicum. Your academic advisor will assist you in selecting an experience that is right for you.
EXCEPTION: Transfer students with no more than two semesters of enrollment remaining and no more than 32 credit hours needed for degree completion are exempt from the experiential learning requirement. (At the discretion of the Dean or Department Head)

2. Residency Rule. At least two semesters of enrollment in and completion of at least 32 credit hours approved and required for the degree, at the 30000 (Junior) level or above at Purdue University Calumet. Students are normally expected to complete the senior year in residence. Courses completed by examination will not apply to this rule.

Exception. With the prior approval of the dean of the college which administers the student's major, a student who has at least four semesters of resident study may complete not more than 20 semester hours of the senior year at another approved college or university.

For the purpose of this rule, two summer sessions are considered equivalent to one semester.

3. Graduation Index of 2.00.

Exception. A student who has completed all other requirements for the degree but does not have the minimum Graduation Index may meet the requirement by:

a. Securing the approval of the dean of the college administering the major, after review of the academic record, permission to register for additional courses. Such a student will not be allowed to take more than 20 credit hours beyond those required for the degree or

b. Securing in advance the approval of the dean of the college administering the major to register at another approved college or university for not more than nine of the 20 hours.

Copies of approvals must be filed in the Office of the Registrar. Credit in these additional courses must be earned no later than five years after the date on which all degree requirements were met, except the Graduation Index requirement.

The Graduation Index requirement will be met for such a student if the Graduation Index, now including the extra courses, meets the Graduation Index requirement in effect at the time when the student met all the other graduation requirements.

4. Registration as a candidate for the degree during the semester or summer session immediately preceding the completion of the degree.

5. In order to document and strengthen the effectiveness of its programs, Purdue Calumet is engaging in a systematic assessment effort. The University expects its students to complete all assessment procedures related to General Education and/or major field as required.

For the Associate Degree

1. Completion of the plan of study for the degree, either by resident course work, examination, or credit accepted from another institution.

Ten Year Rule. The dean of the college which administers the student’s major can refuse to accept for graduation credit any course completed 10 or more years ago. Reentering students will be notified immediately of all such decisions.

Substitution of Courses. The dean of the college which administers the student’s major may authorize substitutions for courses for graduation.

Residency Rule. At least two semesters of enrollment and completion of at least 32 credit hours at Purdue University Calumet. Students are normally expected to complete the entire second year in residence.

Exception. With the prior approval of the dean of the college which administers the student’s major, the student who has at least three semesters of study in residence may complete no more than 16 credits at another approved college or university. For the purpose of this rule, two summer sessions are considered equivalent to one semester.

2. Graduation Index of 2.0

Exception. A student who has completed all other requirements for the degree but does not have the minimum Graduation Index may meet the requirement by securing the approval of the dean of the college administering the major to register for additional courses, after a review of the academic record. Such a student will not be allowed to take more than 10 credit hours beyond those required for the degree. Credit in these additional courses must be earned no later than three years after the date on which all degree requirements were met, except the Graduation Index requirement.

The Graduation Index requirement will be met for such a student if the Graduation Index, now including the extra courses, meets the Graduation Index requirement in effect at the time when the student met all the other graduation requirements.

3. Registration as a candidate for the degree during the semester or summer session immediately preceding the completion of the degree.

4. In order to document and strengthen the effectiveness of its programs, Purdue Calumet is engaging in a systematic assessment effort. The University expects its students to complete all assessment procedures related to General Education and/or major field as required.

Academic Honors

Dean’s List

The Dean’s List is Purdue University Calumet’s way of recognizing undergraduate students for outstanding scholastic achievement. At the conclusion of each semester, the registrar shall indicate which undergraduate students are scholastically eligible to be included on the Dean’s List. To be cited on the Dean’s List for any semester, one must:

- have at least 12 hours included in the cumulative GPA.
- have at least 6 hours included in the semester GPA.
- attain at least a 3.5 cumulative GPA.
- have at least a 3.0 current semester GPA.

Semester Honors

Semester Honors recognize undergraduate students who:

- have at least six credit hours in the semester index with a semester index of at least 3.5, and
- have at least a 2.0 graduation index.

Students whose names are placed on the Dean’s List shall be entitled to the following special privileges during the semester following the designation of distinction:

1. may be assigned to more than 18 credit hours upon request;
2. with the instructor’s permission, a full-time Dean’s List student may audit one class without assessment or additional fee.

It would be possible to earn both Dean’s List and Semester Honors standing if the student has a really outstanding semester.

Note: Pass/no-pass grades and credits do not count in hours totals for either category of honors.

Degrees Awarded

Graduation with Distinction

1. A candidate for the baccalaureate degree with distinction must have a minimum of 65 hours of credit earned at Purdue University included in the computation of the graduation index. A candidate for an associate degree with distinction must have a minimum of 35 hours of credit earned at Purdue University included in the computation of the graduation index.

2. The minimum graduation index for graduation with distinction in each college shall be no less than the 90th percentile of the graduation indexes of the graduates in each college, for the spring semester, provided that the index is at least 3.30. The minimum graduation index so determined in the spring for each college shall be applied for graduation with distinction for the subsequent summer session and fall semester.

3. Of those graduates who qualify for distinction under these rules for the spring semester, the three-tenths of the baccalaureate graduates having the highest graduation indexes shall be designated as graduating with highest distinction, irrespective of the colleges from which they graduate. The three-tenths of the spring associate degree graduates having the highest graduation indexes will be designated as graduating with highest distinction. The minimum graduation indexes so determined for graduation with highest distinction shall be applied for graduation with highest distinction for the subsequent summer session and fall semester.

Commencement Schedule

Purdue University Calumet conducts two commencement ceremonies each
year. The May commencement ceremony is for students who have completed all graduation requirements by the end of the Spring semester. The December commencement ceremony is for students who have completed all graduation requirements by the end of the Summer session and for students who will meet their requirements at the end of the Fall semester. For more information about the commencement schedule, please contact the Office of the Registrar at 219-989-2210.

General Education

Purdue University Calumet strongly believes that it is in the best interest of its students to include a General Education component in all of its academic programs. The faculty, via their governing body, defines general education as, that part of the academic program which assists the student’s development as a person and citizen and complements the student’s professional education. The four goals of General Education at Purdue University Calumet are:

1. To develop and enhance basic academic skills
2. To provide important general knowledge
3. To develop the critical skills needed in assessing the ethical, aesthetic, and practical consequences of actions, and
4. To integrate these skills and areas of knowledge so as to promote life-long learning.

To achieve these goals, the faculty have adopted a set of ten basic general education requirements. These are:

1. English Composition—6 credit hours. Three credits are required in composition and additional three credit hours are required in a writing intensive course.
2. Natural Science—3 credit hours from a natural science laboratory course in physics, biology, chemistry, geo-science, or an appropriate interdisciplinary natural science laboratory course.
3. Mathematics or Statistics—3 credit hours in a collegiate level mathematics or statistics course.
4. Humanities—3 credit hours chosen from the humanities (literature, history, philosophy, foreign languages, art, music, theater, or an appropriate interdisciplinary humanities course)
5. Social Sciences—3 credit hours chosen from the social sciences (anthropology, psychology, sociology, political science, economics, or an appropriate interdisciplinary course)
6. Speech Communication—3 credit hours in speech communication
7. Computer Utilization—3 credit hours departments have identified appropriate course(s) to enable their students to develop computer utilization skills relevant to their major.
8. Wellness Education—Recognizing the importance of wellness education, the University as part of the general education experience, shall offer students the resources and information necessary to facilitate wellness.
9. Technology—Recognizing the impact of technology on society, the University, as part of the general education experience, shall offer students the opportunity to develop an understanding of the interface between technology and society.
10. Freshman Experience Course—1 to 3 credit hours of all entering freshman and transfer student with less than 60 credit hours.

Each academic program has identified specific courses or experiences to meet the general education requirements. These are the minimum general education requirements at Purdue University Calumet. Most programs have additional general education requirements, specific to that degree.

A complete copy of the Purdue University Calumet General Education philosophy statement, goals and objectives is available in the Office of the Vice Chancellor for Academic Affairs. A list of specific departmental requirements is available in the appropriate Academic Department or College office or from one’s academic advisor.

Outcomes Assessment

As part of its continuing effort to improve itself and its academic programs, Purdue University Calumet engages in a periodic outcomes assessment for the entire university, including all academic areas. In brief, the student outcomes assessment program states what students should be learning or achieving at Purdue University Calumet, and gathers data to determine whether students appear to be achieving these objectives. Faculty and staff use these data to make both academic and non-academic program improvements. The entire academic outcomes assessment program itself is continuously reviewed by the Academic Assessment Policy Advisory Committee which reports directly to the Chancellor of Purdue University Calumet.

The worth of this effort to Purdue University Calumet and its students is so great that the University has stated as a requirement for graduation that it expects its students to complete all appropriate assessment procedures related to general education and/or their major field.
The International Programs Office

The International Programs Office (IPO) is committed to further internationalizing the Purdue University Calumet campus and supporting global awareness through the development of international partnerships and exchanges, study abroad opportunities, increased international student enrollment, and cross-cultural programming on and off campus.

In order to achieve its goals, IPO is comprised of four main units:

- **International Students and Scholars** (ISS) provides international students with the appropriate support and advising on immigration matters in order to succeed in their academic, social, and cultural pursuits. For more information about ISS, please visit http://webs.purduecal.edu/iss/

- **International Programs** develops study abroad opportunities, international partnerships and exchange programs, provides peer mentoring, and organizes cross-cultural activities to enhance the American learning experience for international students and contribute to the globalization of the Purdue Calumet campus. For more information, please visit: http://webs.purduecal.edu/ipo/

- **The English Language Program** (ELP) provides students with essential language skills needed to succeed in their university studies, matches students with English speaking peer mentors for additional practice and interaction in and out of the classroom, and offers weekly cultural and educational excursions to local destinations. For more information, please visit: http://webs.purduecal.edu/elp/

- **International Admissions** reviews and processes international student applications, evaluates foreign credentials, and corresponds with prospective international students. For more information, please visit: http://webs.purduecal.edu/fis/

The International Programs Office is located in the Classroom Office Building (CLO), in Room 176. To reach us by telephone, please call 219-989-2502, or visit the IPO website at www.purduecal.edu/intl.
Graduate Study

Director of Graduate Studies, Lawshe Hall, Room 242A, 219/989-2545
Office of Graduate Studies, Lawshe Hall Room 242, 219/989-2257

Twelve academic departments and colleges offer fourteen master’s degrees as well as other programs of graduate study at Purdue University Calumet to meet the post baccalaureate needs of the citizens of northwest Indiana and surrounding areas.

The programs are flexible to suit the needs of graduate students and their employers.

They provide development for industry, business and government professionals through focused courses and degrees designed for a wide variety of student ages, schedules, and career paths, including those leading to doctoral study.

Programs

College of Education
- Master of Science in Education with concentrations in:
  - Educational Administration**
  - Instructional Technology (School Based)
  - Instructional Design (Non-School Based)
  - Mental Health Counseling (CACREP accredited)
  - School Counseling (CACREP accredited)
  - Human Services
  - Special Education
  - Teacher Leadership

** the concentrations in Educational Administration and Special Education and Teacher Leadership are or will be available shortly online in an accelerated format.

Also available at the graduate level in Education:

- Licenses:
  - School Administration
  - Mental Health Counseling
  - School Counseling
  - Special Education (Wild Intervention and Intense Intervention)
  - Special Education Director

- Department Sponsored Certificates:
  - Addictions in Counseling
  - Response to Intervention
  - Instructional Technology
  - Elementary and Secondary

College of Engineering, Math and Science
- Master of Science in Biology
  - combined BS/MS in Biological Sciences
- Graduate Certificate in Biotechnology
- Master of Science in Computer Science
- Master of Science in Engineering with concentrations in:
  - Mechanical Engineering
  - Electrical & Computer Engineering
- Graduate Certificate in Engineering Project Management
- Master of Science in Mathematics

College of Liberal Arts and Social Sciences
- Master of Arts in Communication
- Master of Arts in English
- Master of Arts in History
- Master of Science in Child Development and Family Studies with concentrations in:
  - Marriage and Family Therapy
  - Human Development and Family Studies

College of Business
- Master of Business Administration (MBA)
- Master of Accountancy
- Graduate Certificate in Forensic Accounting and Fraud Investigation

College of Nursing
- Master of Science in Nursing
- Post Master’s Certificates in Nursing
- Certificate in Critical Care Nurse Specialist
- Certificate in Adult Health Clinical Nurse Specialist
- Certificate in Family Nurse Practitioner
- Certificate in Nursing Education

College of Technology
- Master of Science in Technology
- Master of Science in Modeling, Simulation and Visualization (interdisciplinary)

Graduate Certificates in Technology:
- Database Integration Technology
- Organizational Leadership and Supervision
- Six Sigma for Business and Industry

Students interested in graduate study should refer to the individual departmental listings of degree requirements elsewhere in this catalog. Correspondence about admission to the Graduate School and inquiries about a specific college/department’s requirements should be addressed to the head of the college/department to which the applicant seeks admission.

Admission to the Graduate School

Degree-Seeking Applicants

Applicants for specific graduate degrees must apply for graduate study through the online application located at http://www.gradschool.purdue.edu/admissions/

All applications are first evaluated by a departmental committee at Purdue Calumet. If advanced for admission, the application is submitted to the Office of Graduate Studies for final processing and approval.

General Admission Requirements:
1. A bachelor’s degree from an accredited college or university.
2. Graduation index of 3.0 (B) on a 4.0-point scale (individual departments and colleges may set higher indexes). Conditional Admission may be available for applicants with undergraduate GPAs which are slightly below 3.0 please check with your program of interest for conditional admission requirements.
3. Other requirements, as detailed by individual departments and colleges, typically a goal statement or statement of purpose.
4. Academic ability for graduate work.

Applicants must submit:
1. A completed online application.
2. Three letters of recommendation or as directed by the department or program.
3. At least one official transcripts of all previous college and university course work completed. (Some programs require two official copies: please check your department of interest for requirements.) Electronic transcripts should be submitted to Margaret Greer at grad@purduecal.edu
4. A $60.00 application fee payable online by credit card ($75.00 for international students) — details in online application.
5. Other documents as required by the individual department or college.
6. Other evidence of academic performance as required by the individual department or college.
7. Graduate Record Examination (GRE) if required by the particular department or college. Consult the individual department or college for additional information.
8. The Graduate Management Admission Test (GMAT) may be required by the College of Business. Consult the College of Business for additional information.
9. Further information can be found at the Graduate School’s Web site at: http://webs.purduecal.edu/gradschool/

When to apply

Applications, transcripts and supporting materials should be submitted to the department or college preferably four months, but not less than one month, before the beginning of the session for which the applicant seeks admission. Some programs may have specific deadlines for application. Please check with the department in which admission is sought for information on the specific deadline.

An applicant is not officially admitted until notification from the Graduate School. International students should check with the International Students Services office for application deadlines.
Non-Degree Graduate Status (Temporary Admission Status)

Students who wish to pursue study beyond the bachelor’s degree, but who may not have a specific degree objective, may take graduate courses by submitting:

1. A completed temporary, non-degree online application located at www.gradschool.purdue.edu/admissions/
   There is no fee for submission of a non-degree application.
2. One copy of the bachelor’s degree final transcript showing the date of degree completion.
3. Note: Temporary or non-degree students are not eligible for financial aid or Graduate Teaching Aide Positions.

Certificate Admissions

Students who wish to pursue a graduate certificate must submit a separate application for the certificate program. Please check the individual certificates for requirements, but typically the certificate application requires an official copy of the transcript of undergraduate academic work.

Twelve Credit Rule

No more than 12 hours of credit earned as a non-degree-seeking student (temporary) may be applied to a graduate degree. If an applicant for a regular degree program is approved during the semester in which the student is enrolled for the twelfth credit hour as a non-degree student, all credits completed prior to and during that semester are eligible for inclusion in the plan of study. However, the courses must be appropriate for the degree and acceptable to the department or college. Students who fail to gain admission as degree-seeking students in a timely fashion may lose credit already earned.

Grades Earned While in Non-Degree Graduate Status

No course in which a student receives less than a B may be included in a plan of study if the student completed the course while in non-degree status.

Teaching License Registrants

Bachelor’s degree holders seeking graduate credit without a degree objective, such as those working in teaching licensure programs or seeking to enhance professional qualifications in their occupations, may be admitted in non-degree status. For further information about licensure, please see the College of Education’s Graduate Study Web site at: www.purduecal.edu/education/grad/licensing.html

Academic Regulations

GRADES. Success in graduate study requires academic performance of a high quality. Only grades of "A", "B", or "C"—while maintaining a "B" average — fulfill Graduate School requirements. An advisory committee or a department or college may require grades higher than C in certain courses. Pass-fail grades are not acceptable. Some graduate programs do not accept a grade of C in courses in the graduate plan of study. Please see your academic program for specific requirements on grades.

Progress Toward Degree

Student progress is reviewed each semester by the individual college or department. If the student fails to perform satisfactorily in the judgment of the department or college, the student may be asked to discontinue graduate study at Purdue Calumet.

English Requirement

Candidates whose native language is not English must prove proficiency in the English language by achieving one of the following:

a. A TOEFL (test of English as a foreign language) score of 77 total score (including score minimums of Writing 18, Speaking 18, Listening 14, Reading 19). Note that in addition to required minimum scores for each category, the Graduate School also requires a minimum overall score that is higher than the minimums for the four area tests combined. Applicants must meet or exceed each of the five Scores for admission to the Graduate School.
   For further information, go to http://www.toefl.org Purdue University Calumet’s code for TOEFL GMAT and other tests through Educational Service is 1638.

b. The Graduate School also accepts International English Language Testing System (IELTS) Scores with an overall band score of 6.5 or more. For more information, go to http://www.ielts.org The Graduate School also accepts the Pearson Test of English (PTE) with a score of 58.

Foreign Language Requirement. There is no general foreign language requirement, though some colleges and departments do require a reading knowledge of a foreign language as a relevant research tool.

Registration

Students are urged to register during the early registration period to guarantee for the best range of course selections.

Registration for Research Credit. Graduate students who use university facilities or are supervised by a faculty member must register for research hours. Registration for research hours should reflect the nature and amount of the student’s research activities accurately. Research includes literature reviews and thesis writing.

Registration in the student’s last semester. A candidate for any advanced degree must be registered during the last semester or session before receiving the degree. Students in the last semester of a master’s program with a thesis option must be registered for a minimum of three hours of research credit.

Undergraduate and Transfer Credit

Course credits earned while an undergraduate at Purdue University or other accredited institution of higher learning may be applied toward an advanced degree if these credits are in excess of any requirements for the baccalaureate degree. Such credits must be certified as available for graduate credit by the institution from which the student received the baccalaureate degree, but will be accepted only if, (1) the student had senior standing and a 3.0 graduation index when taking the course, (2) the student received a grade of B or better, (3) the course was designated as a graduate course, and (4) the course was taken at the graduate level.

Advisory Committees

Each candidate for the master’s degree will have an appointed graduate committee consisting of three faculty members. This committee assists the student in preparing the plan of study and advises the student during graduate work. In the case of the thesis option, the committee also advises the student about research and writing the thesis. With the approval of the Departmental Director of Graduate Studies, the student will select a major professor, who must agree to the appointment. The major professor chairs the advisory committee and oversees the student’s research. The major professor and student must agree upon the related areas in the plan of study.

Plan of Study

The plan of study includes specific courses which the student is expected to complete and all other requirements for the master’s degree; the student and the advisory committee for the department develop the plan of study together. The student is responsible for completing and submitting the plan of study to the Graduate School one semester prior to the semester in which he or she plans to graduate. The plan of study must be approved by the student’s academic advisor before submission. If it becomes necessary to revise the plan of study, a Request for Change to the Plan of Study must be submitted with a justification. Plans of study are submitted electronically through the ePOS system. The electronic plan of study is available to graduate students through the myPUC portal.

Admission to Candidacy

Admission to candidacy for the master’s degree is granted only after approval of the formal plan of study. A candidate for any advanced degree must be registered during the semester in which the degree is awarded.

Oral and Written Examinations

The requirements for oral and written examinations are established by the advisory committee or the college or department. A final examining committee for each candidate certifies to the Graduate School that the student has met the requirements of the major department or college.

Graduation Deadlines

Graduating on time is very important to most students. Therefore, a student must be aware of the rules and the deadlines set forth by the university and the academic department. Many rules and deadlines that apply to our Graduate School can be found on the Purdue West Lafayette Web site at: www.gradschool.purdue.edu/calendar/calendar.cfm?type=Deadlines.

For more information, visit the Office of the Graduate School’s Web site at www.purduecal.edu/gradschool/ or call (219) 989-2257. e-mail: grad@purduecal.edu
Resources, Services, and Facilities

Office of Disability Resources

STUDENTS WITH DISABILITIES

In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in courses are entitled to reasonable accommodations. It is the student’s responsibility to have disability documentation on file in the Office of Disability Resources and meet with the Assistant Director for an intake interview. Once accommodations have been approved, it is the student’s responsibility to inform the instructor of their classroom accommodations via the accommodation letter.

Student Union & Library Building, Room 341, (219) 989-2455; (219) 989-2454; www.purduecal.edu/odr

The mission of the Office of Disability Resources is to provide reasonable accommodations to students with documented disabilities in an effective and efficient manner; assist students with disabilities in building self-advocacy skills; and to build collaborative partnerships with Purdue University Calumet faculty and staff, as well as agencies which provide services to persons with disabilities within the surrounding communities.

In order for students to receive academic accommodations, students must register with the Office of Disability Resources and provide documentation of their disability. Disability documentation must be current, state what the disability is, as well as, the functional limitations caused by the disability and/or its treatment. Please contact the Office of Disability Resources for specific information regarding your accommodation request.

Center for Learning and Academic Success

Lawshe Hall, Room 122, 219/989-2339

The Center for Learning and Academic Success is a multi-component division consisting of Academic Advising and Academic Recovery.

ACADEMIC ADVISING

Lawshe Hall, Room 122, 219/989-2339

The Center advises students who have not declared a major, adult learners admitted as non-degree students, those not directly admitted into the College of Nursing and College of Education, and students who have academic deficiencies that prevent direct admission to a major. The Center also monitors students in maintaining satisfactory academic progress and assists with course selection appropriate to intended major and placement testing.

Information Center

Student Union & Library, Concourse, 219/989-2400

- The Information Center is a starting place to gain general information about the university and the campus. The Information Center is staffed by knowledgeable people who can further direct students to more specific sources of campus information.
- The Information Center makes Peregrine van reservations (for students and staff).

The Counseling Center

Gyte Building, Room 5, 219/989-2366

The Counseling Center offers a range of psychological and career counseling services to all students at Purdue University Calumet toward enhancing student academic and personal success and career satisfaction. Services are provided in an individual format or couples, or group formats and which may include assessment, brief counseling and psychotherapy. Referral, consultation and psycho-educational outreach presentations are also provided. These services are provided by licensed mental health professionals and postgraduate extern counselors under their supervision. All psychological services are confidential as protected by law. Personal issues such as adjustment to college/work, relationship concerns, anxiety, depression, alcohol and drug use, body image/eating problems are only some of the many concerns that may be addressed in counseling. Medication evaluation with a prescribing psychologist in the Counseling Center and collaboration with the Student Health Services Center is also available based on a referral from a professional clinical staff member. As needed, referrals to qualified professionals in the community are made available.

University Library

Student Union & Library, Second Floor, 219/989-2224

The Purdue University Calumet Library is designed to sustain the accessible, trusted, and indispensable learning environment that is fundamental to student academic achievement in college.

Its academic goals are to deliver high quality information, provide excellent guidance in its use, and promote learning in an attractive, technologically advanced, and personally comfortable environment.

The Library helps students learn strategies and skills for accessing information and using it effectively for their class work.

The Library Web site www.purduecal.edu/library/ is a link to scholarly information in electronic and print formats—books, journals, reference guides, and archives.

Services for the user, including Interlibrary Loan, reference assistance and requests for purchase, are available 24-7 via links on the Library’s Web site. Click on the quick link on the Purdue University Calumet home page for easy access to Library resources.

At the Library, students learn how to search a variety of information resources, including PULSE, the Web-based online catalog PRIMO, our online discovery tool, to locate resources that the Library owns, search electronic databases to retrieve journal articles in full text, and organize and carry out research projects.

The Library faculty, staff, and student assistants are here to help students learn in today’s complex information environment. The Library provides individual assistance to each student. The Public Service Desk, located in the front of the Library, is the place for students to begin their research. Library instruction sessions are scheduled at the request of professors.

Open 89 hours per week, the Library is a haven for student learning. The Library learning environment includes such amenities as study rooms for group projects, and two electronic classrooms for hands-on learning, leisure seating for quiet conversation and a place to meet, and individual carrels for quiet study. A high-tech presentation practice room is available. The source for virtual and print documents at the university.

Archives and Special Collections, located on the southwest corner of the second floor identifies, collects, preserves, and makes accessible materials of enduring value that document the history, culture, scholarship, advancements, and achievements of the University’s faculty, staff, and students. The ACCESS Center provides hardware and software to accommodate the needs of differently-abled students.

The Library’s print collection includes 275,000, 174,500 volumes and 400 journal subscriptions. The Library subscribes to thousands of electronic databases, journal collections and books. New links to electronic resources are added weekly. The Library has nearly 800,000 more than 22,000 microforms as well as a digital reproduction system that provides laser quality copies of microforms.

Computing Facilities

Not only do students at Purdue Calumet learn with computers, they also learn about computers. Purdue University Calumet has state-of-the-art computing facilities at several locations on campus. The Information Services division, as well as various academic departments, provide computer labs for student use at several locations on campus. The primary student computing labs are in the University Library and the Gyte Learning Commons. Both of these areas offer students access to a variety of software applications, including word processing, spreadsheet, presentation management, and electronic mail in addition to web browsers to access the Internet and more specialized research applications such as SPSS. Most labs in academic depart-
ments have the same base software as is found in the general campus computing labs with the addition of specialized department software such as computer aided design and GIS (geographic information system) software. Current lab hours can be found on the Information Services web site (www.purduecal.edu/infosvcs).

In addition to the extensive campus lab network, Purdue Calumet is unique among institutions of its size in having a high-performance computing cluster that is available for the use of students in various programs of study. As part of the Northwest Indiana Computing Grid (http://www.nxicgrid.org), Purdue Calumet is a partner in various national high performance computing consortiums including Diagrid (www diá-grid.org) and Teragrid (www.teragrid.org).

Networking on campus is facilitated by redundant 1 Gbps connections to the i-Light (http://www.i-light.net) network with an additional 10 Gbps link to i-Light for high performance computing applications. Wired desktop connectivity runs at 100Mbps across campus. Wireless coverage on campus is provided in all buildings and in most open areas on campus via 802.11b/g/n protocols.

Career Services

Student Union & Library, Room 349, 219/989-2600
careerservices@purduecal.edu
www.purduecal.edu/careerservices

Monday, Tuesday, Thursday, & Friday — 8:00 AM to 4:30 PM
Wednesday — 8:00 AM to 7 PM
Breaks and Summer Hours — M-F 8:00 AM to 4:30 PM

CAREER PREPARATION / PROFESSIONAL DEVELOPMENT

Career Services is a one-stop shop for all your professional needs. Available to students, alumni, and the community, our services include resume and cover letter reviews, mock interviews, networking opportunities and career events, on-campus recruiting, job search assistance, career related advice, and more. A comprehensive career resource center is available in SU Library online at www.purduecal.edu/careerservices. The center has directories of occupations and employers, career and job search books, free career materials, and a system that allows students to practice their interviewing skills. It's also an excellent place to visit if you are undecided about choosing a major Career Services offers a diverse set of workshops and professional development activities. Get SET (Student Employment Training), Graduate School Investigation, Backpacs to Briefcases and the Inspired Leaders Series all provide training and skills development in areas of customer service, professionalism, etiquette, transitioning to the workplace, graduate school application processes, leadership, and more. Get a jump on your future and plan for success by attending these workshops. Visit our Web site for a full listing of the workshop schedule and to sign up online to attend.

STUDENT EMPLOYMENT

Student Employment is an integral part of Career Services. Our goal is to provide meaningful employment for students, correlating to their educational goals and connecting them to campus. Some of the benefits of student employment include a steady paycheck, flexible schedules, on-campus or nearby locations, and an opportunity to develop real world skills.

Not only does Student Employment coordinate Federal Work Study and Non-Federal Work Study positions, but also temporary, project, and Graduate Aide positions. Please feel free to contact Student Employment for further assistance with on-campus employment issues, (219) 989-2600.

LEADERSHIP DEVELOPMENT

The Inspired Leaders Series is a set of leadership workshops where students can earn a leadership certification by attending various workshops throughout the year. You can earn a Silver Member Award and specialize in different areas such as: Leadership, Teamwork, Communication, Personal and Professional Development, and Job Search Skills. Get a jump on your future and plan for success by attending these workshops. Visit our Web site for a full listing of the workshop schedule and to sign up online to attend.

New Student Orientation

Student Union Library, Room 104B, 219/989-2358
orientation@purduecal.edu
http://webs.purduecal.edu/newstudent/

Hours: Monday through Friday 8:00 a.m. - 5:00 p.m.
One day per week office is open until 6:30 p.m.
For Summer Break Hours call (219) 989-2358

A student’s journey begins with New Student Orientation. This mandatory one day interactive event is designed for students to learn how to navigate college life and succeed at Purdue University Calumet. A fee of $30 will be required in order to register for New Student Orientation.

New Student Orientation provides an opportunity to discover valuable resources, attend workshops and an academic overview, take a campus tour, enjoy lunch with other PUC students, and register for classes. Parents and family members too will learn valuable information regarding their student’s journey at PUC.

In addition, New Student Orientation sponsors events throughout the academic year to connect new students to the University and the campus community.

Campus Life – Student Activities

Student Union Library, Room 104B, 219/989-2369

Student Activities offers a wide variety of programs and services that facilitate student involvement and enhance the educational experience with opportunities to learn, grow, and get connected to Purdue University Calumet. Student Activities offers quality programs and resources that educate beyond the classroom in such areas as leadership, cultural awareness and diversity, social engagement, and community service which assists students in the development of skills they can use long after college. Student Activities works closely with the campus’ 50-plus student organizations, including the Student Government Association, social and professional organizations, and the campus newspaper, The Chronicle. In addition to assisting these groups, Student Activities coordinates special events and programs, such as Dances, the Student Activities Awards Banquet, Pancake and Ice Cream Study Breaks, Meal with Your Mentor. Stay in touch with what’s going on around campus by visiting: http://webs.purduecal.edu/studentactivities/

Student Activities also encourages students to get a Co-curricular Transcript (“CcT”), an official University document that will help them get the competitive edge for securing employment, internship opportunities, graduate school admissions, and scholarships. A CcT is a document that complements students’ academic transcript by verifying their co-curricular involvement. It will be a valuable asset for students when trying to get ahead.

A CcT lists students’ co-curricular experiences (those activities that took place outside the classroom) in which students have been involved while being enrolled at Purdue University Calumet. This could include honors and awards, Student Government and organizations, athletics and intramurals, educational workshops/conferences, and community and campus service. Forms and additional information are available online at http://www.purduecal.edu/ccct

Health, Recreation and Sports

Fitness & Recreation Center
Athletics: 219/989-2540; Fitness Center: 219/989-2175;
Wellness Office: 219/989-2709; Recreation: 219/989-2550; and Intramurals: 219/989-2050

The Fitness and Recreation Center is the base for a broad range of fitness, intramural and athletic activities. Open recreation for students, faculty and staff is available with the purchase of a Fitness Center membership. Intercollegiate athletics include men’s and women’s basketball, men’s and women’s cross country, men’s golf, men’s and women’s tennis and women’s volleyball, and men’s and women’s soccer through the National Association of Intercollegiate Athletics. A wide range of intramural sports are available for students and non-students alike.
The Fitness Center is a comprehensive, multi-dimensional, physical fitness training facility designed to service Purdue University Calumet students, faculty, staff and people from surrounding communities. The Center features state-of-the-art equipment, convenient hours and a professional staff of exercise physiologists. Fitness Center members also may participate in a variety of specialty exercise classes. Purdue Calumet undergraduate and graduate students may use the recreational facility by paying a facility user fee each semester. Purdue University Calumet graduate students must pay an activity fee along with a facility user fee. Non-students are subject to different membership fees.

Wellness programs and services are available to Purdue University Calumet students and employees. The wellness staff provides health screenings, educational programs, and other health-related activities to assist students and employees in making health-conscious decisions about lifestyle behaviors that affect their health and well-being.

Intercollegiate Athletics offers twelve varsity sports competing in the National Association of Intercollegiate Athletics. Purdue Calumet Athletics sponsors the following women’s sports: Basketball, Soccer, Softball, Tennis, Cross Country and Volleyball. Purdue Calumet Athletics offers the following men’s sports: Basketball, Soccer, Baseball, Tennis, Cross Country and Golf. Please refer to purduecalipsports.com for the most updated information on Peregrine athletics.

Educational Opportunity Programs
Student Union & Library, Room 335, 219/989-2779

The history of educational opportunity and access at Purdue University Calumet begins with the funding of the Upward Bound Program in 1966. The Purdue Calumet Upward Bound was one of the first in the country. Today, students from Northwest Indiana are able to enter the TRIO educational pipeline in sixth (6th) grade through Graduate School. The following describes the mission, target population and impact of TRIO programs.

UPWARD BOUND
Student Union & Library, Room 339, 219/989-2392

Upward Bound helps prepare students to bridge the gap between high school and college. A pre-college preparatory program, Upward Bound provides academic support, cultural enrichment, and personal/career counseling to increase the academic skills and motivational levels of participants.

Students are identified and selected for Upward Bound during their freshman year in high school. The program includes four phases:
First Summer. Students spend four weeks at the Purdue University Calumet campus. Curriculum includes exploration in academic and career areas.
Second Summer. Students spend seven weeks on the Purdue West Lafayette campus enrolled in both academic and elective courses.
Third Summer. Students attend an eight-week session on the Purdue University Calumet campus enrolled in six hours of college credit courses and career planning sessions.
Fourth Summer (optional). Program graduate may attend an eight-week class session at either the Calumet or West Lafayette campus. Some conditions apply.

During the academic year, students are enrolled in academic enrichment courses and other activities each Saturday at Purdue Calumet.

EDUCATIONAL TALENT SEARCH
Student Union & Library, Room 313, 219/989-2460

Educational Talent Search, funded by the U.S. Department of Education, is a federally funded TRIO program, which assists in providing postsecondary educational opportunities to underrepresented middle and high school students at targeted schools in the greater Calumet Region.

By extending encouragement to prospective college students and providing counseling and information, participants realize their potential for success. Our program is designed to identify persons from disadvantaged backgrounds and/or first generation students (neither parent has a bachelor’s degree). Our efforts are coordinated with teachers, school counselors, parents, various community agencies, and other existing support systems. We provide college admissions, financial aid, SAT preparation, academic monitoring, and career exploration.

This program consists of three components: initiative (6th, 7th, and 8th grades), high school (9th through 12th grades), and (adult) non-traditional students.

RONALD E. MCNAIR POST-BACCALAUREATE ACHIEVEMENT PROGRAM
Student Union & Library, Room 335, 219/989-2779

The Ronald E. McNair Post-Baccalaureate Achievement Program, a federally funded TRIO program, provides services and activities that encourage and prepare undergraduate students who are first generation college and low-income and who are from populations underrepresented in areas of graduate education for graduate study. These services include, but are not limited to tutoring, graduate school visitations, research opportunities, and seminars and workshops that increase the likelihood of being admitted to and successfully completing graduate study.

From Boots to Books: Veterans and Student Service Members Academic Support Program
Student Union & Library, Room 343, 219/989-2727

From Boots to Books: Veterans and Student Service Members Academic Support Program (FBBSAP) is a program designed to create a community of university personnel, students, and community agencies that provide support services that increase the likelihood of veterans and student service members completing their educational goals.

Combinations of services such as tutoring, academic monitoring, field experiences, and counseling will be provided according to the identified need in order to enhance retention and successful completion of the undergraduate degree. In short, the program staff is committed to assisting veterans and student service members to transition from “an environment where vigilance and mistrust were crucial to survival, into an environment where openness and trust are essential” to success.

Intercollegiate Student-Athlete Academic Support Program
Student Union & Library, Room 343, 219/989-2457

The Intercollegiate Student-Athlete Academic Support Program is a program designed to aid student-athletes in achieving success through providing personalized academic guidance, appropriate tutoring by subject, special interest workshops and referrals to other necessary services as needed. Through collaboration and integration with campus resources, programs and services are designed to enhance student athletes’ overall development, well-being, and undergraduate experience.

21st Century Scholars Collegiate Support Program
Student Union & Library, Room 335, 219/989-2457

The 21st Century Scholars Program is designed to provide resources, relevant information and support for 21st Century Scholars currently enrolled at Purdue University Calumet. The 21st Century Scholars Office provides 21st Century Scholars with a wide variety of programs and services including academic tutoring, academic monitoring, counseling, and workshops ranging from study skills to financial literacy. Through the 21st Century Scholars Office scholars are connected with other programs and services throughout campus, with the ultimate goal of helping them be successful students at Purdue University Calumet.

Military and Veterans’ Certification Services
Lawshe Hall, Room 130, 219/989-2334

The Office of Veterans’ Affairs is responsible for coordination the certification of benefits-eligible veterans on campus. The office ensures prompt delivery of veterans’ educational entitlements to all eligible students. The office provides many services to Veterans including information about the university; admission referrals, certification and details about applying for VA Educational Benefits, assistance with registration procedures, special assistance for disabled Veterans, and referrals to other agencies. Office of the Registrar, 219-989-2210.
The Student Research Office

Lawshe Hall, Room 238, 219/989-2925

The Student Research Office at Purdue University Calumet exists to help students participate in research and scholarly activities, in collaboration with Purdue Calumet faculty. A student and his or her faculty sponsor work together on a project of mutual interest. The research can be performed in many disciplines on campus. The mentoring relationship developed through the research and scholarly process is beneficial to the student and to the faculty member. Students have the opportunity to participate in a research project from beginning to end, to go beyond classroom experience and to investigate an idea in great depth. Faculty have the enjoyment of being able to move beyond classroom examples with students who are actively engaged in the discovery process.

There are several different programs coordinated by the Student Research Office, including the Undergraduate Research Grant Program (URGP) which funds expenses for a research project; the Student-Faculty Research Collaboration Award (S-FRCA) which funds travel for students when they accompany a faculty member to present their research work results or perform research off-campus; the Student Research Award (SRA) which gives awards to the top research projects done by students at Purdue Calumet and the Louis Stokes Alliance for Minority Participation (LSAMP) an NSF sponsored program which supplies a stipend to undergraduate students with an emphasis on under-represented students, to do research in the fields of science, technology, engineering and mathematics for a spring or summer semester. The Student Research Office also hosts the annual Purdue University Calumet Student Research Day.

Office of the Vice Chancellor for Enrollment Management and Student Affairs

Lawshe Building, Room 352, 219/989-2367

The Office of Vice Chancellor for Enrollment Management and Student Affairs (VCEMSA) is responsible for coordinating services which are designed to recruit and enroll students in a campus environment in which students are able to develop and succeed, academically, intellectually and personally. Enrollment Management and Student Affairs includes the following offices:

Admissions and Recruitment; Student Financial Services; Registrar's Office; Testing Services Center; Campus Life & Dean of Students; Career Services; Counseling Center; Educational Talent Search; Fitness Center & Intramural/Recreational Sports; Housing & Residential Education; McNair Post-Baccalaureate Achievement Program; Office of Disability Resources; Student Activities/Student Organizations; Student Employment; Student Health Services Center; Student Wellness; 21st Century Scholars Program; Upward Bound; and Veterans and Student Service Members Academic Support Program (From Bootst o Books).

The VCEMSA Division staff assist with creating a student centered environment designed for student success through services and programs administered outside of and in conjunction with academic programs.

The staff and faculty and the student leaders with whom they partner are committed to a team approach to creating this supportive environment that is the hallmark of a destination of choice university.

Testing Services Center

Lawshe Building, Room 118, 219/989-2504

The Testing Services Center is responsible for administering placement testing for English, math and foreign languages (French, German and Spanish). Placement testing for English and foreign language is completed in the Testing Services Center; math placement is completed online using ALEKS.

The Testing Services Center also offers proctored testing, make-up exams, certification testing, CLEP exams and the SAT on Campus, as well as national testing for the SAT, ACT, PRAXIS, GRE and TOEFL. Photo identification is required for all testing in the Center.

Office of the Dean of Students

Student Union and Library Building, Room 313

The Office of the Dean of Students promotes responsibility, accepting consequences of behavior and encourages honesty, integrity, and respect among Purdue University Calumet students through education, compliance with behavioral standards, and support of individual rights.

The Office of the Dean of Students also serves as the Student Liaison Office at Purdue University Calumet. Our aim is to provide answers to your questions, appropriate referrals as needed, and helpful support and problem-solving assistance. We are your advocate and are eager to help you be successful.

Applications and procedures for readmission of students who have been academically dropped from the University are available online at www.purduecal.edu/deanofstudents.

Readmission Procedure

For Students Who are Academically Dropped for Scholastic Deficiency

Purdue University Calumet welcomes Purdue University students in good academic standing. According to University regulations, when academically dropped a student is required to sit out one regular semester. If dropped more than once, a student is required to sit out at least one calendar year. After completing the required sit out period, a student may petition for readmission to the Purdue campus he or she wishes to attend.

Purdue students requesting readmission must complete an http://webs.purduecal.edu/deanofstudents/academic-drop/definition-of-academic-drop/readmission-application/" readmit” online readmission application and pay a $100 non-refundable fee to Student Accounts by phone at (219) 989-2560 or in person in the Enrollment Service Center located in Lawshe Hall, Room 130. The fee must be paid by the designated deadline in order for the application to be processed.

For additional information contact the Office of the Dean of Students at (219) 989-4141, email dos@purduecal.edu, or stop by the Student Union Library Building Room 313.

Charlotte R. Riley Child Center

219/989-2343

The Charlotte R. Riley Child Center operates as a campus child center lab school through the division of Administrative Services and Comptrollers Office. The child center provides high quality child care services, preschool and kindergarten education programs to children of students, staff, faculty, and to the community. The center is NAEYC accredited and meets all state licensing rules and Paths To Quality (PTQ) requirements for children ages 3-6. The Center is open all year excluding university holidays and two weeks prior to the fall semester. Children who are at least three years old and toilet trained through kindergarten age can stay for blocks of time or all day at a reasonable cost. Children entering kindergarten must meet the State of Indiana age requirements. All childcare requires advanced enrollment.

University Police

University Police Building - Emergency; (To report emergencies dial 911. If using a campus phone dial 9-911) 219/989-2220 - Business, Email – unpol@purduecal.edu

Business Lobby Hours — 7:00AM to 11:00PM

Police Department Hours — 24/7

The University Police Department conducts motorized patrols, foot and bike patrols throughout the campus and responds to all calls for service. The department is equally responsible for traffic and parking enforcement and investigating all suspicious or criminal activity, motor vehicle accidents, and medical emergencies. Motorists in need of assistance may call the police department for assistance.

Escorts on campus are handled on request. University Police also oversees building access control, staff ID’s and transportation services. The University Police, in conjunction with University Facilities Services, creates, approves and distributes key cards for offices and rooms.
Even goals to attain.

A business plan is like a blueprint. It should guide you through every phase of your skills and explain what should be their first step in developing their new business. Realize their dreams. We can help! This workshop shows people how to assess their young entrepreneurs and how these people began their entrepreneurial journeys.

What is My 1st Step?

Most people sit on their ideas because they don’t know where to begin or how to realize their dreams. We can help! This workshop shows people how to assess their skills and explain what should be their first step in developing their new business.

The Big Sell Business Plan Course

A business plan is like a blueprint. It should guide you through every phase of your business, including: purpose, vision, market, financials, operations, competition, and even goals to attain.

The Gerontology Center

Porter Hall, Room 203C, 219/989-2863.

The Gerontology Center provides a University focus for education, research and service regarding older people. Its services include consultation with students who may work in gerontology-related fields or who are planning a course of study in social gerontology. The Center also functions as a link from the University to the Northwest Indiana region by providing a variety of conferences, workshops, and referral information on issues of aging.

For further information, please contact the Gerontology Center at 219/989-2863.

Anne Edwards, Director
Ralph Cherry, Associate Director

Center for Entrepreneurship Success

The mission of the Center for Entrepreneurship Success is to encourage and support entrepreneurship and economic development in our community, region, State and throughout the country by offering educational programs and expanding initiatives that support the creation and development of new business opportunities.

The Big Sell Entrepreneurs in Action Competition

The Big Sell is a nationally recognized entrepreneurship competition that allows any individual and/or team to introduce their business idea to the general public and a group of distinguished judges.

Unlike any other entrepreneurship contest, the first round of judging is solely in the hands of the general public. Attending audience members cast an electronic vote from their table to select the ten finalists that will compete in the final round.

The top three winning ideas are incubated for one year at the Hammond Innovation Center. They will also receive more than $60,000 in cash and prizes including: volunteered legal services, volunteered accounting services, volunteered marketing services, volunteered IT services and free office space. Additionally, students from Purdue University Calumet with the guidance of the Center for Entrepreneurship Success will help the winners craft a business plan.

E-Factor

In celebrating National Entrepreneurship Week, Purdue University Calumet’s Center for Entrepreneurship Success hosts and shows regional high school and collegiate students how to begin their journey and pursue their entrepreneurial dreams. This is an educational, motivational and inspiring workshop that will showcase stories of young entrepreneurs and how these people began their entrepreneurial journeys.

What is My 1st Step?

Most people sit on their ideas because they don’t know where to begin or how to realize their dreams. We can help! This workshop shows people how to assess their skills and explain what should be their first step in developing their new business.

Chinese Executive Program

This is a training program for Chinese executives in various business fields. Each program is uniquely developed based on the specific needs of the group.

For further information, please contact the Center for Entrepreneurship Success at 219/989-2100; 877/974-2100 (toll-free) FAX: 219/989-2101 e-mail: e-center@purduecal.edu www.purduecal.edu/ecenter

For further information, please contact the Center for Entrepreneurship Success at 219/989-2100; e-center@purduecal.edu www.purduecal.edu/ecenter

Student Health Services Center

Gyte Annex, Room 34, 219/989-1235

The Student Health Services Center (SHSC) at Purdue Calumet offers students primary care and prevention services. The services include but are not limited to acute and chronic care for non-emergent conditions such as pharyngitis, bronchitis, allergic rhinitis, asthma, hypertension, and diabetes. Services include general physicals, gynecological exams, laboratory analysis, minor surgical procedures and health screenings. Laboratory services will include testing by an outside lab as well as some analysis onsite such as strep screens, pregnancy testing, and urinalysis. In addition, students will be provided referrals to health care professionals in our area for further evaluation and treatment as needed. The SHSC, with students consent, works closely with the Student Counseling Center to provide some psychotropic medications. Initial office visits are $20.00 and include the exam and some tests. Follow up visits for acute as well as some chronic diagnoses are performed without charge. Students are responsible for some laboratory charges not covered by the clinic.

Visit Us On The Web

Our Purdue University Calumet Web site is located at www.purduecal.edu
• COLLEGE OF •

EDUCATION
College of Education
 219/989-2335, 800/HI-PURDUE, ext. 2335, Gyte Annex, Room 138

Department of Teacher Preparation (Undergraduate programs)
 219/989-2360, 800/HI-PURDUE, ext. 2360, Gyte Annex, Rooms 138

Department of Graduate Studies in Education
 219/989-2326, 800/HI-PURDUE, ext. 2326, Gyte Annex, Room 142

Bachelor Degree Programs
- Elementary/Special Education (Gr. K-6)

Master Degree Programs
- Educational Administration
- Counseling and Development (Mental Health Counseling, School Counseling, and Human Services)
- Instructional Technology
- Special Education

In addition, Purdue Calumet offers licensure programs in educational administration, school counseling and special education (mild and intense intervention).

Career Opportunities
  Graduates of Purdue Calumet’s College of Education may work as an elementary school teacher, high school biology teacher, kindergarten teacher, junior high math teacher, reading teacher, middle school social studies teacher, special education teacher, middle school language arts teacher, high school chemistry teacher, mental health counselor, addictions counselor, and more. Master’s graduates may work as a school principal, guidance counselor, mental health counselor, administrator or advance their classroom career.
The Department of Teacher Preparation, in collaboration with other professional educators and agencies, prepares and supports education professionals and related specialists who:

- apply the appropriate knowledge, skills, and attitudes in developing diverse approaches to educational strategies that are constructive, consistent, and reflective of sound practice.
- are prepared to use current information and technology to empower the people they serve; and
- are sensitive and responsive to the unique needs of themselves, of others, and of the diverse society in which they practice; and
- are advocates and models of quality education and lifelong learning.

The Education faculty is committed to providing the human and technological resources necessary to enable students to construct knowledge, develop practices, and foster relationships.

Mission Statement
The mission of Purdue University Calumet’s College of Education, in collaboration with other professional educators and agencies, is to prepare and support education professionals and related specialists who:

- Apply the appropriate knowledges, dispositions, and performances in developing diverse approaches to educational strategies that are constructive, consistent and reflective of sound practice;
- Are prepared to use current research, knowledge, and technology to empower the people they serve;
- Are sensitive and responsive to the unique needs of themselves, of others, and of the diverse society in which they practice;
- Are advocates and models of quality education and lifelong learning.

The College faculty is committed to providing the human and technological resources necessary to enable students and themselves to develop as educational professionals in constructing knowledge, developing practice, and fostering relationships.

“Constructing knowledge” refers to the process by which individuals make meaning from professional information and develop personal theories about teaching, learning, and human development. Individuals construct knowledge through structured educational activities and life experiences.

“Developing practice” refers to the process by which educational professionals improve how they do their jobs as well as to the process of developing and growing as reflective practitioners.

INTASC Standards
The Department of Teacher Preparation at PUC has adopted the standards created by the Interstate New Teacher Assessment and Support Consortium (INTASC) to assess our programs and ensure that students leave our program with the knowledge, attitudes, and skills to be successful educators. “These Model Core Teaching Standards articulate what effective teaching and learning looks like in a transformed public education system — one that empowers every learner to take ownership of their learning, that emphasizes the learning of content and application of knowledge and skill to real world problems, that values the differences each learner brings to the learning experience, and that leverages rapidly changing learning environments by recognizing the possibilities they bring to maximize learning and engage learners. A transformed public education system requires a new vision of teaching (INTASC, 2011, p. 3). Additionally, the INTASC standards are adopted and embraced by The Indiana Professional Standards Board.

For each of the ten INTASC standards (see below), specific knowledge, dispositions and performances have been defined. Complete documentation of the standards can be found online at www.ccsso.org/Resources/Publications.html. In addition, the INTASC standards have been aligned with the College’s conceptual framework, “Constructing Knowledge, Developing Practice, Fostering Relationships.”

INTASC Standards
1. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
2. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
3. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
4. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.
5. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
6. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher’s and learner’s decision making.
7. Planning for Instruction: The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
8. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
9. Professional Learning & Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
10. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

The Teacher Education programs include a general education component, a major in elementary education or teaching subject areas and electives. The professional education courses begin with exploratory activities in the freshman year and culminate with a full-time supervised teaching experience. The Department of Teacher Preparation Office and Graduate Studies in Education Office serve undergraduates and graduates during and after their attendance at Purdue Calumet, supervising admission of undergraduates to Teacher Education and arranging field experiences, including student teaching. It also facilitates the
process for students. The Literacy Resource Center in Gyte Annex, Room 127, and the Science Laboratory in Gyte, Room 237 all support the school’s programs. The Teacher Education Resource Center in the Purdue Calumet Library contains print and non-print materials used by faculty, graduate and undergraduate students.

**Undergraduate Studies in Education**

The College of Education offers a variety of undergraduate and licensure programs through its Department of Teacher Preparation Office located in the Gyte Annex, Room 138, (219) 989-2360.

The following is a list of undergraduate degrees and programs at the undergraduate level. Please be advised that programs are subject to change. It is the student’s responsibility to work with the appropriate advisor to keep updated on any new requirements or changes.

- Bachelor of Arts, Elementary Education and Special Education (Gr. K-6);
- Bachelor of Arts or Bachelor of Science, Secondary Education (Gr. 5-12);
- Majors in biology, chemistry, English, French, mathematics, physical science, physics, Spanish and social studies teaching with intense areas in economics, government, historical perspectives, psychology, sociology.

*Note: The courses that are taken at Purdue University Calumet are created specifically to meet Indiana teacher education standards. For that reason, they are subject to change should licensing requirements change. To be licensed to teach in another state, you must contact the state Department of Education for their requirements. See their website for information.*

**Introductory course work:**

**GATE 1:**
- EDPS 22000 Psychology of Learning;
- EDFA 20000 History and Philosophy of Education;
- EDPS 26000 Introduction to Special Education;

**GATE 2: Screening for Gate 2 Courses**

To be eligible to register for Gate 2 courses, candidates must meet the following requirements:

1. Have completed Introductory Course Work in Gate 1.
2. Provide documentation of taking the Praxis I exam by providing scores. If a candidate has an SAT score of 1100 or ACT score of 24, either can be substituted for the Praxis I exam.
3. Have achieved a portfolio score of 1.5, have earned a cumulative 2.5 GPA, and demonstrated acceptable dispositions.

**Admission, Retention and Licensure Standards for all Teacher Education Programs**

**Gate 3: Admission to Teacher Preparation Program**

A candidate seeking teacher licensure through Purdue University Calumet, including student teaching, must be admitted to Methods courses by meeting the following minimum standards:

1. Be enrolled at Purdue University Calumet in good standing.
2. Have completed Introductory Coursework and be registered in Gate 2 courses; and be registered for remaining courses in the following sequence:
   - EDCI 35500 — Teaching and Learning in the K-12 Classroom
   - EDPS 27000 — Characteristics of Individuals with Mild Disabilities
   - EDCI 31100 — Media for Children
   - EDCI 36600 — Use of Assessment in the K-12 Classroom
3. Minimum education GPA of 3.0 with no grade lower than a C in Education Courses
4. Minimum cumulative 2.5 GPA with no grade lower than a B in English composition courses.
5. For elementary majors, minimum grade of B and C in two of the required math courses. One of the courses must be MA 13700, and the other may be either MA 13600 or MA 13900. The remaining mathematics class must be completed with a C or better within a year of admission and prior to taking EDCI 31500. Students who earn grades of D, F, or W in MA 13700, must successfully complete MA 02100 before attempting MA 13700 a second time.

6. 2.5 cumulative GPA with no Ds or Fs.
7. Licensure scores on all three sections of Praxis I: (Pre-Professional Skills Test (PPST);
   Passing Scores (written/electronic): Reading (176/323), Math (175/320), Writing (172/318) or a combined score of 527 or SAT 1100 or ACT 24 prior to registration in GATE 3 courses: EDCI 32100, EDPS 37000, EDCI 32300, EDPS 49000.
8. After completing first education course, have withdrawn from no more than four and repeated no more than two courses.
10. No more than two Education courses with a grade of C.
11. Must be coded in the elementary or secondary education major.
12. Must display appropriate dispositions.
13. Application for admission must be submitted to the Department of Teacher Preparation Office (Gyte Annex, Room 138) on or before February 1st for Fall semester admission and October 1st for Spring semester admission.

**Retention Standards for the Teacher Education Program**

Admission to methods courses does not insure retention in the program or approval for the professional semester. Each candidate’s progress will be reviewed by the advisor semester by semester. To be retained in the methods courses, the candidate must meet the following requirements:

1. Be enrolled at Purdue University Calumet in good standing.
2. Maintained a minimum grade index of 3.0 with no grade lower than a C in Education courses.
3. Maintained a 2.5 cumulative GPA with no Ds or Fs.
4. Completed no more than two Education courses with a grade of C.
5. After completing first education course, have withdrawn from no more than four and repeated no more than two courses.
6. Demonstrated acceptable dispositions.

If a candidate is found to be in violation of any retention standard, the candidate will be placed on probation for the Teacher Education Program. The candidate will be notified by the academic advisor of this status and will not be allowed to proceed further in the Teacher Education Program until any deficiency is eliminated.

**Gate 4: Admission to the Professional Semester (Student Teaching)**

Candidates seeking admission to the Professional Semester must meet the following minimum standards:

1. Be enrolled at Purdue University Calumet in good standing.
2. Maintained a minimum education GPA of 3.0 with no grade lower than a C in Education courses.
3. Maintained a 2.5 cumulative GPA.
4. Maintained appropriate GPA in secondary content.
5. Completed no more than two Education courses with a grade of C.
6. After completing first education course, have withdrawn from no more than four and repeated no more than two education courses.
8. Have taken required Praxis II exams.
9. Have completed portfolio requirement.
10. Have displayed appropriate dispositions.

**Appeal Process for Admission and Retention Standards**

A candidate may choose to appeal a denial to methods courses or the Professional Semester if they have special circumstances that they feel have prevented them from completing all the requirements for admission. All appeals for admission to methods courses and the Professional Semester must be sent to the department Faculty Appeals Committee. The Appeals Committee is made up of four faculty/staff from the Department of Teacher Preparation. Each member will serve on the committee for three academic years. The following steps must be taken in order to submit information to the Appeals Committee:

1. Complete a request form for the Appeals Committee. This form may be obtained from the Department of Teacher Preparation Office (Gyte Annex, Room 138).
2. Submit the appeal to the Department of Teacher Preparation Office (Gyte Annex, Room 138) by February 15th for Spring semester appeals and September 15th for Fall semester appeals.

3. The Faculty Appeals Committee will meet as needed to consider appeal requests. The advisor will notify the candidate of the committee’s decision or by the date indicated on the denial letter.

Licensure Standards
Gate 5: Licensure
Candidates will be recommended for a standard teaching license in Indiana and in other states where the recommendation is accepted when they have met the following standards:

1. Completed a program of Elementary or Secondary Education.
2. Earned a bachelor degree.
3. Maintained a minimum education GPA of 3.0 and no grade lower than a C in Education courses.
4. Achieved a 2.5 graduation index.
5. Achieved passing scores on the Praxis II: Specialty Area Tests and any other tests as required by the Indiana Professional Standards Board or the Department of Teacher Preparation.

Note: Any education major re-entering the program who was not registered in a course for two or more years must meet the admission, retention, and licensure standards in effect at the time of re-entry. The Advisor, in consultation with the Faculty Appeals Committee, has the authority to make decisions in areas where the adopted standards of admission, retention, and licensure do not adequately address individual situations. The policy reflects the minimum requirements for the Department of Teacher Education.

Purdue University Calumet Title II HEA Report Card

Founded in 1946, Purdue University Calumet is a comprehensive regional university dedicated to serving the professional, cultural, and general educational needs of the citizens of Northwest Indiana. Its academic programs lead to certificates and associate, baccalaureate and master’s degrees.

The goal of Purdue Calumet’s College of Education is to work with other university academic units and local schools to produce teachers who are able to teach a diverse student population utilizing a variety of research-based instructional methods that result in high quality student learning. Purdue Calumet’s mission is to produce teachers who excite, encourage and enable their students to be life-long learners.

Student Demographic Characteristics: 69% percent of Purdue Calumet undergraduate students are of traditional age (17-25-years-old), attending soon after completing high school. A significant number of students are the first in their families to pursue a college degree. 68% percent are enrolled as full time students. 85% percent are Indiana residents. 80% of Purdue Calumet teacher education program recent graduates are female. Minority students comprise 19% of 2009-2010 teacher education program completers (baccalaureate graduates) and 36% percent of the total undergraduate student body.

Type of Institution: At Purdue University Calumet, teacher education candidates are required to take and pass state-mandated tests at two points as they prepare for licensure.

1) Admission to Teacher Education. Candidates must have completed 30 semester hours of course work, maintained a minimum grade index of 3.0 in education courses and an overall grade index of 3.0 with no grade below a B in English composition courses, have submitted an acceptable professional portfolio, and passed a basic skills test in reading, writing and mathematics (Praxis I) at the state mandated level.

Program Completer: At Purdue University Calumet a program completer is a teacher candidate who has completed all requirements of an Indiana state approved teacher preparation program, except the passing of a mandated content area test at the state-required level.

Teacher Preparation Programs: Purdue University Calumet offers six baccalaureate programs leading to state teacher licensure in: Elementary Education, Secondary Education in English, Foreign Language, Mathematics, Science, and Social Studies. Graduate level programs are offered in Special Education. In addition, elementary and secondary teacher candidates who hold a baccalaureate degree can pursue licensure at Purdue Calumet through an individually tailored program that meets all state requirements. As a part of the Northwest Indiana Consortium for Teacher Education, Purdue Calumet offers Transition to Teach programs in five secondary areas, including English, Mathematics, Foreign Language, Physical Science, and Life Science.

Accreditation: Purdue University Calumet is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. The University’s College of Education programs (undergraduate and graduate) are accredited by the National Council for the Accreditation of Teacher Education, (NCATE). The graduate programs were granted continuing accreditation under NCATE 2000 Standards in March, 2002. Graduate programs, formally accredited with the College of Education at Purdue University, are now accredited at Purdue University Calumet.

Unique Program Characteristics: Purdue University Calumet’s programs involve candidates in developmental field experience throughout their career at Purdue Calumet. These experiences are designed to build upon one another in small steps, so that skill and confidence in teaching develops, leading to success in student teaching. A portfolio developed by students helps focus their professional growth on the areas needed for success in their first teaching position.

Notable Features and Accomplishments: Purdue University Calumet has educated a large number of elementary, secondary and special education teachers who are practicing in northwest Indiana schools, as well as a significant number of principals and school counselors in those schools. In collaboration with the Purdue University College of Education at West Lafayette, Purdue Calumet also assists in the education of urban school superintendents.
### Table C1: Single-Assessment Institution-Level Pass-rate

**Data:** Regular Teacher Preparation Program  
**Institution Name:** Purdue University Calumet  
**Academic Year:** 2010-2011  
**Number of Program Completers:** 56

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<th>Institution Pass Rate</th>
<th>Statewide Pass Rate</th>
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### Table C2: Aggregate and Summary Institution-Level Pass-rate

**Data:** Regular Teacher Preparation Program, 2010-2011  
**Institution Name:** Purdue University Calumet  
**Academic Year:** 2010-2011  
**Number of Program Completers:** 104

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<th>Institution Pass Rate</th>
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<tr>
<td>Aggregate: Professional Knowledge*</td>
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<td>Performance Assessments*</td>
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<td>56</td>
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* Aggregate pass rate – Numerator: Number who passed all the tests they took in a category (and within their area of specialization). Denominator: Number of completers who took one or more test in a category (and within their area of specialization).

** Summary pass rate – Numerator: Number who passed all the tests they took within their area of specialization. Denominator: Number of completers who took one or more tests used by the state (and within their area of specialization).
Table C1a: Single-Assessment Institution-Level Pass-rate Data: Regular Teacher Preparation Program, 2009-2010

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<th>Type of Assessment</th>
<th>Assessment Code</th>
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Bachelor of Arts, Elementary Education/Special Education (Grades K-6)
(127 CREDIT MINIMUM)

1. Communication
ENGL 10400 English Composition I or ENGL 10000
OR
ENGL 10800 Advanced Freshman Composition
COM 11400 Fundamentals of Speech
ENGL 10500 English Composition II
Foreign Language 20100 (3 credits)

2. Humanities and Social Studies
POL 10100 American Government and Politics
HIST 15100 United States History to 1877
HIST 15200 United States History Since 1877
HIST 10400 Introduction to the Modern World
PHIL 10600 Human Experience in Art, Lit., Music, and Philosophy
A&D 20300 Art Activities Elementary Teachers
MUS 20300 Music for Elementary Teachers

3. Science and Math
MA 13700 Mathematics for Elementary Teachers I
MA 13800 Mathematics for Elementary Teachers II
MA 13900 Mathematics for Elementary Teachers III
CIS 20400 Intro to Computer Based Systems
SCI 11200 Introduction to Physical Science I
SCI 11300 Introduction to Physical Science II
SCI 11400 Introduction to Life Science I
SCI 31500 Environmental Science for Elementary Education

4. Education Requirements (Sequenced)

GATE 1: Introductory course work
EDFA 20000 History and Philosophy of Education
EDPS 22000 Psychology of Learning
EDPS 26000 Introduction to Special Education

GATE 2: Advanced Premethods
(licensure scores on Praxis (PPST required for registration or SAT score of 1100 or ACT score of 24 if seeking to waive Praxis exam)
EDCI 35500(Ex L) Teaching and Learning in the K-12 Classroom
EDCI 31100 Media for Children
EDPS 27000 Characteristics of Individuals with Mild Disabilities
EDCI 36600 Use of Assessment in the K-12 Classroom

GATE 3: Methods Semester 1
EDCI 32100 Literacy I: Grades K-2
EDPS 37000(Ex L) Teaching Students with Diverse Learning Needs
EDCI 32300 Educational Technology for Teaching and Learning
EDCI 30001 Lifelong Health & Wellness for Teachers & Children
* may be taken at any point during Gate 3

Method Semester 2
EDCI 30400 Literacy and Middle Childhood
EDCI 31600 Teaching Social Studies in the Elementary School
EDPS 49100 Topics in Special Education

Methods Semester 3
EDCI 31500 Teaching Mathematics in the Elementary School
EDCI 31700 Teaching of Science in the Elementary School Curriculum
EDPS 49100 Special Education Law

GATE 4: Professional Semester
EDCI 49700(Ex L) Supervised Teaching (K-6 classroom)
EDCI 49900 Student Teaching In Special Education

Courses designated as Ex: meet the university requirement for experiential learning.
Bachelor Degree Programs at PUC offering Teacher Licensure

 Majors include life science, chemistry, physical science, physics, English, Spanish, French, German, mathematics, and social studies (economics, government, history, psychology and sociology).

 All Secondary Teaching Programs are offered jointly with the academic departments. See the appropriate department for further information.

 1. Education Requirements (Sequenced)

   **Gate 1:** Introductory coursework
   - EDFA 20000: History and Philosophy of Education
   - EDPS 26000: Introduction to Special Education
   - EDPS 22000: Psychology of Learning

   **Gate 2:** Advanced Premethods
   (Licensure scores on Praxis I PPST required for registration)
   - EDPS 37000 (Ex L): Teaching Students w/Diverse Learning Needs in the K-12 Classroom
   - EDCI 36600: Use of Assessment in the K-12 Classroom

   **Gate 3:** Methods
   - EDCI 34X00: Strategies of Instruction in the content major (Methods course)
   - EDCI 30900: Teaching Reading in Middle/Secondary Schools

   **Gate 4:** Professional Semester
   - EDCI 49700 (Ex L): Supervised Teaching of Middle School/Jr High/High School Subjects

 2. Appropriate general education courses and content area courses and GPA for degree and licensure.

 3. Appropriate electives, fulfilling degree requirements.

 4. Appropriate Praxis II exams taken.

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Alternative Licensure Routes (Teacher Licensure Only)

The Department of Teacher Preparation offers three options for students seeking to become teachers who have undergraduate degrees:

**Transition to Teach Program**

Students who are interested in the Transition to Teach program must meet the following requirements:

1. Have a degree in biology, mathematics, chemistry, English, physics, Spanish, or French.

2. Minimum undergraduate cumulative 3.0 GPA

3. Minimum 3.0/4.0 GPA in the subject area in which licensure is desired

   OR

4. Minimum undergraduate cumulative GPA of 2.5/4.0 with 5 years of work experience in the education field.

5. Must take and pass the Praxis I exam with a score of 176 or higher in reading, 172 in writing and 175 in math.

6. Must take and pass the Praxis II exam in the desired subject area.

**Licensure-Only Option**

Students who are interested in becoming a teacher who have an undergraduate degree in majors other than biology, mathematics, chemistry, English, physics, Spanish, or French or do not meet the requirements for Transition to Teach may enroll in the Licensure Only Option. The requirements are:

1. Minimum undergraduate 2.5/4.0 cumulative GPA

2. Must take and pass the Praxis I exam with a score of 176 or higher in reading, 172 in writing and 175 in math.

3. Minimum required GPA in the desired subject area:
   - foreign Language and English minimum 3.0/4.0 GPA
   - biology, chemistry and physics minimum 2.75/4.0 GPA
   - mathematics minimum 2.5/4.0 GPA
Extension of the student must fulfill the following requirements:

**A. Admission to a GSE Program**

**Step 1.** It is very important that the student contact the advisor of a GSE program in which the student might be interested. Because of federal and state requirements, each of our programs has its own special requirements, procedures, and standards so it is important to speak directly with the advisor who will best know these requirements, procedures, and standards. The advisor will coach the student on the proper steps to take for admission into that specific major.

**Step 2.** Based on the advice given by the advisor, the student must follow two steps to apply for admission. First, the student must fill out the online application requesting admission to the program of choice. Advice on completing this application may be sought from the GSE secretary in Gyte Annex, Room 122. Second, the student must check with the GSE secretary for any additional required forms or activities that need to be completed for admission to the desired program. Any such forms or activities must be completed and returned to the GSE secretary before admission may occur. When all forms and requested information are submitted, the GSE secretary will continue the admissions procedure by forwarding the student’s admissions folder to the appropriate advisor.

**Step 3.** The advisor of the student’s desired program will review the admissions materials, notify the student of any additional procedures, will bring the folder before the GSE Admissions Committee for action and, if the action is positive, will forward the student’s folder to the Head for processing. The student will receive a letter in a few weeks from the Graduate School in West Lafayette informing the student of admission into the program.

**Step 4.** The student will again meet with the advisor and begin taking the required coursework.

**B. Completion of a GSE Program**

**Step 1.** Completion of a GSE program will require successfully completing coursework as well as fulfilling specific requirements unique to each program. It is, therefore, necessary for the student to make certain to meet with the program advisor and discover ANY AND ALL additional program requirements for graduation.

All of our degree and license programs are standards-driven, so the student must prove the attainment of all standards in whatever form the individual program or license requires. A portfolio, for example, will be one form of proving standards attainment, but the details of the portfolio will differ with each program or licensing area. Some license programs may require a state exam as well. Therefore, the student must make certain throughout his or her program to complete all graduation requirements as they are assigned. This must be done before the advisor will present him or her for graduation or for license completion.

**Step 2.** In order to graduate, the student must have a written, formalized plan of study (POS). This POS is a contract between the student and the student’s advisor listing the specific courses a student is to complete. It is the student’s responsibility to contact his/her advisor for the completion of a POS. The earliest that a POS may be written is as soon as the student has been admitted into the desired program and as soon as any conditions on such admission have been fulfilled. The latest a POS may be written is the semester before that in which the student expects to graduate.

The following is a list of our Master’s degrees areas of concentration and licensing programs.

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**Master of Science in Education (Special Education Concentration)**

(30 credit hours)

In addition to the following coursework, a professional portfolio is required.

**Foundations (3 hours)**

- **EDPS 59100** Integrating Students with Special Needs

**Special Education Core (21 hours)**

Select six of the following courses:

- (21 hours)
  - **EDPS 56300** Identification, Evaluation, and Assessment of Individuals with Exceptionalities
  - **EDPS 56500** Intervention Strategies and Research
  - **EDPS 59100** Applied Behavior Analysis for Teachers
  - **EDPS 66400** Seminar in Special Education: Collaboration
  - **EDPS 66400-01** Special Education Law
  - **EDPS 5900** Autism Spectrum Disorders
  - **EDPS 5600** Internship

**Related (6 hours)**

Select two of the following courses:

- **EDCI 51100** Mathematics in the Elementary School
- **EDCI 59100 with title** Literacy Problems: Evaluation and Remediation
- **EDCI 59100 with title** Human Issues in Technology

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**License in Exceptional Needs: Intense Intervention**

(21 hours)

This is a cohort program, which begins each Spring semester, beginning in January. This is not a ‘stand-alone’ license. Candidates must first hold a valid teaching license. In addition, candidates for this program must (1) first be licensed in Mild Interventions K-12 or complete a specific four-course alternative (Integrating Students with Special Needs; Identification, Evaluation, and Assessment of Individuals with Exceptionalities; Applied Behavior Analysis for Teachers; and Seminar in Special Education: Collaboration).

Supported by a US Department of Education grant, the program is tuition-free for qualifying candidates. Send a letter of interest and resume (as a single e-mail attachment) to Dr. Rila Brusca-Vega, Project Director (vegana@purdue.edu).

- **EDPS 59000 with title** Individuals with Severe Disabilities: Historical Perspectives, Etiology, and Characteristics
- **EDPS 59000 with title** Intervention Strategies and Research for Teaching Individuals with Severe Disabilities I
- **EDPS 59000 with title** Intervention Strategies and Research for Teaching Individuals with Severe Disabilities II
- **EDPS 59000 with title** Seminar in Special Education: Diversity, Families and Disability
- **EDPS 59000 with title** Seminar in Special Education: Serving Students with Autism Spectrum Disorder
- **EDPS 59100** Internship I: Intense Intervention
- **EDPS 59100** Advanced Technological Applications in Special Education

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The College of Education offers a variety of Master’s degrees areas of concentration and license programs through its Graduate Studies in Education office located in the Gyte Annex, Room 122 (219) 989-2326. The GSE secretary is responsible for all paperwork regarding admissions to, and retention in, graduate programs. The Head of the Department of Graduate Studies in Education is responsible for supervision of all graduate programs. For admission to, and successful completion of, any of our graduate programs, the student must fulfill the following requirements:

- Select six of the following courses:
  - **EDCI 51100** Mathematics in the Elementary School
  - **EDCI 59100 with title** Literacy Problems: Evaluation and Remediation
  - **EDCI 59100 with title** Human Issues in Technology

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Director of Exceptional Needs License Program (Special Education Director’s License)

(40 Semester Hours)

1. Special Education/Foundations Block (12 hrs)
   - EDPS 58500 Multicultural Education
   - EDPS 53000 Advanced Educational Psychology
   - EDPS 53300 Introduction to Educational Research I: Methods
   - EDPS 66400 Sem: Special Education Law
   - EDFA 60800 Business Management in Education

2. Administration Block (28 hours):
   (Must be taken in sequence)
   - EDFA 51200 Foundations of Educational Administration
   - EDFA 60900 Legal Aspects of American Education
   - EDFA 61000 Supervision of Instruction and Instructional Personnel
   - EDFA 51600 School and Community Relations
   - EDFA 59100 Legal Aspects II
   - EDCI 59100 School Curriculum
   - EDFA 59100 School Administration
   - EDFA 69500 Internship in Special Education
   - EDFA 69500 Internship in Administration (4-Hour Course)

Note: This program is intended for those who already have a master’s degree and are seeking licensure. It is also intended for those who already have specific education licensure, experience, and background.

The intent is to couple the Exceptional Needs Director’s License with the Building Level Administrator’s License whenever possible. However, a master’s degree can be worked into the program for those who do not yet have one. Also, additional special education coursework may be built into the program for those who need it. The first step is to contact Dr. Pam Frampton, the administration advisor: frampton@purdue.edu

Revised: 06-07

Master’s Degree in Education (Counseling and Human Services Concentrations)

The College of Education offers 3 tracks in counseling: Mental Health Counseling, School Counseling, and Human Services. The concentrations in Mental Health and School Counseling lead to licensure in Indiana. The Human Services track is a non-licensure degree program. However, additional courses can be taken to complete the degree in Mental Health Counseling if a decision to do so is made before the internship has begun and with permission of the faculty. All students accepted into our program must obtain a limited criminal history check before their first class. For more information about our program, please email Dr. Lisa Hollingsworth at hollingsworthpurdue.edu

Indiana State License Program, Mental Health Counseling

(60 HOURS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>EDPS 50000</td>
<td>Human Relations in Group Counseling</td>
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<tr>
<td>EDPS 50300</td>
<td>Intro to Mental Health Counseling</td>
</tr>
<tr>
<td>EDPS 50500</td>
<td>Career Theory</td>
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<tr>
<td>EDPS 50700</td>
<td>Counseling Multicultural and Diverse Populations</td>
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<tr>
<td>EDPS 53100</td>
<td>Intro, Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPS 59100</td>
<td>Research in Counseling</td>
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<tr>
<td>EDPS 59100</td>
<td>Human Growth &amp; Life Span Development</td>
</tr>
<tr>
<td>EDPS 59100</td>
<td>Counseling and Psychopathology</td>
</tr>
</tbody>
</table>

Certificate in Addiction Counseling

(18 CREDITS)

Only candidates accepted into the certification program or any program within the Department of Counseling & Development may enroll in these courses. Enrollment is strictly limited to these programs.

Note: Completed course work will be listed on a transcript; however, this is an informal program. Completion of this group of courses does not award a degree or formal certificate. However, this program of study does include all of the necessary coursework, as identified by ICAADA, to sit for the state licensure exam to become a licensed addictions counselor. This is an ICAADA-approved program and is approved by the state for CEUs.

The following courses must be completed with a grade of B or better. A grade of C...
Certificate in Expressive Arts Therapy (15 Credit Hours)

This certificate is only open to graduate students in counseling and to counselors and social workers for the purpose of professional development.

Note: Completed course work will be listed on a transcript; however, this is an informal program. Completion of this group of courses does not award a degree or formal certificate.

The courses are all EDPS 59100 courses and include the following:
- Foundations of Expressive Arts Therapy
- Play Therapy
- Visual Arts/Imagery in Counseling
- Expressive Writing, Drama, and Movement
- Sandplay and Symbolism

Master of Science in Education (Instructional Technology Concentration) (33 CREDITS)

Entrance gate (6 hours-must be completed before technology courses may be taken)
- EDPS 53000 Advanced Educational Psychology
- EDCI 57200 Introduction to Learning Systems Design

Technology Courses (15 hours - suggested sequence)
- EDCI 55400 Production of Instructional Materials
- EDCI 56600 Educational Applications of Hypermedia
- EDCI 57500 Foundations of Distance Learning
- EDCI 66300 Interactive Video and Multimedia
- EDCI 59100 Instructional Technology Leadership

Foundation Courses (6 hours - can be completed at any time)
- EDPS 53300 Introduction to Educational Research I OR
- EDPS 53100 Introduction to Measurement and Evaluation AND
- EDCI 59100 Instructional Technology Leadership

Elective (3 hours)
Any graduate level course approved by your advisor and listed on your plan of study

Capstone Project (3 hours - must be completed at end of program)
- EDCI 57300 Instructional Development Practicum

Master of Science in Education (Instructional Technology Concentration) (33 CREDITS)

Entrance gate (6 hours)
- EDCI 57200 Introduction to Learning Systems Design
- EDCI 53100 Learning Theory and Instructional Design (see advisor)

Technology Courses (15 hours - suggested sequence)
- EDCI 59100X Foundations of Grant Writing
- EDCI 56600 Educational Applications of Hypermedia OR
- EDCI 66900 Introduction to E-Learning
- EDCI 57300 Instructional Development Practicum

EDCI 57500 Foundations of Distance Learning
EDCI 66300 Interactive Video and Multimedia
EDCI 58700 Leadership & Management in Instructional Technology OR
EDCI 59100 Instructional Technology Leadership
EDCI 67200 Advanced Practices in Learning Systems Design

Foundation Courses (6 hours - can be completed at any time)
- EDCI 57700 Strategic Assessment and Evaluation OR
- EDPS 53100 Introduction to Measurement and Evaluation (see advisor for appropriate section)

- EDCI 57100 Advanced Assistive Technology OR
- EDCI 59100 Human Issues in Technology

Capstone Project (3 hours - must be completed at end of program)
- EDCI 57300 Instructional Development Practicum

Certification in Instructional Technology

The Instructional Technology Program is now offering a new certificate program in Instructional Technology for K–12 teachers, based in the ISTE standards adopted by the State of Indiana. Trainers and other instructional leaders in business, health, and higher education are also welcome to participate in this certificate program as well.

Note: Completed course work will be listed on a transcript; however, this is an informal program. Completion of this group of courses does not award a degree or formal certificate.

Visit the Web or contact us today to learn more about this certification opportunity!

Courses (total of 15 credit hours):
- EDCI 57200 Intro to Instructional Development and Communication
- EDCI 56600 Educational Applications of Hypermedia
- EDCI 57500 Foundations of Distance Learning
- EDCI 59100 Human Issues in Technology

Choose ONE of the following:
- EDCI 55400 Production of Instructional Materials
- EDCI 66300 Interactive Video
- EDCI 59100 Instructional Technology Leadership

Additional Coursework Available for License Renewal through the Instructional Technology program

Purdue University Calumet wants to help teachers, administrators, and other licensed educators reach their goals, learn more, and get the credits they need to renew their licenses through in-class and online coursework. Purdue Calumet allows educators currently holding a valid Indiana Teacher’s License (Those holding emergency permits cannot renew using these courses) to acquire needed academic credits in several different ways:
- Develop and teach a 15-hour, project-based workshop or instructional session for other teachers or administrator at your own school district (Pass/No Pass Option);
- Take a one credit-hour, online or person-to-person learning module on a technology topic approved by Graduate Studies faculty;
- Take a three credit-hour, semester long course in Instructional Technology and Design (or other areas) online or in the traditional classroom with qualified, friendly, and helpful Graduate Studies faculty. 3 credit hour classes offered: EDCI 56000 Computers in the Classroom, EDCI 59100 Designing Instruction for the Web (online), EDCI 59100 Instructional Design for Online Education. Please contact Helen Jancich, (Jancich@purduecal.edu) for information regarding license renewal.
### Indiana State License Program, Educational Administration

(37 CREDITS)

#### 1. Foundations Block (6 hours)
- EDPS 53000: Advanced Educational Psychology
- EDPS 53300: Introduction to Educational Research

#### 2. Administration (28 hours)
(须按照顺序选修)
- EDFA 51200: Foundations Educational Administration
- EDFA 60900: Legal Aspects of American Education
- EDFA 61000: Supervision of Instruction and Instructional Personnel
- EDFA 51600: School Community Relations
- EDFA 59100: Legal Aspects II
- EDCI 59100: School Curriculum
- EDPS 66400: Seminar in Special Education (Special Education Law)
- EDFA 59100: School Administration
- EDFA 69500: Internship in Education (is a 4 hour course)

#### 3. Electives (3 hours) Below are some suggestions
(Must be in Administration, there is at least one each semester)
- EDFA 61300: Collective Bargaining
- EDFA 51300: Educational Facilities Planning
- EDFA 59100: School Safety
- EDFA 59100 with title: Data-Driven School Improvement
- EDFA 60800 with title: Business Management in Education

Revised: 06-07
• COLLEGE OF •

ENGINEERING, MATHEMATICS AND SCIENCE
The College of Engineering, Mathematics and Science (EMS) houses the following departments:
- Biological Sciences; 219/989-2404, Gyte Bldg., Room 298
- Chemistry and Physics; 219/989-2284, Gyte Bldg., Room 251
- Electrical and Computer Engineering; 219/989-3106, Potter Bldg., Room 121
- Mechanical Engineering; 219/989-2472, Powers Bldg., Room 211
- Mathematics, Computer Science and Statistics; 219/989-2273, Classroom Office Bldg., Rooms 343

Associate Degree Program
- Biology
  —Emergency Medical Services/Paramedic

Bachelor’s Degree Programs
Twelve (12) Bachelor of Science degrees are offered through the departments housed in the school of Engineering, Mathematics and Science. The general degree plan provides the greatest flexibility to elective course choice, while concentrations in some degrees allow students to receive in-depth education in specific areas in the discipline.

Pre-Medical and Healthcare Gateway
Preparation for admission to medical or other healthcare professional schools does not require specific majors. The necessary prerequisite courses, which vary for each profession, are available and are accommodated by many of the majors and concentrations within the school of Engineering, Mathematics, and Science. Advising plans allow students to prepare for careers in:
- Medicine
- Dentistry
- Veterinary science and medicine
- Optometry
- Podiatry
- Physician assistant
- Physical therapy
- Pharmacy
- Pre-pharmacy

Teacher Preparation
Teaching middle or high school math or sciences requires specialized courses and training. The School of Education, Mathematics, and Science partners with the School of Education to offer programs of course work designed to prepare you for a secondary education teaching license in Physical Sciences, Biology, Chemistry, Physics, or Mathematics. Students complete the BS in their science or math major. Education courses required for licensure are used to fulfill electives outside of the major discipline.
Graduate Certificate
- Biotechnology
- Engineering project management

Combined Bachelor’s and Master’s Degree Program
- Biological Sciences

Master’s Degree Programs
- Biology
- Computer Science
- Engineering
- Mathematics

Transfer Programs
- Biology
  — Agriculture and Forestry

Career Opportunities
Graduates of Purdue Calumet’s School of Engineering, Mathematics and Science work in a wide variety of businesses, industries, service organizations, government, or educational careers. Many choose to pursue graduate and professional degrees, including masters and doctoral programs, and those associated with the healthcare industry. Our graduates are successful engineers, research scientists, environmental care professionals, actuaries, cryptographers, chemists, physicists, science and mathematics teachers, and more.
Department of Biological Sciences

W.-T. Evert Ting, Interim Head. Faculty: Y.D. Cho; J.C. Creighton; N. Evans; B. Mania-Farnell; R. Rohm; R. Sarac; F.-S. Wang; M. I. Zimmer
Emeritus Faculty: A. M. Chelich; T. J. Dougherty; R. L. Peloquin; J. R. Shoup; C. C. Tseng; J. F. Wermuth; R. J. Werth; K. S. Wilson
Lab Coordinator: L. Levin
Specialist: L. Dorworth (Aquatic Ecology Specialist, IL-IN Sea Grant College Program).

Biological sciences is a fascinating field that holds important keys to the future of our society. New biological research in areas such as gene therapy, stem cells, energy production from biomass, and environmental remediation is changing the way we live our lives.

The Department of Biological Sciences at Purdue University Calumet offers a comprehensive education that provides students with both a solid background in the biological sciences and the flexibility to meet individual needs. At the undergraduate level, we offer Bachelor of Science (BS) degrees in Biology, and in Medical Technology and an Associate of Applied Science Degree in Emergency Medical Services/Paramedic. For our BS in Biology, students may choose one of five areas of concentration (General Biology, Biotechnology, Cell Biology/Physiology, Ecology, and Microbiology) or eight four-year pre-professional programs (Biological Sciences Teaching, Premedicine, Prephysician Assistant, Predentistry, Preoptometry, Pre Physical Therapy, Preoccupational Therapy, and Preveterinary Science and Medicine). In addition, we offer a two-year pre-pharmacy program and one two-year transfer program in cooperation with the School of Agriculture at Purdue University West Lafayette. At the graduate level, we offer a Master of Science (MS) degree in Biology for which students can choose either thesis or non-thesis options. Our graduate degrees can be used to further professional development, to prepare for additional graduate studies in the life sciences, or as a bridge to professional studies in health sciences.

Our department emphasizes an integrated approach to teaching modern biology, in that faculty research is directly into student coursework. We have an active and creative faculty who bring new insights and innovative concepts to the classroom through their research. Areas of strength in the department include molecular biology with emphasis in genetic engineering and biotechnology, cell biology, microbiology, physiology, and ecology. Students utilize cutting-edge laboratory facilities and equipment to acquire hands-on experience with modern investigational and laboratory techniques in biological sciences. Supervised research opportunities are available for both undergraduate and graduate students. Graduate teaching and research assistantships are available to support students pursuing an MS degree.

**Degrees and Programs**

**Undergraduate**
- Associate of Applied Science Degree, Emergency Medical Service/Paramedic
- Bachelor of Science Degree, Biology

Areas of Concentration:
- General Biology
- Biotechnology
- Cell Biology/Physiology
- Ecology
- Microbiology

Pre-professional Programs:
- Biological Sciences Teaching
- Predentistry
- Premedicine
- Preoccupational Therapy
- Preoptometry
- Prephysical Therapy
- Preveterinary Sciences and Medicine

- Bachelor of Science Degree, Medical Technology
- Pre-Pharmacy (2 year) Program
- Transfer Program in Agriculture and Forestry
- Minor in Biotechnology (for non-majors)
- Minor in Environmental Sciences

**Graduate**
- Master of Sciences, Biology
- Graduate Biotechnology Certificate
The Department of Biological Sciences at Purdue University Calumet offers five different study plans that lead to the Bachelor of Science Degree in Biology. Students can choose General Biology, which allows students to select a wide variety of biology elective courses that match the individual's interests and education goals, or select one of the four areas of concentration (Biotechnology, Cell Biology/Physiology, Ecology, and Microbiology) to study the field in depth. Students in professional programs may follow any of the five study plans and incorporate required courses for meeting admission requirements for professional schools or obtaining teaching licensure.

General Requirements for BS in Biology Degree:

English and Communication (9 credits)
- ENGL 10400* English Composition I (Gen Ed)
- ENGL 10500* English Composition II (Gen Ed)
- COM 11400 Fundamentals of Speech Communication

*Students placed in ENGL 10000 English Composition may use ENGL 10000 (3 credits) with a B or better grade to replace ENGL 10400.
*Students placed in ENGL 10000 Accelerated First-Year Composition (3 credits) may use ENGL 10000 and an intensive writing elective (3 credits) to replace the ENGL 10400 & 10500 sequence.

Humanities & Social Science (15 credits)
- One Humanities course that meets the General Education requirement (3 credits)
- One Social Sciences course that meets the General Education requirement (3 credits)
- The remaining 9 credits can be from Foreign Languages (0-6 credits) or any Humanities or Social Science courses (consult advisor for course selection).

Mathematics, Statistics & Computer Science (12 credits)
- MA 22300 Introductory Analysis I (Calculus I) (Gen Ed)
- MA 22400 Introductory Analysis II (Calculus II) (Gen Ed)
- B IOL/STAT 33000 Biostatistics
- or STAT 30100 Elementary Statistical Methods
- CIS 20400 Introduction to Computer-Based System (Gen Ed)

Chemistry (19 credits)
- CHM 11500 General Chemistry I
- CHM 11600 General Chemistry II
- CHM 25500/25501 Organic Chemistry I & Laboratory
- CHM 25600/25601 Organic Chemistry II & Laboratory
- CHM 33300* Principles of Biochemistry*

*Students who choose the Ecology concentration may use CHM 32400 Environmental Chemistry in place of CHM 33300

Biology (Min. 38 credits)
Minimum 2.0 GPA for all biology core and concentration required courses.
Minimum 2.0 GPA for all biology courses required for the degree.

1. Biology Core Courses (18 credits) (Required by all biology concentrations)
- B IOL 10100* Introductory Biology I (Gen Ed)
- B IOL 10200* Introductory Biology II (Gen Ed)
- B IOL 10700 Freshman Experience in Biological Sciences
- B IOL 24300 Introductory Cell Biology
- B IOL 24400/24100 Genetics & Laboratory
- B IOL 42600 Senior Capstone

*B IOL 10100/10200 require a C or better grade to qualify for graduation.

2. Concentration Required Courses (7-8 credits)

A. General Biology Concentration (choose 2; 8 credits)
- B IOL 31600 Basic Microbiology
- B IOL 33300 Ecology
- B IOL 35700* Animal Physiology

B. Biotechnology Concentration (7 credits)
- B IOL 31600 Basic Microbiology
- B IOL 50800 Recombinant DNA Techniques

C. Cell Biology/Physiology Concentration (8 credits)
- B IOL 35700* Animal Physiology

And choose one from the following:
- B IOL 31600 Basic Microbiology
- B IOL 35700* Animal Physiology

D. Ecology Concentration (8 credits)
- B IOL 33300 Ecology

And choose one from the following:
- B IOL 31600 Basic Microbiology
- B IOL 35700* Animal Physiology
### Microbiology Concentration (8 credits)

- BIOL 31600 Basic Microbiology
- BIOL 33300 Ecology
- BIOL 35700* Animal Physiology

*BIOL 35700 Animal Physiology may be replaced by BIOL 21400 Human Anatomy & Physiology II. (BIOL 21300 Human Anatomy & Physiology I, a prerequisite of BIOL 21400, is counted as a free elective course.)

### 3. Biology Elective Courses (Min. 12-14 credits)

**Maximum 3 credits of independent studies, research, internship, or practicum may be used to fulfill the biology elective requirement.**

#### A. General Biology Concentration (Min. 12 credits)

- Additional 12-13 credits of biology elective courses at the 3000 level or above, excluding BIOL 33000 and BIOL 33900

#### B. Biotechnology Concentration (Min. 14 credits)

- BIOL 35700 Animal Physiology
- BIOL 41800 Drugs and Diseases
- BIOL 48800 Biological Sciences Internship (E X L)
- BIOL 48900 Independent Student Research (E X L)
- BIOL 50700 Molecular Biology
- BIOL 52500 Principles of Neurobiology
- BIOL 53300/53400 Medical Microbiology and Laboratory
- BIOL 56100 Immunology
- BIOL 56600 Developmental Biology
- BIOL 49500 or 59500* Special Assignments (related to Biotechnology)

*Repeatable for credits. Topics may include but not limited to Advanced Cell Biology, Advanced Immunology, Bioinformatics, Cell and Tissue Culture, Experimental Design, and Microbiology Research.

#### C. Cell Biology/Physiology Concentration (Min. 12 credits)

- BIOL 30700 Plant Physiology
- BIOL 34200 Biological Sciences Practicum (E X L)
- BIOL 41800 Drugs and Diseases
- BIOL 48800 Biological Sciences Internship (E X L)
- BIOL 48900 Independent Student Research (E X L)
- BIOL 52500 Principles of Neurobiology
- BIOL 56100 Immunology
- BIOL 56600 Developmental Biology
- BIOL 49500 or 59500* Special Assignments (related to Cell Biology or Physiology)

*Repeatable for credits. Topics may include but not limited to Advanced Cell Biology, Advanced Immunology, Bioinformatics, Cell and Tissue Culture, and Research related to Cell Biology or Physiology.

#### D. Ecology Concentration (Min. 12 credits)

- BIOL 30700 Plant Physiology
- BIOL 34200 Biological Science Practicum (E X L)
- BIOL 40500 Conservation Biology
- BIOL 41200 Climate Change and the Environment
- BIOL 41300 Aquatic Ecology
- BIOL 41400 Invasive Species Ecology
- BIOL 48800 Biological Sciences Internship (E X L)
- BIOL 48900 Independent Student Research (E X L)
- BIOL 58000 Evolution
- BIOL 58700 Biogeography
- BIOL 58800 Plant Ecology
- BIOL 59100 Field
- BIOL 49500 or 59500* Special Assignments (related to Ecology)

*Repeatable for credits. Topics may include but not limited to Animal Behavior, Environmental Microbiology, Ornithology, and Research related to Ecology.

#### E. Microbiology Concentration (Min. 12 credits)

Choose minimum 6 credits from Group A and the rest can be from Group A or B.

### Group A

- BIOL 53300/53400 Medical Microbiology & Laboratory
- BIOL 56100 Immunology
- BIOL 49500 or 59500* Special Assignments (related to Microbiology)

*Repeatable for credits. Choose among the following topics: Environmental Microbiology, Food Microbiology, and Virology.

### Group B

- BIOL 48800 Biological Sciences Internship (E X L)
- BIOL 48900 Independent Student Internship (E X L)
- BIOL 50700 Molecular Biology
- BIOL 50800 Recombinant DNA
- BIOL 49500 or 59500* Special Assignment (Microbiology supporting areas)

*Repeatable for credits. Choose among the following topics: Advanced Immunology, Bioinformatics, Cell and Tissue Culture, Experimental Design, and Microbiology Research.

### Free Electives (19 credits)

### Biological Sciences Teaching

The following courses are required for students who are seeking to obtain licensure for teaching life sciences in middle/junior high/senior high school settings while pursuing a BS in Biology degree. Some of these courses may be used to fulfill the Humanities and Social Sciences, General Education, Experiential Learning, and free elective requirements for the BS in Biology degree. However, more than 120 credits of coursework may be needed to complete both BS degree in Biology and the licensure requirements. Please consult your advisor.

### Education Requirements for Science Teaching Licensure (Sequences, 36 hours)

#### Gate 1

- EDFA 20000* History and Philosophy of Education (3)
- EDPS 22000 Psychology of Learning (3)
- EDPS 26000 Introduction to Special Education (3)

#### Gate 2

- EDCI 35500* Teaching & Learning in the K-12 Classroom (3) (E X L)
- EDCI 36600 Use of Assessment in the K-12 Classroom (3)

#### Gate 3: Teacher Preparation Program Methods Courses

- EDPS 37000* Teaching Students with Diverse Learning Needs (3) (E X L)
- EDCI 34600* Science Teaching in Middle School, Jr High, High School (3)
- EDCI 30900 Reading in the Middle and Secondary School

#### Gate 4: Professional Semester

- EDCI 49700* Student Teaching in the Secondary Classroom (12) (E X L)

Additional Information and Guidelines: Admission to Gate 2 courses (EDCI 35500) requires application screening by the Department of Teacher Preparation Advisor. Admission to Gate 3 and beyond requires Admission to Teacher Preparation Program and passing of state licensure exams. Courses marked with (*) require field observations. Expanded criminal history reports are required for EDCI 35500. Students may not receive more than 2 C’s in professional education courses.

### Predentistry Program

Students are eligible to apply for admission to dental school after completion at least 90 semester hours with the appropriate course requirements. Nevertheless, the vast majority of students who are accepted to dental school do have a Bachelor's degree. We endeavor to update and align our Predentistry program to match the Indiana University School of Dentistry prerequisite course requirements. Admission requirements may vary from school to school. It is up to students to make sure that their program satisfies the admission requirements for any dental school to which they may apply. Currently, applications to IUPUI Dental School must be sent by Jan. 1st of the year the applicant plans to attend http://www.iudt.iupui.edu. Deadline dates change from year to year. For more information on dental schools and the application process, go to: http://www.aad.org. To apply, students must take the Dental Admission Test (DAT). Successful performance on the DAT requires completion of at least one year of college education, which should include courses in biology, and general and organic chemistry, Physics and advanced level...
biology are not required prior to taking the DAT. Most applicants complete two or more years of college prior to taking the examination.

To earn a BS degree in Biology and prepare for application to the Indiana University School of Dentistry, students may choose any biology study plan and incorporate the following courses in their study plan to meet the admission requirements:

- BIOL 21300 Human Anatomy and Physiology I
- BIOL 21400 Human Anatomy and Physiology II
- PSY 12000 Elementary Psychology

**Premedicine Program**

Students are eligible to apply for admission to medical school after completing at least 90 semester hours with the appropriate course requirements. However, the vast majority of students who are accepted to medical school do have a Bachelor’s degree. We endeavor to update and align our Premedicine program to match the prerequisite course requirements of the Indiana University School of Medicine. Admission requirements may vary from school to school. It is up to students to make sure that their study plan satisfies the admission requirements for any medical school to which they apply. Deadline dates change from year to year. For more information on medical schools and the application process, go to http://www.aamc.org or for colleges of osteopathy, go to http://www.aacorn.org. In order to apply to medical schools, students must take the Medical College Admission Test (MCAT). This test is given on specified dates during the year. Applicants must register online at http://www.aamc.org/MCAT.

To earn a BS degree in Biology and prepare for application to the Indiana University School of Medicine, students may choose any biology study plan and incorporate the following courses into their study plan to meet the admission requirements:

- PSY 12000 Elementary Psychology
- SOC 10000 Introduction to Sociology

**Recommended Biology Courses for Students in Premedicine Program**

- BIOL 21300 Human Anatomy and Physiology I
- BIOL 21400 Human Anatomy and Physiology II
- BIOL 35700 Animal Physiology
- BIOL 34200 Biological Sciences Practicum (E X L)
- BIOL 41800 Drugs and Diseases
- BIOL 48800 Biological Sciences Internship (E X L)
- BIOL 48900 Independent Student Research (E X L)
- BIOL 50700 Molecular Biology
- BIOL 52500 Principles of Neurobiology
- BIOL 53000/53400 Medical Microbiology & Laboratory
- BIOL 56100 Immunology
- BIOL 59500 Medical Genetics
- BIOL 56600 Developmental Biology
- BIOL 49500 or 59500* Special Assignments

*Repeatable for credits. Topics may include, but are not limited to: Advanced Immunology, Bioinformatics, Food Microbiology, Virology, and Research.

**Preoccupationals Therapy Program**

Admission into a Master of Occupational Therapy (MS OT) program requires a completed baccalaureate degree and completion of prerequisite courses. Most schools require the GRE. We endeavor to update and align our pre-OT program with the Indiana University School of Health and Rehabilitation Sciences to stay updated on this school’s admission requirements. Admission requirements may vary from school to school. It is up to students to make sure their study plan satisfies the admission requirements for any Occupational Therapy school to which they may apply. For more information on occupational therapy schools and profession, go to http://www.aota.org/.

To earn a BS degree in Biology and prepare for application to the MS OT program at Indiana University, students may choose any biology study plan and incorporate the following courses into their study plan to meet the admission requirements:

- BIOL 21300 Human Anatomy and Physiology I
- BIOL 21400 Human Anatomy and Physiology II
- PSY 12000 Elementary Psychology
- PSY 35000 Abnormal Psychology
- CDFS 21000 Introduction to Human Development
- SOC 10000 Introduction to Sociology

Medical Terminology -1~3 credits, strongly recommended (This course may not be available at Purdue Calumet.)

Additional Admission Requirements: (http://www.shrs.iupui.edu/occupational_therapy)

1) ALL prerequisite coursework (Statistics English /Communication (6 credits), and above courses) must be completed with a minimum cumulative grade point average (GPA) of 3.2 on a 4.0 scale with no lower than a ‘C’ in any one prerequisite.

2) Admission to Master of Occupational Therapy program at the Indiana University School of Health and Rehabilitation Sciences also requires a minimum of 12 hours of observation and/or volunteer work among at least three different Occupational Therapy practice settings (such as acute care hospital, outpatient clinic, community mental health center, school system, and so forth) with either an Occupational Therapist or an Occupational Therapy assistant.

**Preoptometry Program**

Students are eligible to apply for admission to optometry school after completing at least 90 semester hours with the appropriate course requirements. Of the 90 credit hours, at least 20 must be at the 30000-40000 level. If one chooses to apply after 90 credit hours, there are additional academic requirements that must be met. The vast majority of students who are accepted to optometry school do have a Bachelor’s degree. We endeavor to update and align our preoptometry program to match the pre-requisite course requirements for the optometry program at the Indiana University School of Optometry. Admission requirements may vary from school to school. It is up to students to make sure that their study plan satisfies the admission requirements for any optometry school to which they apply. Shadowing an optometrist is recommended. In addition, students must take the Optometry College Admission Test (OAT). For more information on prerequisites go to: http://www.opt.indiana.edu/

To earn a BS degree in Biology and prepare for application to the Indiana University School of Optometry, the student may choose any biology study plan and incorporate the following courses in their study plan to meet the admission requirements:

- BIOL 31600 Basic Microbiology or BIOL 22100 Introduction to Microbiology
- CHM 33000 Principles of Biochemistry
- PSY 12000 Elementary Psychology

**Recommended Biology Electives**

- BIOL 35700 Animal Physiology
- BIOL 34200 Biological Sciences Practicum (E X L)
- BIOL 48800 Biological Sciences Internship (E X L)
- BIOL 48900 Independent Student Research (E X L)
- BIOL 52500 Principles of Neurobiology
- BIOL 56600 Developmental Biology

Other Recommended Courses

- PHIL 11100 Ethics
- *Explore Entrepreneurship
- *Small Business Management
- *Medical Terminology -1~3 credits
- *Histology

(*These courses may not be available at Purdue Calumet.)
Prephysician Assistant Program

Purdue University Calumet endeavors to update and align our Prephysician Assistant program to match the admission requirements for the Master of Physician Assistant Studies at the Indiana University School of Health and Rehabilitation Sciences. The most common route for pre-PA students is to earn an undergraduate degree while completing the prerequisite courses for the graduate-level PA programs to which they plan to apply. There are multiple requirements for admittance to the IU PA program. Applications to the school begin June 1st and close on October 1st. The Physician Assistant program participates in CASPA; applicants must complete both a CASPA application and the IUPUI graduate application by the October 1st deadline. In addition, applicants should have a minimum of 500 hours of documented patient care experience. GRE or MCAT scores are also required. The above description is a guideline only for the IU Physician Assistant Program; students should make sure that their program satisfies the admission requirements for any school to which they apply. For more information about the application process and requirements, visit: http://shrs.iupui.edu/health_sciences/degrees/mpas/applicationProcess.html

For CASPA: https://portal.caspapline.org/

For more information regarding other PA schools visit: http://www.paeaonline.org/?ht=d/ContentDir/pid/255

To earn a BS degree in Biology and prepare for application to the Indiana University School of Health and Rehabilitation Sciences, students may choose any biology study plan and incorporate the following courses to meet the admission requirements:

- BIOL 21300 Anatomy and Physiology I
- BIOL 21400 Anatomy and Physiology II
- BIOL 31600 Microbiology
- PSY 12000 Elementary Psychology
- SOC 10000 Introduction to Sociology
- Nutrition or Health Promotion or Wellness

*Medical Terminology

(*These courses may not be available at Purdue Calumet.)

**Recommended Biology Elective Courses:**

- BIOL 50800 Molecular Biology
- BIOL 56100 Immunology

Prephysical Therapy Program

Admission into the Doctorate of Physical Therapy (DPT) program requires a completed baccalaureate degree and completion of pre-requisite courses. Some schools require GRE test. We endeavor to update and align prephysical therapy program to match the pre-requisite course requirements for the Indiana University Doctor of Physical Therapy Program (DPT). ([http://shrs.iupui.edu/physical_therapy/](http://shrs.iupui.edu/physical_therapy/)) Admission requirements may vary from school to school. It is up to the individual students to make sure that their study plans satisfy the admission requirements for any Physical Therapy (PT) school to which they apply. Physical Therapy is a very competitive program ([http://www.apta.org](http://www.apta.org)).

To earn a BS degree in Biology and prepare for application to the Doctor of Physical Therapy Program (DPT) at the Indiana University School of Health and Rehabilitation Sciences, students may choose any biology study plan and incorporate the following courses in the study plan to meet the admission requirements:

- BIOL 21300 Human Anatomy and Physiology I
- BIOL 21400 Human Anatomy and Physiology II
- STAT 30100 Elementary Statistical Methods I
- PSY 12000 Elementary Psychology
- CDFS 21000 Introduction to Human Development

Additional Admission Requirements: (from [www.shrs.iupui.edu/physical_therapy](http://www.shrs.iupui.edu/physical_therapy))

1) Also needed, if offered admission to the DPT program: Medical Terminology.
2) Cumulative GPA of 3.2; Math/Science GPA of 3.2 (includes grades earned in chemistry, physics, human anatomy, human physiology, and statistics)
3) GRE

4) Completion of 40 clinical observation hours or work experience in both inpatient and outpatient settings recorded on Clinical Observation Experience Form. A minimum of 20 hours is required in each setting.

Preveterinary Science and Medicine Program

To become a veterinarian, the individual must graduate from a four-year program at an accredited college of veterinary medicine with a Doctor of Veterinary Medicine (D.V.M. or V.M.D.) degree and obtain a license to practice. Twenty-eight schools in 26 states meet accreditation standards set by the Council on Education of the American Veterinary Medical Association ([http://www.avma.org/education/cvea/colleges_accredited/colleges_accredited.asp](http://www.avma.org/education/cvea/colleges_accredited/colleges_accredited.asp)). Purdue University Calumet communicates with the Purdue University College of Veterinary Medicine ([http://www.vet.purdue.edu/](http://www.vet.purdue.edu/)) to stay updated on this school’s admission requirements. Students are eligible to apply for admission to the Purdue University College of Veterinary Medicine after completion of required courses totaling a minimum of 75 credit hours with a C or better in each course; however, most schools prefer completion of a bachelor’s degree. Admission requirements may vary from school to school. It is up to students to make sure that their study plans satisfy the admission requirements for any vet school to which they apply. For more information on veterinary school perquisites visit: [http://www.avma.org/data/files/vmcas/prereqht14.pdf](http://www.avma.org/data/files/vmcas/prereqht14.pdf)

To earn a BS degree in Biology and prepare for application to the Doctor of Veterinary Medicine degree program offered by the Purdue University College of Veterinary Medicine, students may choose any biology study plan and incorporate the following courses in the study plan:

- CHM 33300 Principles of Biochemistry
- ANSC 22100 Principles of Animal Nutrition
- BIOL 31600 Basic Microbiology
- or BIOL 22100 Introduction to Microbiology

**Recommended Biology Elective Courses:**

- BIOL 35700 Animal Physiology
- BIOL 34200 Biological Sciences Practicum (E X L)
- BIOL 41800 Drugs and Diseases
- BIOL 48800 Biological Sciences Internship (E X L)
- BIOL 48900 Independent Student Research (E X L)
- BIOL 52500 Principles of Neurobiology
- BIOL 53300/53400 Medical Microbiology & Laboratory
- BIOL 56100 Immunology
- BIOL 56600 Developmental Biology
- BIOL 49500 or 59500 Special Assignments*

*Repeatable for credits. Topics may include, but are not limited to Animal Behavior, Food Microbiology, Ornithology, and Virology. Consult your advisor for course selection.

**Other recommended courses:**

- ENGL 22000 Technical Report Writing
- ENGL 42000 Business Writing
- ECON 21000 Principles of Economics
- ECON 25100 Microeconomics
- ECON 25200 Macroeconomics economics
- ACC 20000 Introduction to Accounting
- FIN 24000 Personal Financial Management
- OLS 16300 Fundamentals of Self-leadership
- PHIL 32400 Ethics for the Professions

**Bachelor of Science - Medical Technology**

(120 CREDITS)

Minimum 2.0 GPA for all biology courses required for the degree.

**English and Communication (9 credits)**

- ENGL 10400* English Composition I (Gen Ed)
- ENGL 10500* English Composition II (Gen Ed)
- COM 11400 Fundamentals of Speech Communication (Gen Ed)
Humanities & Social Sciences (9 credits)
- Gen Ed approved Humanities (3 credits)
- Gen Ed approved Social Sciences (3 credits)
- Any Humanities or Social Sciences courses (3 credits)

Mathematics, Statistics, & Computer Sciences (12 credits)
- MA 22300 Introductory Analysis I (Calculus I) (Gen Ed)
- MA 22400 Introductory Analysis II (Calculus II) (Gen Ed)
- BIOL/STAT 33000 Biostatistics
- or STAT 30100 Elementary Statistical Methods
- CIS 20400 Introduction to Computer-Based Systems (Gen Ed)

Chemistry & Physics (27 credits)
- CHM 11500 General Chemistry (I)
- CHM 11600 General Chemistry (II)
- CHM 25500/25501 Organic Chemistry I & Laboratory
- CHM 25600/25601 Organic Chemistry II & Laboratory
- CHM 33300 Principles of Biochemistry*
- PHYS 22000 General Physics I
- PHYS 22100 General Physics II

Biology Required Courses (25 credits)
- BIOL 10100* Introductory Biology I
- BIOL 10200* Introductory Biology II
- BIOL 10700 Freshman Experience in Biological Sciences
- BIOL 24300 Introductory Cell Biology
- BIOL 24400/24401 Genetics & Laboratory
- BIOL 31600 Basic Microbiology
- BIOL 42600 Senior Capstone
- BIOL 56100 Immunology

Biology Electives (Min. 6 credits)
- BIOL 35700 Animal Physiology
- BIOL 50700 Molecular Biology
- BIOL 50800 Recombinant DNA Techniques
- BIOL 53300/53400 Medical Microbiology & Laboratory

Clinical Program* (32 credits)
- Successful completion of 12-month clinical program at an affiliated hospital (St. Margaret Mercy Healthcare Centers, North Campus, Hammond, IN; OSF Saint Francis Medical Center, Peoria, IL; or Hines VA Hospital, Hines, IL).

*Note:
1) Completion of pre-requisite courses at Purdue University Calumet does not guarantee admission to an affiliated hospital program.
2) For acceptance into a clinical program, overall 2.5 GPA and a minimum of 2.5 GPA in all science courses are required. Please consult your advisor for application procedure.
3) To meet the experiential learning requirement, register for BIOL 4200 Biology Practicum in both semesters of clinical training.
4) Students must register for “Candidate Only” at Purdue Calumet at the beginning of the semester in which they expect to complete the B.S.

Clinical Program
(32 CREDITS)
- Successful completion of 12-month clinical program at an affiliated hospital (St. Margaret Mercy Healthcare Centers, North Campus, Hammond, IN; OSF Saint Francis Medical Center, Peoria, IL; or Hines VA Hospital, Hines, IL).

*Note:
1) Completion of pre-requisite courses at Purdue University Calumet does not guarantee admission to an affiliated hospital program.

2) For acceptance into a clinical program, overall 2.5 GPA and a minimum of 2.5 GPA in all science courses are required. Please consult your advisor for application procedure.
3) To meet the experiential learning requirement, register for BIOL 4200 Biology Practicum in both semesters of clinical training.
4) Students must register for “Candidate Only” at Purdue Calumet at the beginning of the semester in which they expect to complete the B.S.

Prepharmacy Program
(65 CREDITS)
- Students are eligible to apply to the Doctor of Pharmacy program, Purdue University College of Pharmacy after the completion of a minimum of 60 credit hours including the prerequisite courses as identified on www.pharmacy.purdue.edu/academics/pharmd/admissions.php. Admission requirements may vary from school to school. It is up to individual students to make sure that their study plans satisfy the admission requirements for any pharmacy school to which they apply. For more information on pharmacy schools and the profession, visit www.PharmCAS.org. Courses listed below are required for those who wish to apply for admission to Purdue University College of Pharmacy Doctor of Pharmacy (Pharm.D.) program in West Lafayette, IN. Generally, a student needs a GPA of at least 3.00 to be competitive. It is not to your advantage to repeat courses to improve your grade and GPA. Required Courses for fall 2014 admissions:

Biology (24 credits)
- BIOL 10100 Introductory Biology I
- BIOL 10200 Introductory Biology II
- BIOL 10700 Freshman Experience in Biological Sciences
- BIOL 21300 Human Anatomy and Physiology I
- BIOL 21400 Human Anatomy and Physiology II
- BIOL 22100 Introduction to Microbiology
- or BIOL 31600 Basic Microbiology
- BIOL 35700 Animal Physiology
- BIOL 50700 Molecular Biology
- BIOL 50800 Recombinant DNA Techniques
- BIOL 53300/53400 Medical Microbiology & Laboratory

Chemistry & Physics (23 credits)
- CHM 11500 General Chemistry (I)
- CHM 11600 General Chemistry (II)
- CHM 25500/25501 Organic Chemistry I & Laboratory
- CHM 25600/25601 Organic Chemistry II & Laboratory
- CHM 33300 Principles of Biochemistry
- PHYS 22000 General Physics I
- PHYS 22100 General Physics II

Mathematics (9 credits)
- MA 22300 Introductory Analysis I
- MA 22400 Introductory Analysis II
- STAT 30100 Elem. Statistical Methods*

*BIOL/STAT 33000 Biostatistics may be substituted for STAT 30100

English (6 credits)
- ENGL 10400 English Composition I
- ENGL 10500 English Composition II

*Students placed in ENGL 10000 English Composition may use ENGL 10000 (3 credits) with a B or better grade to replace ENGL 10400.

Economics (3 credits)
- ECON 21000 Principles of Economics

General Agriculture and Forestry Transfer Program
(60 CREDITS)
- More than 40 programs are offered by the School of Agriculture, Purdue University West Lafayette. Calumet students may complete one-two years of study in these programs by taking coursework offered through the Department of Biological Sciences at Purdue University Calumet. Students can then transfer to the West Lafayette campus to complete a bachelor’s degree. Requirements vary in different agriculture options.
See advisor for further details. The following is a sample program.

**English and Communication (9 credits)**
- ENGL 10400* English Composition I (GenEd)
- ENGL 10500* English Composition II (GenEd)
- COM 11400 Fundamentals of Speech Communication (GenEd)

*Students placed in ENGL 10800 Accelerated First-Year Composition (3 credits) may use ENGL 10800 and a writing intensive elective (3 credits) to replace ENGL 10400 & 10500 sequence.

**Mathematics & Statistics (9 credits)**
- MA 22300 Introductory Analysis I
- MA 22400 Introductory Analysis II
- STAT 30100 Elem. Statistical Methods I*

*BIO/L/STAT 33000 Biostatistics may be substituted for STAT 30100

**Chemistry (8 credits)**
- CHM 11500 General Chemistry I
- CHM 11600 General Chemistry II

*Students not prepared for CHM 11500 must take CHM 10000 first.

**Biology (13 credits)**
- BIOL 10100 Introductory Biology I
- BIOL 10200 Introductory Biology II
- BIOL 10700 Freshman Experience in Biological Sciences
- BIOL 33300 Ecology

**Electives (21 credits)**
- Language (3 credits)
- Cognitive Science (3 credits)
- Humanities (3 credits)
- Social Science (3 credits)
- International Understanding Elective (3 credits)
- Science (6 credits)

Consult your advisor for course selection.

### Minor in Biotechnology

(B23 CREDITS)

Biotechnology is the science of the 21st century. The biotechnology minor is available to non-biology majors who wish to gain basic knowledge and skills in this field.

- BIOL 10100 Introductory Biology*
- CHM 11500 General Chemistry I
- CHM 11600 General Chemistry II

Choose one from:
- BIOL 24300 Cell Biology
- BIOL 31600 Basic Microbiology
- BIOL 24400/24401 Genetics & Laboratory
- BIOL 50B00 Recombinant DNA Techniques**

**The Biology 10200 requirement which is necessary for majors will be waived for the minor.

**BIOL 24300 or BIOL 31600 and BIOL 24400 and BIOL 24401 will prepare students for BIOL 50B00.

### Minor in Environmental Science

(18 CREDITS)*  PROGRAM COORDINATOR: PROF. YOUNG D. CHOI

Environmental Science is an interdisciplinary study that uses information and knowledge from life sciences (such as biology), physical sciences (e.g., chemistry, geology, and physics), and social sciences (e.g., economics, politics, and ethics) to learn how the Earth's environment works, how our environment affect us, how we affect our environment, and how to deal with the environmental challenges we face. Although the Program is housed in the College of Engineering, Mathematics and Science, it is open to all Purdue Calumet students. Any Purdue Calumet student may become an environmental science minor by submitting a completed Student Curriculum Update/Change form (indicating the minor code KSE) to the Registrar. The Program aims to provide students with opportunities for gaining

(1) a knowledge of the natural environment and how it is influenced by human society along with critical thinking skills, (2) exposure to modern and traditional technology in environmental subjects, and (3) "real world" experience through an internship or capstone project. The Program's curriculum consists of 18 credits (6 credits in core courses and 12 credits in elective courses) as listed below. A majority of the 18 credits can be fulfilled by the courses that are taken for general education requirements, the student's major requirements, and elective courses. Therefore, it is possible to complete the Environmental Science Minor curriculum with no or very few additional courses beyond the graduation requirement of the student's major.

### Core Courses (6 credits)

- SCI 20200 Environmental Science - 3 credits
- SCI 49100 Environmental Science Internship

**OR**
- Senior/capstone/research project with an environmental emphasis in the student's major (3 credits)

### Elective Courses (12 credits; must include a minimum of 6 credits from outside of the student's major)

- BIOL 21000 Field Biology
- BIOL 33300* Ecology
- BIOL 40500* Conservation Biology
- BIOL 41200* Climate Change and the Environment
- BIOL 41300* Aquatic Ecology
- BIOL 41400* Invasive Species Ecology
- BIOL 58000* Evolution
- BIOL 58700* Biogeography
- BIOL 58800* Plant Ecology
- BIOL 58900* Laboratory in Plant Ecology
- BIOL 59100* Field Ecology
- BIOL 49500 or 59500 Special Assignments (related to Environmental Sciences, repeatable for credits. Topics may include but are not limited to Environmental Microbiology*)

- CE 20100* Surveying & GIS
- CE 35400 Introduction to Environmental Engineering
- CHM 32400* Environmental Chemistry
- EAS 22000 Physical Geography
- EAS 22300 Ocean Studies
- EAS 22400 Weather Studies
- ECON 31100* Environmental Economics
- HIST 56200* Environmentalism in United States History
- POL 22300 Environmental Policy
- POL 52200* Energy, Politics, and Public Policy
- POL 52300* Environmental Politics and Public Policy
- SCI 10300 Survey of the Biological World
- SCI 10400 Introduction to Environmental Biology
- SCI 13100 Science & Environment
- SCI 31500 Environmental Science for Elementary Education

Any course on the subject of the environment, upon approval of the program coordinator

*These courses have prerequisites.

### Master of Science in Biology

(30 CREDITS)

The biological sciences department offers a MS in Biology with both Thesis and Non-Thesis Options. Courses are available in biotechnology, molecular and cellular biology, microbiology, human biology, and ecology. Graduate level elective courses are offered in the Fall, Spring, and Summer semesters, making it possible to graduate with a non-thesis option in just three semesters. A diverse course schedule accommodates both full-time and part-time students. Our MS degree program provides an exceptional opportunity for professional development as well as a bridge to doctoral or health professional programs.
Special Admission Requirements: Graduate Record Examination (GRE) scores

Degree Requirements

Plan of Study
A plan of study should be submitted to the Graduate School shortly after acceptance into the program. A Graduate Advisory Committee will work closely with the student to design a program suited to the student’s needs.

Options
Non-Thesis Option
Twenty-nine credits in formal courses and special assignments (independent study, research and reading) and one credit in seminar. The special assignment credits (independent study, research and reading) cannot exceed six; and the reading credits cannot exceed three. Of the total of thirty credits, twenty-one credits must in the primary area of biology at 50000 and 60000 levels and 9 credits in supporting areas. The supporting areas include biology (outside of the primary area), statistics, computer science, mathematics, education, chemistry, and physics. For example, students interested in biology teaching would choose education courses for the supporting area. Up to six credits can be taken from 40000-level formal courses as a part of the supporting area requirement. For biology teaching, the secondary area should be education. Students exercising this option must pass a written comprehensive exam for the degree.

Thesis Option
Fifteen credits in formal courses, one credit in seminar, and up to 14 credits in thesis research. Up to three credits of thesis research can be substituted by special assignment (independent study, research and reading). Of the total of thirty credits, twenty-one credits must in the primary area of biology at 50000 and 60000 levels and nine credits in supporting areas. The supporting areas include biology (outside of the primary area), statistics, computer science, mathematics, chemistry, and physics. Up to six credits can be taken from 40000-level formal courses as a part of the supporting area requirement. Students exercising this option must submit a formal research proposal, conduct the research, write a thesis, and pass an oral defense before a faculty committee.

Required Cumulative Index
GPA of 3.0 or higher. A grade of “B” or better is required in all courses in the primary area. The degree must be completed in 10 semesters within 5 years.

Transfer of Credit
A maximum of 9 credits taken from other accredited institutions completed within 10 years prior to completion of degree program may be accepted for supporting area. Only credit hours associated with graduate courses for which grades of B or better were obtained will be eligible for transfer. Check with the Purdue University Graduate School website (www.gradschool.purdue.edu/downloads/facstaff/2004PPpdf) for details.

Combined Bachelor of Science and Master of Science Degree Program in Biological Sciences

Students graduating from this combined program may receive both the Bachelor of Science and Master of Science degrees in biological sciences in five years, as compared to the six years needed to complete the degrees separately. This is accomplished by offering a supervised and seamless transition from the Bachelor of Science curriculum to the Master of Science curriculum that is designed to better enable our graduates to prepare for competitive positions in today’s job market and/or admission to doctoral level graduate or professional schools.

Degree Requirements
Students may apply for admission to the program in their third year and will be carefully evaluated to ensure that they meet all university graduation requirements, including the completion of at least 32 credit hours at the 30000-level or above, for a Bachelor of Science degree. The Bachelor of Science/Master of Science combined curriculum consists of all required courses for the Bachelor of Science in Biological Sciences, including the biology core courses (18 credits), biology concentration required courses (7-8 credits), biology electives (a minimum of 12-14 credits of 30000 level or above), as well as all of the current graduate course requirements of the traditional Master’s program.

The requirements for admission to the combined program are more stringent than the admission standards for the traditional Master of Science program. Students are required to maintain a minimum 3.25 GPA for the first 80 credit hours of coursework and a grade of B or higher in all biology basic core courses in the plan of study, in order to be conditionally admitted. Final admission to the graduate program requires that the student has a minimum 3.25 overall GPA, a minimum 3.25 GPA in all biology basic core courses, and receives a B or higher grade in each of the graduate courses taken during his/her senior year. However, the application requirement of the traditional Master of Science program to take the GRE is waived.

The total credit hours required for this combined degree program will be 145 for those students awarded both Bachelor of Science and Master of Science degrees. The traditional Bachelor of Science in Biological Sciences requires 124 hours and the Master of Science in Biological Sciences requires 30 hours, for a total of 150 hours. The combined program allows an overlap of 9 credit hours, thereby reducing the number of required hours to 141 and making it possible for qualified students to complete both degrees in five years. The graduate portion of the combined program offers both thesis and non-thesis options. The combined program allows students the option of receiving both degrees together, upon completion of the combined curriculum, or to receive the Bachelor of Science degree first upon completion of the undergraduate curriculum and the Master of Science degree later upon completion of the graduate plan of study. Students can choose to leave the combined program during the graduate portion of their study and still be eligible to receive the Bachelor of Science degree.

Graduate Biotechnology Certificate
(16 CREDITS)

This post-baccalaureate Biotechnology Certificate provides students theoretical as well as laboratory training in molecular biology, genetic engineering, and related technologies which can be applied to a variety of biological fields. The certificate is awarded after successful completion of 6 credits of required courses and a minimum 10 credits of elective courses related to biotechnology. This program offers exceptional opportunities for individuals with a BS degree in a biological science to expand their career opportunities. Courses taken to fulfill the certificate requirements may also be applied toward the MS degree in Biology.

Certificate Requirements
A Plan of Study for the Graduate Biotechnology Certificate Program (GS Form 6) must be completed and approved by the Advisory Committee and the Graduate Coordinator one semester prior to the completion of the certificate program.

Required courses (6 credits):
- BIOL 50700 Molecular Biology (3)
- BIOL 50800 Recombinant DNA Techniques (3)

Elective courses (a minimum of 10 credits)
- BIOL 52500 Principles of Neurobiology (4)
- BIOL 53300/53400 Medical Microbiology and Lab (5)
- BIOL 56100 Immunology (3)
- BIOL 56600 Developmental Biology (4)
- BIOL 59500 Special Assignments*

*Biotechnology related topics include but not limited to:
- Bioinformatics (3)
- Environmental Microbiology (3)
- Food Microbiology (5)
- Medical Genetics (3)
- Research (variable credits)
Department of Chemistry and Physics

D. Suson, Interim Head. Faculty: D. Gizachew; R. Kramer; M. O. Longas; J. Pan; N. Parashar; L. S. W. Pelter; M. W. Pelter; H. W. Pinnick; A. Rengstorff; K. L. Rowberg; S. Slavin


The Department of Chemistry and Physics offers degree programs in Chemistry, Physics, and Physical Sciences. All of these programs include courses with a significant experiential component and offer a large range of electives. These electives help personalize the program to match student interest and provide a broader base of knowledge for students as they complete their studies and enter the next phase of their professional career. Students should review the course descriptions in astronomy (pp. ??), chemistry (pp. ??, earth and space sciences (pp. ??), and physics (pp. ??), among others, for a detailed list of available courses.

Bachelor of Science in Chemistry degree — American Chemical Society (ACS) accredited. Graduation with the ACS-accredited degree meets the eligibility requirements for membership in the American Chemical Society. This program provides a thorough training in the fundamental principles and basic experimental techniques of chemistry. This option is recommended for students who will continue to study or work in chemistry or the natural sciences.

Bachelor of Science degree in Physics, with Options in Physics, Engineering Physics and Computational Physics. These degree options provide strong preparation for those intending to pursue professional careers in physics and related areas. All the options provide a strong background in physics. The standard Physics option is a traditional track that provides students with an exposure to other sciences; the Engineering Physics option augments students’ physics training with emphasis in Electrical and Mechanical Engineering; the Computational Physics option provides students with a minor in Computer Science in addition to their physics education.

Bachelor of Science degree in Physical Sciences. This is a broad-based degree providing in-depth training in the physical sciences. The interdisciplinary nature of the degree enables students to tailor their particular focus in emerging areas such as forensics, environmental science, and scientific entrepreneurship, among others. Specific areas of interest should be discussed with one of the department’s advisors.

All of the degree programs in the department provide a strong base for students interested in teaching at the secondary level or continuing on a health-oriented professional program. Students interested in these areas should contact a departmental advisor for additional information.

Research Opportunities in Chemistry

Students may get experience in laboratory procedures and scientific research through internships with regional companies and laboratories, or by working on research projects directed by the chemistry faculty. Areas of research include the biochemistry of complex carbohydrates of the skin, nanotechnology, environmental studies, molecular electronics, organometallics, analytical chemistry, materials science, polymer chemistry, drug design, physical biochemistry, synthetic and theoretical organic chemistry. Chemistry students are encouraged to talk with faculty about research opportunities. Student projects often are funded by the University’s Undergraduate Research Program.

The Department sponsors a Chemistry and Physics Club, which hosts seminars, lectures, field trips, and other special events. Internships sponsored by regional industrial companies are available for qualified students, providing them with the opportunity to combine learning with on-the-job training.

Research Opportunities in Physics

Many physics students participate in research projects directed by physics faculty including both experimental and theoretical topics. Several students have continued their research at national research labs, such as Argonne and Fermilab in nearby Illinois. The physics faculty have research interests in high energy physics, astronomy, astrophysics, and several areas of theoretical physics. Physics students are encouraged to talk with faculty about research opportunities. Student projects often are funded by the University’s Undergraduate Research Program.

Internships sponsored by regional industrial companies are available for qualified students, providing them with the opportunity to combine learning with on-the-job training.

The Chemistry and Physics Club sponsors a variety of activities, described above, in which physics majors in physics can be involved. Students are encouraged to join the Chemistry and Physics Club in order to meet other majors and peers interested in the physical sciences. The club hosts seminars, lectures, field trips, and other special events. Club members also have the opportunity to join their associated professional organization at a reduced cost.

Programs

- Bachelor of Science in Chemistry, ACS Accredited (120 credits)
- Bachelor of Science in Physics (120 credits)
- Bachelor of Science in Physics, Engineering Physics Option (120 credits)
- Bachelor of Science in Physics, Computational Physics Option (128 credits)
- Bachelor of Science, Physical Science Teaching Option (128 credits)
- Minor in Astrophysics (18 credits)
- Minor in Chemistry (24 credits)
- Minor in Physics (18 credits)
Bachelor of Science in Chemistry:
(120 CREDITS)

1. General Education Core (30 credits)
Any course satisfying the general education core with the exception of Natural Science, Mathematics, and Freshman Experience courses. Explicit courses satisfying these requirements are specified below.

2. Science and Mathematics
   A. Science (Chemistry: 44 credits; Physics: 9 credits; Science: 2 credits)
      CHM 11500 General Chemistry I
      CHM 11600 General Chemistry II
      CHM 19400 Freshman Chemistry Orientation
      CHM 34200 Inorganic Chemistry
      CHM 26300 Organic Chem. Lab. I
      CHM 26605 Organic Chem. Lab. II
      CHM 26100 Organic Chemistry I
      CHM 26200 Organic Chemistry II
      CHM 34300 Inorganic Chem. Laboratory
      CHM 29400 Sophomore Chem. Seminar
      CHM 33300 Biochemistry
      CHM 37300 Physical Chem. I
      CHM 37400 Physical Chem. II
      CHM 37600 Physical Chem. Lab.
      CHM 42400 Analytical Chem. II
      CHM 49400 Junior-Senior Chemistry Seminar
      CHM 49800 Undergraduate Research (twice)
      PHYS 15200 Mechanics
      PHYS 25100 Heat, Electricity, and Optics
      PHYS 29400 Sophomore Physics Seminar
      PHYS 31000 Intermediate Mechanics
      PHYS 31100 Quantum Physics I
      PHYS 32200 Intermediate Optics
      PHYS 33000 Intermediate Elect. Magnet.
      PHYS 34200 Modern Physics
      PHYS 34300 Modern Physics Lab.
      PHYS 38000 Advanced Lab
      PHYS 40200 Senior Research I
      PHYS 40300 Senior Research II
      PHYS 49400 Junior-Senior Physics Seminar
      PHYS 51500 Thermodynamics
      Physics Electives (12 credits)
      Any physics course 20000 level or higher; substitutions with advisor approval

3. Free Electives (30 credits)
Any course offered by the university that is approved by the student’s advisor.

Chemistry Minor Option
(24 CREDITS)

1. Chemistry Core:
   CHM 11500 General Chemistry I
   CHM 11600 General Chemistry II

2. Chemistry Electives:
   A minimum of sixteen credit hours of chemistry courses beyond general chemistry is required. These credit hours must include both lecture and laboratory courses chosen from two or more areas of chemistry: analytical, biochemistry, inorganic, organic, and physical. Advanced special topic courses and up to 3 credits of CHM 4800 (undergraduate research) may also be used to fulfill this requirement Bachelor of Science.

Bachelor of Science in Physics
(120 CREDITS)

1. General Education Core (30 credits)
   Any course satisfying the general education core with the exception of Natural Science, Mathematics, and Freshman Experience courses. Explicit courses satisfying these requirements are specified below.

2. Math Core (20 credits)
   MA 16300 Integ. Calculus and Geom. I
   MA 16400 Integ. Calculus and Geom. II
   MA 26100 Multivariate Calculus
   MA 26400 Differential Equations
   MA 26500 Linear Algebra

Computer Science/Programming (6 credits)
   Choose from (substitutions with advisor approval)
   CS 12300 AND CS 12400 Programming I: Java AND Programming II:C++
   OR
   ENGR 15100 AND ENGR 15200 Software Tools (MATLAB) AND Programming (C)
   OR
   CS 16600 AND (CS 26300 or CS 26600) Intro. to Programming AND (Java or C++)

4. Physics (40 credits)
   PHYS 15200 Mechanics
   PHYS 19400 Freshman Physics Orientation
   PHYS 25100 Heat, Electricity and Optics
   PHYS 29400 Sophomore Physics Seminar
   PHYS 31000 Intermediate Mechanics
   PHYS 31100 Quantum Physics I
   PHYS 32200 Intermediate Optics
   PHYS 33000 Intermediate Elect. Magnet.
   PHYS 34200 Modern Physics
   PHYS 34300 Modern Physics Lab.
   PHYS 38000 Advanced Lab
   PHYS 40200 Senior Research I
   PHYS 40300 Senior Research II
   PHYS 49400 Junior-Senior Physics Seminar
   PHYS 51500 Thermodynamics
   Physics Electives (12 credits)
   Any physics course 20000 level or higher; substitutions with advisor approval

5. Chemistry (8 credits)
   CHM 11500 General Chemistry I
   CHM 11600 General Chemistry II

6. Free Electives (3 credits)
   Any course offered by the university that is approved by the student’s advisor.

7. EMS Electives (9 credits)
   Choose from (substitutions with advisor approval)
   ASTR - any course
   BIOL - any course excluding 10008, 10010, and 10700
   CHM - any course excluding 10000, 11100, 11200, and 19400
   CE - any course
   CS - any course excluding 10000
   EAS - any course
   ECE - any course
   ENGR - any course excluding 11000 and 18600
   MSE - any course
   MA - any course 20000 or higher excluding 21900, 22200, 22300, 22400, 22500, 23700, 23800, and 23900
   ME - any course
   PHYS - any course 20000 or higher
   SCI - any course excluding 10300, 10400, 10500, 11200, 11300, 11400, 20200, and 31500
   STAT - any course 20000 or higher

Bachelor of Science in Physics:
Computational Physics Option
(120 CREDITS)

1. General Education Core (30 credits)
   Any course satisfying the general education core with the exception of Natural Science, Mathematics, and Freshman Experience courses. Explicit courses satisfying these requirements are specified below.

2. Math Core (20 credits)
DEPARTMENTS / COLLEGES  |  2013-2014

| MA 16300  | Integ. Calculus and Geom. I |
| MA 16400  | Integ. Calculus and Geom. II |
| MA 26100  | Multivariate Calculus |
| MA 26400  | Differential Equations |
| MA 26500  | Linear Algebra |

4. **Computer Science (15 credits, satisfies the requirements for a CS minor)**
   - CS 12300  Programming I: Java
   - CS 12400  Programming II: C++
   - CS 22300  Computer Architecture and Assembly Language
   - CS 27500  Data Structures
   - CS 30200  Operating Systems
   - CS 31600  Programming Languages
   - OR
   - CS 33200  Algorithms
   - OR
   - 40000 level CS course

**Computer Science Electives (3 credits)**

5. **Physics (46 credits)**
   - PHYS 15200  Mechanics
   - PHYS 19400  Freshman Physics Orientation
   - PHYS 25100  Heat, Electricity and Optics
   - PHYS 29400  Sophomore Physics Seminar
   - PHYS 30800  Scientific Computation
   - PHYS 30900  Scientific Computation II
   - PHYS 31000  Intermediate Mechanics
   - PHYS 31100  Quantum Physics I
   - PHYS 32200  Intermediate Optics
   - PHYS 34200  Modern Physics
   - PHYS 34300  Modern Physics Lab.
   - PHYS 38000  Advanced Lab
   - PHYS 40200  Senior Research I
   - PHYS 40300  Senior Research II
   - PHYS 49400  Junior-Senior Physics Seminar
   - PHYS 51500  Thermodynamics

**Physics Electives (6 credits)**

   Any physics course 20000 level or higher; substitutions with advisor approval

6. **Chemistry (8 credits)**
   - CHM 11500  General Chemistry I
   - CHM 11600  General Chemistry II

**Physic Minor**

(18 CREDITS)

- PHYS 15200  Mechanics
- PHYS 25100  Heat, Electricity, and Optics
- PHYS 34200  Modern Physics

Electives:
Six credit hours at the 30000 level or above from those Physics courses (or equivalent) which are not required for graduation in the student’s major. (PHYS 50000 thru PHYS 50900, inclusive, are not available as such electives."

**Astrophysics Minor**

(24 CREDITS)

- PHYS 15200  Mechanics
- PHYS 25100  Heat, Electricity and Optics
   (or PHYS 26100 and one credit hour of PHYS 27000)
- PHYS 34200  Modern Physics
- ASTR 36300  Intermediate Astronomy I
- ASTR 36400  Intermediate Astronomy II

**Bachelor of Science Physics: Engineering Physics Option**

(120 CREDITS)

1. **General Education Core (30 credits)**
   Any course satisfying the general education core with the exception of Natural Science, Mathematics, and Freshman Experience courses. Explicit courses satisfying these requirements are specified below.

2. **Humanities and Social Sciences (18 credits)**
   A two-course sequence from group A or group B, two courses from the other group, and any two other courses from A and B:
   - A. Literature, History, Philosophy, Foreign Languages, Art, Music, Theater
   - B. Anthropology, Psychology, Sociology, Political Science, Economics

3. **Math Core (20 credits)**
   - MA 16300  Integ. Calculus and Geom. I
   - MA 16400  Integ. Calculus and Geom. II
   - MA 26100  Multivariate Calculus
   - MA 26400  Differential Equations
   - MA 26500  Linear Algebra
   - OR
   - 40000 level Mathematical Science course

4. **Physics (40 credits)**
   - PHYS 15200  Mechanics
   - PHYS 19400  Freshman Physics Orientation
   - PHYS 25100  Heat, Electricity and Optics
   - PHYS 29400  Sophomore Physics Seminar
   - PHYS 31000  Intermediate Mechanics
   - PHYS 31100  Quantum Physics I
   - PHYS 32200  Oscillations and Waves
   - PHYS 34200  Modern Physics
   - PHYS 34300  Modern Physics Lab.
   - PHYS 38000  Advanced Lab
   - PHYS 40200  Senior Research I
   - PHYS 40300  Senior Research II
   - PHYS 49400  Junior-Senior Physics Seminar
   - PHYS 51500  Thermodynamics

5. **Chemistry (8 credits)**
   - CHM 11500  General Chemistry I
   - CHM 11600  General Chemistry II

6. **Engineering (27 credits)**
   - ECE 20100  Linear Circuit Design I
   - ECE 20200  Linear Circuit Design II
   - ECE 20700  Elec Measure Tech
   - ECE 21800  Linear Circuit Lab II
   - ECE 23300  Microcomputers in Engr
   - ECE 27500  Analog & Digital Electronics
   - ENGR 15100  Software Tools (MATLAB)
   - ENGR 15200  Programming (C++)
   - MSE 20000  Materials Science
   - ME 30500  Thermodynamics (substitution with advisor approval)

7. **Free Electives (6 credits)**
   Any course offered by the university that is approved by the student's advisor.
Bachelor of Science in Physical Sciences
(120 CREDITS)

1. General Education Core (30 credits)
   Any course satisfying the general education core with the exception of Natural Science, Mathematics, and Freshman Experience courses. Explicit courses satisfying these requirements are specified below.

2. Math Core (6-10 credits)
   MA 16300  Integ. Calculus and Geom. I or MA 22300 Introductory Analysis I
   MA 16400  Integ. Calculus and Geom. II or MA 22400 Introductory Analysis II

3. Physics (8-9 credits)
   PHYS 15200  Mechanics or PHYS 22000 General Physics I
   PHYS 25100  Heat, Electricity and Optics or PHYS 22100 General Physics II

4. Chemistry (8 credits)
   CHM 11500  General Chemistry I
   CHM 11600  General Chemistry II

5. Biology (4 credits)
   BIOL 10100  General Biology

6. Chemistry or Physics (7 credits)
   PHYS 19400  Freshman Physics Orientation or CHM 19400
   PHYS 29400  Sophomore Physics Seminar or CHM 29400 Sophomore Chem. Seminar
   PHYS 40200  Senior Research I or CHM 49800 Research in Chemistry
   PHYS 40300  Senior Research II or CHM 49800 Research in Chemistry
   PHYS 49400  Junior-Senior Physics Seminar or CHM 49400 Junior-Senior Chemistry Seminar

7. Chemistry, Physics, or Math electives (9 credits)
   Choose from (substitutions with advisor approval)
   CHM - any course excluding 10000, 11100, 11200, and 19400
   MA - any course 20000 or higher excluding 21900, 22200, 22300, 22400, 22500, 23700, 23800, and 23900
   PHYS - any course 20000 or higher

8. EMS Electives (24 credits)
   Choose from (substitutions with advisor approval)
   ASTR - any course
   BIOL - any course excluding 10008, 10010, and 10700
   CHM - any course excluding 10000, 11100, 11200, and 19400
   CE - any course
   CS - any course excluding 10000
   EAS - any course
   ECE - any course
   ENGR - any course excluding 11000 and 18600
   MSE - any course
   MA - any course 20000 or higher excluding 21900, 22200, 22300, 22400, 22500, 23700, 23800, and 23900
   ME - any course
   PHYS - any course 20000 or higher
   SCI - any course excluding 10300, 10400, 10500, 11200, 11300, 11400, 20200, and 31500
   STAT - any course 20000 or higher

9. Free Electives (27 credits)
   Any course offered by the university that is approved by the student's advisor.
Department of Electrical and Computer Engineering

N. Houshangi, Head. Faculty: M. Anan; C. Apostoaia; B. G. Burridge (Emeritus); B. Chen; H. L. Gerber (Emeritus); R. L. Gonzales (Emeritus); K. Gopalan; D. L. Gray; T. I. Hentea (Emeritus); D. Kozel; E. S. Pierson; B. Smida; X. Yang

Electrical and computer engineers help to improve the quality of life, the productivity of industry and individuals, and the standard of living for everyone. Engineers are problem-solvers, using science, mathematics, and technology in their solutions. Most solutions involve thinking, computing, innovating, building, and teamwork with other professionals. Graduates from the bachelor’s or master’s program may choose a career involving design, development, research, manufacturing, testing, or a combination of these. Electrical and computer engineering graduates are in great demand, and starting salaries are excellent.

The undergraduate curriculum leads to a Bachelor of Science in Computer Engineering; Electrical Engineering; or Electrical Engineering with a minor in Biotechnology, Mechatronics, or Power and Energy Systems. A minor in Computer Science is available to all computer or electrical engineering students. The first semester courses are the same for all engineering students, the first three semesters are the same for all electrical and computer engineering students. Then, students specialize in Computer or Electrical Engineering, both accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). An Interdisciplinary Engineering Option allows students to design their own programs to meet their career needs, such as pre-law or pre-medicine. The flexibility of the engineering program allows students interested in other engineering disciplines not offered at Purdue Calumet, such as aerospace, chemical, etc., to complete one to two years of study before transferring to another university.

Purdue Calumet offers graduate programs in electrical and computer engineering, mechanical engineering, and interdisciplinary engineering leading to a Master of Science in Engineering degree, and/or a Graduate Certificate in Engineering Project Management. Graduates in engineering or related programs are also welcome to take individual courses for professional development and technical currency without pursuing a graduate degree.

Reasons to major in Electrical or Computer Engineering at Purdue University Calumet. Engineering at Purdue Calumet provides an opportunity to earn an internationally-respected Purdue Engineering Degree from a program with excellent job placement and high starting salaries. Engineering classes are small and are taught by qualified faculty members dedicated to teaching or adjunct faculty who have many years of industrial experience. Most faculty members also engage in research, consulting, or other professional activities, and participate in professional engineering societies. Many faculty have received outstanding teaching, research, and service awards. The state of the art laboratory facilities, along with the many laboratory courses, provide a mechanism for students to gain hands-on experience that will aid their understanding of the engineering and scientific theories taught in the lectures.

Courses are provided both days and evenings on a published schedule to meet the needs of both full-time and part-time students. Incoming students are assigned to an advisor familiar with the problems and special needs of new students. After choosing a major, the student receives an experienced engineering faculty advisor. The programs prepare students for life and for the engineering profession. The electrical and computer engineering programs offer a cost-effective, quality program that was ranked among the top 50 of the Best Undergraduate Engineering Programs at Non-Doctoral Schools in the 2013 US News and World Report.

Senior Engineering Design Projects. A capstone, one-year project for all seniors provides the opportunity to work in multi-disciplinary teams to pursue an engineering idea from conception to design, fabrication, and testing. The senior projects provide a transition from university study to the real world of engineering work, building on Purdue Calumet’s strength in experiential education. Many of the project ideas come from local industry. Special equipment available for senior design projects includes digital image processing systems, virtual reality software, a visualization and simulation lab, personal computers with an array of engineering software packages and data acquisition capability, programmable logic devices, mobile robots, digital signal processing boards, micro-controllers, high-frequency systems, electric drives and power electronics, and specialized electronic tools and software.

Undergraduate Research, Professional Experience Programs, and Cooperative Education. Strong partnerships with industry and funded research provide great opportunities for undergraduate as well as graduate student research. The Professional Experience Program, internships, and other experiential learning programs provide opportunities for students to gain relevant work experience by part-time employment while attending school part-time, or by full-time employment. The Co-op program provides engineering students with the opportunity to work in the engineering profession while obtaining their degree. All provide students practical experience while earning money to pay for their education. These opportunities make the education more meaningful for students and make the students more attractive to employers when they graduate, thus improving employment opportunities.

Graduate Internship in Engineering. The Graduate Internship program allows students who have been accepted into the Master of Science in Engineering program to work part-time in the engineering profession while attending the University and working toward a degree. Students will have the opportunity to compile a portfolio of their experience.

Programs

- Bachelor of Science in Electrical Engineering*
- Bachelor of Science in Electrical Engineering with a minor in Biotechnology**
- Bachelor of Science in Electrical Engineering with a minor in Mechatronics**
- Bachelor of Science in Electrical Engineering with a minor in Power and Energy Systems**
- Bachelor of Science in Computer Engineering*
- Bachelor of Science in Engineering, Interdisciplinary Engineering Option*

- Master of Science in Engineering*
- Graduate Certificate in Engineering Project Management

*Accredited by the Engineering Accreditation Commission of ABET (EAC-ABET)
**Accredited as a subset of Electrical Engineering

Computer and Electrical Engineering Program Educational Objectives

The Computer Engineering curriculum provides a broad education in the fundamentals of Computer Engineering. Students may pursue a general program or may choose a specialization in areas such as Computer Hardware or Computer Software. A minor in Computer Science is available.

The Electrical Engineering curriculum provides a broad education in the fundamentals of Electrical Engineering. Students may pursue a general program or may choose a specialization in areas such as Communication and Signal Processing, Electronics, Digital Systems, Control Systems, or Power and Energy systems. There are minors in Biotechnology, Mechatronics, and Power and Energy Systems. A minor in Computer Science is also available.

The educational objectives are to provide each graduate with:

1. Engineering Competence — Graduates are competent and engaged professionals in their field.
2. Continuous Learning Skills — Graduates continue developing professionally.
3. Professional Skills — Graduates demonstrate teamwork and leadership skills, and are contributors in their profession.
4. Societal Awareness — Graduates recognize the societal, ethical, and global impacts of their work.
Bachelor of Science in Electrical Engineering or Computer Engineering

Special Admission Requirements.
Students must have adequate preparation in mathematics and chemistry to complete the freshman year in two semesters.

Math
All new students must take a math placement exam. Students with no high school trigonometry or low placement score should take MA 15900.

Chemistry
Students without one year of high school chemistry with an average grade of 'C' or better should take CHM 10000 prior to CHM 11500.

Requirements common for Bachelor of Science in Computer Engineering or Electrical Engineering

1. English and Communication
   ENGL 10400 English Composition I
   COM 11400 Fundamentals of Speech
   COM/ENGL 30700 Written and Oral Communication for Engineers

2. Science and Mathematics
   CHM 11500 General Chemistry
   PHYS 15200 Mechanics
   PHYS 26100 Electricity Optics
   MA 16300 Calculus and Analytic Geometry I
   MA 16400 Calculus and Analytic Geometry II
   MA 26100 Multivariate Calculus
   MA 26400 Differential Equations
   MA 26500 Linear Algebra

3. Humanities and Social Sciences (9 credits)
   PHIL 32400 Ethics for the Professions (3 cr.) which meets the General Education requirement for Humanities
   One course (3 credits) that meets the General Education requirement for Social Sciences
   The balance (3 credits) is selected by the student and advisor to give the student an opportunity to explore areas within the humanities and social sciences. Credit for ECON 21000 is not allowed.
   Subject areas not acceptable are skills courses such as writing and speaking, accounting, industrial management, personal finance, ROTC, and personnel administration. Credit is not allowed for a student's native language.

4. General Engineering
   ENGR 15100 Software Tools for Engineers
   ECE 15200 Programming for Engineers
   ENGR 18600 Engineering Freshman Seminar
   ENGR 19000 Engineering Design Seminar
   ECE 31200 Engineering Economics and Project Management
   ECE 42900 Senior Engineering Design I
   ECE 43900 Senior Engineering Design II

5. Electrical and Computer Engineering
   ECE 20100 Linear Circuit Analysis I
   ECE 20200 Linear Circuit Analysis II
   ECE 20700 Electronic Measurement Techniques
   ECE 21800 Linear Circuits Laboratory II
   ECE 23300 Microcomputers in Engineering
   ECE 27500 Analog and Digital Electronics
   ECE 30100 Signals and Systems
   ECE 30200 Probabilistic Methods in Electrical Engineering
   ECE 31100 Electric and Magnetic Fields
   ECE 37000 Digital Systems-Logic Design
   ECE 44800 Introduction to Communication Theory
   In addition to the above requirements, the computer and electrical programs have their own required courses as listed below.

Bachelor of Science in Computer Engineering

(123 CREDITS) EAC OF ABET ACCREDITED
Requirements common for Bachelor of Science in Computer Engineering or Electrical Engineering plus:

1. Electrical and Computer Engineering
   ECE 25100 Object Oriented Programming
   ECE 37100 Computer Organization & Design

2. Computer Science
   CS 27500 Data Structures
   CS 30900 Discrete Mathematical Structures

3. Computer Engineering Electives
   Three courses from a list approved by the Engineering Undergraduate Committee.*

4. Technical Elective
   One course in Engineering (any), Science, Mathematics, Computer Science, Statistics, or Management from a list approved by the Engineering Undergraduate Committee.*

5. Minor in Mechatronics
   Five courses from a list approved by the Engineering Undergraduate Committee.*

*The list of electives is available in the Department of Electrical and Computer Engineering office (Potter 121) and at www.purdue.edu/ece

Bachelor of Science in Electrical Engineering

(124 CREDITS) EAC OF ABET ACCREDITED
Requirements common for Bachelor of Science in Electrical Engineering or Electrical Engineering plus:

1. Electrical and Computer Engineering
   ECE 33500 Electronics-Systems
   ECE 38400 Linear Control Systems

2. Electrical and Computer Engineering Electives
   Three courses from a list approved by the Engineering Undergraduate Committee.*

3. Engineering Elective
   Selected from ME 27100 Basic Mechanics I (Statics), ME 30500 General Thermodynamics I, or MSE 20000 Materials Science

4. Engineering/Science Elective
   One Engineering (any) or Science course from a list approved by the Engineering Undergraduate Committee.*

5. Technical Elective
   One course in Engineering (any), Science, Mathematics, Computer Science, Statistics, or Management from a list approved by the Engineering Undergraduate Committee.*

*The list of electives is available in the Department of Electrical and Computer Engineering office (Potter 121) and at www.purdue.edu/ece

Bachelor of Science in Electrical Engineering with a minor in Bioinstrumentation

(124 CREDITS) EAC OF ABET ACCREDITED
Requirements common for the Bachelor of Science in Electrical Engineering with the six electives (three Electrical and Computer Engineering, Engineering, Engineering/Science, and Technical) replaced by:

ME 27100 Basic Mechanics I: Statics
ECE 47600 Digital Signal Processing
ECE 50600 Biomedical Instrumentation Design
ECE 50700 Introduction to Biomedical Imaging

Two courses from a list approved by the Engineering Undergraduate Committee.*

*The list of electives is available in the Department of Electrical and Computer Engineering office (Potter 121) and at www.purdue.edu/ece

Bachelor of Science in Electrical Engineering with a minor in Mechatronics

(124 CREDITS) EAC OF ABET ACCREDITED
Requirements common for the Bachelor of Science in Electrical Engineering with the six electives (three Electrical and Computer Engineering, Engineering, Engineering/Science, and Technical) replaced by:

ME 27100 Basic Mechanics I: Statics
ME 27500 Basic Mechanics II: Dynamics
ME 32500 Dynamics of Physical Systems
Bachelor of Science in Electrical Engineering

with a minor in Power and Energy Systems

(124 CREDITS) EAC OF ABET ACCREDITED

Requirements common for the Bachelor of Science in Electrical Engineering with the six electives (three Electrical and Computer Engineering, Engineering, Engineering, Science, and Technical) replaced by:

ECE 42600 Electric Drives
ECE 43200 Power Systems
ECE 4XXX Power Electronics

Two courses from a list approved by the Engineering Undergraduate Committee.*

*The list of the electives is available in the Department of Electrical and Computer Engineering office (Potter 121) and at www.purdue.edu/ece

Bachelor of Science in Engineering, Interdisciplinary Engineering Option

(120 CREDITS)

The Interdisciplinary Engineering Option provides a maximum degree of flexibility for those students who want this flexibility and do not require an ABET-accredited degree. The degree features a strong broad engineering problem-solving base in both electrical and mechanical engineering with the ability to tailor the large number of technical electives toward each student's specific interests and/or goals. It is particularly appropriate for those students planning to pursue post-graduate education in law, management, medicine, pharmacy, etc. For the course list, see the Department of Electrical and Computer Engineering (Potter 121) or www.purdue.edu/ece.

Master of Science in Engineering

(30 CREDITS)

Purdue University Calumet offers graduate programs in Electrical and Computer Engineering, Mechanical Engineering, and Interdisciplinary Engineering leading to a Master of Science in Engineering degree. Courses are available in computer, electrical, mechanical, civil, metallurgical, and industrial engineering. The program has the flexibility to allow students to elect courses in one or several engineering disciplines.

Assistantships
Teaching and research assistantships are available to qualified graduate students.

Special Admission Requirements

1. Bachelor's degree in Engineering from an institution accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). Other students having adequate mathematical preparation with bachelor's degrees in non-engineering fields may be admitted on a conditional basis — they must complete 18-27 undergraduate credits in the engineering field of their choice with a GPA of 3.0/4.0 or better before being considered for full admission to the Master of Science in Engineering program.

2. Undergraduate GPA of 3.0/4.0 or better. Conditional admission may be granted to students with lower GPAs, with the stipulation that they must receive a grade of B or better for the first 9 credits of graduate work. Some students may be advised to complete prerequisite or additional courses which will not count toward their degree.

3. Post-baccalaureate admission. Students may enroll to meet individual needs for continuing education rather than for pursuing a degree. Enrollment as a post-baccalaureate student does not imply later approval for degree-seeking status, nor does it guarantee acceptance toward a degree of credit taken as a post-baccalaureate student.

Degree Requirements

1. Non-thesis Option: 30 semester credits.
2. Thesis Option: 30 semester credits, with 9 credits for the thesis research.
3. GPA of 3.0/4.0 for all courses on the approved plan of study. Some advisory committees may require grades higher than C in specific courses.
4. An advisory committee with at least three members and at least one member to represent a related engineering area. Students will consult with a major

Graduate Certificate in Engineering Project Management
The Graduate Certificate in Engineering Project Management can be earned by completing four courses from the following graduate courses:

- Advanced Engineering Project Management (Required)
- Advanced Engineering Economics (Required)
- Quality Control
- Industrial Applications of Statistics
- Systems Engineering

All course taken for the certificate can be used for the Master of Science in Engineering degree if admitted to that program. Admission to the certificate program requires a Bachelor's degree in Engineering or approval of the Engineering Graduate Coordinator.
Department of Mathematics, Computer Science, and Statistics

Catherine M. Murphy, Department Head. Faculty: G. Aryal; R.D. Bechel (Emeritus); Y.C. Chen (Emeritus); T.S. Chihara (Emeritus); J.J. Coffey; A. Elmendorf; J. Gregg; B.L. Jahr-Schaffrath (Emeritus); N.L. Johnson; R.L. Kraft; W.C. Lordan (Emeritus); J.P. McLaughlin (Emeritus); R.R. Merkovsky; C. Murphy; W. Ruan; Nicolae Tarfulea; Nicoleta Tarfulea; D.J. Troy (Emeritus); P. Turbek; D. Underwood-Gregg; M. Weinhold; E.B. Yackel (Emeritus); J. Yackel (Emeritus); S. Yang; R.L. Yates (Emeritus); R. Zhang; H. Zhao

Continuing Lecturers: R. Dubec; N. Elias; J. Johnson; M. Leonard; D. Murchek; J. Smith

A careers-for-today-and-the-future approach provides the framework for programs in the department of mathematics, computer science, and statistics. All programs are based on an understanding of mathematics as one of humankind’s most impressive intellectual achievements. Mathematics is a balance of art and science which enriches other areas of human endeavor and draws from these areas some seeds of its own, thus continuing growth. Computer Science and Statistics, with roots deep in the traditions of mathematics, are exciting, rapidly expanding fields which provide the basis for many contemporary applications which affect us daily in such areas as commerce, industry, medicine, and environmental issues. Mathematics education focuses on deep conceptual understanding of mathematical content knowledge and on the psychological and sociological aspects of mathematics learning. Within each degree and option, majors choose a blend of mathematics, computer science, and statistics appropriate to building strong foundations for professional development.

Undergraduate majors in the department select from three options of study to meet a variety of interests and goals. The department also offers all students at Purdue Calumet instruction in the areas of mathematical sciences they will need in their chosen fields of study.

The Master of Science in Mathematics is a strong program in mathematics for students employed in business, industry, or government as well as those students planning to teach at two-year colleges or to pursue a Ph.D. degree in mathematics or mathematics education.

The Master of Science in Computer Science is the program that prepares students for rewarding careers in computer science by laying the foundations for developing expertise in algorithm analysis and implementing sophisticated practical applications.

Programs

- Bachelor of Science: Core Mathematics, Mathematics Education, and Computer Science
- Master of Science in Mathematics
- Master of Science In Computer Science

Bachelor of Science Programs

All majors must satisfy the following general degree requirements. Mathematics courses below MA 163 do not count toward graduation. All required Mathematics, Computer Science, and Statistics courses must be passed with a grade of C or better. All students must successfully complete two (2) courses designated as Experiential Learning (ExL). General Education courses must be chosen from a list of courses approved by the University Senate. Some general education and experiential learning requirements are met with courses required by the major.

Bachelor of Science, Core Mathematics

(120 CREDITS)

Core Mathematics provides preparation for graduate study in mathematics, employment in business, industry or government. It also prepares one for advanced work in other fields where strong mathematical backgrounds are valuable for example, science, finance, educational research, psychology, law, and medicine.

1. Required Mathematics, Computer Science, and Statistics Courses (45 credits)

   - MA 10000 An Introduction to Mathematical Sciences (1 cr.)
   - MA 16300 Calculus and Analytic Geometry I (5 cr.)
   - MA 16400 Calculus and Analytic Geometry II (5 cr.)
   - MA 26100 Multivariate Calculus (4 cr.)
   - MA 26400 Differential Equations
   - MA 26500 Linear Algebra
   - MA 31500 Introduction to Abstract Mathematics
   - MA 33000 Concepts in Geometry
   - MA 34800 Discrete Mathematics
   - MA 44600 Introduction to Real Analysis
   - MA 45300 Elements of Algebra
   - MA 47200 Introduction to Applied Mathematics
   - CS 20600 Computer Algebra and Programming
   - STAT 34500 Statistics

2. Additional Program Requirements (28-33 credits)

   A. English Composition (6 credits)
      ENGL 10400 and ENGL 10500
   B. Communications (3 credits)
      COM 11400
   C. Science (9–12 credits)
      A minimum of 3 approved science courses, two of which have laboratory components. One of the science courses with laboratory component must be chosen from the University Senate’s list of approved General Education courses.
   D. Humanities, Social Science, Wellness, and Technology in Society (10–12 credits)
      Four approved general education courses, one from each of the following areas.
      i) Humanities
      ii) Social Science
      iii) Wellness Education
      iv) Technology in Society

3. Selected Area or Minor

   A minimum of 18 credits including at least three courses beyond the introductory level.

4. Experiential Learning

   Two courses designated as ExL

5. Approved Electives

   As needed to meet 120 credit hours, required for graduation.

Bachelor of Science, Mathematics Education

(120 CREDITS)

Mathematics Education provides the mathematical preparation necessary for teaching secondary school mathematics in Indiana. Requirements for teacher certification vary from state to state. Requirements for other states may be obtained by writing to the Certification Office, Department of Teacher Education, in the capital city of the state of interest.

Graduation in this concentration is open only to those who fulfill the academic requirements for licensure to teach mathematics in Indiana’s secondary schools.

DEPARTMENTS / COLLEGES | 2013-2014 | 69
1. Required Mathematics, Computer Science, and Statistics Courses (45 credits)

- MA 10000 An Introduction to Mathematical Sciences (1 cr.)
- MA 16300 Integrated Calculus and Analytic Geometry I (5 cr.)
- MA 16400 Integrated Calculus and Analytic Geometry II (5 cr.)
- MA 26100 Multivariate Calculus (4 cr.)
- MA 26400 Differential Equations
- MA 26500 Linear Algebra
- MA 31500 Introduction to Abstract Mathematics
- MA 33000 Concepts in Geometry
- MA 34800 Discrete Mathematics
- MA 35300 Elements of Algebra
- MA 47200 Applied Mathematics
- CS 20600 Computer Algebra and Programming
- STAT 34500 Statistics

2. Additional Program Requirements (28-33 credits)

- MA 26100 Multivariate Calculus (4 credits)
- MA 26400 Differential Equations
- MA 26500 Linear Algebra
- CS 22300 Computer Architecture and Assembly Language
- CS 27500 Data Structures
- CS 30200 Operating Systems
- CS 30900 Discrete Mathematical Structures
- CS 31600 Programming Languages
- CS 33200 Algorithms
- CS 40400 Distributed Systems
- CS 41000 Automata and Computability
- CS 41600 Software Engineering
- CS 42000 Senior Design Project
- CS 44200 Database Systems
- CS 45500 Computer Graphics

3. Professional Education Courses (36 credits)

- EDCI 35500 Professional Development (3 credits)
- EDCI 36600 Use of Assessment in K-12 Classroom (3 credits)
- EDCI 36700 Teaching Students with Diverse Learning Needs (3 credits)
- EDCI 34400 Mathematics Teaching in Middle School, Jr. High, High School (3 credits)
- EDCI 49702 Professional Seminar (12 credits)

4. Experiential Learning

Requirements met by successful completion of EDCI 35500 and EDCI 36600.

5. Approved Electives

As needed to meet 120 credit hours for graduation.

Bachelor of Science, Computer Science (120 CREDITS)

Computer Science is a young and rapidly developing field. As a result, the curriculum must be revised frequently to keep it up to date. Please check with the department for the latest information.

The computer science program prepares students for a wide variety of professional opportunities in business, industry, and government where the computer scientist is involved in applying, designing, and implementing application software, programming languages, computer graphics systems, computer operating systems, internet distributed computing systems, new computer algorithms. This program also prepares students for graduate study in computer science.

1. Required Mathematics, Computer Science, and Statistics Courses (43 credits)

- CS 10000 An Introduction to Computer Science (1 cr.)
- CS 12300 Programming I: Java
- CS 12400 Programming II: C++
- CS 22300 Computer Architecture and Assembly Language
- CS 27500 Data Structures
- CS 30200 Operating Systems
- CS 30900 Discrete Mathematical Structures
- CS 31600 Programming Languages
- CS 33200 Algorithms
- CS 40400 Distributed Systems
- CS 41000 Automata and Computability
- CS 41600 Software Engineering
- CS 42000 Senior Design Project
- CS 44200 Database Systems
- CS 45500 Computer Graphics

2. Additional Program Requirements (31-36 credits)

- CS 20600 Computer Algebra and Programming

3. Required Mathematics and Statistics Courses (20 credits)

- MA 16300 Integrated Calculus and Analytic Geometry I (5 credits)
- MA 16400 Integrated Calculus and Analytic Geometry II (5 credits)
- MA 26100 Multivariate Calculus (4 credits)
- MA 26500 Linear Algebra
- STAT 34500 Statistics

NOTE: MA 26400, Differential Equations, is strongly recommended for those who plan to attend graduate school or pursue careers in scientific computer science.

4. Experiential Learning

Two designated EXL courses, one of which is satisfied by successful completion of CS 42000.

5. Approved Electives

As needed to meet 120 credit hours for graduation.

MCSS Course Repetition Policy

Effective: Fall 2010

DEFINITIONS:

1. This policy will apply to students who are majors in any MCSS undergraduate program in Fall 2010 or later.
2. The courses to which this policy applies are: CS 20600 and all courses numbered 30000 and above offered by the department.
3. An attempt at a course means that the course appears on the student’s record with the registrar, including with the grade of “W.” Attempts will be counted beginning in Fall 2010.

POLICY:

1. A student may attempt any one of these courses a maximum of three times; the third attempt must result in a “C” or better.
2. Once a student has attempted one of these courses three times, the student may attempt any other of these courses at most twice; the second attempt must result in a "C" or better.

If a student has attempted four of these courses more than once, the student must pass remaining required courses in one attempt with a "C" or better.

4. Any exceptions to this policy must be granted in writing by the Department Head on the advice of the student’s advisor.

Minors offered by the Department of Mathematics, Computer Science, and Statistics

The department offers two minors in mathematics, a minor in computer science, and a minor in mathematics for pre-service elementary education majors.

Quality Requirements for Minors: For the minors in Computer Science, Mathematics, and Applied Mathematics, all courses must be passed with "C-" or better.

Minor in Computer Science

(18 CREDITS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 12300</td>
<td>Programming I: Java</td>
</tr>
<tr>
<td>CS 12400</td>
<td>Programming II: C++</td>
</tr>
<tr>
<td>CS 22300</td>
<td>Computer Architecture and Assembly Language</td>
</tr>
<tr>
<td>CS 27500</td>
<td>Data Structures</td>
</tr>
<tr>
<td>CS 30200</td>
<td>Operating Systems</td>
</tr>
</tbody>
</table>

One of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 31600</td>
<td>Programming Languages</td>
</tr>
<tr>
<td>CS 33200</td>
<td>Algorithms</td>
</tr>
</tbody>
</table>

OR

One 4000-level CS course.

NOTE: MA 15900 is a corequisite for CS 23300. One of MA 16300 or MA 21900 or MA 23300 with "C-" or better is a prerequisite for CS 27500.

Minor in Mathematics

(23 CREDITS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 16300 (5 credits)</td>
<td>Integrated Calculus and Analytic Geometry I</td>
</tr>
<tr>
<td>MA 16400 (5 credits)</td>
<td>Integrated Calculus and Analytic Geometry II</td>
</tr>
<tr>
<td>MA 26100 (4 credits)</td>
<td>Multivariate Calculus</td>
</tr>
<tr>
<td>MA 26500</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MA 31500</td>
<td>Introduction to Abstract Mathematics</td>
</tr>
</tbody>
</table>

One of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 45300</td>
<td>Elements of Algebra</td>
</tr>
<tr>
<td>MA 44600</td>
<td>Real Analysis</td>
</tr>
</tbody>
</table>

Minor in Applied Mathematics

(23 CREDITS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 16300 (5 credits)</td>
<td>Integrated Calculus and Analytic Geometry I</td>
</tr>
<tr>
<td>MA 16400 (5 credits)</td>
<td>Integrated Calculus and Analytic Geometry II</td>
</tr>
<tr>
<td>MA 26100 (4 credits)</td>
<td>Multivariate Calculus</td>
</tr>
<tr>
<td>MA 26400</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>MA 26500</td>
<td>Linear Algebra</td>
</tr>
</tbody>
</table>

One of MA 47200

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 47200</td>
<td>Applied Mathematics or STAT 34500 Statistics.</td>
</tr>
</tbody>
</table>

Minor in Mathematics for Preservice Elementary Education Majors

(18 CREDITS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MA 13700</td>
<td>Mathematics for Elementary Teachers I</td>
</tr>
<tr>
<td>MA 13800</td>
<td>Mathematics for Elementary Teachers II</td>
</tr>
<tr>
<td>MA 13900</td>
<td>Mathematics for Elementary Teachers III</td>
</tr>
</tbody>
</table>

Quality Requirement: All of MA 13700, MA 13800, MA 13900 must be passed with "B" or better. All of MA 23700, 23800, 23900 must be passed with "C-" or better.

MA 23700  Advanced Topics in Mathematics for Elementary School Teachers I
MA 23800  Advanced Topics in Mathematics for Elementary School Teachers II
MA 23900  Advanced Topics in Mathematics for Elementary School Teachers III

GRADUATE PROGRAMS

Master of Science in Mathematics

(33 CREDITS)

Description

The Master of Science in Mathematics is designed to provide students with a course of study that will enhance their knowledge of the fundamental areas of the mathematical sciences. The elective courses allow each student to add the emphasis which most fits with that student’s academic and career plans.

Special Program Requirements

1. No more than six credits of coursework with grade of "C-" or "B" average must be maintained.
2. All courses taken as a temporary student must post grades of "A" or "B-".
3. Plan of Study submitted to Student’s Advisory Committee before the end of nine semester credits; must be approved by the Graduate School before the student registers for the semester in which the degree is to be awarded.

Degree Requirements

1. Five Core Courses

   - MA 52500 Intro. Complex Analysis
   - MA 54000 Analysis I
   - MA 54100 Analysis II
   - MA 55300 Intro. Abstract Algebra
   - MA 55400 Linear Algebra

2. Statistics

   - One approved course

3. Approved Electives (5 courses)

   Up to six credits may be chosen from approved courses in other departments.

Transfer of credit: No more than three courses accepted from other institutions.

Master of Science in Computer Science

(30 CREDITS)

Description

The Master of Science in Computer Science integrates fundamental theoretical concepts with sophisticated practical applications. Graduates will be prepared for employment in the field, and, for those students who are so interested, for further studies in computer science.

Students must have the necessary prerequisite knowledge to undertake the study of advanced computer science topics.

Program Requirements

1. No more than six credits of coursework with a grade of "C-" or "B" average must be maintained.
2. All courses taken as a temporary student must post grades of "A" or "B-"
3. Plan of Study submitted to Student Advisory Committee before the end of nine semester credits; must be approved by the Graduate School before the student registers for the semester in which the degree is to be awarded.
4. No more than three courses accepted from other institutions may be used on a Plan of Study. Please refer to the section on graduate study for other regulations governing graduate study at Purdue Calumet.

Degree Requirements:

Core Courses (9 credits)

- Compiling and Programming Systems
- Operating Systems
- Algorithm Design, Analysis, and Implementation

Electives (21 credits)

- 7 approved courses.
Department Head: Catherine M. Murphy
e-mail: cmmurphy@purduecal.edu

Undergraduate Advisor: Nancy Johnson
e-mail: johnsonn@purduecal.edu

Graduate Advisor M.S. in Mathematics: Anthony Elmendorf
e-mail: aelmendo@purduecal.edu

Graduate Advisor M.S. in Computer Science: Hairong Zhao
e-mail: hairong@purduecal.edu and Ruijian Zhang e-mail: zhang@purduecal.edu
Civil and mechanical engineers help to improve the quality of life, the productivity of industry and individuals, and the standard of living for everyone. Engineers are problem-solvers, using science, mathematics, and technology in their solutions. Most solutions involve thinking, calculating, innovating, building, and teamwork with other professionals. Graduates from the bachelor’s or masters programs may choose a career involving design, development, research, manufacturing, testing or a combination of these. Civil and mechanical engineering graduates are in great demand, and starting salaries are excellent.

The undergraduate curriculum leads to a Bachelor of Science in Civil Engineering, Mechanical Engineering, or Mechanical Engineering with a minor in Mechatronics. The first semester courses are the same for all engineering students. Then, students specialize in Civil or Mechanical Engineering, both accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). An Interdisciplinary Engineering Option allows students to design their own programs to meet their career needs, such as pre-law or pre-medicine. The flexibility of the engineering program allows students interested in other engineering disciplines not offered at Purdue Calumet, such as aerospace, chemical, etc., to complete one to two years of study before transferring to another university.

Purdue Calumet offers graduate curriculum programs in mechanical engineering, interdisciplinary engineering, and electrical and computer engineering leading to a Master of Science in Engineering degree, and/or a Graduate Certificate in Engineering Project Management. Graduates of engineering or related programs are also welcome to take individual courses for professional development and technical currency without pursuing a graduate degree.

**Reasons to major in Civil or Mechanical Engineering at Purdue University Calumet.** Engineering at Purdue Calumet provides an opportunity to earn an internationally-respected Purdue Engineering Degree from a program with excellent job placement and high starting salaries. Engineering classes are small and are taught by qualified faculty members dedicated to teaching or adjunct faculty who have many years of industrial experience. Most faculty members also engage in research, consulting, or other professional activities, and participate in professional engineering societies. Many faculty have received outstanding teaching, research, and service awards. The state of the art laboratory facilities provide a mechanism for students to gain hands-on experience that will aid their understanding of the engineering and scientific theories taught in the lectures. Incoming students are assigned to an advisor familiar with the problems and special needs of new students. After choosing a major, the student receives an experienced engineering faculty advisor. The programs prepare their graduates for life and for the engineering profession. The civil and mechanical engineering programs offer a cost-effective, quality program that was ranked among the top 50 of the Best Undergraduate Engineering Programs at Non-Doctoral Schools in the 2013 US News and World Report.

Senior Engineering Design Projects. A capstone, one-year project for all seniors provides the opportunity to work in multi-disciplinary teams to pursue an engineering idea from conception to design, fabrication, and testing. The senior projects provide a transition from university study to the real world of engineering work, building on Purdue Calumet’s strength in experiential education. Many of the project ideas come from local industry. Special equipment available for senior design projects includes personal computers with an array of engineering software packages such as data acquisition capability, rapid prototyping and computer-aided design (CAD), computational fluid dynamics (CFD), finite element analysis (FEA), and specialized civil engineering software. Also available are fatigue and strength testing equipment including tensile, creep, and impact testing machines; heat-treating equipment; metrology equipment; optical and scanning electron microscopes; a wind tunnel; robotics; nanofluidic systems; a visualization and simulation lab; a well-equipped soils lab; a survey lab; a hydrology and hydraulics lab; and a complete machine shop including CNC machines.

Undergraduate Research, Professional Experience Programs, and Cooperative Education. Strong partnerships with industry and funded research provide great opportunities for undergraduate as well as graduate student research. The Professional Experience Program, internships, and other experiential learning programs provide opportunities for students to gain relevant work experience by part-time employment while attending school part-time, or by full-time employment. The Co-op program provides engineering students with the opportunity to work in the engineering profession while obtaining their degree. All provide students practical experience while earning money to pay for their education. These opportunities make the education more meaningful for students and make the students more attractive to employers when they graduate, thus improving employment opportunities.

Graduate Internship in Engineering. The Graduate Internship program allows students who have been accepted into the Master of Science in Engineering program to work part-time in the engineering profession while attending the University and working toward a degree. Students will have the opportunity to compile a portfolio of their experience.

**Programs**

- Bachelor of Science in Civil Engineering*
- Bachelor of Science in Mechanical Engineering*
- Bachelor of Science in Mechanical Engineering with a minor in Mechatronics**
- Bachelor of Science in Engineering, Interdisciplinary Engineering Option
- Master of Science in Engineering
- Graduate Certificate in Engineering Project Management

*Accredited by the Engineering Accreditation Commission of ABET (EAC-ABET)

**Accredited as a subset of Mechanical Engineering.
Civil and Mechanical Engineering Program

Educational Objectives

The Civil Engineering curriculum provides a broad education in the fundamentals of Civil Engineering. Students may pursue a general program or may choose to specialize in Environmental, Structural, or Transportation areas.

The Mechanical Engineering curriculum provides a broad education in the fundamentals of Mechanical Engineering. Students may pursue a general program or may choose a specialization in areas such as Thermal and Fluid Sciences, Solid Mechanics, or Mechatronics.

The educational objectives provide each graduate with:

1. Engineering Competence — Graduates are competent and engaged professionals in their field.
2. Continuous Learning Skills — Graduates continue developing professionally.
3. Professional Skills — Graduates demonstrate teamwork and leadership skills, and are contributors in their profession.
4. Societal Awareness — Graduates recognize the societal, ethical, and global impacts of their work.

Bachelor of Science in Civil Engineering

(122 CREDITS)   EAC OF ABET ACCREDITED

Special Admission Requirements

Students must have adequate preparation in mathematics and chemistry to complete the freshman year in two semesters.

Math

All new students must take a math placement exam.

Students with no high school trigonometry or low placement score should take MA 15900.

Chemistry

Students without one year of high school chemistry with an average grade of ‘C’ or better should take CHM 10000 prior to CHM 11500.

1. English and Communication

ENGL 10400   English Composition I
COM 11400   Fundamentals of Speech
COM/ENGL 30700   Written and Oral Communication for Engineers

2. Science and Mathematics

CHM 11500   General Chemistry
PHYS 15200   Mechanics
PHYS 26100   Electricity Optics
MA 16300   Calculus and Analytic Geometry I
MA 16400   Calculus and Analytic Geometry II
MA 26100   Multivariate Calculus
MA 26400   Differential Equations
MA 26500   Linear Algebra
STAT 34500   Statistics

Science Elective*

* The Science Elective must be in an area of science other than PHYS or CHM, and consist with the program educational objectives. The list of science electives is available in the Department of Mechanical Engineering office (Powers 211) and at www.purdue.edu/me/

3. Humanities and Social Sciences (9 credits)

PHIL 32400   Ethics for the Professions (3 cr.) which meets the General Education requirement for Humanities
One course (3 credits) that meets the General Education requirement for Social Sciences

The balance (3 credits) is selected by the student and advisor to give the student an opportunity to explore areas within the humanities and social sciences. Credit for ECON 21000 is not allowed. Subject areas not acceptable are skills courses such as writing and speaking, accounting, industrial management, personal finance, ROTC, and personnel administration. Credit is not allowed for a student’s native language.

4. General Engineering

ENGR 15100   Software Tools for Engineers
ENGR 18600   Engineering Freshman Seminar
ENGR 19000   Elementary Engineering Design
CE 11500   Engineering Drawing I
CE 11600   Engineering Drawing II
CE 42900   Senior Engineering Design I
CE 43900   Senior Engineering Design II

5. Civil Engineering

CE 20100   Surveying & G.I.S
CE 27101   Basic Mechanics I: Statics
CE 27300   Mechanics of Materials
MA 15900   Basic Mechanics I: Statics
MA 27500   Basic Mechanics II: Dynamics
CE 30800   Construction Engineering Management
CE 31200   Fluid Mechanics
CE 32300   Soil Engineering
CE 33400   Structural Analysis
CE 34200   Engineering Hydrology and Hydraulics
CE 35100   Intro to Transportation Engineering
CE 35400   Intro to Environmental Engineering
CE 47100   Reinforced Concrete Design

6. Mechanical Engineering

ME 30500   General Thermodynamics I

7. Materials Science

CE 20400   Civil Engineering Materials

8. Civil Engineering Elective*

Three courses from a list approved by the Engineering Undergraduate Committee.*

**The list of electives is available in the Department of Mechanical Engineering office (Powers 211) and at www.purdue.edu/me/

Bachelor of Science in Mechanical Engineering

(122 CREDITS)   EAC OF ABET ACCREDITED

Special Admission Requirements

Students must have adequate preparation in mathematics and chemistry to complete the freshman year in two semesters.

Math

All new students must take a math placement exam.

Students with no high school trigonometry or low placement score should take MA 15900.

Chemistry

Students without one year of high school chemistry with an average grade of ‘C’ or better should take CHM 10000 prior to CHM 11500.

1. English and Communication

ENGL 10400   English Composition I
COM 11400   Fundamentals of Speech
COM/ENGL 30700   Written and Oral Communication for Engineers

2. Science and Mathematics

CHM 11500   General Chemistry
PHYS 15200   Mechanics
PHYS 26100   Electricity Optics
MA 16300   Calculus and Analytic Geometry I
MA 16400   Calculus and Analytic Geometry II
MA 26100   Multivariate Calculus
MA 26400   Differential Equations
MA 26500   Linear Algebra

3. Humanities and Social Sciences (9 credits)

PHIL 32400   Ethics for the Professions (3 cr.) which meets the General Education requirement for Humanities
One course (3 credits) that meets the General Education requirement for Social Sciences

The balance (3 credits) is selected by the student and advisor to give the student an opportunity to explore areas within the humanities and social sciences. Credit for ECON 21000 is not allowed. Subject areas not acceptable are skills courses such as writing and speaking, accounting, industrial management, personal finance, ROTC, and personnel administration. Credit is not allowed for a student’s native language.

4. General Engineering

ENGR 15100   Software Tools for Engineers
ENGR 18600   Engineering Freshman Seminar
ENGR 19000   Elementary Engineering Design
CE 11500   Engineering Drawing I
CE 11600   Engineering Drawing II
CE 42900   Senior Engineering Design I
CE 43900   Senior Engineering Design II

5. Civil Engineering

CE 20100   Surveying & G.I.S
CE 27101   Basic Mechanics I: Statics
CE 27300   Mechanics of Materials
MA 15900   Basic Mechanics I: Statics
MA 27500   Basic Mechanics II: Dynamics
CE 30800   Construction Engineering Management
CE 31200   Fluid Mechanics
CE 32300   Soil Engineering
CE 33400   Structural Analysis
CE 34200   Engineering Hydrology and Hydraulics
CE 35100   Intro to Transportation Engineering
CE 35400   Intro to Environmental Engineering
CE 47100   Reinforced Concrete Design

6. Mechanical Engineering

ME 30500   General Thermodynamics I

7. Materials Science

CE 20400   Civil Engineering Materials

8. Civil Engineering Elective*

Three courses from a list approved by the Engineering Undergraduate Committee.*

**The list of electives is available in the Department of Mechanical Engineering office (Powers 211) and at www.purdue.edu/me/
Bachelor of Science in Mechanical Engineering with a minor in Mechatronics

(127 CREDITS) EAC/ABET ACCREDITED

Requirements for the Bachelor of Science in Mechanical Engineering with the six electives (four Mechanical Engineering, Engineering, and Technical) replaced by:

- ECE 15200 Programming for Engineers
- ECE 20200 Linear Circuit Analysis II
- ECE 21800 Linear Circuits Laboratory II
- ECE 23300 Microcomputers in Engineering
- ECE 38000 Computers in Engineering Analysis
- ME 48500 Linear Control Systems

One Mechatronics Elective from a list approved by the Engineering Undergraduate Committee.*

*The list of electives is available in the Department of Mechanical Engineering office (Powers 211) and at www.purduecal.edu/me/

Bachelor of Science in Engineering, Interdisciplinary Engineering Option

(120 CREDITS)

The Interdisciplinary Engineering Option provides a maximum degree of flexibility for those students who want this flexibility and do not require an ABET-accredited degree. The degree features a strong, broad engineering problem-solving base in both electrical and mechanical engineering with the ability to tailor the large number of technical electives toward each student’s specific interests and/or goals. It particularly is appropriate for those students planning to pursue post-graduate education in law, management, medicine, pharmacy, etc. For a list, see the Department of Mechanical Engineering (Powers 211) or www.purduecal.edu/me/

Master of Science in Engineering

(30 CREDITS)

Purdue University Calumet offers graduate programs in Electrical and Computer Engineering, Mechanical Engineering, and Interdisciplinary Engineering leading to a Master of Science in Engineering Degree. Courses are available in computer, electrical, mechanical, civil, metallurgical, and industrial engineering. The program has the flexibility to allow students to elect courses in one or several engineering disciplines.

Assistantships

Teaching and research assistantships are available to qualified graduate students.

Special Admission Requirements

1. Bachelor’s degree in Engineering from an institution accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). Other students having adequate mathematical preparation with bachelor’s degrees in non-engineering fields may be admitted on a conditional basis—they must complete 18–27 undergraduate credits in the engineering field of their choice with a GPA of 3.0/4.0 or better before being considered for full admission to the Master of Science in Engineering program.

2. Undergraduate GPA of 3.0/4.0 or better. Conditional admission may be granted to students with lower GPAs, with the stipulation that they must receive a grade of B or better for the first 9 credits of graduate work. Some students may be advised to complete prerequisites or additional courses which will not count toward their degree.

3. Post-baccalaureate admission: Students may enroll to meet individual needs for continuing education rather than for pursuing a degree. Enrollment as a post-baccalaureate student does not imply later approval of degree-seeking status, nor does it guarantee acceptance toward a degree of credit taken as a post-baccalaureate student.

Degree Requirements

1. Non-thesis Option: 30 semester credits.

2. Thesis Option: 30 semester credits, with 9 credits for the thesis research.

3. GPA of 3.0/4.0 for all courses on the approved plan of study. Some advisory committees may require grades higher than C in specific courses.

4. An advisory committee with at least three members and at least one member to represent a related engineering area. Students will consult with a major advisor assigned upon admission.

5. A plan of study established in consultation with the major advisor or professor and reviewed by members of the advisory committee, and the chair of the Graduate Committee.

Credit for Pre-Admission Course Work: A maximum of 12 semester credits of courses with grades of B or better and satisfying course requirements on the approved plan of study may be used, subject to approval of the student’s advisory committee. This limit applies to all pre-admission course work, including post-baccalaureate credit at Purdue, graduate excess credit, and transfer credit.

Time limit on reentry: A new plan of study must be approved if a student is inactive in the program for five years, usually excluding courses previously taken.
Graduate Certificate in Engineering Project Management

The Graduate Certificate in Engineering Project Management can be earned by completing four courses from the following graduate courses:

- Advanced Engineering Project Management (Required)
- Advanced Engineering Economics (Required)
- Quality Control
- Industrial Applications of Statistics
- Systems Engineering

All course taken for the certificate can be used for the Master of Science in Engineering degree if admitted to that program. Admission to the certificate program requires a Bachelor’s degree in Engineering or approval of the Engineering Graduate Coordinator.
Secondary Teaching in Science and Math Programs

The Secondary Education program in Engineering, Mathematics, and Science is designed for those interested in teaching math or science disciplines in middle schools or high schools. The College of Engineering, Mathematics, and Science partners with the College of Education to provide this program to meet both science and math major degree requirements, and instruction needed to meet teaching licensure requirements. Students may receive a secondary education teaching license in Physical Sciences, Biology, Chemistry, Physics, or Mathematics.

All students must complete the BS requirements in major. The courses listed below are applicable to secondary teaching programs in Mathematics, Biology (Life Science), Physical Science, Chemistry, and Physics. These courses may be used to meet elective and general education courses in the student’s major, where applicable. In some instances, this may require more than 120 credits to complete both the degree and licensure requirements.

Gate 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Number</th>
<th>Semester Offered</th>
<th>Credit Hours</th>
<th>Min Grade</th>
<th>ExL Course</th>
<th>Pre/Co-Requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>History &amp; Philosophy of Education</td>
<td>EDFA 20000</td>
<td>FA, SP</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to Special Education</td>
<td>EDPS 260000</td>
<td>FA, SP</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology of Education</td>
<td>EDPS 260000</td>
<td>FA, SP</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gate 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Number</th>
<th>Semester Offered</th>
<th>Credit Hours</th>
<th>Min Grade</th>
<th>ExL Course</th>
<th>Pre/Co-Requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and Learning in the K-12 Classroom</td>
<td>EDCI 35500</td>
<td>FA, SP</td>
<td>3</td>
<td>C</td>
<td>Yes</td>
<td>ENG 10400, ENG 10500, EDPS 22000, EDFA 20000, EDPS 26000</td>
</tr>
<tr>
<td>Use of Assessment in the Classroom</td>
<td>EDCI 36600</td>
<td>FA, SP</td>
<td>3</td>
<td>C</td>
<td></td>
<td>ENG 10400, ENG 10500, COM 11400, EDPS 22000, EDFA 20000, EDPS 26000</td>
</tr>
</tbody>
</table>

Gate 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Number</th>
<th>Semester Offered</th>
<th>Credit Hours</th>
<th>Min Grade</th>
<th>ExL Course</th>
<th>Pre/Co-Requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Students with Diverse Learning Needs</td>
<td>EDPS 37000</td>
<td>SP, SUM</td>
<td>3</td>
<td>C</td>
<td>Yes</td>
<td>EDCI 35500</td>
</tr>
<tr>
<td>Reading in Middle and Secondary Schools</td>
<td>EDCI 30900</td>
<td>FA, SP</td>
<td>3</td>
<td>C</td>
<td></td>
<td>EDCI 35500</td>
</tr>
</tbody>
</table>

One of the following, depending upon the student’s major:

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Number</th>
<th>Semester Offered</th>
<th>Credit Hours</th>
<th>Min Grade</th>
<th>ExL Course</th>
<th>Pre/Co-Requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Teaching in Middle School, Jr High, High School</td>
<td>EDCI 34600</td>
<td>FA</td>
<td>3</td>
<td>C</td>
<td>Yes</td>
<td>EDCI 35500</td>
</tr>
<tr>
<td>Strategies of Mathematics Instruction in Senior High, Junior &amp; Middle School</td>
<td>EDCI 34400</td>
<td>FA</td>
<td>3</td>
<td>C</td>
<td>Yes</td>
<td>EDCI 35500</td>
</tr>
</tbody>
</table>

Gate 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Number</th>
<th>Semester Offered</th>
<th>Credit Hours</th>
<th>Min Grade</th>
<th>ExL Course</th>
<th>Pre/Co-Requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Teaching in the Secondary Classroom</td>
<td>EDCI 49700</td>
<td>FA, SP</td>
<td>12</td>
<td>P</td>
<td>Yes</td>
<td>EDCI 34600, EDPS 37000</td>
</tr>
</tbody>
</table>

Additional Information and Guidelines

Admission to Gate 2 courses (EDCI 35500) requires application screening by Department of Teacher Preparation Advisor.

Admission to Gate 3 and beyond requires Admission to Teacher Preparation Program and passing of state licensure exams.

Courses marked with (f) require field observations.

Students may not receive more than 2 Cs in professional education courses.
Pre-Medical and Healthcare Professions Gateway

The Pre-Medical and Healthcare Professions Gateway provides students with the guidance to obtain the foundation of science and general education courses in preparation for professional programs in medical and healthcare fields. Students explore pathways leading to their desired career goal, and individual advising assists students in deciding on the path best for them. Preparation for admission to medical or healthcare professional schools does not require specific majors. The necessary prerequisite courses, which vary for each profession, can be accommodated within many of the majors and concentrations on campus.

Medical sciences include allopathic and osteopathic medicine, dentistry, veterinary medicine, podiatry, and optometry. Additional healthcare professions include pharmacy, physical therapy, occupational therapy, and public health. Students should indicate an interest in one of these careers, or undecided pre-health, in order to ensure assignment of a dedicated advisor.

The undecided pre-health program provides an opportunity for students to learn about the University and its programs but does not offer a degree itself. All students in the undecided program must move to a degree-granting program before the end of their second year at the University.

For more information about Pre-Medical and Healthcare Professional Gateway contact the Office of the Dean (EMS@purduecal.edu) to begin planning your path to success.

The courses needed for admission to professional schools can be part of a major’s requirements, or counted as electives. Courses required or recommended by professional schools may include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 22100</td>
<td>Principles of Animal Nutrition</td>
</tr>
<tr>
<td>BIOL 10100</td>
<td>Introductory Biology (1)</td>
</tr>
<tr>
<td>BIOL 10200</td>
<td>Introductory Biology (2)</td>
</tr>
<tr>
<td>BIOL 35700</td>
<td>Introductory Animal Physiology</td>
</tr>
<tr>
<td>BIOL 21300</td>
<td>Human Anatomy and Physiology I</td>
</tr>
<tr>
<td>BIOL 21400</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL 22100 or 31600</td>
<td>Introduction to/Basic Microbiology</td>
</tr>
<tr>
<td>BIOL 56100</td>
<td>Immunology</td>
</tr>
<tr>
<td>BIOL 24300</td>
<td>Introductory Cell Biology</td>
</tr>
<tr>
<td>BIOL 24400</td>
<td>Genetics</td>
</tr>
<tr>
<td>BIOL 24401</td>
<td>Genetics Lab</td>
</tr>
<tr>
<td>BIOL 50700</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>CHM 11500</td>
<td>General Chemistry (1)</td>
</tr>
<tr>
<td>CHM 11600</td>
<td>General Chemistry (2)</td>
</tr>
<tr>
<td>CHM 25500</td>
<td>Organic Chemistry (1)</td>
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<tr>
<td>CHM 25501</td>
<td>Organic Chemistry Lab (1)</td>
</tr>
<tr>
<td>CHM 25600</td>
<td>Organic Chemistry (2)</td>
</tr>
<tr>
<td>CHM 25601</td>
<td>Organic Chemistry Lab (2)</td>
</tr>
<tr>
<td>CHM 33300</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>PHYS 22000</td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHYS 22100</td>
<td>General Physics II</td>
</tr>
<tr>
<td>MA 15300</td>
<td>Algebra and Trigonometry I</td>
</tr>
<tr>
<td>MA 22300</td>
<td>Introductory Analysis I</td>
</tr>
<tr>
<td>MA 22400</td>
<td>Introductory Analysis II</td>
</tr>
<tr>
<td>STAT 30100</td>
<td>Elementary Statistics</td>
</tr>
<tr>
<td>STAT 33000</td>
<td>Biostatistics</td>
</tr>
<tr>
<td>ENGL 10400</td>
<td>English Composition I</td>
</tr>
<tr>
<td>ENGL 10500</td>
<td>English Composition II</td>
</tr>
<tr>
<td>COM 11400</td>
<td>Fund. Speech Communication</td>
</tr>
<tr>
<td>SOC 10000</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>PSY 12000</td>
<td>Elementary Psychology</td>
</tr>
<tr>
<td>PSY 35000</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>CDFS 21001</td>
<td>Introduction to Human Development</td>
</tr>
</tbody>
</table>
COLLEGE OF
LIBERAL ARTS
AND
SOCIAL SCIENCES
The College of Liberal Arts and Social Sciences (LASS) houses the following departments:

- **Behavioral Sciences** (Anne B. Edwards, head; 219/989-2384, Porter Hall, Room 213)
- **Communication and Creative Arts** (Thomas Roach, head; 219/989-2393, Porter Hall, Room 118)
- **English and Philosophy** (Daniel Punday, head; 219/989-2261, Classroom Office Bldg., Room 217)
- **Foreign Languages and Literatures** (Luisa Garcia-Verdugo, head; 219/989-2632, Porter Hall, Room 209)
- **History and Political Science** (Paul McGrath, interim head; 219/989-2347, Classroom Office Bldg., Room 215)

**Bachelor’s Degree Programs**

- Communication
  - Advertising
  - Broadcasting
  - General Communication
  - Journalism
  - Organizational Communication
  - Public Relations
  - Visual Communication Design
- English
  - Literature
  - Professional Writing
  - Teaching
- French
- French-International Studies
- French Teaching
- Spanish
- Spanish-International Studies—Heritage
- Spanish-International Studies—Non-Heritage
- Spanish Teaching
  - Heritage
  - Non-Heritage
- History (and Pre-Law)
- Political Science (and Pre-Law)
- Political Science–Criminal Justice
- Social Studies Teaching
- Human Development and Family Studies
  - Child and Family Services
  - Early Childhood Development
  - Gerontology
- Philosophy
- Psychology
- Sociology
  - Criminal Justice
  - General Sociology
  - Gerontology

**Master’s Degree Programs**

- Child Development and Family Studies,
  - Specialization in Human Development and Family Studies
  - Specialization in Marriage and Family Therapy
- Communication
- English
- History

**Career Opportunities**

Graduates of Purdue University Calumet’s College of Liberal Arts and Social Sciences may work in a number of fields which are as varied as are our programs. Our degrees will equip our students with the skills necessary for success in professional careers such as broadcast journalist, health club director, law enforcement professional, cardiac rehabilitation assistant, social studies teacher, public information officer, Spanish translator, casino manager, technical writer, criminologist, recreational activities director, communication trainer, television director, club manager, customer service manager, English teacher, tourism director, mental health clinic staff member, social welfare agency employee, personal training coordinator, senior citizen facility administrator, probation officer, restaurant owner, child center director, French teacher, employee wellness program supervisor, hotel sales manager and more.
Department of Behavioral Sciences

Anne B. Edwards, Head. Faculty: G. M. Casanova, R. L. Cherry; V. B. Damusis (Emeritus); B. J. Davis (Emerita); P. T. Do; L. L. Heck; J. B. Hill (Emerita); E. V. James; D. R. Kirkpatrick (Emeritus); M. Murphy; L. S. Mura (Emerita); D. Nalbone; D. L. Pick; K. A. Pierce; J. E. Prebis (Emerita); D. Raden; P. Rodda; S. M. Singer (Emerita); T. D. Sherrard (Emeritus); A. J. Spector; K. Sweeney; T. S. Trepper; M. P. Vajagich (Emerita); E. Weber; S. J. Wee; J. L. Wetchler

Academic Advisors: S. Finke; B. Osmon
Office Managers: P. Riddering; J. Sanders

The department of behavioral sciences offers students a broad-based liberal education, enabling them to function effectively in a world of rapid change, in careers in such fields as government, business, mental health, child care, gerontology or social services. The department provides students with skills and strategies to understand individual and group behavior, to learn how to relate well to others, and to understand the relationships between social problems and the social environment.

As one of the most diverse academic units on campus, the department offers courses in a variety of disciplines concerned with human behavior: anthropology; Early Childhood Education; human development and family studies; psychology; sociology; criminal justice and gerontology. Certificates, baccalaureate degrees and two master’s degree level plans of study are offered by the department.

On-campus internships are offered in the graduate program in our Couple and Family Therapy Clinic and the Charlotte R. Riley Child Care Center. Off-campus internships are available in a number of human services and non-profit agencies throughout the region. A two-semester practicum experience is required in the gerontology and early childhood development programs. A one-semester field experience is required in criminal justice. Such experiences provide practical experience under supervision and allow first-hand experience and observation of various institutions’ responses to human needs and quality of life issues.

The campus Child Center serves as a laboratory for the early childhood development program. The psychology laboratory is a computer-assisted student laboratory equipped with an array of tools used to conduct qualitative and quantitative social science research, including computer-assisted telephone and web-based surveys and geographic information systems mapping projects.

Programs
- Child Development Associate (CDA) Preparation and Advising Program
- Certificate, Infant/Toddler
- Certificate in Gerontology
- Bachelor of Arts, Psychology
- Bachelor of Arts, Sociology, options in General Sociology, Criminal Justice, and Gerontology
- Bachelor of Arts, Human Development & Family Studies; specializations in Child and Family Services, Early Childhood and Gerontology
- Master of Science in Child Development and Family Studies; Specialization in Human Development and Family Studies
- Masters of Science in Child Development and Family Studies; Specialization in Marriage and Family Therapy
- Post-Baccalaureate Certificate in Early Childhood
- Minors in Early Childhood, Gerontology, Human Services, Psychology, Sociology

Child Development Associate (CDA) Preparation & Advising Program

(COA stands for the Child Development Associate National Credentialing Program. The purpose of the program is to enhance the quality of child care by defining, evaluating and recognizing the competence of child care providers and home visitors.

The program is administered by the Council for Early Childhood Professional Recognition in Washington, D.C. The CDA Credential is a certificate that is awarded to a person who demonstrates competence in caring for young children by successfully completing the CDA assessment process.

(Note: Completion of this course work does not award a degree or certificate. However, the courses count toward an associate or a bachelor degree in early childhood development.)

Required Coursework
Complete all of the following:
- CDFS 21600 Introduction to Early Childhood Education
- CDFS 21700 Issues in Early Childhood Education
- CDFS 23500 CDA Portfolio and Experience
- CDFS 22800 Developmental Infant & Toddler Care
- CDFS 34000 Teaching Very Young Children with Special Needs

Elective: Choose one appropriate additional course according to your area of focus:
- CDFS 30800 Language and Literacy in Early Childhood
- CDFS 22800 Developmental Infant & Toddler Care

Certificate - Infant/Toddler Certificate

This certificate is designed for non-traditional students employed full-time.

- BHS 10100-Working with Parents
- CDFS 21000-Intro to Human Development
- CDFS 22800-Developmental Infant and Toddler Care
- BHS 20300-Advanced Infant/Toddler Curriculum
- BHS 20200-Infant/Toddler Supervised Experience
- CDFS 34000-Teaching Very Young Children with Special Needs

(DEPARTMENTS / COLLEGES | 2013-2014 | 81)
Bachelor of Arts, Psychology
(120 CREDITS)

1. Communication (18-25 credits)
   - ENGL 10000/10400 English Composition I
   - ENGL 10500 English Composition II
   - OR
   - ENGL 10800 Accel First Yr Compos
   - Foreign Language 10100, 10200, 20100, 20200

2. Science and Mathematics (12 credits)
   - The required 12 hours will consist of three hours of a laboratory science, three hours of mathematics at the College Algebra (MA 15300) level or higher and three hours of Computer Science (CIS 20400) Lab Science — SJ 10550, BXL 10100 or BXL 21300. The remaining three hours may be filled with any Science, Mathematics (above 15500), Logic (PHIL 15000), or non-lab science (F&N 30300) courses.

3. Humanities and Social Sciences (24 credits)
   - Economics 21000 or 25100
   - Psychology 12000
   - Sociology 10000 or Anthropology
   - and one course each from:
     - Aesthetics
     - History
     - Literature
     - Philosophy (not Logic)
     - Political Science

4. Psychology and Behavioral Sciences Core (25 credits)
   - BHS 10300 Freshman Experience in Behavioral Sciences (1 cr)
   - BHS 20100 Statistical Methods for the Behavioral Sciences (PSY 50000 accepted)
   - PSY 20300 Intro. Research Methods
   - PSY 20500 Testing and Measurement
   - PSY 31400 Intro. to Learning
   - PSY 31100 Human Memory
   - PSY 33900 Advanced Social Psych (SOC 34000 accepted)
   - PSY 43000 Sys. Theories of Psych.
   - One of:
     - PSY 31000 Sensation and Perception Proc.
     - PSY 32200 Neuroscience of Motivated Behavior
   - To be admitted into the following courses student must receive:
     - A grade of C or better in all PSY courses.
     - For PSY 20300 and 20500:
       - A grade of C or better in PSY 12000, BHS 20100/PSY 50000 and MA 15300
     - For PSY 31000, PSY 31100, PSY 31400 and PSY 32200:
       - A grade of C or better in PSY 20300 and PSY 20500
     - For PSY 33900:
       - A grade of C or better in PSY 20300
     - For PSY 43000:
       - A grade of C or better in PSY 31100, PSY 31400, and either PSY 31000 or PSY 32200

5. Additional Requirements for the Major (15 credits)
   - Any five courses in Psychology at the 30000 level or above

6. Electives or Minor (19-26 credits)

Please note: Two courses in Experiential Learning are required for all students enrolled Fall 2008 and beyond. This is also a requirement for transfer students with more than 2 semesters of enrollment remaining and more than 32 credit hours needed for degree.

Psychology Minor
(18 CREDITS)

- PSY 12000 Elem. Psychology
- BHS 20100 Statistical Methods for the Behavioral Sciences (PSY 50000 accepted)
- PSY 20300 Intro. Research Methods

Nine credits of Psychology at 300-500 level

Certificate in Gerontology
(27 CREDITS)

This Certificate is for those who are already working with the elderly and want to have a specialized credential in gerontology to enhance their career, or who are considering a change in career. The Certificate would be available to students who do not have a baccalaureate degree, as well as those who have a baccalaureate degree in another field of study.

18 Credits to include the following courses:
   - PSYS 12000 Introduction to Psychology
   - OR
   - SOC 10000 Introduction to Sociology
   - BHS 37500 Physical Aging, Health and Behavior
   - SOC 43000 Sociology of Aging
   - SOC 43100 Services to the Aged
   - SOC 46000 Field Experience in Gerontology
   - PSY 36300 Human Development III: Adulthood

6 Credits chosen from any one of the following courses:
   - COM 36500 Communication and Aging
   - COM 37100 Communication and Health
   - F&N 36000 Nutrition and Aging
   - FM 25000 Principles of Adult Fitness
   - PSY 53500 Psychology of Death and Dying
   - SOC 44000 Sociology of Health and Health Care
   - Independent Studies on issues relevant to aging

3 general elective credits chosen from any university department

Bachelor of Arts, Sociology
(120 CREDITS)

Requirements for all Sociology degrees

1. Communication (18-25 credits)
   - ENGL 10000/10400 English Composition I
   - ENGL 10500 English Composition II
   - OR
   - ENGL 10800 Accel First Yr Compos
   - Foreign Language 10100-10200-20100-20200

2. Science and Mathematics (12 credits)
   - The required 12 hours will consist of three hours of laboratory science, three hours of mathematics or statistics (STAT 13000), and three hours of Computer Science (CIS 20400). The remaining three hours may be filled with any Science, Mathematics, Logic (PHIL 15000), or non-lab science (F&N 30300) course.

3. Humanities and Social Sciences (24 credits)
   - Economics 21000 or 25100
   - Psychology 12000
   - Sociology 10000 or Anthropology
   - and one course each from:
     - Aesthetics
     - History
     - Literature
     - Philosophy (not Logic)
     - Political Science

Please note: Two courses in Experiential Learning are required for all students enrolled Fall 2008 and beyond. This is also a requirement for transfer students with more than 2 semesters of enrollment remaining and more than 32 credit hours needed for degree.
Bachelor of Arts, General Sociology Option
(120 CREDITS)

Requirements for Sociology degree plus: (34 credits)

- BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
- SOC 22000 Social Problems
- SOC 31400 Race and Ethnic Relations OR
- SOC 41100 Social Stratification
- SOC 38200 Intro. to Methods of Social Research I
  *(BHS 20100 accepted)*
- SOC 38300 Intro. to Methods of Social Research II
- SOC 40200 Principles of Sociology*

18 additional credits in Sociology at 30000 level or above

*Prequisite to SOC 40200: 12 hours of Sociology and a 2.25 GPA in all Sociology courses.

Electives or Minor (25-32 credits)

Please note: Two courses in Experiential Learning are required for all students enrolled Fall 2008 and beyond. This is also a requirement for transfer students with more than 2 semesters of enrollment remaining and more than 32 credit hours needed for degree.

Minor in Gerontology
(15 CREDIT HOURS)

15 Credits to include the following courses:

- BHS 37500 Physical Aging, Health and Behavior
- SOC 43000 Sociology of Aging
- SOC 43100 Services to the Aged
- SOC 46000 Field Experience in Gerontology
- PSY 36300 Human Development III: Adulthood

5 Credits chosen from any one of the following courses

- COM 36500 Communication and Aging
- COM 37100 Communication and Health
- F&N 36000 Nutrition and aging
- PSY 53500 Psychology of Death and Dying
- SOC 44000 Sociology of Health and Health Care

Independent Studies on issues relevant to aging

Bachelor of Arts, Sociology-Criminal Justice Option
(120 CREDITS)

Requirements for Sociology degree plus: (34 credits)

- BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
- SOC 22000 Social Problems
- SOC 31400 Race and Ethnic Relations OR
- SOC 41100 Social Stratification
- SOC 42100 Juvenile Delinquency
- SOC 45300 Intimate Violence
- SOC 36400 Child and Family Welfare
- SOC 42200 Criminology
- POL 34600 Law and Society
- POL/SOC 34300 Intro. Criminal Just.
- POL/SOC 44300 Practicum Criminal Just.
- SOC 38200 Intro. to Methods of Social Research I
  *(BHS 20100 accepted)*
- SOC 38300 Intro. to Methods of Social Research II
- SOC 40200 Principles of Sociology**

One of:

- HIST 32500 Crime in America
- HIST 33600 Organized Crime
- POL 35400 Civil Liberties Const.
- PSY 35500 Child Abuse Neglect
- PSY 42800 Drugs and Behavior
- PSY 44300 Aggression and Violence

*Prequisite to SOC 40200: 12 hours of Sociology and a 2.25 GPA in all Sociology courses.

Electives or Minor (19-25 credits)

Please note: Two courses in Experiential Learning are required for all students enrolled Fall 2008 and beyond. This is also a requirement for transfer students with more than 2 semesters of enrollment remaining and more than 32 credit hours needed for degree.

Bachelor of Arts, Sociology-Gerontology Option
(120 CREDITS)

Requirements for Sociology degree plus: (40 credits)

- BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
- SOC 22000 Social Problems
- SOC 36100 The Institution of Social Welfare
- SOC 38200 Intro. to Methods of Social Research I
  *(BHS 20100 accepted)*
- SOC 38300 Intro. to Methods of Social Research II
- SOC 40200 Principles of Sociology*
- SOC 43000 Sociology of Aging
- SOC 43100 Services for the Aged
- SOC 46000 Field Exp. Geront.
- PSY 36300 Human Develop. III
- PSY 53500 Psych. of Death and Dying

Three from:

- SOC 26100 Basic Helping Skills for Human Services
- SOC 41100 Social Stratification
- SOC 44000 Soc. Health and Illness
- SOC 45300 Intimate Violence
- SOC 46000 Field Exp. Gerontology
- SOC 49100 Oriented Research/Studies
- SOC 56200 Public Social Services
- PHIL 32400 Ethics for the Prof.
- PHIL 32500 Ethics and Public Health
- COM 365 00 Communication and Aging
- COM 37100 Health Com.
- F&N 36000 Nutrition for the Aged
- PSY 43300 Issues in Dev. Psy

*Prequisite to SOC 40200: 12 hours of Sociology and a 2.25 GPA in all Sociology courses.

Electives or Minor (19-25 credits)

Please note: Two courses in Experiential Learning are required for all students enrolled Fall 2008 and beyond. This is also a requirement for transfer students with more than 2 semesters of enrollment remaining and more than 32 credit hours needed for degree.

Sociology Minor
(18 CREDITS)

- SOC 10000 Introduction to Sociology
- SOC 22000 Social Problems

12 Sociology credits at 30000-50000 level
Bachelor of Arts, Human Development and Family Studies
(120 CREDITS)

Requirements for all Specializations:

1. General Education Requirements (18-25 credits)
   Communication
   - ENGL 10000/10400 English Composition I
   - ENGL 10500 English Composition II
   OR
   - ENGL 10800 Accel First Yr Compos
   COM 11400 Fund. Speech Comm.
   Foreign Language 10100-10200-20100-20200

2. Science and Mathematics (12 credits)
   The required 12 hours will consist of three hours of laboratory science, three hours of mathematics or statistics (STAT 13000), and three hours of computer science (CIS 20400). The remaining three hours may be filled with any Science, Mathematics, Logic (PHIL 15000), or non-lab science (F&N 30300) course.

3. Humanities and Social Sciences (24 credits)
   Economics 21000 or 25100
   Psychology 12000
   Sociology 10000 or Anthropology
   and one course each from:
   - Aesthetics
   - History
   - Literature
   - Philosophy (not Logic)
   - Political Science

Child and Family Services Specialization

4. Human Development and Family Studies Core (25 credits)
   - BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
   - BHS 20100 Statistical Methods for the Behavioral Sciences (PSY 50000 accepted)
   - SOC 38300 Research Methods
   - BHS 20500 Intro to Family Dynamics
   - CDFS 21000 Intro to Human Development
   - SOC 35000 Social Psychology of Marriage
   - CDFS 35400 Practicum I ExL
   - CDFS 45501 Practicum II ExL
   - OR
   - CDFS 45601 Practicum with Infants & Toddlers ExL
   - PSY 43300 Theories in Human Development

5. Early Childhood Specialization (36 credits)
   Complete ALL of the courses listed below:
   - CDFS 21600 Introduction to Early Childhood Education
   - CDFS 21700 Issues in Early Childhood Education
   - CDFS 22800 Developmental Infant & Toddler Care
   - CDFS 30501 Art, Music & Movement in Early Childhood
   - CDFS 30800 Language & Literacy in Early Childhood
   - CDFS 31001 Math, Science & Social Studies in Early Childhood
   - CDFS 33201 Child Care Administration
   - CDFS 34000 Teaching Very Young Children with Special Needs
   - CDFS 42100 Children’s Social Development
   - CDFS 43101 Observational Assessment in Early Childhood ExL
   - PSY 36100 Human Development I: Infancy and Childhood

   Complete one course from the following:
   - EDPS 26000 Introduction to Special Education
   - F&N 26000 Food & Nutrition in Early Childhood Development Classrooms
   - PSY 33400 Human Sexuality
   - PSY 36200 Human Development II: Adolescence
   - WOST 12100 Introduction to Women’s Studies

   *Prerequisite to PSY 43300: PSY 12000, BHS 20100 and PSY 36100 or BHS 20500 and CDFS 21000
   *Prerequisite to CDFS 35400: CDFS 38300
   *Prerequisite to PSY 36100: CDFS 31001
   *Prerequisite to CDFS 42100: PSY 36100
   *Prerequisite to PSY 43300: PSY 12000

6. Electives (8-17 credits)
   Restricted, Two of:
   - SOC 36100 The Institution of Social Welfare
   - SOC 44000 Sociology of Health & Illness
   - WOST 12100 Intro to Women's Studies
   - COM 31000 Family Communications
   - PSY 35500 Child Abuse and Neglect
   - PSY 43500 Intro to Marriage & Family Therapy
   - PSY 53200 Psychological Disorders of Childhood
   - PSY 55000 Introduction to Clinical Psychology

Early Childhood Specialization

7. Electives (Open) (10-17 credits)
   Please note: Two courses in Experiential Learning are required for all students enrolled Fall 2008 and beyond. This is also a requirement for transfer students with more than 32 credit hours needed for degree.
Post Baccalaureate Certificate — Early Childhood Development
(18 CREDITS)
This certificate is available to students with baccalaureate degrees who are already working with young children, either as family child care providers, or in various center-based capacities, including teaching or administration. It will provide immediate and substantial support to providers coming to the field from other areas of study. The certificate includes coursework in child development, observation and curriculum preparation, and requires supervised practical experience.

PSY 36100 Human Development I or elective (CDFS 42100 or CDFS 43101)
CDFS 21600 Intro. to Early Childhood or elective (CDFS 30501 or CDFS 22800 or CDFS 43101)
CDFS 21700 Issues in Early Childhood or elective (CDFS 42100, CDFS 22800 or CDFS 34000)
CDFS 30800 Language and Literacy
CDFS 47000 Supervised Experience in Early Childhood Programs

For Acting Administrators
PSY 36100 Human Development I or elective (CDFS 42100 or CDFS 43101)
CDFS 21600 Intro. to Early Childhood or elective (CDFS 30501 or CDFS 22800 or CDFS 43101)
CDFS 21700 Issues in Early Childhood or elective (CDFS 42100, CDFS 22800 or CDFS 34000)
CDFS 30800 Language and Literacy
CDFS 33201 Child Care Administration
CDFS 47000 Supervised Experience in Early Childhood Programs

For Family Childcare Providers
PSY 36100 Human Development I or elective (CDFS 42100 or CDFS 43101)
CDFS 21600 Intro. to Early Childhood or elective (CDFS 30501 or CDFS 22800 or CDFS 43101)
CDFS 21700 Issues in Early Childhood or elective (CDFS 42100, CDFS 22800 or CDFS 34000)
CDFS 30800 Language and Literacy
CDFS 31001 Science, Math, and Social Studies in Early Childhood
CDFS 47000 Supervised Experience in Early Childhood Programs

Possible Electives
CDFS 42100 Children’s Social Development
CDFS 30501 Art Music & Movement in Early Childhood
CDFS 43101 Observational Assessment in Early Childhood (Ex.L)
CDFS 22800 Developmental Infant and Toddler Care
CDFS 34000 Teaching Children with Special Needs

*Note: Some students may already have coursework that approximates that of some required courses. Alternative courses should enrich the student’s familiarity with the topics or issues addressed in the required courses. Alternative courses must be chosen in consultation with program advisors.

Minor in Human Services
(18 CREDITS)
A minor in Human Services will prepare students to act as a multi-disciplinary practitioner when assisting individuals, families, and communities to respond to events that require intervention. The generic competencies of the human service professional will reflect the continuum of skills necessary to work with persons whose needs arise from problems within the larger social system or to improve individual social functioning. These areas include crime and delinquency, chemical abuse and addiction, poverty, education, job training and employment, mental illness physical and sexual abuse, homelessness and disability.

Requirements:
SOC 22000 Social Problems
SOC 26100 Basic Helping Skills for Human Services
SOC 30600 Case Management in Human Services
SOC 30700 Practicum in Human Services
SOC 36400 Child and Family Welfare

Any three hours from the following:
PSY 35500 Child Abuse and Neglect
SOC 31400 Race and Ethnic Relations
SOC 36100 The Institution of Social Welfare

SOC 41100 Social Stratification
SOC 42100 Juvenile Delinquency
SOC 42200 Criminology
SOC 43000 Sociology of Aging
SOC 45000 Sex Roles in Modern Society

Minor in Early Childhood
(18 CREDITS BEYOND PSY 36100)
The prerequisite for this minor is PSY 36100, C or better

A. Requirements for Minor in Early Childhood
Development: (Prerequisite for minor: PSY 36100; Grade of “C” or better) All of the following:
CDFS 21600 Introduction to Early Childhood Education
CDFS 21700 Issues in Early Childhood Education
CDFS 30800 Language & Literacy in Early Childhood II

Notes:
* Prerequisite for CDFS 21700: CDFS 21600
* Co-requisite for CDFS 30800: CDFS 21600

B. Choose one course from the following:
CDFS 22800 Developmental Infant & Toddler Care
CDFS 31001 Math, Science & Social Study in Early Childhood
CDFS 34000 Teaching Very Young Children with Special Needs
CDFS 42100 Children’s Social Development

Notes:
*Prerequisite for CDFS 31001: CDFS 21600, 30800 and PSY 36100; Co-requisite for CDFS 31001: CDFS 21700, CDFS 30501
* Prerequisite for CDFS 42100, CDFS 43101: PSY 36100
* Prerequisite for CDFS 34000: CDFS 21700 or PSY 36100

C. Choose one course from the following:
F&N 260 Food & Nutrition in Early Childhood Development
CDFS 22800 Art, Music & Movement in Early Childhood
CDFS 33201 Administration in Early Childhood Development Programs
CDFS 43101 Observational Assessment in Early Childhood

Notes:
* Co-requisite for CDFS 30501: CDFS 21600
* Prerequisite for CDFS 33201: PSY 36100

D. Practical Internship:
CDFS 35001 Internship in Early Childhood

Master of Science in Child Development and Family Studies: Specialization in Human Development and Family Studies
(36 CREDITS)

1. Common Core
CDFS 60200 Advanced Family Studies
CDFS 61500 Research Methods in Child and Family Studies
CDFS 61800 Program Development and Evaluation
CDFS 68500 Current Research Topics in Child Development & Family Studies
PSY 60500 Applied Multivariate Statistics
CDFS 49000/59000 Administration of Social Service Not-for-Profit Agencies
CDFS 68000 Professional Issues for Child and Family Specialists
CDFS 59000/69800 6-hours of Directed Research or M.S. Thesis
2. Electives
Nine Credit Hours of electives representing one of the following specialties at the 40000-60000 level or other courses in consultation with your advisor:
- Early Childhood Development Area
- Child & Family Studies Area
- Disabilities Studies Area
- Gerontology Area


Master of Science in Child Development and Family Studies: Specialization in Marriage and Family Therapy
(61 CREDITS)
(Accredited by the Commission on Accreditation for Marriage and Family Therapy Education of the American Association for Marriage and Family Therapy)

Special Admission Requirements
1. A 1000-word autobiographical statement demonstrating that the student has adequate preparation.
2. Combined verbal and math Graduate Record Examination score of 1000.

Degree Requirements
1. Required courses:
   - CDFS 59000 Couple Therapy
   - CDFS 60100 Adv. Child Development
   - CDFS 60300 Theories Fam. Therapy
   - CDFS 61500 Research Methods
   - CDFS 65700 Social Constructionist Family Therapies
   - CDFS 66000 Family Therapy Skills
   - CDFS 66300 Structural Fam. Therapies
   - CDFS 66500 Trans. Fam. Therapies
   - CDFS 66700 Prac. in Marriage Counseling (2 sem.)
   - CDFS 66900 Practicum Fam. Therapy (3 sem.)
   - CDFS 67100 Sex Therapy
   - CDFS 68000 Professional Issues
   - CDFS 69800 Research M. S. Thesis (6 credits)
   - CDFS Elective
   - PSY 60500 Applied Multivariate Analysis
   - PSY 67300 Psy. Behavior Disorders

2. 500 hours of face-to-face contact with clients
3. Completed thesis and oral defense of thesis
Department of Communication and Creative Arts

Thomas J. Roach, Head. Faculty: L. Artz; Ken Bronowski (RTV Production Coordinator/Studio Supervisor); T. M. Carilli; C. Channing; M. Dakich (Emeritus); D. M. Dunn; C. M. Gillotti; L. J. Goodnight; P. Hales; Y. R. Kamalipour; N. A. Nemeth; M. B. O’Connor; W. L. Robinson; Y. Zhang
Academic Advisor: L. Bilyk
Office Manager: K. Mihalic

Programs in the department of communication and creative arts prepare students to work in careers that require exceptional skill in dealing with people. The department offers broad curricula ranging from communication and media studies to the performing and creative arts, with strong liberal arts education supporting specific preparation for a variety of careers in communication professions. Students can select minors inside or outside the department to supplement their majors, enhance their professional, creative and artistic skills, and improve their future employment options.

Communication is a highly diverse and broad discipline. Hence, communication graduates find careers in such fields as advertising, broadcasting, corporate communication, education, journalism, marketing, public relations, research sales, personnel development, publishing, and visual communication.

Experiential learning, internship and practicum options give communication majors the opportunity to expand their learning and career opportunities by engaging in creative and professional projects and working directly with professionals in organizations such as radio and television stations, cable TV operations, advertising agencies, print media outlets, and public relations firms.

The fully equipped radio and television studios on campus allow students hands-on experience in producing a variety of video and radio-TV programs. Students interested in journalism can work for the campus newspaper, Purdue Chronicle, Calumet Perspective (a weekly TV program aired on the NPR-affiliated Lakeshore TV and WCPX, channel 38 in Chicago), and online radio streaming, WPUC.

The following General Education Courses (54-57 credits) are required for the Bachelor of Arts Degrees:

ENGL 10000/10400-10500 or 10800
COM 11400
CIS 20400
MA or STAT
LAB Science
PHIL 15000 or F&N 30300 or any MA/SCI/STAT/CIS
Literature
Philosophy (not Logic)
History
Aesthetics (A&D 25500, ENGL 31900, MUS 25000, or THTR 20100)
Economics
Political Science
Psychology 12000
Sociology 10000 or Anthropology
Foreign Language 12-hour sequence: FR, GER, SPAN, or JAP (10100, 10200, 20100, 20200)

Bachelor of Arts Degrees:

Advertising

126 CREDIT HOURS REQUIRED FOR GRADUATION

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)

COM 10300 Freshman Seminar in Communication
COM 20100 Intro to Media Studies
COM 22800 Intro to Communication Studies

C. Advertising Core (33 credits)

COM 25300 Intro to Public Relations
COM 25600 Intro to Advertising
COM 30900 Visual Communication
COM 33100 Audio Production
COM 33200 Television Production

D. Choose 6 of the Following Courses (18 credits)

COM 42900/MBMT 42900 Advertising Campaigns (Exl)
COM 43900 Focus Group Research (Exl)
COM 44300 Advertising Media
COM 44600/MBMT 42800 Advertising Management (Exl)
COM 44800 Applied Mass Media Research
BA 22400 Principles of Marketing

A&D 22200 Intro to Photography
COM 25500 Intro to News Reporting and Writing
COM 30000 Intro to Communication Research Methods
COM 31800 Principles of Persuasion
COM 32500 Interviewing: Principles and Practice
COM 32700 International Communication
COM 35200 Mass Communication Law
COM 40300 Communication Ethics
DEPARTMENTS / COLLEGES

COM 43600  
Script Writing

COM 46500  
Visual Aesthetics in Television and Film

COM 49000  
Internship in Communication (Exl)

MGMT 10100  
Introduction to Business

MGMT 42100  
Promotion Management

MGMT 42400  
Consumer Behavior

E. Electives (5-14 credits)

B.A. IN COMMUNICATION (MEDIA STUDIES)

Broadcasting

126 CREDIT HOURS REQUIRED FOR GRADUATION

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)

COM 10300  
Freshman Seminar in Communication (or other Freshman Seminar Course 1–3 cr. hrs.)

COM 20100  
Intro to Media Studies

COM 22800  
Intro to Communication Studies

C. Broadcasting Core (24 credits)

COM 30900  
Visual Communication

COM 33100  
Audio Production

COM 33200  
Television Production

COM 35200  
Mass Communication Law

COM 40300  
Communication Ethics

COM 43600  
Script Writing

COM 44100  
Advanced Television Production

COM 44500  
Television Editing

D. Choose 6 of the following Courses (18 credits)

A&D 22200  
Introduction to Photography

COM 25300  
Intro to Public Relations

COM 25500  
Intro to News Reporting and Writing

COM 30000  
Intro to Communication Research Methods

COM 31800  
Principles of Persuasion

COM 32500  
Interviewing: Principles and Practice

COM 32700  
International Communication

COM 33000  
Theories of Mass Communication

COM 34700  
Radio-TV Performance

COM 35300  
Problems in Public Relations (Exl)

COM/ MGMT 42900  
Advertising Campaigns (Exl)

COM 44600/ MGMT 42800  
Advertising Management (Exl)

COM 44800  
Applied Mass Media Research

COM 46500  
Visual Aesthetics in Television & Film

E. Electives (14-23 credits)

B.A. IN COMMUNICATION (COMMUNICATION STUDIES)

General Communication

126 CREDIT HOURS REQUIRED FOR GRADUATION

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)

COM 10300  
Freshman Seminar in Communication (or other Freshman Seminar Course 1–3 cr. hrs.)

COM 20100  
Intro to Media Studies

COM 22800  
Intro to Communication Studies

C. Communication Studies Core (27 credits)

COM 21400  
Comparative Theories of Interpersonal Com

COM 22500  
Intro to Rhetoric and Social Influence

COM 31900  
The Rhetorical Tradition

D. Choose 3 of the following Communication courses at 30000 level or higher (9 credits)

COM 30900  
Visual Communication

COM 31100  
Family Communication

*COM 31400  
Advanced Public Speaking

*COM 31900  
The Rhetorical Tradition

*COM 32300  
Business & Professional Speaking

COM 32600  
Speech Writing

COM 33000  
Theories of Mass Communication

COM 33100  
Audio Production

COM 33200  
Television Production

*COM 34300  
Fundamentals of Oral Interpretation

COM 34700  
Radio and TV Performance

COM 35200  
Mass Communication Law

COM 36500  
Communication and Aging

COM 37100  
Health Communication

COM 40300  
Communication Ethics

COM 41800  
Communication and Gender

COM 43600  
Scriptwriting

COM 43700  
Performance Practicum (Exl)

COM 44600/ MGMT 42800  
Advertising Management (Exl)

COM 47000  
Women in the Media

COM 49000  
Internship in Communication (Exl)

COM 49100  
Special Topics in Communication

* May use only if course was not used in category “C”

E. Electives (20-29 credits)

B.A. IN COMMUNICATION (MEDIA STUDIES)

Journalism

126 CREDIT HOURS REQUIRED FOR GRADUATION

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)

COM 10300  
Freshman Seminar in Communication (or other Freshman Seminar Course 1–3 cr. hrs.)

COM 20100  
Intro to Media Studies

COM 22800  
Intro to Communication Studies

C. Journalism Core (27 credits)

COM 25500  
Intro to News Reporting and Writing

COM 30500  
News Editing

COM 30600  
Advanced News Reporting and Writing

COM 30900  
Visual Communication

COM 33000  
Theories of Mass Communication

COM 35200  
Mass Communication Law

COM 40300  
Communication Ethics

COM/ENGL 45100  
Magazine Journalism (Exl)

A&D 22200  
Introduction to Photography

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D. Choose 4 of the Following Courses (12 credits)
COM 25300  Intro to Public Relations
COM/ENGL 30200  Publication Design
COM 32500  Interviewing: Principles & Practice
COM 32700  International Communication
COM 33100  Audio Production
COM 33200  Television Production
COM 33400  Journalism for the Electronic Media
COM 35300  Problems in Public Relations (Excl)
COM 43600  Script Writing
COM 44100  Advanced Television Production
COM 44600 / MGMT 42800  Advertising Management (Excl)
COM 46000  Advanced Public Relations (Excl)
COM 49000  Internship in Communication (Excl)
ENGL 40600  Review Writing (Excl)

E. Electives (17-26 credits)

B.A. IN COMMUNICATION (COMMUNICATION STUDIES)
Organizational Communication

126 CREDIT HOURS REQUIRED FOR GRADUATION

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)
COM 10300  Freshman Seminar in Communication (or other Freshman Seminar Course 1-3 cr. hrs.)
COM 20100  Intro to Media Studies
COM 22800  Intro to Communication Studies

C. Organizational Communication Core (30 credits)
COM 21400  Theories of Interpersonal Communication
COM 22500  Intro to Rhetoric and Social Influence
OR
COM 31900  The Rhetorical Tradition
COM 25300  Intro to Public Relations
COM 30000  Intro to Communication Research Methods
COM 31400  Advanced Public Speaking
OR
COM 32300  Business & Professional Speaking
OR
COM 34300  Oral Interpretation
COM 31800  Principles of Persuasion
COM 32000  Small Group Communication
COM 32500  Interviewing: Principles and Practice
COM 42000  Intro to Organizational Communication
BHS 20100  Statistical Methods for the Behavioral Sciences

D. Choose 2 of the Following Courses (6 credits)
COM 25500  Intro to News Reporting and Writing
COM 30100  Applied Communication Research
COM 32200  Communication and Leadership
COM 32600  Speech Writing
COM 37100  Health Communication
COM 40300  Communication Ethics
COM 41800  Communication and Gender
COM 44600 / MGMT 42800  Advertising Management (Excl)
ENGL 42000  Business Writing
OBHR 33000  Intro to Organizational Behavior
OBHR 43100  Human Resource Management
OLS 37500  Training Methods
OLS 47400  Conference Leadership Training (Excl)

E. Electives (11-20 credits)*

* Suggested Minors: English Literature, Marketing

OLS 47700  Conflict Management
OLS 57400  Managerial Training & Development
PHIL 32400  Ethics for the Professions
PSY 37300  Psychology in Industry
PSY 37400  Organizations & Behavior

E. Electives (20-29 credits)

B.A. IN COMMUNICATION (MEDIA STUDIES)
Public Relations

126 CREDIT HOURS REQUIRED FOR GRADUATION

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)
COM 10300  Freshman Seminar in Communication (or other Freshman Seminar Course 1-3 cr. hrs.)
COM 20100  Intro to Media Studies
COM 22800  Intro to Communication Studies

C. Public Relations Core (39 credits)
A&D 22200  Intro to Photography
COM 22500  Intro to Rhetoric & Social Influence
OR
COM 31900  The Rhetorical Tradition
COM 25300  Intro to Public Relations
COM 25300  Intro to News Reporting and Writing
COM 30000  Intro to Communication Research Methods
OR
COM 33000  Theories of Mass Communication
COM 30500  News Editing
COM 30600  Advanced News Reporting and Writing
COM 31400  Advanced Public Speaking
OR
COM 32600  Speech Writing
OR
COM 34300  Oral Interpretation
COM 31800  Principles of Persuasion
COM 32500  Interviewing: Principles and Practice
COM 35300  Problems in Public Relations (Excl)
COM 43900  Focus Group Research (Excl)
COM 46000  Advanced Public Relations (Excl)

D. Choose 2 of the Following Courses (6 credits)
COM 21400  Comparative Theories of Interpersonal Communication
COM 25000  Mass Communication and Society
COM 32000  Small Group Communication
COM 32700  International Communication
COM 33100  Audio Production
COM 33200  Television Production
COM 35200  Mass Communication Law
COM 42000  Intro to Organizational Communication
COM 44600 / MGMT 42800  Advertising Management (Excl)

E. Electives (11-20 credits)*

* Suggested Minors: English Literature, Marketing
B.A. in Communication (Media Studies)

Visual Communication Design
126 Credit Hours Required for Graduation

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)
- COM 10300 Freshman Seminar in Communication
  or other Freshman Seminar Course 1-3 cr. hrs.
- COM 20100 Intro to Media Studies
- COM 22800 Intro to Communication Studies

C. Visual Communication Design (VCD) Foundation (12 credits)
Students must complete and achieve a 3.0/4.0 GPA in these courses before taking any additional VCD core courses.
- A&D 10500 Design I (Fall)
- A&D 10600 Design II (Spring)
- A&D 11300 Basic Drawing
- CGT 30400 Color & Composition (Summer)

D. Visual Communication & Graphic Arts Core (33 credits)
These courses must be taken in sequence and are offered only in the semester indicated.
- A&D 11200 Typography (Fall)
- A&D 20400 Digital Imaging (Spring)
- A&D 22200 Intro to Photography
- CGT 21600 Vector Imaging for Computer Graphics (Exl)
- CGT 35300 Principles of Interactive and Dynamic Media
- COM 30900 Visual Communication
- A&D 32800 Visual Communication Design I (Fall)
- A&D 32900 Visual Communication Design II (Spring)
- A&D 44800 Visual Communication Design III (Fall)
- A&D 44900 Visual Communication Design IV (Spring)
- A&D 40300 Portfolio Process & Presentation

E. Electives (18 credits)
The following courses are strongly recommended.
- A&D 11400 Drawing II (Prerequisite: A&D 113)
- CGT 14100 Internet Foundations, Tec. & Dev. (Exl)
- CGT 11700 Illustrating for Visualization & Com
- CGT 21100 Raster Imaging for Computer
- COM 25300 Introduction to Public Relations
- COM 31400 Advanced Presentational Speaking
- COM 31800 Principles of Persuasion
- COM 31500 Speech Com of Technical Information
- COM 32000 Small Group Communication
- COM 32300 Business & Professional Spkng
- COM 32500 Interviewing: Principles & Practice
- COM 32200 Leadership in Organizations
- COM 32300 Business and Professional Speaking
- COM 32000 Small Group Communication
- COM 32500 Interviewing: Principles & Practice
- COM 35200 Mass Communication Law
- COM 40300 Communication Ethics
- COM 44600 Advertising Management (Exl)
- PSY 33900 Advanced Social Psychology
- PSY 38600 Consumer Behavior

MINORS IN COMMUNICATION STUDIES

General Communication Minor
18 Credit Hours
- COM 11400 Fundamentals of Speech Communication
- COM 20100 Introduction to Media Studies
- COM 21400 Comparative Theories of Interpersonal Com
- COM 22500 Introduction to Rhetoric and Social Influence
- COM 31800 Principles of Persuasion
Any COM course at 30000 or 40000 level

Health Communication Minor
15 Credit Hours
Required (4 classes or 12 credits)
- COM 21400 Comparative Theories of Interpersonal Com
- COM 36500 Communication and Aging
- COM 37100 Health Communication
- PHIL 32400 Ethics for the Professions
- PHIL 32500 Ethics and Public Health

Elective (1 class or 3 credits)
- BIOL 12500 Invitation to Human Biology
- SOC 44000 Sociology of Health and Illness
- PSY 33500 Psychology of Death and Dying
- COM / MGMT 42900 Advertising Campaigns (Exl)
- MGMT 42100 Promotions Management
- MGMT 42400 Consumer Behavior

Organizational Communication Minor
15 Credit Hours
Required (3 classes or 9 credits):
- COM 32000 Small Group Communication
- COM 32500 Interviewing: Principles & Practice
- COM 42000 Intro to Organizational Communication

Electives (2 classes or 6 credits):
- COM 21400 Comparative Theories of Interpersonal Com
- COM 30000 Intro to Communication Research Methods
- COM 31800 Principles of Persuasion
- COM 32200 Leadership in Organizations
- COM 32300 Business and Professional Speaking

Political Communication Minor
18 Credit Hours
Required (4 classes or 12 credits)
- COM 31800 Principles of Persuasion
- COM 51700 Political Communication
- POL 20000 Introduction to Political Science
- POL 31400 The Presidency and the Policy Process
- POL 31500 Public Opinion and Elections

Electives (2 classes or 6 credits)
- COM 20100 Introduction to Media Studies
- COM 22800 Intro to Communication Studies
- COM 22500 Introduction to Rhetoric and Social Influence
- COM 31900 The Rhetorical Tradition
- COM 44600 / MGMT 42900 Advertising Campaigns (Exl)
- POL 13000 Introduction to International Relations
- POL 35400 Civil Liberties and the Constitution
### Minors in Media Studies

**Advertising Minor**

**18 Credit Hours**

**Required (4 classes or 12 credits):**
- COM 25600 Introduction to Advertising
- COM/MGMT 42900 Advertising Campaigns
- COM 44600 / MGMT 42800 Principles of Marketing
- BA 22400

**Electives (2 classes or 6 credits):**
- COM 25300 Introduction to Public Relations
- COM 30000 Intro to Comm Research Methods
  OR
  - COM 44800 Applied Mass Media Research

**Broadcasting Minor**

**18 Credit Hours**

**Required (4 classes or 12 credits):**
- COM 30900 Visual Communication
- COM 33100 Audio Production
- COM 33200 Television Production
- COM 44100 Advanced Television Production

**Electives (2 classes or 6 credits):**
- COM 34700 Radio and TV Performance
- COM 44600/MGMT 42800 Advertising Management (Exl)
- COM 43600 Script Writing
- COM 44500 Television Editing

**Journalism Minor**

**18 Credit Hours**

**Required (4 classes or 12 credits):**
- COM 20100 Introduction to Media Studies
- COM 25500 Introduction to News Reporting and Writing
- COM 30500 News Editing
- COM 30600 Advanced News Reporting and Writing

**Electives (2 classes or 6 credits):**
- COM/ENGL 30200 Publications Design
- COM 32500 Interviewing: Principles & Practice
- COM 33400 Journalism for Electronic Media
- COM 35200 Mass Communication Law
- COM 40300 Communication Ethics
- COM/ENGL 45100 Magazine Journalism (Exl)
- ENGL 40600 Review Writing (Exl)

**Media and Culture Minor**

**18 Credit Hours**

**Required (4 classes or 12 credits):**
- COM 23600 Media and Culture
- COM 25000 Mass Communication and Society
- COM 33000 Theories of Mass Communication
- COM 44800 Applied Mass Communication Research
  OR
  - COM 46300 Mass Media Criticism

**Electives (2 classes or 6 credits):**
- COM 22500 Introduction to Rhetoric and Social Influence
- COM 31800 Principles of Persuasion
- COM 32700 International Communication
- COM 47000 Women and the Media
- COM 47500 Ethnic Identity and Film
- COM 49100 Special Topics in Communication

**Public Relations Minor**

**18 Credit Hours**

**Required (4 classes or 12 credits):**
- COM 25300 Introduction to Public Relations
- COM 25500 Introduction to News Reporting and Writing
- COM 35300 Problems in Public Relations (Exl)
- COM 46000 Advanced Public Relations (Exl)

**Electives (2 classes or 6 credits):**
- A&D 22200 Introduction to Photography
- COM 22500 Intro to Rhetoric & Social Influence
  OR
  - COM 31900 The Rhetorical Tradition
- COM 30500 News Editing
- COM 30600 Advanced News Reporting and Writing
- COM 31800 Principles of Persuasion
- COM 32500 Interviewing: Principles & Practice
- COM 43900 Focus Group Research (Exl)

**Theatre Minor**

**18 Credit Hours**

**Required (4 classes or 12 credits):**
- THTR 20100 Theatre Appreciation
- THTR 23800 Acting II (with Theatre 138 as pre-requisite)
- THTR 34000 Play Production and Direction
- COM 34300 Fundamentals of Oral Interpretation

**Electives (2 classes or 6 credits):**
- THTR 21300 Voice and Diction
- COM 35400 Radio and TV Performance
- COM 43600 Scriptwriting
- COM 43700 Performance Practicum (Exl)
- ENGL 38300 Modern Drama
- ENGL 44200 Shakespeare
- THTR ________
Visual Communication Design Minor
18 CREDIT HOURS

Required (4 classes or 12 credits):
- A&D 11200 Graphic Arts I: Typography
- A&D 20400 Graphic Arts II: Digital Imaging
- COM 30900 Visual Communication
- CGT 11100 Design for Communication and Visualization

Electives (2 classes or 6 credits):
- A&D 10500 Design I
- A&D 10600 Design II
- A&D 11300 Basic Drawing
- A&D 11400 Drawing II
- A&D 22200 Intro to Photography
- COM 31800 Principles of Persuasion
- COM 32500 Interviewing: Principles & Practice
- COM 44600/ MGMT 42800 Advertising Management (Exl)

Master of Arts in Communication
36 CREDIT HOURS

The Master’s degree program within the Department of Communication and Creative Arts at Purdue University Calumet offers a broad range of courses covering theories and research methodologies in the following areas: mass communication, interpersonal communication, organizational communication, performance studies, political communication, and rhetoric. The program is highly flexible and allows each graduate student to plan his/her course of study in consultation with a graduate faculty advisor. After admission into the program, students will meet with advisor to determine their course of study based on their interests and professional goals.

The program was originally designed to meet the needs of individuals who live and work in northwest Indiana and who want to complete advanced courses in study in communication studies. Today, a diverse student body—including international—is enrolled in the program. Numerous graduate students have successfully completed the program to qualify for career advancement, to prepare for doctoral study, or to satisfy their own curiosity about the most fundamental human behavior:

Communication.

Admission Requirements (Degree seeking students)
1. Complete on-line application http://www.purduecal.edu/gradschool
2. Three letters of recommendation
3. Applicant’s statement of purpose
4. Two copies of official transcripts from all colleges/universities attended
5. Pay application fee on-line when submitting application

Admission Process

Official Admission
1. An undergraduate grade point average of 3.0, based on a 4.0 scale.
2. An undergraduate degree in Communication-related disciplines, or strong minor.
3. Completion of regular application process (application form, application fee, 2 copies of official transcripts from all colleges/universities attended, 3 letters of recommendation, statement of purpose).

Conditional Admission
1. A prospective student whose overall undergraduate GPA is below 3.0 may be admitted conditionally. He/she is required to maintain a 3.0 graduate index for the first 9-12 credit hours in order to continue in the program. The department may pose other requirements for official admission.
2. Any prospective student may enroll in graduate-level courses, prior to applying for official admission into the graduate program, by completing a temporary (Post-Baccalaureate application form (on-line). These courses (limited to 4 graduate-level courses or 12 credit hours) may be applied toward the degree requirements upon official admission.

Required Coursework
1. A total of 36 credit hours are required for completion of the master’s program.
   - 9 hours of Theory courses
   - 9 hours of Application/Research Methods courses
   - 15 hours of elective work
2. All graduate students must complete either COM 58200 or COM 58400 regardless of their program emphasis.

Transfer of Credits
No more than 9 credits (3 courses) from other accredited institutions, taken within 10 years prior to completion of degree program, may be accepted at the discretion of the Department.

More Information
For inquiries and/or further information about the Department, Faculty, Facilities, Assistantships, Courses, and degree offerings, visit our Web site www.purduecal.edu/cca or contact the Department at (219) 989-2393.

Master of Arts in Communication

Required Courses:
- COM 58200 Descriptive/Exp. Research
- COM 58400 Historical/Critical Research

Nine hours of THEORY from the courses listed below:
- COM 50800 Nonverbal Communication
- COM 51200 Interpersonal Communication
- COM 51700 Communication & Politics
- COM 51800 Persuasion
- COM 52000 Small Group Communication
- COM 52100 Rhetoric
- COM 53200 Telecommunication Systems Management
- COM 53400 Comparative Telecommunication
- COM 54500 Oral Interpretation
- COM 56000 Rhetoric & Mass Media
- COM 57400 Organizational Communication
- COM 58000 Communication Elective *

Nine hours of RESEARCH METHODS/APPLICATION from courses listed below:
- COM 51500 Persuasion & Social Movements
- COM 52500 Advanced Interviewing
- COM 53100 Special Topics in Mass Com
- COM 53300 Documentary Television
- COM 53600 Radio & Television Writing
- COM 53700 Educational/Institutional Media
- COM 54000 Advanced Oral Interpretation
COM 54100  Ensemble Interpretation
COM 55900  Current Trends in Mass Com Research
COM 58300  Research & Assessment in Orgs
COM  Communication Elective*
COM  Communication Elective*

*Depending on the topic and approach, the following courses could fulfill requirements in the above categories. Students need to get the faculty member’s approval to count one of the following as either Theory or Research:

COM 61200  Seminar in Interpersonal Communication
COM 62100  Seminar in Rhetoric
COM 63200  Seminar in Mass Communication
COM 67400  Seminar in Organizational Communication

Fifteen (15) hours of elective coursework

(please note that no more than 9 hours may be taken outside the department.)
The English Language Program

The English Language Program (ELP) is an academic, intensive English program that aims primarily at assisting international students in developing their English language proficiency to the level needed to pursue their education at Purdue University Calumet. The academic year for ELP students consists of three sessions: Fall Semester; Spring Semester; and Summer Semester. The classes include 1) reading, 2) writing and grammar, 3) speaking and listening, and 4) an elective. Students are given placement tests and are enrolled in one of three levels:

- Level 1, Low-intermediate
- Level 2, High-intermediate
- Level 3, Advanced

<table>
<thead>
<tr>
<th>Program Structure</th>
<th>Fall Semester (15 weeks)</th>
<th>Spring Semester (15 weeks)</th>
<th>Summer Semester (8 weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>6 hours / week</td>
<td>6 hours / week</td>
<td>6 hours / week</td>
</tr>
<tr>
<td>Writing/Grammar</td>
<td>6 hours / week</td>
<td>6 hours / week</td>
<td>12 hours / week</td>
</tr>
<tr>
<td>Speaking.Listening</td>
<td>6 hours / week</td>
<td>6 hours / week</td>
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<tr>
<td>Elective</td>
<td>3 hours / week</td>
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<tr>
<td>Total Hours/Week</td>
<td>21 hours / week</td>
<td>21 hours / week</td>
<td>24 hours / week</td>
</tr>
</tbody>
</table>

At the end of each session—if a student meets the requirements of the level—he or she advances to the next level, or, as is the case with a Level 3 student, into mainstream university courses at Purdue Calumet.
Bachelor of Arts, English
Requirements for all Bachelor's degrees:

1. Communication*
   - ENGL 10800 Adv. Freshman Comp.
   - ENGL 10000 AND/OR English Comp. I and II
   - ENGL 10400 and 10500
   - COM 11400 Fundamentals Speech Comm

*State teacher licensing requires nine credits of oral and written expression. Take ENGL 40500 to complete the nine credit hours.

Foreign Language: 10100, 10200, 20100, 20200

2. Science and Mathematics
   Twelve credits in science and mathematics with a minimum of three credits in each. No sequence required. Computer Science or Logic acceptable for mathematics.

3. Humanities and Social Sciences
   Twenty-four credits. One course each from:
   - Literature (ENGL 20100 for lit. and teaching options)
   - Philosophy (not Logic) (may not take PHIL 10600, 10700, 15100 to satisfy this requirement)
   - History
   - Aesthetics (A&D 25500, MUS 25000, ENGL 40500, ENGL 28600, COM 34300, THTR 20100)
   - Economics 21000
   - Psychology 12000
   - Political Science
   - Sociology 10000 or Anthropology

4. Freshman Experience Requirement
   - Philosophy 10700

Bachelor of Arts, English, Literature Option
(129 CREDITS)
Requirements for Bachelor's degree plus:

English Requirements (42 credits)
   Core (24 credits)

Surveys.
   Choose four, with at least one covering pre-1700 Literature (ENGL 24000 or 26000), and at three covering English and American literature.
   - ENGL 24000 Survey English Literature I (Early)
   - ENGL 24100 Survey English Literature II (Late)
   - ENGL 35000 Survey American Literature I (Early)
   - ENGL 35100 Survey American Literature II (Late)
   - ENGL 26000 Survey of World Lit. I (Early)
   - ENGL 26100 Survey of World Lit. II (Late)

Shakespeare and Literary Theory
   - ENGL 40300 Literary Theory
   - ENGL 44200 Shakespeare

Junior/Senior Seminar
   Choose one:
   - ENGL 41100 Studies in Major Authors
   - ENGL 41200 Studies in Genre
   - ENGL 41300 Studies in History and Lit.
   - ENGL 41400 Studies in Lit. and Culture

Linguistics
   Choose one:
   - ENGL 30800 Modern English Grammar
   - ENGL 32600 English Linguistics
   - ENGL 32700 English Language I: History and Development

Area Studies (18 credits)
   No cross-listed course may be double-counted. Undergraduates are limited to two 50000 level courses.

Genre Courses
   Choose one:
   - ENGL 35600 American Humor
   - ENGL 38100 British Novel
   - ENGL 38200 American Novel
   - ENGL 38300 Modern Drama
   - ENGL 38400 African-American Women's
   - ENGL 41200 Studies in Genre
   - ENGL 47900 Short Story

Cultural Courses
   Choose two:
   - ENGL 23600 Mothers and Daughters
   - ENGL 28600 The Movies
   - ENGL 31000 Intro Popular Culture
   - ENGL 31200 Ethnic American Women Writers
   - ENGL 32000 By and About Women
   - ENGL 34000 Lit. by Women of Color
   - ENGL 35500 African-American Lit.
   - ENGL 41400 Studies in Lit. and Culture
   - ENGL 45500 American Thought
   - ENGL 58000 Literature and Modern Thought
   - ENGL 58100 Ethical Problems in Modern Lit.
   - ENGL 58400 Lit and Psychological Problems

Historical Courses
   Choose three:
   - ENGL 32700 English Language I: History and Development
   - ENGL 33300 Renaissance English Drama
   - ENGL 33500 Restoration and 18th Century English Literature
   - ENGL 35500 African-American Lit.
   - ENGL 38100 British Novel
   - ENGL 38200 American Novel
   - ENGL 38300 Modern Drama
   - ENGL 38600 Film History to 1938
   - ENGL 38700 Film History since 1938
   - ENGL 41300 Studies in History and Lit.
   - ENGL 46200 Bible as Literature I
   - ENGL 46300 Bible as Literature II
   - ENGL 51000 History of English Language
   - ENGL 53100 Engl Novel Through 1800
   - ENGL 53200 Engl Novel in 19th Century
   - ENGL 53300 Tudor Literature
   - ENGL 53400 17th Century Literature
   - ENGL 53500 Early 18th Century Literature
   - ENGL 53600 Later 18th Century Lit.
   - ENGL 53700 English Drama to 1642
   - ENGL 54200 Shakespeare
   - ENGL 54300
   - ENGL 54700 Romantic Movement
   - ENGL 54800 Victorian Literature
   - ENGL 54900 Edwardian Literature
   - ENGL 55400 American Renaissance
ENGL 55600  19th Century American Fiction
ENGL 55800  Rise of Realism
ENGL 55900  Contemporary American Fiction
ENGL 57800  Modern American Fiction
ENGL 57900  Modern British Fiction
ENGL 59300  Contemporary British Fiction

**Electives or Minor (30 or 33 credits)**

**Bachelor of Arts, English Teaching Option**

(123–139 CREDITS)

Requirements for Bachelor's degree plus:

Students will fulfill general education requirements with ENGL 20100, which should be taken before other required literature courses. They may fulfill their aesthetics requirement with ENGL 40500.

1. **English Requirements**

   ENGL 20100  Nature of Literary Study
   ENGL 24000  English Literature I
   ENGL 24100  English Literature II
   ENGL 26000  World Literature
   or 26100
   ENGL 35000  American Literature I
   ENGL 35100  American Literature II
   ENGL 40500  Creative Writing
   ENGL 44200  Shakespeare
   ENGL 39100  Comp for English Grammar
   ENGL 30800  Modern English Grammar
   ENGL 32600  Linguistics
   ENGL 49200  English Literature in Secondary School

2. **English Elective**

3. **Education Requirements**

   EDPS 22000  Psychology of Learning
   EDFA 20000  History and Philosophy of Education
   EDPS 26000  Introduction to Special Education
   EDCI 35500  Planning and Assessment
   EDPS 26000  Special Education
   EDCI 34100  English Teaching in Middle School, Junior High, & High School
   EDCI 37000**  Teaching Students w/Diverse Needs in the K-12 Classroom
   EDCI 32300  Educational Technology for Teaching and Learning
   EDCI 36600  Use of Assessment in the K-12 Classroom
   EDCI 49700**  Supervised Teaching

**Admission to Teacher Education required.

**Transition Statement:** At the time of publication, all Education curriculum has been finalized for secondary programs. However, significant content area curriculum reform in secondary education programs has reached final stages of development.

**Admission to Teacher Education:** Beginning with students admitted to the university Fall 2000, admission to Teacher Education will require nine hours of English beyond ENGL 10400 and ENGL 10500. ENGL 20100 and two literature surveys and a 3.0 GPA in English courses. Additional requirements are listed by the College of Education.

**Bachelor of Arts, English Writing Option**

(123 CREDITS)

Requirements for Bachelor's degree plus:

**Core (all students must take 27 credits):**

ENGL/COM 30200  Publications Design
ENGL 40400  Web Page Design
ENGL 40500  Creative Writing
ENGL 40600  Review Writing

ENGL 42000  Business Writing
ENGL 42800  Special Topics in Writing*
ENGL 43100  Web Usability: Reading and Writing on the Web
ENGL 43500  Topics in Writing for Digital Media*
ENGL 43600  Writing for Informational Interactive Media
ENGL 43700  Writing for Narrative Interactive Media
ENGL/COM 45100  Magazine Journalism

**Options — 9 credit hours**

ENGL 30400  Advanced Composition
ENGL 42700  Senior Writing Project
ENGL 42800  Special Topics in Writing*
ENGL 43500  Topics in Writing for Digital Media
ENGL 48000  Writing Internship (EXL — Designated Experiential Learning course)
COM 25500  Intro to News Writing
COM 30500  Intro to News Editing

**Note:** Students interested in the Writing Internship in journalism or public relations should take COM 25500 and COM 30500. *Variable topics course can be repeated if different topic.

**General Electives**

Electives: 23 or 30 Credit Hours

**Minors in English**

(15 CREDITS)

I. Any 15 credits in English beyond English Composition I and II. Students may concentrate in one area, such as Reading, Writing, Literature, Linguistics, or across areas.

**Certificate in Writing for Interactive Media**

(15 CREDITS)

ENGL 43100  Web Usability: Reading and Writing on the Web
ENGL 43600  Writing for Informational Interactive Media
ENGL 43700  Writing for Narrative Interactive Media
ENGL 43500  Topics in Writing for Digital Media

*All courses offered on-line

**Bachelor of Arts, Philosophy**

(129 CREDITS)

1. **Communication**

   ENGL 10800  Adv. Freshman Comp
   or
   ENGL 10000/10400/10500
   COM 11400  Fundamentals Speech Comm.
   Foreign Language 10100-10200-20100-20200

2. **Science and Mathematics**

   Twelve credits in science and mathematics with a minimum of three credits in each. No sequence required. Computer Science or Logic acceptable for mathematics.

3. **Humanities and Social Sciences**

   One course each from:
   - Literature
   - Philosophy (not Logic)
   - History
   - Aesthetics
   - Economics 21000
   - Political Science
   - Psychology 12000
   - Sociology 10000 or Anthropology
4. Freshman Experience Requirement

- Philosophy 10700

A. Introductory Philosophy
- PHIL 10100 History of Philosophy
- PHIL 11000 Introduction to Philosophy
  Acceptable IUN course

B. Ethics. Two of:
- PHIL 11100 Ethics
- PHIL 32400 Ethics for the Professions
  Acceptable PHIL 29300, 49000 or IUN course

C. Logic. One of:
- PHIL 12000 Critical Thinking
- PHIL 15000 Intro Logic
  Acceptable PHIL 29300, 49000 or IUN course

D. Topic Areas. Two from each group:
  - Metaphysics/Epistemology
    - PHIL 20600 Phil of Religion
    - PHIL 21900 Existentialism
    - PHIL 22100 Philosophy of Science
      Acceptable PHIL 29300, 49000 or IUN course
  - History of Philosophy
    - PHIL 301 Ancient Philosophy
    - PHIL 303 Modern Philosophy
      Acceptable PHIL 29300, 49000 or IUN course

E. Philosophy Electives
- Any 2 additional Philosophy courses not used to fulfill the above requirements;
  may include PHIL 29300, 49000 or IUN courses.

Note: Philosophy students must take two PHIL 49000 classes on different topics.
No single PHIL 49000 may be used to satisfy more than one area requirement.

Minor in Philosophy
(12 CREDITS)
Any 12 credits in Philosophy beyond the general education requirement

Master of Arts, English
(33 CREDITS)

Special Admission Requirements
1. Writing sample
2. Strong undergraduate major or minor in English or equivalent

Requirements for Literature Specialization
- ENGL 50100 Introduction to Literary Methods
- ENGL 60200 Literary Theory
Twenty-seven additional credits at the graduate level. A student may take a combination of up to six hours credit in either two non-English graduate courses or one non-English graduate course and one English course at the 40000 level. The student must take MA Comprehensive Exams or write a MA thesis (see below).

Requirements for the Composition Specialization
- ENGL 50100 Introduction to Literary Methods
- ENGL 59100 Introduction to Composition Theory
- ENGL 60200 Literary Theory
Twenty-four additional credits at the graduate level. At least nine of these credits must be in composition and six must be in literature. In addition, a student may take a combination of up to six hours credit in either two non-English graduate courses or one non-English graduate course and one English course at the 40000 level. The student must take MA Comprehensive Exams or write a MA thesis (see next column).

Exam and Thesis Options
Every MA student must either write a thesis or pass comprehensive exams.

1. Comprehensive Exams
Exams are given to students in their final semester in the MA program based on their coursework. A plan of study must be submitted to the Graduate School Office one semester prior to writing MA exams.

2. Thesis
The student should choose a professor to serve as thesis chair and two other professors to serve on the thesis committee, and complete ENGL 59000 (a directed study preparing a bibliography and prospectus) and ENGL 69800 (writing the thesis). These courses count as credits towards the degree.
Please see the Department of English and Philosophy’s website for additional information about admission and remaining in good standing with the department.
Department of Foreign Languages and Literatures

Maria Luisa Garcia-Verdugo, Head. Faculty: G.R. Barrow; J. Castro-Unioste; E. Flannery; M. Garcia-Verdugo; C. House; U. Janausch (Emerita); B.E. Kienbaum (Emerita); S. Lombardo; J. Lu; E. Pasko; H. Ramirez-Barradas; J. Román-Lagunas; C. Ruiz (Emeritus); A.J. Russell (Emerita); C. Torres-Robles (Emerita); F. Vauleon; G. Velez-Rendon
Academic Advisor: J. Navarro
Office Manager: M. Lopez

The programs of the department of foreign languages and literatures develop students’ competence in foreign languages and foster respect for cultural differences among peoples. Languages offered include French, German, Spanish, Japanese.*

The department views learning a foreign language and its culture as a way to foster international understanding in an increasingly interdependent world. Students gain an understanding of the contemporary society of the target culture through its literature and its civilization. The programs emphasize strong interpersonal, writing, and speaking skills, a breadth of knowledge, and a sensitivity to language and culture, all of which are assets for careers.

In the international studies option, the inclusion of a practical range of studies from other disciplines prepares the student for a real-life application of language skills in career settings.


Study Abroad: The department sponsors a summer study abroad programs in Spain, Mexico and France. These Programs enable students to study, travel, and increase their cultural horizons using the language, culture and civilization of these countries. The department feels strongly believes best way to achieve fluency in another language is to use it in an authentic setting. Study abroad programs provide an intimate encounter with the people and their multi-faceted culture.

Foreign Language ExL courses in Study Abroad Programs are: FR 20100, 20200, 26100, 46100, 49000, 51500 and SPAN 20100, 20200, 45100, 48100.

The department encourages international/educational experiences such as study abroad programs and internships. However, departmental approval is required in order to receive credit.

International Media Center: Language learning in the department is supported by the International Media Center, a multimedia lab providing state of art technology and the environment necessary to improve foreign language skills and to promote the languages and cultures of many countries.

Degree: Bachelor of Arts
Major in Foreign Languages

Concentrations in:
- French or Spanish
- French International Studies
- Spanish International Studies - Heritage
- Spanish International Studies - Non-Heritage
- French or Spanish Teaching
- Spanish Teaching - Heritage
- Spanish Teaching - Non-Heritage
- Minors in French or Spanish
- Certificate in Spanish Translation

The Following General Education Courses (57 credits) are required for the Bachelor of Arts Degrees:

- Freshman Experience FLL 10300
- ENGL 10000 and/or 10400 and 10500 or 10800 Accelerated First Year Composition
- COM 11400 (only one COM)
- MA or STAT
- LAB Science (Teaching majors must take one Life and one Physical Science)
- CIS 20400 (Required for Teaching majors)
- MA/SCI/STAT/CIS/PHIL 15000/F&N 30300
- Literature
- Philosophy (not Logic)
- History
- Aesthetics (A&D 25500, ENGL 40500, MUS 25000, or THTR 20100)
- Economics 10100
- Political Science
- Psychology 12000 (Teaching majors should take EDPS 22000 instead of PSY 12000)
- Sociology 10000 or Anthropology
- Foreign Language (12 hour sequence)
Bachelor of Arts in Foreign Languages: French and Spanish

MINIMUM GRADE OF “C” REQUIRED IN Core SUBJECTS
(120 CREDITS)

College and University Requirements for the Bachelor’s degree plus:

1. All of the following courses in the Major Language:
   French
   26100 Composition
   36500 Conversation
   46100 Intermediate Conversation

Non-Heritage Spanish Speakers
   26100 Composition
   36500 Conversation
   46500 Intermediate Conversation

Heritage Spanish Speakers
   SPAN 31300
   SPAN 31400
   SPAN 46500

2. Major Language
   Eighteen credits in courses numbered 40000 or higher

3. Second Foreign Language

4. Minor

5. Electives

French International Studies
(120 CREDITS)

College and University Requirements for the Bachelor’s degree plus:

1. All of the following courses in the Major Language:
   26100 Composition
   30700 Commercial
   36500 Conversation
   46100 Intermediate Composition
   46500 Intermediate Conversation
   51100 Advanced Conversation
   51500 Advanced Composition

2. Culture/Civilization in the Major Language
   One course

3. Major Language Electives approved by advisor

4. Career Emphasis
   Twelve credits of approved electives from such fields as Sociology, Psychology, Information Systems and Computer Programming, Communication, Economics, English, History, Management, Political Science, Hospitality and Tourism Management, and Organizational Leadership and Supervision.

5. Minor or Electives

Spanish International Studies
Heritage
(120 CREDITS)

College and University Requirements for the Bachelor’s degree plus:

Spanish International Studies Requirements

A. Major in One Foreign Language
   A student may choose one approved course carrying the major foreign language or FLL prefix, but taught in English.
   SPAN 30600 Spanish Grammar
   SPAN 31300 Spanish for Spanish Speakers I
   SPAN 51500 Advanced Composition
   SPAN 30700 Commercial

Culture or Civilization
   (Choose one: Spanish or Latin America)
   FLL 39000, FLL 40000 – SPAN 39000, SPAN 41300, SPAN 45100, SPAN 48100, SPAN 48200, SPAN 49000

Elective
   (A student may choose any 4 elective courses from: SPAN or FLL prefix in Civilization, Culture, Literature, Special Topics, SPAN 31400, SPAN 51100 or FLL 46400)

Elective

Elective

B. Multicultural/Multilingual Experience

*International Educational Experience may include a study abroad (HIGHLY RECOMMENDED);
   an experience supervised by the department such as reports, journals, research papers, assignment requirements and proof of completion; or a supervised senior project on an international topic or a contemporary issue (1-6 credits).

FLL 49000 – SPAN 40800 (ExL), SPAN 49000

Option One:
   3 cr. hours *International Educational Experience approved by the department
   3 cr. hours *International Educational Experience approved by the department
   3 cr. hours Practicum approved by the department.

Option Two:
   3 cr. hours *International Educational Experience approved by the department.
   3 cr. hours Practicum approved by the department.

C. Two Foreign Language courses
   These include departmental credits (issued after passing a course) and coursework in any one
   language taught at Purdue University Calumet or credits transferred in from another university.

D. International Focus
   Coursework with an international focus in the major or such areas as political science, manage-
   ment, history, economics, film, tourism, literature or another language.

Electives

Open Electives

Spanish International Studies
Non-Heritage
(120 CREDITS)

College and University Requirements for the Bachelor’s degree plus:

Spanish International Studies Requirements

A. Major in One Foreign Language
   A student may choose one approved course carrying the major foreign language or
   FLL prefix, but taught in English.
   SPAN 26100 Composition
   SPAN 30600 Spanish Grammar
   SPAN 30700 Commercial
   SPAN 36500 Conversation
   SPAN 46100 Intermediate Composition
   SPAN 46500 Intermediate Conversation
   SPAN 51100 Advanced Conversation

Elective

Open Electives

*Ex. if taken during a Study Abroad Program

Culture or Civilization
   (Choose one: Spanish or Latin America)
   FLL 39000, FLL 40000 – SPAN 39000, SPAN 41300, SPAN 45100, SPAN 48100, SPAN 48200, SPAN 49000

*ExL if taken during a Study Abroad Program

Elective

A student may choose one course from Literature, Culture or Civilization, but the course may
   NOT have the same focus as the required Culture or Civilization.
Elective
A student may choose any 4 elective courses from: SPAN or FLL prefix in Civilization, Culture, Literature, Special Topics, SPAN 31400, SPAN 51100 or FLL 46400

B. Multicultural/Multilingual Experience
*International Educational Experience may include a study abroad (HIGHLY RECOMMENDED); an experience supervised by the department such as reports, journals, research papers, assignment requirements and proof of completion; or a supervised senior project on an international topic or a contemporary issue (3-6 credits).
FLL 49000 - SPAN 40800, SPAN 49000
Option One:
3 cr. hours *International Educational Experience approved by the department
3 cr. hours *International Educational Experience approved by the department
OR
Option Two:
3 cr. hours *International Educational Experience approved by the department
3 cr. hours Practicum approved by the department.

C. Two Foreign Language courses
These include departmental credits (issued after passing a course) and coursework in any one language taught at Purdue University Calumet or credits transferred in from another university.

D. International Focus
Coursework with an international focus in the major or such areas as political science, management, history, economics, film, tourism, literature or another language.

Electives
Open Electives

French Teaching (124–130 CREDITS)
College and University Requirements for the Bachelor’s degree plus:

1. French Courses
FR 26100 Composition
FR 36500 Conversation
FR 46100 Intermediate Composition
FR 46500 Intermediate Conversation
FR 51100 Advanced Conversation
two literature
one civilization
one culture
two electives
(127-130 CREDITS)

2. Education Requirements
EDPS 22000 Psychology of Learning
EDFA 20000 History and Philosophy of Education
EDPS 26000 Introduction to Special Education
EDCI 35500 Planning and Assessment
EDCI 34200 Foreign Language instruction in Middle School, Junior High, & High School
EDPS 37000** Teaching Students w/Diverse Needs in the K-12 Classroom
EDCI 32300 Educational Technology for Teaching and Learning
EDCI 36600 Use of Assessment in the K-12 Classroom
EDCI 49700** Supervised Teaching
**Admission to Teacher Education required.

Spanish Teaching Heritage and Non-Heritage
SELECT THE HERITAGE OR NON-HERITAGE OPTION (127-130 CREDITS)

1. Spanish Teaching Heritage
SPAN 31300 Spanish for Spanish Speakers I
SPAN 31400 Spanish for Spanish Speakers II
SPAN 30600 Spanish Grammar
SPAN 30400 Readings from the Hispanic World
SPAN 45100 Spanish Civilization
OR
SPAN 48100 Spanish Culture
SPAN 48200 Latin American Civilization
SPAN 51100 Advanced Conversation
SPAN 51500 Advanced Composition
SPAN 40500 Intro to Spanish Literature I
OR
SPAN 40600 Intro to Spanish Literature II
SPAN 43500 Spanish American Literature to Modernism
OR
SPAN 43600 Spanish American Literature from Modernism to Present
SPAN 42700 Spanish Linguistics
SPAN Electives - 6 credits
Any 10100 foreign language course other than SPAN or ENGL

2. Spanish Teaching Non-Heritage
SPAN 36500 Conversation
SPAN 26100 Composition
SPAN 30600 Spanish Grammar
SPAN 30400 Readings from the Hispanic World
SPAN 46500 Intermediate Conversation
SPAN 46100 Intermediate Composition
SPAN 45100 Spanish Civilization
OR
SPAN 48100 Spanish Culture
SPAN 48200 Latin American Civilization
SPAN 51100 Advanced Conversation
SPAN 51500 Advanced Composition
SPAN 40500 Intro to Spanish Literature I
OR
SPAN 40600 Intro to Spanish Literature II
SPAN 43500 Spanish American Literature to Modernism
OR
SPAN 43600 Spanish American Literature from Modernism to Present
SPAN 42600 Spanish Linguistics
Any 10100 foreign language course other than SPAN or ENGL

3. Education Requirements
EDPS 22000 Psychology of Learning
EDFA 20000 History and Philosophy of Education
EDPS 26000 Introduction to Special Education
EDCI 35500 Planning and Assessment
EDCI 34200 Foreign Language instruction in Middle School, Junior High, & High School
EDPS 37000** Teaching Students w/Diverse Needs in the K-12 Classroom
EDCI 32300 Educational Technology for Teaching and Learning
EDCI 36600 Use of Assessment in the K-12 Classroom
EDCI 49700** Supervised Teaching
**Admission to Teacher Education required.
Foreign Language Minor
(15 CREDITS)
Fifteen credits of coursework (not to include departmental credit) beyond 10200, including a course in composition and a course in conversation. (Courses must be in the same language.)

Certificate – Spanish Translation
(18 CREDIT HOURS REQUIRED FOR CERTIFICATE COMPLETION)

Required courses:
- SPAN 37300 Spanish Translation
- SPAN 47300 Intermediate Spanish Translation
- SPAN 51500 Advanced Spanish Composition
- ENGL 26000 Introduction to World Literature: to 1700
- ENGL 26100 Introduction to World Literature: since 1700
- ENGL 42000 Business Writing

Highly recommended additional courses (3 class hrs. ea.):
- SPAN 30600 Spanish Grammar
- SPAN 30700 Commercial Spanish
- SPAN 40500 Introduction to Spanish Literature I
- SPAN 40600 Introduction to Spanish Literature II
- SPAN 43500 Spanish American Literature to Modernism
- SPAN 43600 Spanish American Literature from Modernism to Present
- ENGL 24000 Survey of the Literature of England: from the beginnings
- ENGL 24100 Survey of the Literature of England: from the Rise of Romanticism to the Modern Period
- ENGL 35000 Survey of American Literature from its beginnings to 1865
- ENGL 35100 Survey of American Literature from 1865 to the Post World War II Period
- ENGL 38100 The British Novel
- ENGL 42300 Technical Publications Writing
Department of History and Political Science

Paul McGrath, Interim Head. Faculty: J. Bigott; A. Clark; F. Colucci; M. Eisenstein; M. W. H. Grote (Emeritus); G. Hong; F. Jackson; M. J. Joyce; E. P. Keleher (Emeritus); S. Lerner; V. Martinez; D. Pierce (Emerita); W. St. Jean; T. Stabler; L. Rademacher; M. Rinker; R. Rupp; K. Tobin N. L. Trusty (Emeritus); R. A. Van Orman (Emeritus)

Academic Advisor: S. VanTil
Office Manager: S. Schultz

The Department of History and Political Science provides programs that offer students an understanding of the development of civilizations and the nature of political behavior within and among nations. The History program is designed to give students comprehension of past institutions, traditions, events, and individuals. This program helps students to develop broad perspectives, assess and analyze the events of their time, and cultivate intellectual growth, research and writing skills and capabilities, critical thinking, and preparation for careers in teaching, graduate and law school, and business.

The program in Political Science provides a social scientific and analytical understanding of the rights and obligations of the citizen, knowledge of the role and operation of government, awareness of international relations and comparative government, an appreciation of public policy issues, and preparation for entry into such professions as law, teaching, law enforcement, and business. Within the Political Science Major, the department also offers a Criminal Justice Option for those interested in careers in law enforcement.

Thus, both History and Political Science programs help students develop skills in research, writing, and critical analysis and provide essential grounding for participation in a variety of career options and human activities.

The Social Studies Teaching Major is housed within the department of History and Political Science. This program, cooperatively developed and supported by the Department and by the College of Education, is specifically designed to provide preparation for teachers of social studies.

Majors in History, Political Science, or Social Studies teaching are excellent preparation for a variety of activities requiring a solid liberal arts background. Internship and Experiential Learning within the majors provide work experience that makes the education more meaningful for students and, on graduation, make students more attractive to employers.

Programs

- Bachelor of Arts, History
- Bachelor of Arts, Political Science
- Bachelor of Arts, Political Science, Option in Criminal Justice
- Bachelor of Arts, Social Studies Teaching
- Master of Arts, History
- Minors in Political Science and History

The following General Education Courses (54-57 credits) are required for the Bachelor of Arts Degrees:

- ENGL 10000/10400-10500 or 10800
- COM 11400
- CIS 20400
- MA or STAT
- LAB Science
- PHIL 15000 or F&N 30300 or any MA/SCI/STAT/CIS
- Literature
- Philosophy (not Logic)
- History
- Aesthetics (A&D 25500, ENGL 40500, MUS 25000, or THTR 20100)
- Economics 21000
- Political Science 10100
- Psychology 12000
- Sociology 10000 or Anthropology
- Foreign Language 12-hour sequence: French, German, Spanish or Japanese
Bachelor of Arts, History
(127 CREDITS)

General Education Requirements
HIST 10600  Freshman Experience

Nine hours of 100 level history courses

Research and methods in History:
HIST 29500  History and Writing
HIST 36900  Research in History

Two American (U.S.) History Courses

Two Non-American (Non-U.S.) History Courses

Twelve additional hours of History at 3000 level or higher

Electives or Minor (28 or 31 credits)

History Minor
(15 CREDITS)
HIST 15100 or HIST 15200, HIST 10000 or HIST 10400, and nine credits of History courses above the 29900-level

Bachelor of Arts, Political Science
(127 CREDITS)

POL 20000  Intro. to the Study of Political Science. (Freshman Experience)
POL 30000  Introduction to Political Analysis

Three courses chosen from 2 of the 3 Areas of Political Science
(one of these courses must be numbered 30000 or higher) (6 credit hours)

Six other 3-credit courses in political science, at least two of which shall be numbered 40000 or higher. Students must select one course from two areas other than those in requirement

POL 40100  Practicum in Local Government,
OR
POL 40600  Internship in Public Agency, OR Study Abroad (3 credit hours)
POL 49100  Senior Seminar

The three AREAS of Political Science
(For area assignment of courses not listed below contact departmental advisor)

AREA 1: American Political Systems, Processes, and Behavior:

AREA 2: Political Theory and Methodology:

AREA 3: International Relations and Comparative
Political Systems, Processes, and Behavior:

Electives and/or Minor Requirements (34 or 37 credits)

Bachelor of Arts, Political Science, Criminal Justice Option
(127 CREDITS)

Freshman Experience (POL 20000)

Political Science — Criminal Justice (42 credits)
The following basic courses:

POL 13000  Introduction to International Relations
OR
POL 14100  Government of the World
POL 30000  Introduction to Political Analysis

All of the following advanced-level courses:

POL/SOC 34300  Introduction to the Criminal Justice System
POL 34600  Law and Society
SOC 42100  Juvenile Delinquency
POL 30700  Victimology
HIST 32500  History of Crime

Four courses from the following:

POL 33000  Politics of Lake County
POL 35400  Civil Liberties and the Constitution
POL 35800  Administrative Law and Ethics
POL 35900  Administrative Behavior in Public Agencies
POL 36000  Women and the Law
POL 36400  Law, Ethics, and Public Policy
POL 37100  Comparative Urban Politics
POL 37200  Indiana Government and Politics
POL 34100  Criminal Investigation
POL 46000  Judicial Politics
POL 46100  Constitutional Law
SOC 22000  Social Problems
SOC 31400  Race and Ethnic Relations
SOC 41100  Social Stratification
SOC 42200  Criminology

POL/SOC 44300  Field Experience in Criminal Justice

Note: POL courses taken to fulfill general education requirements may not be counted for credit in the section on the major. At least eighteen credits must be taken from POL classes must be above the 29900-level.

Electives and/or Minor Requirements (34 or 37 credits)

Political Science Minor
(15 CREDITS)

POL 20000 and any 12 credits in political science classes at the 20000 level or above

Bachelor of Arts, Social Studies Teaching

1. General Education and College Requirements

HIST 10600  Freshman Experience
ENGL 10800  Adv. Freshman Comp.
OR
ENGL 10000/10400 & 10500  English Comp. I and II
COM 11400  Fund. Speech Com.
Foreign Language 10100-10200-20100-20200  (French, German, Spanish or Japanese)

(Students must pass the previous level with a C- or better to continue to the next language course.

Science and Mathematics
3 credits of Mathematics or Statistics
3 credits of Life Science (NRES/SCI 10300, 10400, 10500, 11400)
3 credits of Physical Science (CHM/EAS/ASTR/SCI 11200 or 11300S)
Computer Utilization (CIS 20400)

3. Humanities and Social Sciences
One course each from:

Literature
Philosophy
History
Aesthetics (A&D 25500, MUS 25000, THTR 20100, ENGL 40500, or PHIL 10600)
Economics (including ECON 21000, ECON 37500/HIST 37400, or ECON 25100)
Political Science
Psychology (EDPS 22000 fulfills this requirement)
Sociology or Anthropology

Social Studies Requirements:
Three 15-24 credit hour intense areas must be taken from among Economics, Government, Historical Perspectives, Psychology, and Sociology. (3.0 GPA required in each prior to student teaching.)

Description of Intense Areas for Social Studies Teaching:

Economics: (Minimum Math prerequisite for this area is MA 15300)
ECON 25100  Microeconomics
ECON 25200  Macroeconomics

Plus three courses from the options list below:

OPTIONS LIST IN ECONOMICS:
ECON 31100  Environmental Economics
ECON 32200  Public Finance
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<td>ECON 35100</td>
<td>Intermediate Microeconomics</td>
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<tr>
<td>ECON 35200</td>
<td>Intermediate Macroeconomics</td>
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<td>ECON 37500/37400</td>
<td>U.S. Economic History</td>
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<td>ECON 38000</td>
<td>Money and Banking</td>
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<td>ECON 41900</td>
<td>Managerial Economics</td>
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<td>ECON 43400</td>
<td>International Trade</td>
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<td>ECON 46500</td>
<td>Economic Forecasting Techniques</td>
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<td>MA 225 00</td>
<td>Calc For Bus &amp; Econ I</td>
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<tr>
<td>MGMT 22500</td>
<td>Fund Managerial Stat</td>
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All four of the following courses:

**Historical Perspectives:**
- HIST 11000 The Pre-modern World
- HIST 10400 The Modern World
- HIST 15100 American History to 1877
- HIST 15200 US Since 1877
- HIST 29500 Research and Writing in History

Plus three 30000-, 40000-, or 50000-level History courses from both non-United States History and United States History.

**Government:**
- POL 10100 American Government
- POL 13000 Intro. Intl. Relations
- POL 14100 Governments of the World
- POL 20000 Introduction Study Pol. Sci.

Plus two additional 30000-, 40000-, or 50000-level classes in Political Science.

**Psychology:**
- PSY 12000 Elem. Psychology
- PSY 36100 or 36200 Human Develop. I or II
- PSY 33900 Adv. Social Psychology
- SOC 34000 General Social Psychology

One additional course from among:
- PSY 34400 Human Sexuality
- PSY 35000 Abnormal Psychology
- PSY 42800 Drugs and Behavior

Plus three additional credits in Psychology at the 500 level or above.

**Sociology:**
- SOC 10000 Intro. Sociology
- SOC 22000 Social Problems

Plus three courses in Sociology at the 600 level or above, excluding SOC 36100, 462, 562, AND 312

**Education Requirements:** (See page 100 for more information)
- EDFA 20000 History and Philosophy of Education
- EDPS 22000 Psychology of Learning (3 credits)
- EDPS 26000 Introduction to Special Education
- EDCI 35500** Teaching and Learning in the K-12 Classroom
- EDCI 36600** Use of Assessment in the K-12 Classroom
- EDCI 37000** Teaching Students w/Diverse Needs in the K-12 Classroom
- EDCI 34700** Strategies of Instruction in the Senior High School
- EDCI 32300** Educational Technology for Teaching and Learning
- EDCI 49700** Supervised Teaching

**Master of Arts, History**
(33 CREDITS)

**Special Admission Requirements**
- Scores from the Graduate Record Exam or GRE (at the discretion of the department) may be required. The GRE is mandated for students with an undergraduate GPA below 3.0/4.0.
- An undergraduate History major or a strong minor.
- Completion of the application process (submission of official transcripts of all undergraduate work, three recommendations, a 300 to 500-word essay on why the student wishes to attend graduate school and a completed on-line application form). The student may take as many as 12 credits in a temporary or post-baccalaureate status prior to being admitted to the program.

**Degree Requirements**

**Non-Thesis option (33 cr.)** divided into primary area (27 cr.) and related area (6 cr.). Related areas need not be in History. All classes must be 50000- or 60000-level.
- At least 12 credits of History at 60000 level.
- Written and/or oral comprehensive examinations after completion of coursework.

**Thesis option (30 to 33 cr.)** divided into primary area (24 to 27 cr.) and related area (6 cr.). Related areas need not be in History. All classes must be 50000- or 60000-level.
- At least 12 credits of History at 60000 level, including at least three credits of thesis enrollments.
- Completion of a thesis, in accordance with criteria of the Graduate School.
- Defense of thesis.

**Transfer of Credit**
- No more than two courses from another accredited institution.
Women’s Studies

Rebecca Stankowski, Director. Instructional Faculty in the Women’s Studies Program: Jane Campbell; Theresa Carilli; Ralph Cherry; Anne Edwards; Karen Lee Fontaine; Lisa Goodnight; Zenobia Mistri; Colette Morrow; Meg Rincker; John Rowan; Tanya Stabler; Kathleen Tobin

Web site (general information): www.purduecal.edu/wost/
E-mail (Rebecca Stankowski): rhs@purduecal.edu
Phone: (219) 989-2208

The Women’s Studies Program offers courses that can be taken individually or combined into the Women’s Studies minor or the Associate of Arts degree with a concentration in Women’s Studies. These programs provide a special focus on gender issues as they relate to the student’s major field of study.

Mission Statement:
The Women’s Studies Program will offer an academic curriculum informed by feminist theories and methodologies and will sponsor activities focusing on women’s issues.
The Women’s Studies curriculum provides all students with a threefold opportunity: (1) to examine the role of gender in social institutions, in the formation of identity, and in the development of knowledge; (2) to explore physical and mental health and wellness issues of particular importance to women; and (3) to increase awareness of women’s endeavors and contributions throughout time.
The Women’s Studies Program provides courses from a variety of disciplines leading to a minor in Women’s Studies and with a concentration in Women’s Studies.
The Women’s Studies Program sponsors activities that address the personal, professional, cultural and educational needs of a diverse population of women, both on the campus and in the community.

Programs

- Minor in Women’s Studies

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Minor in Women’s Studies

(15 CREDITS)

1. Women’s Studies Core
   WOST 12100 Introduction to Women’s Studies

2. Women’s Studies Electives
   Four from:
   WOST 10300 Freshman Experience
   WOST/F&N 20800 Nutrition in Women’s Health
   WOST/COM 40500 Rhetoric Women’s Rights
   WOST/COM 47000 Women in the Media
   WOST/ENGL 32000 By and About Women
   WOST/HIST 36500 Women in America
   WOST/PSY 34900 Psychology of Women
   WOST/SOC 35000 Social Psych. of Marriage
   WOST/ENGL 23600 Mothers and Daughters Lit.
   WOST/ENGL 32400 International Women’s Lit.
   WOST/ENGL 34000 Literature by Women of Color
   WOST/SOC 45000 Sex Roles Modern Society
   WOST 49000 Topics in Women’s Studies
BA in Multidisciplinary Studies (MDS)

The Bachelor of Arts degree in Multidisciplinary Studies (MDS) provides a flexible and individualized program of study for students at Purdue University Calumet. The MDS program provides students with the opportunity to combine courses based on his or her specific educational and career interests, and is designed to allow students to acquire a broad, well-rounded education that expands the traditional scope of disciplinary, departmental, and college boundaries. MDS encourages creativity, innovation, critical thinking, and integrative learning by encouraging students to examine problems, issues, or topics from more than one academic perspective.

Students in MDS will take courses in two 18-credit related Areas of Study, and will also complete a capstone course in one of the two Areas, which is designed to integrate study from both concentrations of study. The capstone also provides students with the option to combine Service Learning or another type of Experiential Learning with coursework while creating a professional portfolio.

Students in MDS select their areas of study and the design of their program, including the capstone course, in consultation with faculty from the two selected Areas and with an academic advisor.

The MDS degree requires 120 credits, including general education, the two related Areas of Study and accompanying capstone, and customizable electives. Any student interested in pursuing the BA in Multidisciplinary Studies degree program may get further information by contacting Dr. Rebecca Stankowski, Executive Director of Multidisciplinary Studies and Learning Outcomes Assessment, College of Liberal Arts and Social Sciences, at 219-989-2208; rhs@purduecal.edu
• COLLEGE OF •

BUSINESS
COLLEGE OF BUSINESS

Jane Mutchler, Dean
www.purduecal.edu/business

- Department of Accounting: E. Furticella, Department Head
- Department of Information Systems, Finance, and Business Analytics: K. Chen, Department Head
- Department of Marketing, Human Resources, and Management: S. Conners, Department Head
- White Lodging School of Hospitality and Tourism Management: N. Faiola, Acting Head

Anderson Building, Third Floor
219/989-2595
1-800-HI-PURDUE, ext. 2595

Bachelor’s Degree Programs

- Bachelor of Science in Accounting
- Bachelor of Arts in Business
  with a concentration in:
  ~ Entrepreneurship
  ~ Human Resources
  ~ Retailing
- Bachelor of Science in Management
  with a concentration in:
  ~ Business Economics
  ~ Finance
  ~ Human Resource Management
  ~ Marketing
  ~ Management Information Systems
- Bachelor of Science in Computer Information Systems

Master’s Degree Programs

- Business Administration
  ~ Accounting Concentration
  ~ MIS Concentration
- Business Administration for Executives
- Accountancy

The College of Business is accredited by the International Assembly for Collegiate Business Education (IACBE) and the North Central Association (NCA).

Career Opportunities

Graduates of Purdue Calumet’s College of Business may work as a financial analyst, retail manager, financial accountant, project manager, small business owner, production manager, consultant, purchasing manager, human resources director, bank officer, labor relations representative, public relations officer, operations manager, managerial accountant, marketing researcher, inventory control director, recruiter, marketing director, benefits administrator, information technology liaison, labor organizer, training and development director, securities analyst, health and safety manager, sales manager, business analyst, information technology manager, independent auditor, transportation director and more.
College of Business

J. Mutchler, Dean

L. Feldman, Associate Dean

Department of Accounting: E. Furticella, Department Head.
  Faculty: C. Anderson (Emeritus); P. Empey (Emeritus); E. Engle (Emeritus); G. Hoover King; A. Lindskog (Emeritus); M. Mascha; S. Mo; K. Pogach; D. Rinke; E. Waples.

Department of Information Systems, Finance, and Business Analytics: K. Chen, Department Head.
  Faculty: R. Abuizam; K. Chu; R. Foreman (Emeritus); J. Furdek; L. Green; M. Mick; P. Miranda; P. Obi; S. Sil; D. Tsoukalas; C. Ye; L. Zhao

Department of Marketing, Human Resources, and Management: S. Conners, Department Head.
  Faculty: A. Angriawan; C. Barczyk; S. Conners; C. Costiuic; K. Firlie; M. Hanson; J. Husain; J. Lucas; A. Mitra; D. Nikolovski; C. Rarick; R. Smith; G. Silver (Emeritus); H. Zhang

White Lodging School of Hospitality and Tourism Management: N. Faiola, Acting Head.
  Faculty: G. Farley; R. Fields; M. Flannery; J. Hack; J. Pluckenbaum (Emerita); D. Vorwald; M. West (Emerita)

College of Business Staff
  M. Darwish; K. Nikolovski; V. Norman; C. Parker; J. Pierce; J. Rhyne; P. Stompor

College of Business Advisors
  E. Brickman; C. Browder; D. Thennes

College of Business Special Assignment
  G. Falk

Mission Statement
The College of Business provides its diverse student body with business programs that develop a strong foundation for successful employment and opportunities for advancement in a rapidly evolving global environment. As an educational leader and community partner, the College of Business is committed to meeting the life-long learning needs for business education for those in the Calumet region and beyond. In pursuing our mission, we expect excellence from all members of our academic community as we:

- Maintain quality academic programs that promote student success in their chosen career and responsible contributors to their communities;
- Support and expect faculty engagement in applied business and economic scholarship and professional activities that complement the College's academic commitment to its students, the region, and beyond;
- Promote regional economic development, relationships with the business community, and service to the region and beyond

Values Statement
We are committed to:

- Integrity and professionalism in all of our teaching, research, and service activities;
- Active citizenship within the College, the University, the region and beyond;
- An assessment process for continuous improvement and accountability in teaching, research and service;
- A diverse student, faculty, and staff community and to a diverse learning environment;
- Using emerging technologies to effectively support the instructional process;
- Engaged scholarly activity as an intellectual tool for students and faculty to work together and stay current in their fields;
- Experiential learning opportunities that provide a foundation for students to take leadership roles in both public and private organizations;
- A curriculum that emphasizes ethics, entrepreneurship, and global preparation;
- A collegial work environment that respects and encourages the contributions of everyone in the College of Business.

Vision Statement
The Purdue University Calumet College of Business will provide an intellectually encompassing and comprehensive education that meets the needs of today's global business environment and empowers students to meet tomorrow's rapidly changing demands. In providing diverse learning opportunities and scholarly contributions to the field, the college will challenge students to be ethical and civically engaged business leaders who will utilize their entrepreneurial and technical skills to contribute to the economic development of Northwest Indiana and beyond. The faculty, staff and students will effectively communicate these aims to the public that will in turn position Purdue Calumet to be the region's college of choice for a quality business degree grounded in academic rigor and social responsibility.

Programs
The programs in Business, which are accredited by the International Assembly for Collegiate Business Education (IACBE), prepare students to advance their careers in business by providing a background in three general areas:

- liberal arts, to provide students with breadth of vision and perspective for lifelong learning;
- business foundation courses to provide the skills, perspectives of organizations and the environments in which they function;
- a specialty area in business to enhance the student's career goals.
**Academic Programs**

**Bachelor of Science, Accounting**
- This specialized degree is designed for students pursuing accounting careers and considering professional certifications.

**Bachelor of Science in Management**

**Bachelor of Science, Computer Information Systems**
- A new program of study in the area of Information Systems

**Bachelor of Arts in Business**
- A flexible, generalist program with majors in entrepreneurship, human resources, or retailing.

**Master of Business Administration**
- A general graduate degree for students with bachelor degrees seeking to professionalize their management skills. This program is offered in different formats with convenient time frames.

**Master of Accountancy**
- This special masters is designed for accounting students considering professional certifications.

**Post-Baccalaureate Certificates**

**Minors**

- Minor in Accounting
- Minor in Business
- Minor in Entrepreneurship
- Minor in Finance
- Minor in Human Resource Management
- Minor in Information Systems
- Minor in International Business
- Minor in Marketing
- Minor in Non-profit Management

**Experiential Learning Courses**

The following classes have been awarded Experiential Learning designation by the Faculty Senate and may be used to fulfill a student’s experiential learning requirements.


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<tr>
<th>Course</th>
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<td>CIS 40000</td>
<td>ENTR 42000</td>
<td>MKG 42900</td>
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<td>BUSM 45000</td>
<td>CIS 42600</td>
<td>ISM 48600</td>
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<td>BUSM 49500</td>
<td>ENTR 40000</td>
<td>MKG 42000</td>
<td>OBHR 43600</td>
</tr>
<tr>
<td>BUSM 49900</td>
<td>ENTR 40100</td>
<td>MKG 42800</td>
<td>OBHR 44400</td>
</tr>
</tbody>
</table>

**Policies for Students in BA Business, BS Accounting, BS Computer Information Systems, and BS Management programs**

Please note the effective date for each. The newest policies are listed first. Other policies applicable to all undergraduate students are found in the University Catalog.

**Admissions Standards (effective Fall 2013)**

**NEW FRESHMAN**

**Direct Acceptance to the Program of Study:**
- Students are required to declare a concentration
- Test Scores (SAT CR+M): 850-900 AND Overall GPA 2.00 for the Hospitality and Tourism Management Program
- Overall GPA 2.20 for all other programs

If a student does not meet the above requirements, but wishes to study in the College of Business, they should be placed in CLAS.

**Center for Learning and Academic Success (CLAS)**

Minimum requirements for placement in CLAS
- Test Scores (SAT CR+M): 800-849 AND Overall GPA 2.0

**TRANSFERS (including inter-campus transfers), CODOs, re-classification, re-entries, and re-admits:**

For Hospitality and Tourism Management Programs: A minimum of 15 college transferring credits AND a cumulative College GPA of at least 2.00 for the last 15 credit hours attempted.

For all other Programs: A minimum of 15 college transferring credits AND a cumulative College GPA of at least 2.20 for the last 15 credit hours attempted. NOTE, for those transfer students with fewer than the 15 credit hours, but who have the minimum GPA, they must meet all direct-acceptance freshman admission requirements.

Articulation Students: Students entering through any of the College of Business articulation agreements must be admitted using the criteria outlined in the articulation agreement.
Clarification of prerequisite requirements for BUSM 45000 (effective Summer 2010, revised Summer 2012)

Students must complete FIN 31000, MKG 32400, BUSM 36000, and OBHR 33000 all with a grade of “C-” or better in order to be able to take BUSM 45000.

No enrollment in COB classes after the first week of Classes (effective Spring 2010)

The College of Business does not allow students to enroll into a COB class after the first week of classes. Truly extenuating circumstances will be examined on a case by case basis by the appropriate department head.

Extensions may only be allowed by the appropriate department head (effective Spring 2010)

Students must seek the permission of the appropriate department head at all times (or the student’s advisor may talk to the department head on the student’s behalf). Instructors may not accept or refuse class extensions; they may only make recommendations to their head.

Case of returning students facing a changed COB curriculum

Returning students who interrupted their studies at PUC for a term or more may continue the curriculum described in the Course Catalog on the date of their joining COB. They may also opt into the new curriculum which offers some real advantages: fewer required credit hours for the degree and exposure to global business.

Re-admitted students must follow the new curriculum in effect at the time of their re-entry. Truly extenuating circumstances will be examined on a case by case basis by the appropriate department head.

Minimum required courses for all courses (effective Fall 2013)

Students are required to earn a “C-” or better in all courses on their plan of study. Courses in which grades below “C-” are earned must be retaken in order to meet this requirement.

Policy on Dual Degrees/Dual Concentrations (effective 07.23.07)

A student enrolled at COB may pursue two concentrations concurrently by working to satisfy all degree requirements for the two concentrations. The student may not graduate with one major and expect to come back later to finish the other major.

The student must complete all requirements for the two majors before graduation in order to graduate with a dual major.

A student enrolled at COB may pursue a concentration and a minor by working to satisfy all degree requirements for the major and minor. The student may not graduate with the major and expect to come back later to finish the minor. The student must complete all requirements for the major and the minor before graduation in order to graduate with a major and a minor.

A student who has graduated with one major may not come back and take the junior/senior level courses in another major; counting some of the previous elective coursework towards this second major, and expect to graduate again with a second major. Similarly, a student who has graduated with the BS in Accountancy or the major in Accounting may not expect to come back and attend a few additional courses in order to graduate with a second degree in Accounting.

If a student who has graduated with a Bachelor's degree from the College of Business wishes to come back to Purdue Calumet for further studies in a different discipline, s/he should be encouraged to pursue a graduate degree or a certificate.

Acceptance of Transfer Credit for Major Courses (effective 05.15.06)

Transfer credit is accepted for no more than two courses within the undergraduate majors without permission of the appropriate department head. This policy applies to the six major courses required for the BS in Management, the six business option courses required for the BA in Business, and the seven major courses required for the BS in Accounting.

Retaking Courses (effective 05.15.13)

Undergraduate students may repeat required courses in the College of Business curriculum no more than two times each within any five year period. Required courses are those specified on the plans of study for each of the undergraduate programs. This means that a student may take a required course no more than three times due to not receiving a passing grade in the course (C- or greater). This policy applies to classes taken after May 15, 2006.

Bachelor of Arts, Business

(120 credit hours)

1. General Education Requirements (37 credits)

Minimum “C-” required in each of the following:

- BUSM 10000 Management Lectures
- COM 11400 Fundamentals of Speech
- ECON 21100 Contemporary Economic Problems
- ENGL 10400 English Composition I
- ENGL 10500 English Composition II
- ISM 10200 Computer Utilization for Management
- Natural Science One lab science from SCI or any other Gen Ed 3 approved course
- Social Science SOC 10000 (Introduction to Sociology) OR PSY 12000 (Elementary Psychology)
- History Requirement HIST 10400 (Introduction to Modern World) OR HIST 11000 (The Pre-Modern World) OR HIST 15100 (American History to 1877) OR HIST 15200 (American History Since 1877)

Three (3) additional approved General Education courses

2. Humanities (6 credits)

Minimum “C-” required in each of the following:

- ENGL 42000 Business Writing
- PHIL 32400 Ethics for Professions

3. Business Core (47 credits)

Minimum “C-” required in each of the following:

- ACC 12000 Principles of Accounting I
- ACC 12100 Principles of Accounting II
- BUSM 10100 Introduction to Business
- BUSM 10500 Quantitative Methods for Business
- BUSM 38000 International Business
- BUSM 30100 Management Career Lectures
- BUSM 35400 Legal Foundations of Business
- BUSM 36100 Business Operations
- ECON 21000 Principles of Economics
- ENTR 10000 Introduction to Entrepreneurship
- ECON 21100 Principles of Finance
- ISM 21100 Principles of Information Systems
- ISM 22400 Principles of Marketing
- OBHR 22100 Principles of Management
- OBHR 23100 Survey of Human Resources
- STAT 13000 Statistics and Contemp orary Life

4. Concentration Courses (six courses) (18 credits)

Choose A, B, or C below.

Minimum “C-” required in each of the following:

A. Entrepreneurship concentration

Required:

- ENTR 30000 Growing the Firm
- ENTR 42000 Business Plan Development - EXL

Electives – Select FOUR (4) from the following – at least two (2) from ENTR designer:

- ENTR 30100 Introduction to Technical Entrepreneurship
- ENTR 30200 Innovation & New Product Development
- ENTR 30300 Entrepreneurial Finance
- ENTR 40000 Small Business Consulting – EXL
- ENTR 40100 Social Entrepreneurship – EXL
- ISM 31800 E-Business Strategy
- ISM 48600 Project Management – EXL
Bachelor of Science, Accounting

(120 CREDIT HOURS)

1. General Education Requirements (37 credits)
   Minimum "C -" required in each of the following:
   BUSM 10000 Management Lectures
   COM 11400 Fundamentals of Speech
   ECON 25200 Macroeconomics

   Bachelor of Science, Management
   (120 CREDIT HOURS)

   1. General Education Requirements (34 credits)
      Minimum "C -" required in each of the following:
      BUSM 10000 Management Lectures
      COM 11400 Fundamentals of Speech
      ECON 25200 Macroeconomics

ENGL 10400 English Composition I
ENGL 10500 English Composition II
ISM 10200 Computer Utilization for Management
Natural Science One lab science from SCI or any other Gen Ed 3 approved course
Social Science SOC 10000 (Introduction to Sociology) or PSY 12000 (Elementary Psychology)
Arts Requirement A&D 25500 (Art appreciation) or MUS 25000 (Music Appreciation) or THTR 20100 (Theater Appreciation)
History Requirement HIST 10400 (Introduction to Modern World) or HIST 11000 (The Pre-Modern World) or HIST 15100 (American History to 1877) or HIST 15200 (American History since 1877)

Two (2) additional approved General Education courses

2. Humanities (6 credits)
   Minimum "C -" required in each of the following:
   ENGL 42000 Business Writing
   PHIL 32400 Ethics for Professions

3. Business Core (47 credits)
   Minimum "C -" required in each of the following:
   ACC 20000 Introductory Accounting
   ACC 20100 Managerial Accounting II
   BUSM 10100 Introduction to Business
   BUSM 38000 International Business
   BUSM 30100 Management Career Lectures
   BUSM 35400 Legal Foundations of Business
   BUSM 36000 Production/Operations Management
   BUSM 45000 Strategic Management: Capstone - EXL
   ECON 25100 Microeconomics
   ISM 21100 Principles of Information Systems
   FIN 31000 Financial Management
   MKG 32400 Marketing Management
   OBHR 33000 Introduction to Organizational Behavior
   MA 15300 Algebra and Trigonometry I
   MA 22500 Calculus for Business and Economics
   BUSM 22500 Fundamental Managerial Statistics

4. Concentration Courses (six courses) (18 credits)
   Choose A, B, or C below.
   Minimum "C -" required in each of the following:
   A. Business Economics concentration
      Required:
      ECON 35100 Intermediate Microeconomics OR ECON 41900 Managerial Economics
      ECON 35200 Intermediate Macroeconomics OR ECON 38000 Money & Banking
      ECON 36000 Econometrics OR ECON 46500 Economic Forecasting Techniques
      Electives – Select THREE (3) from the following:
      ECON 31100 Environmental Economics
      ECON 32200 Public Finance
      ECON 35300 Business Cycles
      ECON 37500 United States Economic History
      ECON 41500 Contemporary Economic Problems and Policies
      ECON 43400 International Trade
      ECON 46100 Industrial Organization
      ECON 46700 Economics and the Law
      BUSM 49500 Business Internship – EXL
      Or other 30000 or 40000 level courses approved by the advisor
   B. Finance concentration
      Required:
      ACC 35000 Intermediate Accounting I
      FIN 34000 Corporate Financial Problems
      FIN 41200 Money & Capital Markets
      FIN 44300 Fundamentals of Investment
      Electives – Select TWO (2) from:
      ACC 40200 Financial Statements Analysis
      ECON 36000 Econometrics
      FIN 44000 Management of Financial Institutions
      FIN 44200 Personal Finance
      FIN 44400 Investment Management
      FIN 44700 Derivatives
      FIN 44800 Real Estate Principles
      FIN 44900 International Financial Management
      BUSM 49500 Business Internship – EXL
      Or other 30000 or 40000 level courses approved by the advisor
   C. Human Resources concentration
      Required:
      OBHR 43100 Human Resource Management
      OBHR 43300 Staffing
      OBHR 43400 Benefits Administration
      OBHR 43900 Employment Law
      Electives – Select TWO (2) from:
      OBHR 42300 Negotiations
      OBHR 42600 Training and Managerial Development
      OBHR 42700 Occupational Safety and Health
      OBHR 43000 Labor Relations
      OBHR 43500 Compensation Management
      OBHR 43600 Collective Development – EXL
      OBHR 43700 Managing Career Development
      OBHR 43800 Managing Workforce Development
      OBHR 44300 Legal/Social Issues in HRM
      OBHR 44400 Leadership – EXL
      OBHR 44500 Team Dynamics
      BUSM 33300 Total Quality Management
      BUSM 49500 Business Internship – EXL
      Or other 30000 or 40000 level courses approved by the advisor
   D. Management Information Systems concentration
      Required:
      ISM 30700 Database Management
      ISM 30800 Enterprise Resource Planning
      ISM 31800 E-Business Strategy
      ISM 48600 Project Management – EXL
      Electives – Select TWO (2) from:
      ISM 32000 E-Business Applications
      ISM 32200 Electronic Spreadsheet for Business
      ISM 32500 Logistics
      ISM 41600 Information Systems Control and Audit
      ISM 41700 Business Problem Solving with Advanced Spreadsheets – EXL
      ISM 41800 Knowledge Management and Business Intelligence
      ISM 48300 Business Data Communications
      ISM 48700 Knowledge and Decision Management
      ISM 48801 E-Auction in Practice
      ISM 48901 Enterprise Resource Planning Implementation
      BUSM 49500 Business Internship – EXL
      Or other 30000 or 40000 level courses approved by the advisor
   E. Marketing concentration
      Required:
      MKG 42100 Promotions Management
      MKG 42400 Consumer Behavior
      MKG 42500 Marketing Management
MKG 43300 Personal Selling – EXL

Electives - Select TWO (2) from:
MKG 42000 Digital Marketing Campaigns – EXL
MKG 42200 International Marketing
MKG 42600 Retailing
MKG 42700 Sales Management
MKG 42800 Advertising Management – EXL
MKG 42900 Advertising Campaigns – EXL
MKG 43400 E-Marketing
MKG 43500 Services Marketing
ECON 46500 Economic Forecasting Techniques
ECON 36000 Econometrics
ENTR 30000 Growing the Firm
OB HR 42300 Negotiations
BUSM 49500 Business Internship – EXL

Other 30000 or 40000 level courses approved by the advisor

5. Business Elective Courses (12 credits)
Minimum "C" required in each of the following:
Four business electives from upper division courses in business (BUSM), economics (ECON), Entrepreneurship (ENTR), management information systems (ISM), marketing (MKG), or Organizational Behavior (OBHR).

6. Free Elective (3 credits)
Minimum "C" required

Bachelor of Science, Computer Information Systems

(120 CREDIT HOURS)

1. General Education Requirements (31 credits)
Minimum "C" required in each of the following:
BUSM 10000 Management Lectures
ENGL 10400 English Composition I
CIS 20400 Introduction to Computer Based Systems
COM 11400 Fundamentals of Speech
COM or ENGL elective – must be an approved Gen Ed course
COM 32500 Interviewing Principles
ENGL 10500 English Composition II
ENGL 42000 Business Writing
MA 15300 Algebra and Trig I
Natural Science One lab science from SCI or any other Gen Ed 3 approved course

Approved Gen Ed Social Science elective

2. Mathematics/Science (6 credits)
Minimum "C" required in each of the following:
MA 22500 Calc for Business and Economics I
STAT 30100 Elementary Statistical Methods

3. Humanities and Social Science (6 credits)
Minimum "C" required in each of the following:
PHIL 12000 Critical Thinking
Humanities elective Must be an approved Gen Ed course

4. Business Core (21 credits)
Minimum "C" required in each of the following required courses:
BUSM 10100 Introduction to Business
ACC 20000 Introductory Accounting
ISM 21100 Principles of Information Systems
OBHR 33000 Introduction to Organizational Behavior
ISM 31800 E-Business Applications
BUSM 35400 Legal Foundations of Business
Business Selective One course in Accounting, Operations Management, Finance, or Marketing

5. CIS Major Courses (14 courses) (56 credits)
Minimum "C" required in each of the following required courses:
Required:
ECET 11000 Computer Systems Architecture
CIS 11100 Intro to H-C Interaction
CIS 14000 Introduction to Networks
CIS 16600 Introduction to Programming
CIS 24100 Web Development
CIS 25200 Systems Analysis and Design
CIS 25300 Applied Database Techniques
CIS 26300 Java Programming
CIS 35300 Advanced Database Methods
CIS 41300 IS Auditing & Assurance
CIS 41400 Professionalism and Ethics
CIS 42400 Object Oriented Analysis & Design
CIS 42600 Applied Software Development Project
CIS 48000 Project Management – EXL

Electives – Select five (5) from CIS or ISM designators as approved by the department head

Post Baccalaureate Certificate, Information Systems

(18 CREDIT HOURS)

Admission Requirements: Students wishing to complete this certificate must apply for admission to the certificate program and provide a transcript from an accredited institution of higher education to verify receipt of a bachelor’s degree.

All courses must be passed with a C (2.0) or better for the certificate to be awarded.

Required Courses
ISM 21100 Management Information Systems
ISM 31800 E-Business Strategy

Four more courses to be chosen from the following list:
CIS 11100 Computer Human Interaction
CIS 42400 Object-Oriented Analysis and Design
ISM 31800 E-Business Strategy
ISM 32000 E-Business Applications
CIS 20000 Information Systems Policies
CIS 40000 Information Systems Strategic Planning
CIS 18000 Introduction to Project Mgmt
CIS 25200/ MGMT 30700 Systems Analysis and Design
ISM 30800 Database Analysis and Design
CIS 41300 Information Systems Auditing & Assur.

OR
MGMT 41600 Information Systems Control and Audit
CIS 41400 Information Systems Prof & Ethics
ISM 48600 Project Management
Post Baccalaureate Certificate, Information Systems — E-Business Management
(18 CREDITS)
Admission Requirements: Students wishing to complete this certificate must apply for admission to the certificate program and provide a transcript from an accredited institution of higher education to verify receipt of a bachelor's degree.
All courses must be passed with a C (2.0) or better for the certificate to be awarded:
- ISM 21100 Management Information Systems
- ISM 31800 E-Business Strategy
- ISM 32000 E-Business Applications
- CIS 14000 Computer Networks in Business
- ISM 48300 Data Communication in Business
- MGMT 48700 Knowledge Management and Business Intelligence

Post Baccalaureate Certificate, Information Systems — Project Management
(18 CREDITS)
Admission Requirements: Students wishing to complete this certificate must apply for admission to the certificate program and provide a transcript from an accredited institution of higher education to verify receipt of a bachelor's degree.
All courses must be passed with a C (2.0) or better for the certificate to be awarded:
- ISM 21100 Management Information Systems
- CIS 20000 Information Systems Policies
- CIS 25200/ MGMT 30700 Systems Analysis and Design
- CIS 18000 Introduction to Project Management
- CIS 41300 Information Systems Auditing & Assurance
- ISM 41600 Information Systems Control and Audit
- ISM 48600 Project Management

Post Baccalaureate Certificate, Information Systems - Software Development
(18 CREDITS)
Admission Requirements: Students wishing to complete this certificate must apply for admission to the certificate program and provide a transcript from an accredited institution of higher education to verify receipt of a bachelor's degree.
All courses must be passed with a C (2.0) or better for the certificate to be awarded:
- CIS 16600 Introduction to Programming
- CIS 25200 Systems Analysis and Design
- CIS 26300 Java Programming
- CIS 26600 C++ Programming
- CIS 42400 Object Oriented Analysis and Design
- CIS programming elective

Minor in Accounting
(15 CREDITS)
Minimum “C -” required in each of the following:
- ACC 30900 Accounting Information Systems
- ACC 35000 Intermediate Accounting I
- ACC 35100 Intermediate Accounting II
- ACC 40700 Cost Accounting
Select one course from the following:
- ACC 40200 Financial Statement Analysis
- ACC 40400 Tax Accounting

Minor in Business
(24 CREDITS)
This minor is intended for students who are not in the College of Business. College of Business students may NOT pursue this minor.
Minimum “C -” required in each of the following:
- ACC 20000 Introductory Accounting
- ACC 20100 Managerial Accounting
- ECON 25100 Microeconomics
- BUSM 22500 Fundamental Business Statistics
- FIN 31000 Financial Management
- OBHR 33000 Introduction to Organizational Behavior
- OBHR 43100 Human Resource Management
- MKG 22400 Principles of Marketing
- MKG 32400 Marketing Management
- BUSM 33300 Total Quality Management
- MGMT 36000 Operations Management

Minor in Entrepreneurship
(15 CREDITS)
Minimum “C -” (2.0) required in each of the following:
- ENTR 10000 Introduction to Entrepreneurship
- and four courses (4) from list below, preferably from ENTR courses:
  - ENTR 30000 Growing the Firm
  - ENTR 30100 Introduction to Technical Entrepreneurship
  - ENTR 30200 Innovation & New Product Development
  - ENTR 30300 Entrepreneurial Finance
  - ENTR 40000 Small Business Consulting
  - ENTR 40100 Social Entrepreneurship
  - ENTR 42000 Business Plan Development
  - ISM 31800 E-Business Strategy
  - BUSM 38000 International Business
  - OLS 35000 Applied Creativity for Business and Industry
  - OLS 35100 Innovation and Entrepreneurship
  - BUSM 39100 Business Internship
  - ISM 48600 Project Management
  - ISM 48700 Knowledge & Decision Management
  - OBHR 42300 Negotiations
or other 30000 or 40000 level course approved by the advisor

Minor in Finance
(15 CREDITS)
Minimum “C -” required in each of the following:
- ACC 35000 Intermediate Accounting I
- FIN 34000 Corporate Financial Problems
- FIN 41200 Financial Markets & institutions
- FIN 44300 Fundamentals of Investments
Select one course from the following:
- ECON 36000 Econometrics
- ECON 38000 Money & Banking
- FIN 40200 Financial Statements Analysis
- FIN 44000 Management of Financial Institutions
- FIN 44200 Personal Finance
- FIN 44400 Investment Management
- FIN 44700 Derivatives
- FIN 44900 International Financial Management
### Minor in Human Resource Management  
**(15 CREDITS)**  
Minimum "C -" (2.0) required in each of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSM 10100</td>
<td>Intro. to Business</td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBHR 33000</td>
<td>Int. to Organizational Behavior</td>
<td></td>
</tr>
<tr>
<td>AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBHR 43100</td>
<td>Human Resource Management</td>
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</tr>
<tr>
<td>OBHR 43300</td>
<td>Staffing</td>
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</tr>
</tbody>
</table>

Select TWO (2) from:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSM 33300</td>
<td>Total Quality Management</td>
<td></td>
</tr>
<tr>
<td>OBHR 42300</td>
<td>Negotiations</td>
<td></td>
</tr>
<tr>
<td>OBHR 42600</td>
<td>Training and Managerial Develop</td>
<td></td>
</tr>
<tr>
<td>OBHR 42700</td>
<td>Occupational Safety and Health</td>
<td></td>
</tr>
<tr>
<td>OBHR 43000</td>
<td>Labor Relations</td>
<td></td>
</tr>
<tr>
<td>OBHR 43400</td>
<td>Benefits Administration</td>
<td></td>
</tr>
<tr>
<td>OBHR 43500</td>
<td>Compensation Management</td>
<td></td>
</tr>
<tr>
<td>OBHR 43600</td>
<td>Collective Bargaining and Negotiations</td>
<td></td>
</tr>
<tr>
<td>OBHR 43700</td>
<td>Managing Career Development</td>
<td></td>
</tr>
<tr>
<td>OBHR 43800</td>
<td>Gender and Diversity in Management</td>
<td></td>
</tr>
<tr>
<td>OBHR 43900</td>
<td>Employment Law</td>
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</tr>
</tbody>
</table>

Or others as approved by the advisor.

### Minor in Information Systems  
**(18 CREDITS)**  
Minimum "C -" (2.0) required in each of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 20400</td>
<td>Information Systems</td>
<td></td>
</tr>
<tr>
<td>OBHR 10200</td>
<td>ISM</td>
<td></td>
</tr>
</tbody>
</table>

An additional 5 courses may be selected from the MIS and CIS course offerings from the IS department.

### Minor in International Business  
**(15 CREDITS)**  
Minimum "C -" (2.0) required in each of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSM 38000</td>
<td>International Business</td>
<td></td>
</tr>
</tbody>
</table>

Three from:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKG 42200</td>
<td>International Marketing</td>
<td></td>
</tr>
<tr>
<td>FIN 44900</td>
<td>International Financial Management</td>
<td></td>
</tr>
<tr>
<td>BUSM 48900</td>
<td>International Management</td>
<td></td>
</tr>
<tr>
<td>ECON 43400</td>
<td>International Trade</td>
<td></td>
</tr>
</tbody>
</table>

And one additional course approved by the College of Business which may include one of the above.

### Minor in Marketing  
**(15 CREDITS)**  
Minimum "C -" (2.0) required in each of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKG 22400</td>
<td>Principles of Marketing</td>
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<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MKG 32400</td>
<td>Marketing Management</td>
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<td>AND</td>
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<td></td>
</tr>
<tr>
<td>MKG 42100</td>
<td>Promotions Management</td>
<td></td>
</tr>
<tr>
<td>MKG 42400</td>
<td>Consumer Behavior</td>
<td></td>
</tr>
</tbody>
</table>

Select TWO (2) from:  

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKG 42200</td>
<td>International Marketing</td>
<td></td>
</tr>
<tr>
<td>MKG 42500</td>
<td>Marketing Research</td>
<td></td>
</tr>
<tr>
<td>MKG 42600</td>
<td>Retailing</td>
<td></td>
</tr>
<tr>
<td>MKG 42700</td>
<td>Sales Management</td>
<td></td>
</tr>
<tr>
<td>MKG 42800</td>
<td>Advertising Management</td>
<td></td>
</tr>
<tr>
<td>MKG 42900</td>
<td>Advertising Campaigns</td>
<td></td>
</tr>
<tr>
<td>MKG 43300</td>
<td>Personal Selling</td>
<td></td>
</tr>
<tr>
<td>MKGT 43400</td>
<td>E-Marketing</td>
<td></td>
</tr>
<tr>
<td>MKG 43500</td>
<td>Services Marketing</td>
<td></td>
</tr>
<tr>
<td>OBHR 43200</td>
<td>Negotiations</td>
<td></td>
</tr>
<tr>
<td>ENTR 30000</td>
<td>Small Business Management</td>
<td></td>
</tr>
</tbody>
</table>

Or others as approved by the advisor.

### Minor in Non-Profit Management  
**(15 CREDITS)**  
Minimum "C -" (2.0) required in each of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 22200</td>
<td>Information Systems</td>
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<td>ENTR 30300</td>
<td>Entrepreneurial Finance</td>
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<td>BUSM 33000</td>
<td>Non-Profit Organizational Structure</td>
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<td>BUSM 40010</td>
<td>Non-Profit Management</td>
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<tr>
<td>BUSM 41400</td>
<td>Non-Profit Grant Writing and Fund Raising</td>
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Or others as approved by the advisor.

### Master of Business Administration  
**(45 CREDITS)**

#### Admission Requirements  
1. Proof of baccalaureate degree  
2. Results from the Graduate Management Admission Test if undergraduate GPA is less than 3.20 on a 4.0 scale. Applicants may request a waiver of the GMAT requirement under special circumstances.  
3. Capacity for management responsibility  
4. Recommended: six credits of undergraduate calculus

#### Program Description  
The program effectively requires that all graduate students complete a minimum of 45 graduate credit hours.  
A student accepted into the program with a satisfactory background in Phase I begins the course of study from Phase II. For this class of students, a minimum of 36 graduate credit hours must be completed toward graduation, of which 24 hours must be drawn from the core.

#### Degree Requirements  
**PHASE I: Foundation Courses**  
- ECON 51300 Economic Theory (3 hrs.)  
- MGMT 60000 Accounting for Managers (3 hrs.)  
- MGMT 61100 Financial Management II (3 hrs.)  
- MGMT 62000 Marketing Management I (3 hrs.)  
- MGMT 63000 Legal and Social Foundations of Mgmt. (3 hrs.)  
- MGMT 67000 Business Analytics (3 hrs.)  
- OBHR 68100 Behavior in Organizations (3 hrs.)

**PHASE II: Core Courses**
- MGMT 60100 Managerial Accounting (3 hrs.)  
- MGMT 61200 Financial Management III (3 hrs.)  
- MGMT 62200 Marketing Strategy (3 hrs.)  
- MGMT 65000 Strategic Management (3 hrs.)  
- MGMT 66000 Operations Management (3 hrs.)  
- MGMT 67100 Quantitative Methods II (3 hrs.)  
- MGMT 68000 Intro. to Information Technology (3 hrs.)  
- OBHR 63300 Human Resource Management (3 hrs.)

**PHASE III: Electives**
Specified courses from accounting, finance, marketing, economics, or general management at the 50000 level or above. See advisor for list of approved courses.

#### Transfer of Credit  
Undergraduate credits may not be used to satisfy master’s degree requirements. Transfer credits, in general, are not accepted. In exceptional cases, however, graduate credits not exceeding six hours may be transferred into the program.  
Exceptional cases are individually considered by the Graduate Management Committee. Transfer credits are allowed only after one semester of satisfactory work in residence at Purdue University. The minimum grade for transfer credits is a B.
Master of Accountancy
(30 CREDITS)

Admission Requirements
1. Admission requires an undergraduate degree with a major or concentration in accounting, a graduate index of 3.0/4.0 and satisfactory performance on the GMAT examination if undergraduate GPA is less than 3.20 on a 4.0 scale. Applicants may request a waiver of the GMAT requirement under special circumstances.
2. Applications from students whose undergraduate degree major is not accounting may be considered provided that they have completed a sufficient number and variety of accounting courses to satisfy the prerequisites for the master’s level courses required by the program.

Program Description
A minimum of 30 semester credit hours of graduate level course work is required to complete this program. The degree requirements are outlined here.

(All courses are three-semester-credit-hours)

Required Courses (21 credit hours)
- MGMT 50100 Advanced Taxation
- MGMT 50600 Auditing
- MGMT 50900 International Accounting
- MGMT 52600 Fraud & Forensic Accounting
- MGMT 52700 Accounting Communication & Research
- MGMT 50300 Advanced Accounting
- MGMT 59000 Governmental & Non-For-Profit Accounting
- MGMT 59000 Advanced Financial Reporting
- MGMT 59000 Corporate Governance & Ethics
- MGMT 59000 Advanced Managerial Accounting
or other graduate level courses approved by the Master of Accountancy Advisor.

Transfer of Credit
Undergraduate credits may not be used to satisfy master’s degree requirements. Transfer credits, in general, are not accepted. In exceptional cases, however, graduate credits not exceeding six hours may be transferred into the program. Exceptional cases are individually considered by the Graduate Committee. Transfer credits are allowed only after one semester of satisfactory work in residence at Purdue University. The minimum grade for transfer credits is a B.
White Lodging School of Hospitality and Tourism Management

Norman Faiola, Interim Dept Head.  Faculty:  N.A. Faiola;  G.A. Farley;  R.A. Fields;  M.J. Flannery;  J.L. Hack;  J.M. Pluckebaum (Emerita);  D.L. Vorwald;  M.B. West (Emerita)
Academic Advisor:  C. Browder
Office Manager:  J. Rhyne
Operations/Lab Manager:  P. Stompor

The department of Hospitality and Tourism Management is designed to offer students a broad-based curriculum, combining a strong liberal arts education with a management focus. It is an interdisciplinary degree that ensures a solid business foundation and a genuine grasp of all aspects of the hospitality industry including food & beverage management, gaming, recreation, private club administration, travel and tourism activities, event and conference planning, convention and visitors bureaus, and more. This foundation of knowledge is coupled with practical learning about how to organize, supervise and manage employees, which will serve you very well in an industry that requires experiential and practical learning integrated with classroom theories.

The hospitality industry is the fastest growing business sector in the world, and globalization has brought about an explosion in career opportunities. The Hospitality and Tourism Management department offers bachelor degree programs; certificate programs are also available. The department offers courses in a variety of academic and experiential learning contexts. Industry practicum experience is required in both the general hospitality and tourism management and fitness management programs. This means prospects abound for internships and experiential learning opportunities.

The centerpiece of experiential learning for Hospitality and Tourism Management is the White Lodging Hospitality and Tourism Management (HTM) Center which features state-of-the-art kitchen spaces, wine & beverage laboratory and a management simulation computer lab. In the HTM laboratories, students are introduced to state-of-the-art computer software used in the hospitality industry and operational foods/restaurant facilities. These laboratories also allow students to engage in simulated experiments and analysis of data from classroom experimental projects.

Programs
- Bachelor of Science, Hospitality and Tourism Management
- Bachelor of Science, Hospitality and Tourism Management, option in Fitness Management
- Certificate in Hospitality
- Certificate in Nutrition and Health Management
- Minors in Hospitality Management, Foods and Nutrition, Recreational Sports Management

Bachelor of Science, Hospitality and Tourism Management
(129 CREDITS)

1. Communication (12 credits)
ENGL 10000/10400 English Composition I
ENGL 10500 English Composition II
COM 11400 Fund. Speech Comm.
ENGL 42000 Business Writing

2. Science and Mathematics (12 credits)
STAT 13000 Statistics and Contemp. Life
CIS 20400 Introduction to Computer-based Systems
MA/SCI Elective course in Math, Science, Computer Science or Logic
SCIENCE Elective course in Science with laboratory

3. Humanities, Social and Behavioral Sciences (18 credits)
ECON 21000 Economics (or higher)
PSY 12000 Elementary Psychology
SOC 10000 Introduction to Sociology
SPAN 10600 Spanish for Business
Humanities Elective Any courses in A&D, ENGL Lit., FLL, HIST, MUS, PHIL, OR THTR
Soc. Science Elective ANT, ECON, POL, PSY, OR SOC course

4. Hospitality and Tourism Management
Requirements (72 credits) A grade of “C” or better is required in all F&N, FM and HTM courses
F&N 20300 Foods: Their Selection and Preparation
F&N 30300 Essentials of Nutrition
HTM 10000 Intro. Hospitality and Tourism Industry
HTM 10100 Hospitality and Tourism Student Seminar
HTM 14100 Financial Accounting for the Service Industries
OR
ACC 20000 Introductory Accounting
HTM 18100 Lodging Management
HTM 19100 Sanitation and Health in Foodservice, Lodging and Tourism
HTM 21200 Organization & Management in Hospitality and Tourism Industry
HTM 23100 Hospitality and Tourism Marketing
HTM 24100 Managerial Accounting and Financial Management
HTM 29100 Quantity Food Production and Service
HTM 30100 Hospitality and Tourism Industry Practicum
HTM 31100 Procurement Management for Foodservice
HTM 31200 Human Resources Management for the Service Industries
HTM 32200 Hospitality Facilities Management
HTM 34100 Cost Controls in Foodservice and Lodging
HTM 37100 Introduction to Tourism
HTM 41100 Hospitality and Tourism Law
HTM 49101 Sales & Service for Beverage Operations (Must be 21 years old)
HTM 49200 Advanced Foodservice Management
HTM 49900 Feasibility Studies and Business Development

5. HTM or F&N Electives (12 credit hours)
6. Electives or Minors (15 credit hours)
Bachelor of Science, Hospitality and Tourism Management, Fitness Management Option
(130 CREDITS)

1. Communication (12 credits)
   - ENGL 10000/10400 English Composition I
   - ENGL 10500 English Composition II
   - ENGL 42000 Business Writing

2. Science and Mathematics (17 credits)
   - STAT 13000 Statistics and Contemp. Life
   - CIS 20400 Introduction Computer-based Systems
   - BIOL 21300 Anatomy and Physiology I
   - BIOL 21400 Anatomy and Physiology II
   - CHM 11900 General Chemistry

3. Humanities, Social and Behavioral Sciences (15 credits)
   - ECON 21000 Economics (or higher)
   - PSY 12000 Elementary Psychology
   - SOC 10000 Introduction to Sociology
   - Humanities Elec.
     - A&D, ENGL Lit., FL, HIST, course in MUS, PHIL, or THTR
   - SOC 43000 Sociology of Aging
   - CDFS 21000 Intro. Human Development

4. Fitness Management Requirements (68 credits)
   A grade if “C” or better is required in all F&N, FM and HTM Courses.
   - F&N 10500 Current Issues in Nutrition and Food Safety
   - F&N 20300 Foods: Their Selection and Preparation
   - F&N 26100 Nutrition for Health, Fitness, and Sports
   - F&N 30300 Essentials of Nutrition
   - F&N 36000 Nutrition for the Aging
   - Elective F&N-Electives (total 2-3 credits)

5. Electives (17 credits)

Minors in Foods and Nutrition, Hospitality Management, or Recreational Sports Management
(15-20 CREDITS EACH)

Minor in Foods and Nutrition
(15 to 16 CREDITS)

Required
- F&N 10500 Current Issues in Nutrition and Food Safety
- F&N 26000 Nutrition for Early Childhood Educators
- F&N 26100 Nutrition for Health, Fitness and Sports
- F&N 30300 Essential of Nutrition
- F&N 36000 Nutrition for the Aging
- Elective F&N-Electives (total 2-3 credits)

Minor in Hospitality Management
(20 CREDITS)

Required
- F&N 20300 Foods: Their Selection and Preparation
- HTM 10000 Introduction to the Hospitality and Tourism Industry
- HTM 14100 Financial Accounting for the Service Industries
- HTM 18100 Lodging Management
- HTM 21200 Organization and Management in Hospitality and Tourism Industry
- HTM 23100 Hospitality and Tourism Marketing
- HTM 31200 Human Resources Management for the Service Industries

Minor in Recreational Sports Management
(15 CREDITS)

Required
- F&N 10500 Current Issues in Nutrition and Food Safety
- F&N 26100 Nutrition for Health, Fitness and Sports
- FM 10000 Individualized Wellness Strategies (2 areas)
- FM 21900 Issues and Problems in Health
- FM 30100 Recreation Leadership
- HTM 31500 Private Club Management and Operations

Certificates
Certificates are designed for non-traditional students employed full-time in responsible positions in the hospitality or fitness industry.

Certificate in Hospitality
(18-19 CREDITS)

Required Courses
- HTM 14100 Financial Accounting for the Service Industries
- HTM 21200 Organization & Management in the Hospitality and Tourism Industry
- HTM 23100 Hospitality and Tourism Marketing
- HTM 30100 Hospitality and Tourism Industry Practicum
- HTM 31200 Human Resources Management Service Industry
Elective Courses
Completion of two courses in ONE of these six areas:

Restaurant Management:
F&N 20300, HTM 31400, HTM 32200, OR HTM 49100

Hotel Management:
HTM 18100, HTM 32200, HTM 33100, OR HTM 49100

Institutional Management:
F&N 20300, HTM 19100, HTM 32200, OR HTM 36100

Tourism Management:
HTM 33100, HTM 37100, HTM 37200, OR SPAN 10600

Casino Management:
HTM 18100, HTM 31600, HTM 34100, OR HTM 49100

Private Club Management:
HTM 31500, HTM 32200, HTM 33100 OR HTM 49100

Certificate in Nutrition and Health Management
(18 CREDITS)

Required courses
F&N 10500 Current Issues in Nutrition and Food Safety
F&N 26100 Nutrition for Health, Fitness and Sports
FM 1000s Individualized Wellness Strategies — (2 areas of 1 cr. each)
FM 21900 Issues and Problems in Health
FM 30100 Recreation Leadership
HTM 31500 Private Club Management and Operation

Elective (3 credits)
Any HTM, F&N or FM course
COLLEGE OF
NURSING
Undergraduate Nursing Program
219/989-2814, 800-HI-PURDUE, ext. 2814, CLO 313

Graduate Nursing Program
219/989-2815, 800-HI-PURDUE, ext. 2815, CLO 316

Undergraduate Degree Programs
- Bachelor of Science Degree, Nursing
  —Professional Option
  —Accelerated Second Degree BS Option
  —LPN Transitioning to BS Option
  —Online RNBS, Completion Option

Graduate Level Programs
- Master of Science Degree, Nursing
  —Clinical Nurse Specialist Option (Adult Health or Critical Care)
  —Family Nurse Practitioner Option
  —Nurse Executive Option
- Post-Master's Level Nursing Education Certificate Program
- Post-Master's Level Family Nurse Practitioner Certificate Program
- Post-Master's Level Adult Health Clinical Nurse Specialist Certificate Program
- Post-Master's Level Critical Care Clinical Nurse Specialist Certificate Program

All programs are accredited by the National League for Accreditation Commission for Education in Nursing (ACEN).

Career Opportunities
Graduates of the College of Nursing may work as registered nurses in hospitals, long-term care facilities, outpatient centers and a variety of community settings. Students who earn advanced degrees may pursue careers as clinical nurse specialists in adult health or critical care nursing, nurse practitioners in family health nursing, nurse educators, nurse administrators and more.
The College of Nursing offers innovative program options to meet the professional needs of students for entry into nursing or for advanced preparation. The undergraduate program offerings which prepare nurses to enter practice and meet eligibility requirements for NCLEX are: Bachelor of Science Professional Option, Accelerated Second Degree B.S. Option and LPN transitioning to Bachelor of Science. These programs and the RNBS, Nursing Completion Option are designed to prepare a nurse generalist to provide comprehensive nursing care for people of all ages within a variety of health care settings. In addition, the degree options provide academic preparation for advanced degrees in Nursing. The Master’s level program prepares Clinical Nurse Specialists in Adult Health or Critical Care, Family Nurse Practitioners, and Nurse Executives. Students make take electives in courses that are relevant for the chosen area of specialization. Four master’s level certificate programs in Nursing Education, Adult Health, Clinical Nurse Specialist, Critical Care Clinical Nurse Specialist and Family Nurse Practitioner are also available. The graduate program has a strong clinical emphasis and prepares graduates for diverse leadership roles. All programs are accredited by the Accreditation Commission for Education in Nursing (ACEN).

Throughout the programs, various part-time and full-time employment opportunities are available in local health care agencies giving students work experience that relates to their university studies. Flexible schedules allow students to pursue programs part-time and full-time. These are university programs, with students sharing in the social and cultural aspects of college life, while developing their potential as persons, citizens, and nurses. Admission to nursing programs is competitive and is determined by program admission committees in the College of Nursing. Special requirements for admission and progression are available through the College.

**Programs**

- **Undergraduate**
  - Bachelor of Science, Nursing
  - Professional Option
  - Accelerated Second Degree B.S. Option
  - LPN to BS Option
  - Online RNBS, Completion Option

- **Graduate**
  - Master of Science, Nursing
  - Clinical Nurse Specialist (Adult Health or Critical Care) (on-campus or on-line)
  - Family Nurse Practitioner (on-campus or on-line)
  - Nursing Executive
  - Post-Master’s level Nursing Education certificate program
  - Post-Master’s level Family Nurse Practitioner certificate program (on-campus or on-line)
  - Post-Master’s level Clinical Nurse Specialist certificate program (on-campus or on-line)
  - Post-Master’s level Critical Care Clinical Nurse Specialist certificate program (on-campus or on-line)

**Admission Requirements for the UNDERGRADUATE PROGRAM (LEADING TO THE RN) FOR BACHELOR’S PROFESSIONAL OPTION APPLICANTS**

The applicant must be officially accepted by the University before his or her application can be considered for admission to the College of Nursing. Application forms for admission to the University must be obtained from the Office of Admissions, Luehse Hall, Purdue University Calumet, Hammond, IN 46323. If the applicant has previously attended Purdue University Calumet, but has not been enrolled for three semesters or longer he/she must make reaplication to the University Admissions Office.

Admissions are once yearly for the Fall semester and applications must be completed by February 1st. This is a limited enrollment program. Admission is competitive. Applicants are considered on the basis of test scores, prior academic achievement and space available.

When more qualified applicants than openings are available, applicants will be ranked by the Undergraduate Nursing Admission, Progression and Graduation Committee. The best qualified applicants will be admitted. If you have any questions please see your advisor.

The following admission criteria must be submitted to the Office of Admissions:

1. Application to the Undergraduate Degree Program in Nursing
2. High School transcript or high school equivalence credentials; the applicant with a GED must complete 9 hours of University credit or have a SAT composite in Critical Reading and Math of 1000 or above before they will be considered for admission.
3. Post-high school transcripts.
4. SAT/ACT scores
2. CHANGE OF DEGREE, TRANSFER, OR SECOND DEGREE STUDENTS

Eligibility for admission by the Nursing Admission, Progression and Graduation Committee is determined by the following minimum criteria:

1. Minimum 2.75/4.0 cumulative grade point average is required in 12 semester credit hours of required core courses from the undergraduate nursing curriculum plan.
2. The required twelve semester credit hours must include a minimum of six (6) semester credit hours of laboratory science with a minimum 2.0 (C) grade in each course.
3. Required non-science courses must be taken from the following: English 10400, English 10500, or (in its equivalent); Psychology 12000. Required science courses must be taken from the following: Chemistry 11900; Biology 21300 and 21400; Biology 22100 or equivalents.
4. All required courses must have a grade of 2.0 (C) or better.
5. A grade of less than 2.0 in any three (3) prerequisite courses required in the Undergraduate Nursing Curriculum Plan of Study will result in ineligibility for admission.
6. Repeated core science courses, for the purpose of admission, will be factored together to produce a cumulative GPA.
7. Students are allowed only one withdrawal from the same science course. This withdrawal policy does not include courses dropped during the refund period.
8. Laboratory science courses for non-RN students need to be completed within five (5) years of an application to the College of Nursing. Special consideration may be given to applicants with a four year degree in science or a medically related field.
9. Nursing students transferring from another nursing program must submit a letter of good standing from the Dean or designee of their previous nursing program.
10. Applicants who have been admitted to the College of Nursing will be required to submit a report of a comprehensive physical examination completed within the last 6 months, a complete immunization record and/or lab titles, PPD within 3 months of entry or chest x-ray, and Cardiopulmonary Resuscitation Certification prior to registration. A criminal background check and malpractice insurance purchased through the university is required upon enrollment in the first clinical nursing course. In addition, students must meet agency requirements as they are mandated.

NOTE: Simply meeting the above requirements does not guarantee admission to the Nursing Program. All applicants to Nursing are reviewed and the best qualified are admitted. Enrollment is limited.

Baccalaureate Degree in Nursing (Professional Option)

(120 CREDITS)

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Semester 4

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<td>NUR 39400</td>
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Semester 7

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Semester 8

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<td>NUR 39300</td>
<td>Practicum III</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>NUR 39900</td>
<td>Nursing Elective</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>NUR 48700</td>
<td>Transitions Into Professional Nursing Practice</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>NUR 49800</td>
<td>Capstone Course in Nursing</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

PROGRAM APPROVED BY BACCALAUREATE CURRICULUM COMMITTEE 02/04/2013

Admission Requirements for the ACCELERATED SECOND DEGREE IN NURSING OPTION

Purdue University Calumet College of Nursing offers an accelerated program for non-nurses who possess a minimum of a baccalaureate degree in another discipline. This intense and innovative program is designed specifically for full-time, academically talented students, who are mature critical thinkers and motivated to earn a B.S degree in nursing in a shortened time frame. Students who have a bachelor’s degree in another major that are not interested in a full-time program or do not meet the admission requirements are encouraged to meet with the nursing academic advisor and explore their options in the traditional program.

Admission Requirements:

The successful applicant will:

1. Have a minimum of a baccalaureate degree in any major from an accredited institution.
2. Have a cumulative grade point average of 3.0 from prior baccalaureate and/or graduate program.
3. Have a minimum grade of “C” or better in all prerequisite courses.
4. Provide an essay outlining personal goals and objectives along with a resume.
5. Complete a face-to-face interview with members of the admissions committee.
Entrance Requirements:
1. Complete all OSHA requirements prior to enrollment.
2. Complete a criminal background check.
3. Meet with the nursing academic advisor.
4. Attend the nursing orientations.
5. Successful test out of the NUR 27400 proficiency exam or completion of the course in summer session prior to the fall semester.

Admission Prerequisites:
- Human Anatomy and Physiology* 6–8 credit hours (lab recommended)
- Microbiology* 4 credit hours (lab recommended)
- Computer Information Technology* 3 credit hours
- Statistics 3 credit hours
- Nutrition 3 credit hours
- English Composition 3 credit hours
- Behavioral Sciences 3 credit hours
- Humanities 3 credit hours
- Communication 3 credit hours

Note: Sciences (Anatomy and Physiology, Microbiology and Computer/Information Technology) may not be older than 5 years.

Note: Simply meeting the above requirements does not guarantee admission to the Nursing Program. All applicants to Nursing are reviewed and the best qualified are admitted. Enrollments are limited.

ACCELERATED BACHELOR’S SECOND DEGREE OPTION

Plan of Study

(61 CREDITS)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>LEC</th>
<th>LAB</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 18800</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Foundations of Health Assessment and Health Promotion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 19200</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Foundations of Nursing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 19600</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Foundations of Psychosocial Nursing (First 8 weeks)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 19700</td>
<td>0</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Practicum I (Second 8 weeks)</td>
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<td></td>
</tr>
<tr>
<td>NUR 18200</td>
<td>0</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Conceptual and Theoretical Thinking in Nursing</td>
<td></td>
<td></td>
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<tr>
<td>NUR 29400</td>
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<td>3</td>
<td>3</td>
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<tr>
<td>Essential Pharmacotherapeutics for Nursing</td>
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<table>
<thead>
<tr>
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<th>LEC</th>
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<tbody>
<tr>
<td>NUR 28200</td>
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<tr>
<td>Adult Nursing I</td>
<td></td>
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<tr>
<td>NUR 28300</td>
<td>0</td>
<td>6</td>
<td>2</td>
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<tr>
<td>Practicum II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 28600</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Mental Health Nursing (First 8 weeks)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 41500</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Pathophysiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 39000</td>
<td>3</td>
<td>0</td>
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</tr>
<tr>
<td>Nursing Research</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 39100</td>
<td>3</td>
<td>0</td>
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<tr>
<td>Professional Ethics</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Semester 3</th>
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</thead>
<tbody>
<tr>
<td>NUR 35200</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Gerontological Nursing</td>
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<td></td>
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</tr>
<tr>
<td>NUR 39200</td>
<td>3</td>
<td>0</td>
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</tr>
<tr>
<td>Adult Nursing II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 39300</td>
<td>0</td>
<td>9</td>
<td>3</td>
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<tr>
<td>Practicum III</td>
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<td></td>
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<tr>
<td>NUR 45200</td>
<td>3</td>
<td>0</td>
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<tr>
<td>Quality and Safety in Professional Nursing Leadership</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
<th>LEC</th>
<th>LAB</th>
<th>CR</th>
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</thead>
<tbody>
<tr>
<td>NUR 31700</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Nursing Care of Women Through the Lifespan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 31800</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Maternity Practicum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 36100</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Pediatric Nursing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 36200</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Pediatric Nursing Practicum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 48700</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Transitions Into Professional Nursing Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 48500</td>
<td>1</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Community Health Nursing Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 48600</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Community Health Nursing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUR 49800</td>
<td>1</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Capstone Course in Nursing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Breakdown of Credit Hours

<table>
<thead>
<tr>
<th>20 cr. Previous Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 cr. Prerequisite requirements (some of which might come from previous degree)</td>
</tr>
<tr>
<td>61 cr. Nursing Major</td>
</tr>
<tr>
<td>120 cr. hours</td>
</tr>
</tbody>
</table>

At the completion of this program students will receive a BS degree in Nursing and be eligible to take the National Council Licensure Examination to become a Registered Nurse.

PROGRAM APPROVED BY BACCALAUREATE CURRICULUM COMMITTEE 02/04/2013

Online RNBS, Nursing Completion Program Degree Requirements

(120 CREDITS)

Admission Requirements for the Online RN BS, Nursing Completion Option

The Registered Nurse preparing for admission in the RNBS, Nursing Completion Program at Purdue University Calumet must meet the following criteria to be considered for admission:
1. Complete Purdue University Calumet Application and submit application fee.
2. Applicant must be officially accepted by the University before his or her application can be considered by admission to the College of Nursing.
3. Minimum GPA of 2.5/4.0.
4. Successfully completed an associate's degree or diploma program in Nursing.
5. Licensure as a Registered Nurse.
6. Completion of 62 semester credit hours of lower division courses, distributed as follows:

<table>
<thead>
<tr>
<th>Science Courses (17 Credits)</th>
<th>Humanities/Social Science Courses (12 Credits)</th>
<th>Elective Courses (3 Credits)</th>
<th>Nursing Courses (30 Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy &amp; Physiology – 8 credits</td>
<td>English Composition – 3 credits</td>
<td>History, Political Science, Philosophy, Arts, Nursing elective or other course – 3 credits</td>
<td>Earned transfer credit or department credit without examination.</td>
</tr>
<tr>
<td>General Chemistry – 3 credits</td>
<td>Introductory Psychology – 3 credits</td>
<td>Microbiology – 4 credits</td>
<td>Graduates of Associate Degree Nursing Programs who do not have the required 30 hours of nursing credit will have their academic records evaluated on an individual basis.</td>
</tr>
<tr>
<td>Pharmacology, Math or Science Course – 2 credits</td>
<td>Growth &amp; Development, Sociology, Child Psychology, Nutrition, or other Social Science course – 6 credits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microbiology – 4 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All students are required to complete a state board review course prior to receiving the certificate of completion.

Note: Students need to be aware that practicum hours are clinical laboratory hours and are calculated with the formula of 3 contact hours per week, for every practicum hour.
Online RNBS, Nursing Completion Degree Program

Plan of Study

### Core Nursing Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 18200 – Conceptual and Theoretical</td>
<td>2</td>
</tr>
<tr>
<td>Thinking in Nursing</td>
<td></td>
</tr>
<tr>
<td>NUR 38400 – Concepts of Development in</td>
<td>3</td>
</tr>
<tr>
<td>Professional Nursing</td>
<td></td>
</tr>
<tr>
<td>NUR 39000 – Nursing Research</td>
<td>3</td>
</tr>
<tr>
<td>Pre requisites: Introductory Statistics,</td>
<td></td>
</tr>
<tr>
<td>English Composition II</td>
<td></td>
</tr>
<tr>
<td>NUR 38800 – Nursing of Families and</td>
<td>3</td>
</tr>
<tr>
<td>Groups</td>
<td></td>
</tr>
<tr>
<td>NUR 39100 – Professional Ethics*</td>
<td>2</td>
</tr>
<tr>
<td>NUR 39400 – Health Promotion and</td>
<td>3</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>NUR 39700 – Nursing Care of the Aged,</td>
<td>3</td>
</tr>
<tr>
<td>Disabled &amp; Chronically Ill</td>
<td></td>
</tr>
<tr>
<td>NUR 41500 – Pathophysiology</td>
<td>3</td>
</tr>
<tr>
<td>NUR 45100 – Nursing Informatics</td>
<td>3</td>
</tr>
<tr>
<td>NUR 48300 – Community &amp; Public Health</td>
<td>4</td>
</tr>
<tr>
<td>Nursing</td>
<td></td>
</tr>
<tr>
<td>NUR 48200 – Nursing Leadership and</td>
<td>2</td>
</tr>
<tr>
<td>Management*</td>
<td></td>
</tr>
<tr>
<td>NUR 49800 – Capstone Course in Nursing</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

### Non-Nursing Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHS 20100 – Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 10500 – English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>COM – Communication Elective</td>
<td>3</td>
</tr>
<tr>
<td>Humanities Elective**</td>
<td>6</td>
</tr>
<tr>
<td>Elective</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

* Courses will be taken concurrently.
** Humanities include Literature, History, Philosophy, Foreign Language, Art, Music, Theater and other courses by advisor approval.
***All non-nursing courses must be completed with the exception of 6 credit hours upon completion of the capstone.
****All nursing courses in the plan of study must be completed before beginning the capstone course NUR 49800.

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### LPN to BS Option in Nursing

**ADMISSION REQUIREMENTS FOR AN ACCELERATED CURRICULUM TRACK FOR THE LPN TO BS OPTION**

**PREREQUISITE COURSES FOR ADVANCED PLACEMENT (42 CREDIT HOURS)**

The Licensed Practical Nurse preparing to seek admission for advanced placement in the Undergraduate Degree Nursing Program at Purdue University Calumet must:

**Step 1:**

A. Complete an undergraduate application (available at Enrollment Services Center.)
B. Submit copy of official transcript showing all course work from a state accredited Practical Nurse Program (with date of practical nurse program completed) and other collegiate institutions to Admission Office.
C. Submit copy of current practical nurse licensure to Admissions Office.

When above is completed, Admissions will forward paperwork to nursing Academic advisor. You are then notified of Admission status.

The College of Nursing reserves the right to deny readmission to any student who was previously dismissed from PUC’s Nursing Program or any other Nursing Program.

**Step 2:**

After you are notified of Admission status (major code LPN)
A. Make an appointment with nursing academic advisor to discuss the criteria for advanced placement.
B. Provide evidence of successful completion of the following prerequisite support courses (27 credits) with a grade of 2.0 (C) or better and a cumulative grade point average of 2.5/4.0 grading scale.

**PREREQUISITE COURSES FOR ADVANCED PLACEMENT**

(27 Credit Hours)

<table>
<thead>
<tr>
<th>Science</th>
<th>Humanities/Social Science</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Science (15 Credits)</strong></td>
<td><strong>Humanities/Social Science (12 Credits)</strong></td>
</tr>
<tr>
<td>CHEM 119 General Chemistry (3 Credits)</td>
<td>PSY 120 Introduction to Psychology (3 Credits)</td>
</tr>
<tr>
<td>BIOL 213 Human Anatomy I (4 Credits)</td>
<td>ENGLISH 104, 105 English Composition I and II (6 Credits)</td>
</tr>
<tr>
<td>BIOL 214 Human Anatomy II (4 Credits)</td>
<td>BHS 201 (3 Credits)</td>
</tr>
<tr>
<td>BIOL 221 (4 Credits)</td>
<td></td>
</tr>
</tbody>
</table>

C. Successful completion of the Foundational HESI Exam with a score of 850 or greater. This satisfies 7 credits of foundational nursing courses.
D. Successful completion of the Pharmacology HESI Exam with a score of 850 or better. This exam satisfies 5 credits for the Pharmacology courses. Credit for the pharmacology courses (NUR 294 and NUR 274) can also be established by taking the courses.
E. Successful completion of NUR 18800 with a C or better.
### FIRST YEAR NURSING COURSES

**(15 Credit Hours)**

<table>
<thead>
<tr>
<th>Credit by Exam (12 Credit Hours)</th>
<th>Pharmacology HESI Exam (5 Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundational HESI Exam</strong> (All Courses Below) (7 Credits)</td>
<td><strong>NUR 274</strong> Essential Pharmacokinetics for Nursing (2 Credits)</td>
</tr>
<tr>
<td><strong>NUR 192</strong> Foundations of Nursing (2 Credits)</td>
<td><strong>NUR 294</strong> Essential Pharmacotherapeutics for Nursing (3 Credits)</td>
</tr>
<tr>
<td><strong>NUR 196</strong> Foundations of Psychosocial Nursing (3 Credits)</td>
<td><strong>NUR 197</strong> Practicum I (2 Credits)</td>
</tr>
</tbody>
</table>

**NOTE:** The HESI Exam may be taken only once. Failure to achieve a score of greater than or equal to 850 on the exam will result in ineligibility for advanced placement in the program.

| **NUR 188** Foundations of Health Assessment and Health Promotion (3 credits) | **(Students must complete above exam requirements prior to registering for NUR 188)** |

### Plan of Study for LPN to BS Option

**(78 CREDIT HOURS)**

<table>
<thead>
<tr>
<th>SEMESTER 3</th>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 181</td>
<td>Introduction to Professional Nursing</td>
<td>1 Credit Hr.</td>
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<tr>
<td>NUR 182</td>
<td>Conceptual and Theoretical Thinking in Nursing</td>
<td>2 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>F&amp;N 303</td>
<td>Essentials of Nutrition</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 275</td>
<td>Alternative Therapies for Nursing Practice</td>
<td>2 Credit Hrs.</td>
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<tr>
<td>COM</td>
<td>Elective</td>
<td>3 Credit Hrs.</td>
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</tr>
<tr>
<td>NUR 384</td>
<td>Concepts of Role Development in Professional Nursing</td>
<td>3 Credit Hrs.</td>
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</table>

**Semester Total: 14 Credits**

<table>
<thead>
<tr>
<th>SEMESTER 4</th>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
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</thead>
<tbody>
<tr>
<td>NUR 282</td>
<td>Adult Nursing I</td>
<td>4 Credit Hrs.</td>
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<tr>
<td>NUR 283</td>
<td>Practicum II</td>
<td>2 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 286</td>
<td>Mental Health Nursing Practicum</td>
<td>3 Credit Hrs.</td>
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</tr>
<tr>
<td>NUR 287</td>
<td>Mental Health Nursing Practicum</td>
<td>1 Credit Hr.</td>
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<table>
<thead>
<tr>
<th>SEMESTER 5</th>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 317</td>
<td>Nursing Care of Women through the Lifespan (1st 8 weeks)</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 318</td>
<td>Pediatric Nursing Practicum (2nd 8 weeks)</td>
<td>1 Credit Hr.</td>
<td></td>
</tr>
<tr>
<td>NUR 394</td>
<td>Health Promotion and Education</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 397</td>
<td>Nursing Care of the Aged, Disabled and Chronically Ill</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 391</td>
<td>Professional Ethics</td>
<td>2 Credit Hrs.</td>
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</table>

**Semester Total: 12 Credits**

<table>
<thead>
<tr>
<th>SEMESTER 6</th>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 361</td>
<td>Pediatric Nursing (1st 8 weeks)</td>
<td>2 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 372</td>
<td>Pediatric Nursing Practicum (2nd 8 weeks)</td>
<td>1 Credit Hr.</td>
<td></td>
</tr>
<tr>
<td>NUR 415</td>
<td>Pathophysiology</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 390</td>
<td>Nursing Research</td>
<td>3 Credit Hrs.</td>
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**Semester Total: 9 Credits**

<table>
<thead>
<tr>
<th>SEMESTER 7</th>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 392</td>
<td>Community Health Nursing II</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 393</td>
<td>Practicum III</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 482</td>
<td>Nursing Leadership &amp; Management</td>
<td>2 Credit Hrs.</td>
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</tr>
<tr>
<td>NUR 399</td>
<td>Nursing Elective</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>PHIL</td>
<td>Elective</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>NUR 488</td>
<td>Capstone Course Preparation</td>
<td>1 Credit Hr.</td>
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</tbody>
</table>

**Semester Total: 15 Credits**

<table>
<thead>
<tr>
<th>SEMESTER 8</th>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 485</td>
<td>Community Health Nursing Practicum</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 486</td>
<td>Community Health Nursing</td>
<td>3 Credit Hrs.</td>
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<td>NUR 498</td>
<td>Capstone Course in Nursing</td>
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<td>ELECTIVE</td>
<td>Humanities</td>
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<td></td>
</tr>
<tr>
<td>ELECTIVE</td>
<td>Open</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
</tbody>
</table>

**Semester Total: 15 Credits**
Master of Science, Nursing
Students selected among the Clinical Nurse Specialist (45 credits) Family Nurse Practitioner (45 credits), or Nursing Executive (45 credits) options. Full-time study requires six semesters including summer; part-time study options are available.

Admission Requirements
1. Graduation from an accredited baccalaureate program in nursing.
2. Evidence of current registered nurse licensure.
3. Minimum undergraduate cumulative GPA of 3.0/4.0
4. Basic physical assessment course.
5. Introductory statistics course (within five years prior to admission).
6. Criminal background check clearance (Information about testing to be obtained through College of Nursing.)
An applicant who does not meet one or more of the admission requirements may be considered for conditional admission status. In addition to the preceding requirements for admission, the College of Nursing adheres to Purdue University Graduate School Admission policies regarding English as a foreign language.

Special Graduation Requirements
Final graduation grade point average of a “B” or better on the approved Plan of Study. Minimum grade of “B” in all core and specialty required nursing courses. The program must be completed within 6 years following admission.

1. Advanced Practice in Nursing Core Courses
(Applies to all Master-level study options)
- NUR 50000 Theoretical Constructs in Nursing
- NUR 50100 Foundations of Advanced Practice in Nursing
- NUR 50500 Sociocultural Influences on Health
- NUR 51000 Nursing Research
- NUR 51100 Health Promotion for Advanced Practice in Nursing
- NUR 52700 Ethics for Nurses in Advanced Practice
- NUR 65500 Advanced Practice in Nursing Seminar
- NUR 65600 Healthcare Organization, Policy and Economics

2. Additional Clinical Nurse Specialist and Family Nurse Practitioner Core Courses
- NUR 50200 Pharmacotherapeutics for Advanced Practice Nursing
- NUR 50300 Advanced Health Assessment
- NUR 50700 Physiologic Concepts for Advanced Practice Nursing

3. Specialty Courses
Clinical Nurse Specialist Option
Choose A or B
A. Critical Care Clinical Nurse Specialist
- NUR 60200 Critical Care Clinical Nurse Specialist I
- NUR 60300 Critical Care Clinical Nurse Specialist Practicum I
- NUR 63000 Critical Care Clinical Nurse Specialist II
- NUR 63500 Critical Care Clinical Nurse Specialist Practicum II
- NUR 65900 Critical Care Clinical Nurse Specialist Practicum III: Clinical Synthesis

B. Adult Health Clinical Nurse Specialist
- NUR 60000 Adult Health Clinical Nurse Specialist I
- NUR 60100 Adult Health Clinical Nurse Specialist Practicum I
- NUR 61800 Adult Health Clinical Nurse Specialist II
- NUR 62000 Adult Health Clinical Nurse Specialist Practicum II
- NUR 65800 Adult Health Clinical Nurse Specialist Practicum III: Clinical Synthesis

Family Nurse Practitioner Option
- NUR 61100 Primary Care of the Young Family
- NUR 61300 Primary Care of the Young Family Practicum
- NUR 62200 Primary Care of the Aging Family
- NUR 62300 Primary Care of the Aging Family Practicum
- NUR 65700 FNP Practicum: Clinical Synthesis

Nurse Executive Option
- NUR 52500 Informatics
- NUR 65000 Concepts for the Nurse Executive Creating an Environment for Professional Practice
- NUR 65100 Role of the Nursing Executive for Professional Practice
- NUR 65300 Nursing Administration, Financial Management
- SPEA V561 OR Public Human Resources Management
- OBHR 63300
- NUR 67100 Nurse Executive, Practicum I
- NUR 67200 Nurse Executive, Practicum II

4. Electives
(Required in the Clinical Nurse Specialist and Nurse Executive Options)
Two to three credits from Nursing or other fields of study

Adult Health or Critical Care Clinical Nurse Specialist Post-Master’s Certificate Programs

Purpose:
The purpose of the Adult Health or Critical Care Clinical Nurse Specialist Certificate Programs at Purdue University Calumet will be to provide Clinical Nurse Specialist (CNS) preparation to qualified Master’s prepared nurses. CNSs are advanced practice nurses who are uniquely prepared to meet complex patients’ needs for expert nursing care. In addition, CNSs advance the practice of nursing through their positive influence on nurses, nursing practice and healthcare systems. The target audience for this program includes master’s prepared nurses that are interested in becoming clinical nurse specialists.

Admission Requirements
The admission process for the Adult Health or Critical Care Clinical Nurse Specialist Post-Master’s Certificate Programs adheres to Graduate School Admission policies regarding English as a foreign language and parallels that for students seeking a Master’s Degree in Nursing. Specific requirements are:
1. Master’s degree in nursing from an accredited institution or admission and enrollment in a master’s degree program in nursing.
2. Minimum graduate GPA of 3.0/4.0 with the possibility of conditional admission for applicants who do not meet this requirement.
3. Evidence of current registered nurse licensure.
4. A minimum of one year or 1500 hours of experience as a registered nurse.
5. Criminal background check clearance (Information about testing to be obtained through College of Nursing).

Completion Requirements
The certificate requires students to complete a minimum of 12 credit hours and a maximum of 25 credit hours consisting of the following courses.

Adult Health and Critical Care
- NUR 50200 Pharmacotherapeutics for Advanced Practice Nursing* (3 credits)
- NUR 50300 Advanced Health Assessment** — 3 credits
- NUR 50700 Physiologic Concepts for Advanced Practice Nursing* (4 credits)
- NUR 51100 Health Promotion for Advanced Practice in Nursing* (3 credits)

Adult Health
- NUR 60000 Adult Health CNS I (3 credits)
- NUR 60100 Adult Health CNS Practicum I (2 credits)
- NUR 61800 Adult Health CNS II (3 credits)
- NUR 62000 Adult Health CNS Practicum II (2 credits)
- NUR 65800 Adult Health CNS Practicum III: Clinical Synthesis (2 credits)

Critical Care
- NUR 60200 Critical Care CNS I (3 credits)
- NUR 60300 Critical Care CNS Practicum I (2 credits)
- NUR 63000 Critical Care CNS II (3 credits)
- NUR 63500 Critical Care CNS Practicum II (2 credits)
- NUR 65900 Critical Care CNS Practicum III: Clinical Synthesis (2 credits)

*May be waived if student has taken a comparable course at Purdue University Calumet or another accredited nursing program within 5 years prior to application to this program.
Family Nurse Practitioner Post-Master’s Certificate Program

Purpose:
The purpose of the Family Nurse Practitioner Certificate Program at Purdue University Calumet is to increase the numbers of family nurse practitioners prepared to provide primary care. Primary care is currently undergoing a period of expansion in order to meet the increasing healthcare needs of our nation’s citizens. The post-master’s certificate program at Purdue University Calumet exists to address the need for increased numbers of primary care providers. The target audience for this program includes master’s prepared nurses that are interested in becoming family nurse practitioners.

Admission Requirements
The admission process for the Family Nurse Practitioner Certificate Program adheres to Graduate School Admission policies regarding English as a foreign language and parallels that for students seeking a Master’s Degree in Nursing. Specific requirements are:
1. Master’s degree in nursing from an accredited institution or admission and enrollment in a masters degree program in nursing.
2. Minimum graduate GPA of 3.0/4.0 with the possibility of conditional admission for applicants who do not meet this requirement.
3. Evidence of current registered nurse licensure.
4. A minimum of one year or 1500 hours of experience as a registered nurse.
5. Criminal background check clearance (Information about testing to be obtained through College of Nursing.)

Completion Requirements
Credit Hour Requirements:
The certificate requires students to complete a minimum of 14 and a maximum of 27 credit hours consisting of the following courses:
- NUR 50200 Pharmacotherapeutics for Advanced Practice Nursing* (3 credits)
- NUR 50300 Advanced Health Assessment* (3 credits)
- NUR 50700 Physiologic Concepts for Advanced Practice Nursing* (4 credits)
- NUR 51100 Health Promotion for Advanced Practice in Nursing* (3 credits)
- NUR 61100 Primary Care of the Young Family (3 credits)
- NUR 61300 Primary Care of the Young Family Practicum (3 credits)
- NUR 62200 Primary Care of the Aging Family (3 credits)
- NUR 62300 Primary Care of the Aging Family Practicum (3 credits)
- NUR 65700 FNP Practicum: Clinical Synthesis (2 credits)

*May be waived if student has taken a comparable course at Purdue University Calumet or another accredited nursing program within 5 years prior to application to this program.

Post-Master’s Certificate in Nursing Education

Purpose
The purpose of the Post-Master’s Certificate in Nursing Education Program at Purdue University Calumet is to increase the numbers of nurse educators and improve the quality of nursing education. This purpose is accomplished by: providing knowledge and experience in curriculum development; teaching methods to enable qualified master’s prepared nurses to assume the role of beginning faculty; and providing faculty who wish to acquire formal academic preparation in teaching the means to do so. The target audience for this program consists of master’s students and master’s prepared advanced practice nurses, as well as faculty interested in continuing their formal education in teaching.

Admission Requirements
The admission process for the Post-Master’s Certificate in Nursing Education adheres to Graduate School Admission policies regarding English as a foreign language and parallels that for students seeking a Master’s Degree in Nursing. Specific requirements are:
1. Master’s degree in nursing from an accredited institution or admission and enrollment in a masters degree program in nursing.
2. Minimum graduate GPA of 3.0/4.0 with the possibility of conditional admission for applicants who do not meet this requirement.
3. Evidence of current registered nurse licensure.
4. Criminal background check clearance (Information about testing to be obtained through College of Nursing.)

Credit Hour Requirements:
The certificate requires students to complete 10 credit hours consisting of the following existing courses:
- EDCI 57200 Introduction to Learning Systems Design (3 credits)
- NUR 66000 Curriculum Development in Nursing (3 credits)
- NUR 66200 Teaching Strategies for Nursing (4 credits)
COLLEGE OF TECHNOLOGY
Academic programs offered by the College of Technology include state-of-the-art curricula to meet the ever-changing demands of business and industry for highly-trained technical professionals. The College of Technology offers small class sizes, research opportunities, and the opportunity to profit from real-world laboratory experiences.

- **Computer Information Technology and Graphics** (Charles Winer, Acting Head; 219/989-2035, Anderson Bldg., Room 145A)
- **Construction Science and Organizational Leadership** (Anthony Gregory, Head; 219/989-2332, Anderson Bldg., Room 212)
- **Engineering Technology** (Susan Scachitti, Head; 219/989-2471, Anderson Bldg., Room 143)

### Bachelor Degree Programs
- Computer Graphics Technology
- Computer Information Technology
- Construction Management & Engineering Technologies
- Electrical Engineering Technology
- Industrial Engineering Technology
- Mechanical Engineering Technology
- Mechatronics Engineering Technology
- Organizational Leadership and Supervision

### Master’s Degree Programs
- Technology
- Online Technology Leadership and Management Concentration
- Modeling, Simulation and Visualization

### Career Opportunities
The degree programs within Purdue University Calumet’s College of Technology offer “real-world” experience that sets PUC graduates apart from others in their job-search. Graduates are prepared for such career opportunities as a Process Engineer, Plant Manager, Safety Specialist, Database Administrator, Quality Assurance Manager, Product Design Engineer, Process Control Instrumentation Technologist, Human Resource Specialist, Computer Network Technologist, Corporate Trainer, Biomedical Instrumentation Technologist, Construction Scheduler, Multimedia Specialist, Survey Crew Chief, Estimator, CAD Operator/Manager, Graphic Artist, Animator, Virtual Reality Developer, Web Designer/Developer, Lead Software Developer, Software Application Architect, Network Security Technician, Expediter, Manufacturing Supervisor, Materials Technician, System Administrator, Information Technology Consultant, Software Engineer, Programmer, Computer Hardware/Software Technologist, Application Developer, System Analyst, Mechatronics Technician and more.
Department of Computer Information Technology and Graphics

Charles Winer, Professor and Acting Department Head. Faculty: R. Calix; M. Chandramouli; K. Jiang; G. Jin; T. Kim; B. Nicolai; M. Roller; M. Tu; Y. Yang
Emeritus Faculty: S. Rados
Academic Advisor: Debra Armand, Computer Information Technology and Computer Graphics Technology
Staff: B. Marczewski, Department Secretary; D. Alt, CITG Technology Specialist

The Department of Computer Information Technology and Graphics (CIT&G), offers Bachelor of Science (B.S.) Degree programs in computer information technology and computer graphics technology. The programs blend the theoretical with the practical and emphasize business applications.

The mission of the Computer Information Technology and Graphics Department at Purdue University Calumet is to provide superior academic programs to our students, acclaimed service to the Calumet Region, and excellence in scholarship to the information technology community. Through classroom and lab interaction with experienced faculty and the ability of students to perform applied research and experiential learning, our graduates are able to begin their professional work activities with the confidence and knowledge to be successful in their chosen field of work. Our computer lab facilities and industry standard software enable students to be on the leading edge of what they will encounter in the real world of information technology and graphics.

The department supports four state-of-the-art and cutting edge technology virtual classrooms/labs in the Powers Building allowing students to access our courses and labs from anywhere at any time. Digitally recorded modules may be archived and available as Podcasts or viewed as live or recorded Webcasts so students can work on a self-paced basis.

For further information, please call the Computer Information Technology and Graphics office at (219) 989-2035. The department homepage can be accessed at: http://webs.purduecal.edu/citg/

Computer Information Technology and Graphics Bachelor of Science degrees:
- Bachelor of Science, Computer Information Technology*
- Bachelor of Science, Computer Graphics Technology**

Notes: ITS (Information Technology Systems) is the CIT program’s subject code designator. CGT (Computer Graphics Technology) is the CGT program’s subject code designator.
*Accredited by the Computing Accreditation Commission of ABET www.abet.org
**Accredited by the Association of Technology, Management, and Applied Engineering of ATMAE www.atmae.org
Bachelor of Science, Computer Information Technology
(120 CREDIT HOURS)

This program is based on curriculum standards of the Association for Computing Machinery/Special Interest Group Information Technology Education (ACM/SIGITE) core curriculum that meets the requirements of Purdue University Calumet instructional guidelines. The curriculum has the student experience each individual topic in their first two years. The SIGITE core is made up of general education courses and specific Information Technology requirements of the accreditation guidelines. The core courses span knowledge areas that include computational thinking / problem solving, algorithm development, database implementation, project management, human-computer interaction, information assurance and security, networking technologies, platform technologies, and operating systems implementation. Through classroom and lab interaction with experienced faculty and the ability to perform applied research and experiential learning, Computer Information Technology graduates are able to begin their professional work activities with the confidence and knowledge to be successful in their chosen field of work.

1. English and Communications
   - ENGL 10400 English Composition
   - ENGL 22000 Technical Report Writing
   - COM 11400 Fundamentals of Speech Communications

2. Mathematics and Science
   - MA 14700 Algebra and Trigonometry for Technology
   - MA 20500 Discrete Mathematics for IT
   - STAT 30100 Elementary Statistical Methods

3. Natural Science — defined as one of the following: Science 11200, Astronomy, Geology, Biology, Physics or Chemistry.

4. Humanities and Social Science
   - Humanities — defined as one of the following: American History, English Literature, Modern Language, Philosophy, World History, World Literature, or Aesthetics (Fine Arts, Music, and Theater).
   - Social Sciences — defined as one of the following: Anthropology, Communication, Economics, Political Science, Psychology or Sociology

5. Open Elective — (Consisting of 3 credit hours)

6. Computer Information Technology
   - ITS 10000 Information Technology Fundamentals
   - ITS 11000 Web Systems Technologies
   - ITS 12000 Introduction to Human–Computer Interaction
   - ITS 13500 Operating Systems Technologies
   - ITS 14000 Introduction to Computer Algorithms and Logic
   - ITS 17000 Networking Technologies
   - ITS 20000 Ethical and Legal Issues in IT
   - ITS 24000 IT Programming Fundamentals
   - ITS 24500 Integrative Programming
   - ITS 25000 Fundamentals of Information Assurance
   - ITS 26000 Applied Database Technologies
   - ITS 27000 Internetworking Technologies
   - ITS 33000 Advanced Operating Systems
   - ITS 34000 Advanced Programming
   - ITS 35000 Systems Assurance
   - ITS 35200 Disaster Recovery and Planning
   - ITS 36000 Distributed Application Architecture and Design
   - ITS 36200 Distributed Application Development
   - ITS 36400 Database Modeling and Implementation
   - ITS 37000 Data Communications and Networking
   - ITS 37200 System Administration and Management
   - ITS 45000 Software Assurance
   - ITS 45200 Computer Forensics
   - ITS 45400 Assured Systems Design and Implementation
   - ITS 46200 Application Integration
   - ITS 47000 Large Scale High Performance Systems
   - ITS 47200 Network Design and Implementation
   - ITS 48000 IT Project Development and Management
   - ITS 49000 Senior Project/Undergraduate Research

Program Notes:
1. The program requirements are determined by the date a student officially becomes a CIT major.
2. A student who is not qualified to take at least ENGL 10400 and MA 14700 courses is considered deficient and cannot take any ITS courses until the deficiency is removed.
3. A grade of a “C” or better is required in each ITS major course. ITS courses in which lower grades have been received must be retaken before progressing to the next course in the sequence. An incomplete is not considered a passing grade.
4. Only two ITS courses may be repeated because of an unsatisfactory (D or F) grade. These courses may only be repeated one time.
5. No student shall choose the pass/not pass option for an ITS course. Advisor agreement is required for any other course.
6. Students must meet the University requirements for freshman experience, general education, and experiential learning prior to graduation. Students will utilize general education selective with advisor consent in the category listed.
7. It is expected that students taking 20000, 30000, 40000 level courses have taken all of the previous levels courses regardless of prerequisites.

Computer Information Technology (CIT)

The following are the Program Educational Objectives (PEO’s) for the Baccalaureate Degree in Computer Information Technology (CIT):

Program Educational Objective 1:
The program will produce graduates that are information technologists with applied research, critical thinking and problem solving skills.

Program Educational Objective 2:
The program will produce graduates that are professionals, leading industry direction with excellence in providing solutions to business needs.

Program Educational Objective 3:
The program will produce graduates that are future information technology leaders.

Program Educational Objective 4:
The program will produce graduates that are life-long learners who have a commitment to service within the community.

Program Educational Objective 5:
The program will produce graduates that are citizens of the world, sensitive to state, national and global initiatives through technological solutions.

Computer Graphics Technology (CGT)

The Computer Graphics Technology program is designed to prepare students for employment as graphics technicians. Students work in computer labs developing their graphics skills, techniques, concepts, and management ability through individual and team-based projects.

Graduates of this program work as graphics practitioners to produce engineering drawings, technical manuals, multimedia products, technical illustrations, and web pages.

The courses in the curriculum develop skills and knowledge critical to all areas of computer graphics specialization. They embrace the teaching of ten (10) core behaviors including...
Bachelor of Science, Computer Graphics Technology
(120 CREDIT HOURS)

1. English and Communications
   ENGL 10100  English Composition I
   ENGL 22000  Technical Report Writing
   COM 11400  Fundamentals of Public Speaking

2. Mathematics and Science
   PHYS 22000  General Physics I
   Elective  See * below if transferring to West Lafayette CGT
   MA 14700  Algebra & Trigonometry for Technology I
   MA 14800  Algebra & Trigonometry for Technology II
   Elective  See ** below if transferring to West Lafayette CGT
   MA 14800  Algebra & Trigonometry for Technology II
   Elective  See ** below if transferring to West Lafayette CGT

3. General Education
   ECON 10100  Survey of Economics

4. Humanities Elective
   Any course in literature, history, philosophy, foreign language, art, music, theater, or appropriate interdisciplinary humanities courses.

5. Social Science Elective:
   Any course in anthropology, psychology, sociology, political science, economics, or appropriate interdisciplinary social sciences courses.

   CGT 10100  Introduction to Computer Graphics Technology
   CGT 11100  Design for Visualization and Communication
   CGT 11200  Sketching for Visualization and Communication
   CGT 11600  Geometric Modeling for Visualization and Communication
   CGT 14100  Internet Foundations, Technologies, and Development
   CGT 21100 Raster Imaging for Computer Graphics
   CGT 21500  Computer Graphics Programming I
   CGT 21600  Vector Imaging for Computer Graphics
   CGT 24100  Introduction to Animation and Spatial Graphics
   CGT 25600  Human Computer Interface Theory and Design
   CGT 30700  Advanced Graphic Design for Web and Multimedia
   CGT 30800  Pre Press Production
   CGT 30900  Internship In Computer Graphics Technology
   CGT 31000  Drawing, Acting and Scripts for Animation
   CGT 33000  Multimedia Animation and Video Game Design and Development
   CGT 34000  Digital Lighting & Rendering
   CGT 34100  Motion for Computer Animation
   CGT 34600  Digital Video and Audio
   CGT 35100  Interactive Multimedia Design
   CGT 35300  Principles of Interactive & Dynamic Media
   CGT 35600  Web Programming, Development & Data Integration
   CGT 4x x 00  Contemporary Problems in Applied Computer Graphics
   CGT 41600  Senior Design Project
   CGT 44200  Production for Computer Animation
   CGT 44600  Post-Production & Special Effects for Computer Animation
   CGT 45100  Multimedia Application Development
   CGT 45600  Advanced Web Programming, Development & Data Integration
   CGT 49100  Special Topics
   CGT  Selective 2 or Internship

7. Programming Courses (2 courses)
   CGT 21500  Computer Graphics Programming I
   and Programming course or technical elective

SELECT ONE OF THE FOLLOWING AND/OR
Approved Programming course or approved technical elective

8. Technical Elective
   Two Technical Electives (6 credit hours) with advisor approval.
   Technical Elective - any course in CGT, College of Technology, A&D, CGT related And approved by the CGT advisor.

9. Management/Supervision
   OLS 25200  Human Relations in Organizations
   OLS 37500  Training Methods
   OLS 47700  Conflict Management
   OLS 35100  Entrepreneurship Organizational Leadership
   OLS 35000  Applied Creativity for Business and Industry

The following are the Program Educational Objectives (PEOs) for the Baccalaureate Degree in Computer Graphics Technology (CGT):

Program Educational Objective 1:
The program will produce graduates that are primed for successful careers in the disciplines associated with or related to computer graphics technology.

Program Educational Objective 2:
The program will produce graduates that will understand the overall human context in which computer graphics technology activities take place.

Program Educational Objective 3:
The program will produce graduates that will develop conceptual principles, processes, and techniques essential to all areas of computer graphics and digital media production.

Program Educational Objective 4:
The program will produce graduates that will work and interact, through hands-on experiences, to design, develop, produce, and edit electronically generated imagery using a wide range of sophisticated graphical tools and techniques.

Program Educational Objective 5:
The program will produce graduates that are capable of working within a team framework to accomplish a common computer graphics goal and communicate with a range of audiences.

Program Educational Objective 6:
The program will produce graduates that are life-long learners who engage within communities for which Computer Graphics can serve.

Program Educational Objective 7:
The program will produce graduates that are computer graphics technologists with applied research, critical thinking, and problem solving skills in the evolving field of computer graphics.
Department of Construction Science and Organizational Leadership

A.M. Gregory, Department Head.
Faculty: J.A. Colwell; R.E. Evans; C.F. Jenks; J.R. Johnson; J.H. Lee; S.Nakayama; R.Ocon; J.A.Pena
Emeritus Faculty: E.A. Dudek; W.F.Glowicki; B.M.Meeker; N.G.Scarlatis
Academic Advisor: Amber Schuler, Construction Management and Engineering Technologies and Organizational Leadership and Supervision
Staff: Sheree Kayden, Department Secretary

The Construction Science and Organizational Leadership department offers Bachelor of Science (B.S.) degrees in Construction Management and Engineering Technologies (CMET), and in Organizational Leadership and Supervision (OLS). The CMET Bachelor of Science degree is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org. Also included in the CMET program is an option in Surveying Technology that has received endorsements by both the State of Indiana Board of Registration for Land Surveyors, and the Land Surveying Licensing Board of the Illinois Department of Professional Regulation.

The Organizational Leadership and Supervision Bachelor of Science degree is accredited by the Applied Science Accreditation Commission of ABET and is the first and only OLS program accredited in the nation. The primary objective of the OLS degree program is to develop the philosophy, skills, and techniques required of successful, first-line leadership in business, education, government, industry, and service organizations. The Organizational Leadership and Supervision Bachelor of Science Degree also offers an Area of Specialization in Environmental Health & Safety (EHS).

The faculty of the Construction Science and Organizational Leadership department have a wealth of real world experience and are leaders in their respective disciplines. As a result, the department curricula are kept current through continuous improvement.

For further information, please call the Construction Science & Organizational Leadership office at (219) 989-2332. The department homepage can be accessed at: http://webs.purduecal.edu/csol/

Construction Science & Organizational Leadership Bachelor of Science degrees:

- Bachelor of Science, Construction Management & Engineering Technologies*
- Bachelor of Science, Organizational Leadership and Supervision**

*Accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org
**Accredited by the Applied Science Accreditation Commission of ABET, www.abet.org

Bachelor of Science, Construction Management and Engineering Technologies

The Construction Management and Engineering Technologies (CMET) program prepares graduates for various positions within the construction industry. The construction industry includes general construction firms, specialized contractors, residential contractors, materials suppliers, consulting engineering firms, and architectural firms. The program combines course focus areas in Architectural Engineering Technology, Civil Engineering Technology, Surveying Technology, and Construction Management.

Students in the CMET program benefit from the availability of internships offered within the construction industry. The combination of high quality education with actual work experience produces graduates that are prepared for immediate employment and the ability to advance in their careers.

Graduates of the CMET program are working in successful careers nationwide as estimators, field superintendents, construction schedulers, project engineers, project managers, survey crew chiefs, materials technicians, architectural/civil engineering draftspersons, and cost engineers.

Bachelor of Science, Construction Management & Engineering Technologies
(120 CREDITS)

The objective of the Bachelor of Science degree program in Construction Management & Engineering Technologies (CMET) is to provide a broad background in the areas of construction project management, construction engineering, construction methods, inspection, supervision, scheduling and management with additional emphasis on business and communication. The intent of the bachelor of science program is to prepare students to take advantage of opportunities in management positions in which direction of personnel, as well as construction projects, is required.

Note: A grade of C or better in all courses having the "ARET, CET and CMET" designator is required to obtain the CMET B.S. degree, certificate, and option.

This program does not lead to professional registration in architecture or engineering.

1. Communication

ENGL 10400 English Comp.I
ENGL 22000 Technical Report Writing
COM 11400 Fundamentals of Speech
One Communications Elective (300 level and above)

2. Science and Mathematics

Science
PHYS 22000 General Physics
One Science elective: any lab science approved by CMET department

Math
MA 14700 Algebra and Trig. for Technology I
MA 14800 Algebra and Trig. for Technology II
MA 21900 Calculus for Tech I
STAT 30100 Elementary Statistical Methods I

3. General Education

One general education elective from: Psychology, Philosophy, Sociology, Political Science, History, Foreign Languages, Anthropology, Art History, or English Literature.

4. Major Requirements

ARET 11700 Construction Drafting
ARET 17000 Materials and Systems of Construction
ARET 22200 Arch. Construction II
ARET 27600 Specifications and Contract Documents
ARET 28300 Mech. & Elec. Equip for Bldg.
CET 10400 Elementary Surveying
CET 16000 Statics
CET 20900 Land Surveying & Subd.
CET 25300 Hydraulics & Drainage
CET 26800 Strength of Materials
CET 26600 Materials Testing
CET 28000 Structural Calculations

For further information, please call the Construction Science & Organizational Leadership office at (219) 989-2332. The department homepage can be accessed at: http://webs.purduecal.edu/csol/
Bachelor of Science, Construction Management & Engineering Technologies – Surveying Technology Option

The Construction Management & Engineering Technologies program includes a Surveying Technology Option. This option includes numerous additional courses in land surveying within the 120 credit hour plan of study. The purpose of the option is to prepare students for licensure as a Professional Land Surveyor. This option has been previously approved by the licensing boards for land surveyors in both Indiana and Illinois. Note that additional courses may be required to satisfy current state requirements.

For further information, please contact the department of Construction Science & Organizational Leadership at (219) 989-2332.

Note: A grade of C or better in all courses having the “ARET, CET and CMET” designator is required to obtain the CMET B.S. degree, certificates, or option.

Program Educational Objectives for Construction Management Engineering Technologies

The following are the Program Educational Objectives (PEOs) for the Baccalaureate Degree in Construction Management and Engineering Technologies (CMET):

Program Educational Objective 1:
The program produces graduates that will grow as professionals after graduation to be effective as they advance within the field of construction and adapt to changing environments.

Program Educational Objective 2:
The program produces graduates that will effectively lead, work, and communicate in multidisciplinary environments in the construction industry and related fields.

Program Educational Objective 3:
The program produces graduates that will demonstrate professionalism and ethics in making decisions in leadership and management roles in their discipline.

Program Educational Objective 4:
The program produces graduates that will demonstrate professional competence in the application of technical standards and codes.

Bachelor of Science, Organizational Leadership and Supervision

The primary objective of the Organizational Leadership and Supervision (OLS) Bachelor of Science Degree program is to develop the philosophy, skills, and techniques required of successful, first-line leadership in business, education, government, industry, and service organizations. OLS offers personalized areas of specialization that are practical, applied, and job-related, and best of all, tailored to the student’s interests. The program includes “Career Specialization Electives” that allow for transfer of courses from other programs.

In support of this orientation, an in-depth academic program has been developed which blends theory about individual and group human behavior with practical skills training. This integration is enhanced by a dedicated and work-experienced faculty, small-size classes, and students who have “real world” exposure from their work experience.

Graduates of the OLS program are working in successful careers as project managers, construction planners/schedulers, sales managers, safety instructors, production supervisors, safety supervisors, human resource specialists, and business administrators.

Bachelor of Science, Organizational Leadership and Supervision

(120 CREDITS)

Note: A grade of C or better in all courses having the “OLS” designator is required to qualify for their use in OLS B.S. degree or OLS certificates

1. Communication
   CDM 11400 Fund. of Speech Communication
   ENGL 10400 English Composition I
   ENGL 22000 Technical Report Writing
   ENGL 42000 Business Writing
   One Communications elective (300 level and above)

2. Science and Mathematics
   CIS 20400 Intro. to Computer-Based Systems
   MA 14700 Algebra & Trig. for Tech. I
   STAT 13000 Stat. & Contemporary Life
   2 Lab Science Electives (any sciences with a laboratory)

3. Humanities and Social Sciences
   BHS 20100 Statistical Methods for BHS
   ECON 21000 Principles of Economics
   PSY 12000 Elementary Psychology
   PHIL 32400 Ethics for the Professions
   One Social Science elective

4. Major Requirements
   OLS 13100 Intro. to Envr. Health, Safety, & Risk Mgmt.
   OLS 16300 Fundamentals of Self Leadership
   OLS 25200 Human Relations in Org.
   OLS 27200 Job Evaluation
   OLS 35000 Creativity in Business & Indus.
   OLS 37400 Supervisory Management
   OLS 37500 Training Methods
   OLS 37600 Human Resource Issues
   OLS 37800 Labor/Mgmt. Relations
   OLS 38400 Leadership Process
   OLS 45400 Gender & Diversity Mgmt.
   OLS 46800 Personnel Law
   OLS 47400 Conference Leadership (EXL)
   OLS 47700 Conflict Management
   OLS 48300 Common Law of the Workplace
   OLS 49700 Senior Project (EXL)
Electives

CIS Elective — any course designated as Computer Information Systems (CIS).

Career Specialization Elective — a concentration of job-related courses from the same subject area.

Communication Elective — COM 31800, COM 32300, COM 32500, COM 42600.

Elective — any course offered by Purdue University Calumet approved by the OLS advisor except General Studies or any classes taken to remove high school deficiencies e.g., beginning and intermediate algebra.

Humanities Elective — any course in Literature, History, Philosophy, Foreign Language, Art, Music, Theater, or appropriate interdisciplinary humanities courses.

Laboratory Science Elective — any science class with a laboratory e.g., Biology, Physics, Chemistry, Geoscience.

OLS Elective — OLS 27400, OLS 35100, OLS 36400, OLS 47900, OLS 48200, OLS 48500, OLS 48600, OLS 49100, OLS 57400, OLS 59000.

Social Science — any course in Anthropology, Psychology, Sociology, Political Science, Economics, or appropriate interdisciplinary social sciences courses.

Technical Elective — any course from a College of Technology program and approved by the OLS advisor.

Bachelor of Science, Organizational Leadership and Supervision - Area of Specialization in Environmental Health and Safety

(120 CREDITS)

The Organizational Leadership and Supervision program includes an area of specialization in Environmental Health and Safety (EHS). This area provides a diverse education for students interested in obtaining careers as leaders and professionals in EHS. The program provides specialized courses that include Occupational Safety and Health, Fundamentals of Risk Management, Hazardous Materials, Fundamentals of Industrial Hygiene, Fundamentals of Environmental Health, and Incident Investigation. EHS Graduates are working as safety professionals within various industries: communication, consulting, construction, government, health care, insurance, manufacturing, transportation, petroleum and utilities.

For further information, please contact the department of Construction Science & Organizational Leadership at (219) 989-2332.

Note: A grade of C or better in all courses having the “OLS” designator is required to obtain the OLS B.S. degree, certificates, area of specialization or minor.

Organizational Leadership and Supervision — Minor

(15 CREDIT HOURS)

A grade of C or better is required in all OLS courses for successful completion of this minor.

- OLS 16300 Fundamentals of Self-Leadership
- OLS 25200 Human Relations in Organizations
- OLS 37400 Supervision Management
- OLS 37600 Human Resource Issues
- OLS 38400 Leadership Process
- or any OLS 40000-level course, excluding safety courses

Program Educational Objectives for Organizational Leadership and Supervision

The following are the Program Educational Objectives (PEOs) for the Baccalaureate Degree in Organizational Leadership and Supervision (OLS):

Program Educational Objective 1:
Graduates of the Organizational Leadership and Supervision (OLS) Bachelor of Science program will lead people and organizations as they advance in careers as human resource, safety, and supervision professionals.

Program Educational Objective 2:
Graduates of the Organizational Leadership and Supervision (OLS) Bachelor of Science program will develop and grow professionally after graduation in order to remain effective as they practice within their field.

Program Educational Objective 3:
Graduates of the Organizational Leadership and Supervision (OLS) Bachelor of Science program will demonstrate professionalism and ethical behavior in making decisions in leadership and management roles in business, institutional, and technical settings.
Department of Engineering Technology

S. Scachitti, Department Head. Faculty: J. P. Agrawal; A. Ahmed; C. Engle; O. Farook; M. Fathizadeh; J. Higley; A. Hossain; L. Mapa; G. Neff; C. Sekhar; S. Tickoo; M. Zahraee
Emeritus Faculty: M. Kays; G. Kvitek; D. Rose; N. Sorak
Academic Advisor: E. Perosky
Staff: TBD, Department Secretary; J. Najzer, Electronics Supervisor ET/Engineering Labs

The Department of Engineering Technology (ET) at Purdue University Calumet offers four separate Bachelor of Science (B.S.) degrees in: 1) Electrical Engineering Technology*, 2) Industrial Engineering Technology*, 3) Mechanical Engineering Technology*, and 4) Mechatronics Engineering Technology*.


The mission of the department is to provide career educational opportunities to students who have hands-on aptitude and are oriented towards applications. The programs offered by this department are designed to teach students the practical aspects of their disciplines along with the underlying concepts and theories, and inculcate students with the aptitude of applying their knowledge with scientific and objective reasoning.

The department's goal is to produce graduates who are equipped with marketable skills and potential for growth to meet the technical manpower needs of society. The curriculum provides a strong background in technical subjects integrating theory with extensive hands-on laboratory training, mathematics, science, and rounding off with courses in humanities and general education.

The Engineering Technology programs deal with the application of knowledge of mathematics, natural and engineering sciences, and current engineering practices. The Bachelor of Science (B.S.) degree programs within the Engineering Technology Department involve solutions of design problems, implementation, operation, and testing of engineering and manufacturing systems. Engineering Technology emphasizes an integrated approach to teaching by including both theory and practice in most of the courses which have laboratories integrated into these courses.

Our cutting edge laboratory facilities allow our students to acquire these hands-on experiences in modern laboratories which are constantly equipped and updated with instruments and software either through technology fee moneys or donations from industries.

The Department of Engineering Technology owes its strength to its faculty. All faculty are published scholars and experienced engineers who bring this experience to the classroom. The ET faculty publish books, attend conferences on regular basis, are involved in grant writing, research, and are in constant engagement with local industries for donations and rewarding partnerships. Graduate students from the College of Technology Graduate Program are often employed as Research Assistants or Teaching Assistants to assist faculty in their research or teaching assignments.

The ET department measures its success by the demand of its graduates. These graduates are highly sought in industry, with excellent placement rates and competitive starting salaries. The need for technical graduates with a Bachelor of Science (B.S.) degree in either Electrical Engineering Technology, Industrial Engineering Technology, Mechanical Engineering Technology, or Mechatronics Engineering Technology is growing at an accelerated pace, making the Engineering Technology Department a great place to start a successful career.

Senior Design Project and Experiential Learning: As a two-semester capstone course, the senior design project is required from all seniors in all four Bachelor of Science (B.S.) degrees, and fulfills the Purdue University Calumet Experiential Learning component required for graduation. The senior design project provides the opportunity for students to work in teams in a multi-disciplinary environment in order to pursue an idea from conception to design and then to execution into a demonstrable project. The project culminates with a showcase that is open to the general public. This capstone course helps students to bridge the gap between theory and practice, and ensures that students transition seamlessly and with confidence into the real industrial world.

For further information, please call the Engineering Technology Department office at (219) 989-2471. The department homepage can be accessed at: http://webs.purduecal.edu/et/

Engineering Technology Bachelor of Science degrees:

- Bachelor of Science, Electrical Engineering Technology*
- Bachelor of Science, Industrial Engineering Technology*
- Bachelor of Science, Mechatronics Engineering Technology*
- Bachelor of Science, Mechanical Engineering Technology*

Bachelor of Science, Electrical Engineering Technology

A Bachelor of Science in Electrical Engineering Technology leads to a career in an established profession that has been adapting continuously to meet the changing technological needs of society. This profession is integrated into all aspects of society allowing for students to apply the skills they learn to almost any interest area they may have; computers, power, healthcare, sustainable energy, telecommunications, manufacturing, and many more.

Given the sophistication dictated by the emerging technologies within the vast field of electronics and electrical engineering, the Bachelor of Science degree in Electrical Engineering Technology is designed to give graduates a strong background to help them enter the job market and be productive in society. Graduates of the program are readily employable because of their theoretical and practical skills in each technical subject and their extensive hands-on laboratory training. They are prepared to work within organizations in the areas of engineering, manufacturing, management, and service.

The Bachelor of Science Degree in Electrical Engineering Technology provides knowledge in:

- Circuits and Network Theory
- Switching Theory (Digital Circuits)
- Analog Electronics
- Embedded System Design
- System Diagnostics
- Microprocessor Based Systems
- Hardware/Software Integration
- Computer Hardware Technology
- Computer Networking
- Process Control
- Computer Aided Electronic Fabrication
- Programmable Logic Controllers
- Telecommunications
- Biomedical Instrumentation
- Digital Signal Processing
- Power and Power Electronics
- IP Telephony
- Wireless Networking

The program consists of 120 credit hours.

Bachelor of Science, Electrical Engineering Technology
(120 CREDITS)

1. Electrical Engineering Technology Required Courses (79 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECET 10000</td>
<td>Introduction to Electrical &amp; Computer Engineering Technology</td>
</tr>
<tr>
<td>ECET 10200</td>
<td>Electrical Circuits I</td>
</tr>
<tr>
<td>ECET 10900</td>
<td>Digital Fundamentals</td>
</tr>
<tr>
<td>ECET 11000</td>
<td>Computer System Architecture</td>
</tr>
<tr>
<td>ECET 15200</td>
<td>Electrical Circuits II</td>
</tr>
<tr>
<td>ECET 15400</td>
<td>Analog Electronics I</td>
</tr>
<tr>
<td>ECET 15900</td>
<td>Digital Applications</td>
</tr>
<tr>
<td>ECET 20900</td>
<td>Introduction to Microcontrollers</td>
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<tr>
<td>ECET 21000</td>
<td>Structural Analysis for Elec Sys</td>
</tr>
<tr>
<td>ECET 21200</td>
<td>Electrical Power and Machinery</td>
</tr>
<tr>
<td>ECET 26200</td>
<td>Programmable Logic Controllers</td>
</tr>
<tr>
<td>ECET 26500</td>
<td>Computer Networks</td>
</tr>
<tr>
<td>ECET 27300</td>
<td>Modern Energy Systems</td>
</tr>
</tbody>
</table>

2. EET Electives (3 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ECET 46200</td>
<td>Application of Computers in Process Control</td>
</tr>
<tr>
<td>ECET 46500</td>
<td>Advanced Topics in Computer Networks</td>
</tr>
<tr>
<td>ECET 46700</td>
<td>IP Telephony</td>
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</tbody>
</table>

3. Communication (9 Credits)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ENGL 10400</td>
<td>English Composition I</td>
</tr>
<tr>
<td>COM 11400</td>
<td>Fundamentals of Speech Communication</td>
</tr>
<tr>
<td>ENGL 22000</td>
<td>Technical Report Writing</td>
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</table>

4. Science and Mathematics (17 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MA 14700</td>
<td>Algebra and Trigonometry for Technology I</td>
</tr>
<tr>
<td>MA 14800</td>
<td>Algebra and Trigonometry for Technology II</td>
</tr>
<tr>
<td>MA 21900</td>
<td>Calculus for Technology I</td>
</tr>
<tr>
<td>PHYS 22000</td>
<td>General Physics I</td>
</tr>
<tr>
<td>MA 22200</td>
<td>Calculus for Technology II</td>
</tr>
</tbody>
</table>

5. General Education (3 Credits)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SOC 10000</td>
<td>Introduction to Sociology</td>
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</table>

6. Other Electives (9 Credits)

Humanities Selective courses that have been approved by the Faculty Senate to meet the Critical Appreciation for the Arts and Works of Human Expression general education requirements (3 credits), Humanities and/or Social Science Selective (3 credits), and one Natural Science or Math/Statistics course (3 credits).

The following are the Program Educational Objectives for the Baccalaureate Degree in Electrical Engineering Technology:

Program Educational Objective 1:
The program will prepare graduates with the technical skills for successful careers in the design, application, installation, manufacturing, testing, documentation, operation, maintenance, analysis, development, implementation, and oversight of electrical/electronic(s) and computer systems.

Program Educational Objective 2:
The program will prepare graduates to work as effective team members with commanding oral and written communication skills, as well as to advance in their careers and continue their professional development.

Program Educational Objective 3:
The program will prepare graduates to exercise ethics in their profession and to recognize the global impacts of their profession on society.
Bachelor of Science, Industrial Engineering Technology

Increased sophistication in technology and management systems is fueling the need for graduates with capabilities in both technology and business. Industrial Engineering Technology (IET) students are usually interested in people and the environments in which they work. They are very practical and logical and often prefer a hands-on method of learning over the theoretical method. Increased job openings will occur for graduates as automation and modernization continue to be applied in business and industry. This program prepares students for problem solving and decision making tasks required in management and technological positions.

Graduates from the IET program are prepared for positions in a variety of industries including manufacturing, service and healthcare. IET graduates obtain positions such as Manufacturing Engineer, Process Engineer, Quality Engineer, Plant Manager, Six Sigma Black Belt, Lean Leader or Healthcare Management Engineer.

The Bachelor of Science Degree in Industrial Engineering Technology provides knowledge in:
- Ergonomics
- Quality
- Production Planning & Control
- Lean Work Design
- Job Evaluation
- Project Management & Economic Analysis
- Plant Layout & Material Handling
- Logistics
- Statistical Process Control
- Quality Management
- Lean & Six Sigma Methodologies
- Production Cost Analysis
- Radio Frequency Identification (RFID)
- Supply Chain Management
- Process Simulation

The program consists of 120 credit hours.

Bachelor of Science, Industrial Engineering Technology

(120 CREDITS)

1. Communication (15 credits)
   - ENGL 10400 English Comp I
   - ENGL 22000 Technical Report Writing
   - COM 11400 Fund of Speech Commun
   - ENGL 42000 Business Writing
   - OLS 47400 Conference Leadership

2. Science and Mathematics (24 credits)
   - MA 14700 Algebra and Trig I
   - MA 14800 Algebra and Trig II
   - MA 21900 Calculus for Technology I
   - STAT 30100 Elementary Statistics
   - CHM 10000 Preparation for General Chemistry
   - OR
   - BIOL 10010 Preparation for Introductory Biology
   - PHYS 22000 General Physics
   - PHYS 22100 General Physics II

3. Major Requirements (62 credits)
   - MET 10000 Production Drawing & CAD
   - MET 14100 Manufacturing Materials I
   - MET 16100 Introduction to Engineering Technology
   - OR
   - MET 24200 Manufacturing Processes II
   - MET 32500 Thermodynamics
   - MET 32900 Applied Heat Transfer
   - IET 10400 Industrial Organization Principles of Total Quality Management
   - IET 10690 Principles of Ergonomics
   - IET 20400 Techniques of Maintaining Quality
   - IET 22400 Production Planning and Control
   - IET 26400 Fundamentals of Lean Work Design
   - IET 27300 Principles of Quality and Process Improvement
   - IET 40200 Logistics and Global Supply Chain
   - IET 30800 Engineering Project Management and Economic Analysis
   - IET 35500 Statistical Process Control I
   - IET 49500 Senior Project Survey
   - IET 49700 Senior Project
   - ECET 21400 Electricity Fundamentals
   - ET 15100 Internship Program I
   - OLS 25200 Fundamentals of Lean Work Design
   - OLS 31100 Occupational Safety and Health
   - OLS 35000 Applied Creativity for Business and Industry
   - POL 30500 Technology & Society

4. Selectives (12 credits)
   Choose Two IET selective courses:
   - IET 27200 Job Evaluation
   - IET 29900 IET – Independent study
   - IET 31100 International Quality Standards
   - IET 36500 Statistical Process Control II
   - IET 41100 Applications of Lean Six Sigma Methodologies
   - IET 49900 IET – Independent study

   Choose one 300-400 level OLS course not otherwise required in the IET plan of study.
   Choose one of the following technical elective courses:
   - Any ECET course with advisor approval
   - Any CGT course with advisor approval
   - Any CET course with advisor approval
   - Any ARET course with advisor approval
   - Any MET course not otherwise required in the IET plan of study
   - Any IET course not otherwise required in the IET plan of study

5. Additional Courses (7 credits)
   A. Humanities General Education Elective — This 3 credit course must be an approved PUC General Education course that satisfies General Education Requirement 4 and General Education Competency 6.
   B. Social Science General Education Elective — This 3 credit course must be an approved PUC General Education course that satisfies General Education Requirement 5.
   C. Non–Technical Elective — This 1 credit course may be from any liberal arts, social science, humanities, wellness course.

Note: In order to qualify for the IET B.S. degree a student must attain a grade of “C” or better in all IET courses.

The following are the Program Educational Objectives for the Baccalaureate degree in Industrial Engineering Technology:

Program Educational Objective 1:
The program will prepare graduates for career fields in the areas associated with the development, implementation, and improvement of integrated systems that include people, materials, information, equipment, and energy by exposure to specialty topics emerging from quality and/or manufacturing practices.

Program Educational Objective 2:
The program will prepare graduates that advance in their careers and continue their professional development.

Program Educational Objective 3:
The program will prepare graduates that understand the overall human context in which engineering technology activities take place.
Bachelor of Science, Mechanical Engineering Technology

Mechanical Engineering Technology (MET) applies scientific and engineering principles to support businesses and solve problems related to the growing demand for modern and complex industrial machinery, machine tools, robotics, and computer controlled processes. As a student of mechanical engineering technology, you will explore, analyze, and design both products and manufacturing processes through the use of computers and state-of-the-art equipment while gaining practical experience. Many MET students enjoy working on machinery and vehicles and find opportunity to intertwine hobbies with career interests in this field.

This program prepares students for positions in engineering departments, plant maintenance, production departments, and technical sales. Other areas students are prepared for also include Quality engineering, machine and tool design, technical buying, production expediting, and cost estimating. MET graduates work in the areas of product development, manufacturing processes, quality control, materials identification, use and selection, fluid power, heat power, mechanics, design and cost analysis.

The Bachelor of Science Degree in Mechanical Engineering Technology provides knowledge in:
- Production Drawing & Computer Aided Design
- Computer Numerical Control Applications
- Applied Fluid Mechanics and Fluid Power
- Applied Thermodynamics and Heat Transfer
- Automation & Instrumentation
- Materials
- Machine Design
- Manufacturing Processes
- Strength of Materials
- Statics and Dynamics

The program consists of 120 credit hours.

Bachelor of Science, Mechanical Engineering Technology
(120 CREDITS)

1. Communication (12 credits)
ENGL 10400 English Comp I
ENGL 22000 Technical Report Writing
COM 11400 Fund of Speech Comm
ENGL 42000 Business Writing
OR
OLS 47400 Conference Leadership

2. Science and Mathematics (27 credits)
CHM Elective with lab
PHYS 22000 General Physics
PHYS 22100 General Physics II
MA 14700 Algebra and Trig I
MA 14800 Algebra and Trig II
MA 21900 Calculus for Technology I
MA 22200 Calculus for Technology II
STAT 30100 Elementary Statistical Methods

3. Major Requirements (60 credits)
ECET 21400 Electricity Fundamentals
MET 10000 Production Drawing & CAD
MET 10200 Production Design and Specifications
MET 11800 Applied Mechanics: Statics
MET 14100 Manufacturing Materials I
MET 16100 Introduction to Engineering Technology
MET 16200 Computational Analysis Tools in MET
MET 21100 Applied Strength of Materials
MET 21300 Applied Mechanics: Dynamics
MET 21400 Machine Elements
MET 23000 Fluid Power
MET 24200 Manufacturing Processes II
MET 31300 Applied Fluid Dynamics
MET 32500 Applied Thermodynamics
MET 32900 Applied Heat Transfer
MET 46100 Computer Integrated Design and Manufacturing
MET 49500* Senior Project Survey
MET 49700 Senior Project
IET 22400 Production Planning and Control
IET 30800 Engineering Project Management and Economic Analysis
OLS 33100 Occupational Safety and Health

*All students must take the CMGT exam during this course.

4. Selectives (12 credits)
Choose 4 of the following courses for the general MET plan of study:
MET 30500 Computer Aided Design with Applications
MET 31500 Mechanism Kinematics
MET 34700 Programming of Automation Systems
MET 35500 Automation I
MET 38400 Instrumentation
MET 42000 HVAC
MET 46500 Advanced Topics in Computer-Aided Design
IET 27300 Principles of Quality and Process Improvement
IET 35500 Statistical Process Control I
IET 41100 Applications of Lean and Six Sigma Methodologies
Any ECET course with advisor approval
Any IET course with advisor approval
Any ARET course with advisor approval

Any MET course not otherwise required in the plan of study

Choose the following courses for the MET plan of study with a Quality Specialization:
IET 26400 Fundamentals of Lean Work Design
IET 27300 Principles of Quality and Process Improvement
IET 35500 Statistical Process Control I
IET 41100 Applications of Lean and Six Sigma Methodologies

5. Additional courses (9 credits)
A. Humanities General Education Elective – This course must be an approved PUC General Education course that satisfies General Education Requirement 4 and General Education Competency 6.
B. Social Science General Education Elective – This course must be an approved PUC General Education course that satisfies General Education Requirement 5.
C. OLS 35000 or any Social Science or Humanities Elective

The following are the Program Educational Objectives for the Baccalaureate degree in Mechanical Engineering Technology:

Program Educational Objective 1:
The program will prepare graduates for successful careers in the areas associated with the fabrication, testing, documentation, operation, sales, maintenance, analysis, applied design, development, implementation, and oversight of mechanical systems.

Program Educational Objective 2:
The program will prepare graduates who advance in their careers and continue their professional development.

Program Educational Objective 3:
The program will prepare graduates who understand the overall human context in which engineering technology activities take place.
Bachelor of Science, Mechatronics Engineering Technology

Mechatronics is the synergistic combination of electrical, mechanical, control and robotics engineering, computer science, information technology including networking and numerical methods used to design products with built-in intelligence.

The Mechatronics Engineering Technology program at PUC has adapted this synergistic combination into developing student skills that support the growing need for engineers with an applied learning background in the high-speed packaging industry. This program combines mechanical design, manufacturing and electrical control concepts to satisfy the expectations of the packaging machinery industry. While pursuing their undergraduate degree, students are engaged with packaging industry partners and benefit from internships offered by these partners. Whereas many partners are located close to PUC, careers in this industry are in demand nationwide.

The program is designed to produce graduates that are prepared for successful careers in areas associated with the analysis, applied design, development, implementation and oversight of advanced mechatronics systems. And, whereas the focus of the degree at PUC is on the packaging machinery industry, it is also a valuable degree that can be utilized in a variety of other industries as well, such as the automotive industry.

The Bachelor of Science Degree in Mechatronics Engineering Technology provides knowledge in:

- Computer Hardware & Electric Circuits
- Manufacturing Processes
- Electrical Power & Machinery
- Process Control
- Machine Design
- Programmable Logic Controllers
- Mechanism Kinematics
- Fluid Power & Fluid Mechanics
- Power Electronics
- Digital Applications

The program consists of 120 credit hours.

Bachelor of Science, Mechatronics Engineering Technology
(120 CREDITS)

1. Communication (9 Credits)
   ENGL 10400  English Comp. I
   ENGL 22000  Technical Report Writing
   COM 11400  Fund. of Speech Comm.

2. Science and Mathematics (16 Credits)
   PHYS 22000  General Physics I
   MA 15900  Pre-Calculus
   MA 21900  Calculus for Technology I
   MA 22200  Calculus for Technology II

3. Major Requirements (82 Credits)
   ECET 10200  Electrical Circuits I
   ECET 10900  Digital Fundamentals
   ECET 11000  Computer Architecture
   ECET 15200  Electrical Circuits II
   ECET 21200  Electric Power and Machinery
   ECET 21700  Introduction to Process Control
   ECET 26200  Programmable Logic Controllers
   ECET 33000  Industrial Programming & Networking
   ECET 36200  Process Control
   ECET 46200  Advanced Process Control
   ET 10000  Freshman Experience
   ET 15100  Internship
   ET 49500  Senior Project Survey
   ET 49700  Senior Project
   IET 30800  Project Management
   MET 10000  Production Drawing & CAD
   MET 11800  Applied Mechanics: Statics
   MET 14100  Materials I
   MET 21100  Applied Strength of Materials
   MET 21300  Dynamics
   MET 21400  Machine Elements
   MET 23000  Fluid Power
   MET 24200  Manufacturing Processes II
   MET 42000  Machine Design
   OLS 33100  Occupational Safety & Health
   OLS 35000  Creativity for Business & Industry
   OLS 47400  Conference Leadership

4. Selectives (6 credits)
Selectives can be chosen from any of the following courses:
   ECET 15900  Digital Applications
   ECET 20900  Intro to Microcontrollers
   ECET 21000  Struct C++ for EM Syst
   ECET 31200  Power Electronics
   ECET 45600  Computer Hardware Design
   IET 26400  Fundamentals of Lean Work Design
   IET 27300  Principles of Quality and Process Improvement
   IET 35500  Statistical Process Control I
   IET 41100  Applications of Lean Six Sigma Methodologies
   MET 10200  Prod. Design & Specs
   MET 30500  CAD with Applications
   MET 31300  Fluid Mechanics
   MET 31500  Mechanism Kinematics
   MET 32500  Thermodynamics
   MET 32900  Heat Transfer
   MET 34700  Programming of Automation Systems
   MET 46100  Comp. Integ. Design & Mfg.
   MET 42100  HVAC

5. Additional Courses (7 credits)
A. Humanities General Education Elective — This course must be an approved PUC General Education course that satisfies General Education Requirement 4 and General Education Competency 6.
B. Social Science General Education Elective — This course must be an approved PUC General Education course that satisfies General Education Requirement 5.
C. Liberal Arts/Social Science/Wellness Elective (1 credit).

The following are the Program Educational Objectives for the Baccalaureate degree in Mechatronics Engineering Technology:

Program Educational Objective 1:
The program will produce graduates that are prepared for successful careers in the area associated with the analysis, applied design, development, implementation, and oversight of advanced mechatronics systems.

Program Educational Objective 2:
The program will prepare graduates that advance in their careers and continue their professional development.

Program Educational Objective 3:
The program will prepare graduates that understand the overall human context in which engineering technology activities take place.
Math Requirements for Engineering Technology Students:
A fundamental of all Engineering Technology Baccalaureate degrees is a solid foundation in math. As such it is critical that all Engineering Technology students graduate with the specified number of math credit hours designated in their plan of study. In order to facilitate proper documentation of these credits no math credits will be waived.

a. If a student has completed higher level math courses upon entry into a program of study and is given credit for the courses toward the plan of study, the student is not required to take the prescribed lower level math courses listed on the plan of study. However, the student is still responsible for satisfying the math credits with math coursework of their choice of courses that are, at minimum, the same level or higher of that listed on their plan of study.

b. If a student's results from the math placement exam indicate the student is prepared to begin in a higher level math than the first math requirement on the plan of study, the student has the option to begin their math sequence with the higher level math course. If a student chooses to begin with the higher level math course, the student is still responsible for satisfying all of the lower level math credits on their plan of study with math coursework of their choice of courses that are, at minimum, the same level or higher of that listed on their plan of study. In addition, courses which require the lower level math as a prerequisite cannot be taken until the higher level math course is complete thus solidifying that the prerequisite has been met.

c. If a student is currently pursuing an Engineering Technology degree and chooses to take a math course at another institution while at PUC, only courses that are directly articulated in the PUC transfer equivalency system will be accepted onto the Engineering Technology plan of study. Any MA UND or math courses articulated as a course not required on the student's plan of study will not be accepted. Note “b” also applies in this case.
Master of Science in Modeling, Simulation and Visualization

A 30-credit hour interdisciplinary master of science degree program, the MSV Master of Science degree prepares students in a variety of fields to use modeling, simulation and visualization tools and skills. Students with undergraduate education in science, technology, computer science, engineering, medical/healthcare, and management may be interested in the degree. MSV skills may be used by designers, engineers, technologists, business intelligence developers, software consultants and other professionals in many additional fields, including transportation, healthcare and management.

Plan of Study
The program consists of 30 credit hours, with 18 hours of core courses, 9 hours of electives, and one capstone project (3 credits).

18 hours required core courses (6 courses)
- MGMT 55100 Unified Modeling Languages
- TECH 56500 High Performance Computing
- TECH 56700 Simulation Techniques
- TECH 57500 Software Project Management
- TECH 57600 Design and Analysis of Simulation Experiments
- TECH 57700 Visualization Techniques

9 credit hours of electives (3 courses)
A number of graduate level courses are available for use as electives; electives are approved by the student's graduate committee for inclusion in the plan of study.

3 credit hours of capstone——TECH 59800 Directed MS Project (taken in two phases, across two semesters)

Admission Requirements
Bachelor's degree from an accredited four-year college or university in any Science, Technology, Engineering or Mathematics (STEM) related areas. If necessary, students may be required to make-up deficiencies
In addition, a student must meet the following pre-requisites:
- 1 Semester Object Oriented Programming (Sophomore level or above);
- 1 Semester Statistics/Probability (Sophomore level or above); and
- 2 Semesters Calculus (Differential and Integral), or 1 Semester discrete mathematics or numerical methods (Sophomore level or above)
Undergraduate GPA 3.0 or above for unconditional admission; please check with the College of Technology for conditional admission possibilities.

Application Requirements
Applicants must submit all of the following:
- Online application for graduate admissions;
- Statement of purpose or goal statement
- Resume
- Three (3) Letters of Recommendation, either academic or professional.
- Official Transcripts of all academic work listed on application (must include undergraduate degree)
- Optional—writing sample or portfolio of other important accomplishments or skills

The GRE is not required for admission into this program, but may be considered for applicants who do not meet the minimum GPA for unconditional admission.

International Students:
There are additional requirements for international students. International students are encouraged to work through International Student Services, www.purduecal.edu/international.

For admission requirements and additional information, please go to the College of Technology webpage on www.purduecal.edu
Master of Science in Technology

The Master of Science in Technology degree offered by Purdue University Calumet prepares students to become leaders in technology disciplines. The program allows students to pursue an advanced degree in a focus technology discipline, with the flexibility to pursue interdisciplinary interests and develop leadership skills based on ethics and an understanding of global issues affecting technology. Graduates of the Purdue University Calumet Master of Science in Technology degree will not only understand leading-edge concepts, but also be able to strategically apply them.

Designed to allow students to achieve their career objectives, the program is a flexible, 33-hour plan of study in which students can choose their primary focus in any one of the College of Technology programs in which we offer a Bachelor of Science degree, or an approved interdisciplinary area.

Purdue University Calumet College of Technology disciplines:
- Computer Graphics Technology
- Computer Information Technology
- Construction Management & Engineering Technologies
- Electrical Engineering Technology
- Industrial Engineering Technology
- Mechanical Engineering Technology
- Mechatronics Engineering Technology
- Organizational Leadership & Supervision

Purdue University Calumet’s approach of merging technology with other areas of study and allowing students to customize their course of study means that students in the program can study interdisciplinary and specialized aspects of their fields. This broad-based, flexible degree produces graduates who can enter the marketplace with a distinct and sought-after advantage.

Plan of Study
The program consists of 33 hours with three core courses (9 credit hours),
- IT 50700 Measurement and Evaluation in Industry & Technology,
- IT 50800 Quality and Productivity in Industry & Technology, and
- TECH 64600 Analysis and Research in Industry and Technology;
4 primary area courses (12 credit hours) in the area of concentration,
3 courses in technical electives (9 credit hours), and
a directed project course (total of 3 credit hours) or an additional 3 credit hour course with the approval of academic advisor. The directed project focuses on an applied research issue in the student’s area of interest.

Interested students should contact Prof. Mohammad Zahraee, Assistant Dean for Graduate Studies in the College of Technology, at 219-989-2966, zahraee@purduecal.edu, for further information about the program and the plan of study, or Jody Kidd, Graduate Program Coordinator, at 219-989-2966, jkidd@purduecal.edu, FAX 219-989-8110.

Admission Requirements
Admission will be based on the following criteria and documentation:
- B.S. from an accredited technology program or related fields.
- Undergraduate GPA of 3.0 or greater based on a 4.0 scale.
- Appropriate experience as documented in a resume.
- A goal statement or statement of purpose commensurate with the program and faculty strengths. (A template is available through Jody Kidd).
Students who do not meet the requirements for unconditional admission may be considered for conditional admission.

Application Requirements
Applicants must submit all of the following:
- Online Application – Purdue University Graduate School Electronic Application found at: http://www.gradschool.purdue.edu/indexflash.cfm;
- Official transcripts of all work listed on the application (must include undergraduate degree);
- Statement of purpose and resume; and
- Three letters of recommendation from academic or professional references (Recommendations from friends or family members are not given weight).
A form can be found at: http://www.gradschool.purdue.edu/admissions/VR

GRE is not required for the MS Technology degree, but may be considered for those applicants who do not meet the minimum GPA for unconditional admission.

International Students:
There are additional requirements for international students. International students are encouraged to work through International Student Services, www.purduecal.edu/international

For admission requirements and further information, please go to: http://webs.purduecal.edu/techgrad/
Online Technology Leadership and Management Concentration

The Online MS Degree in Technology — Leadership and Management concentration is expected to prepare students to manage and lead in technology professions. It will allow students who currently have a technology area undergraduate degree to acquire skills to prepare them for managerial or leadership roles in their area. Emphasis is placed on preparing students for technical leadership positions in business and industry, faculty positions in technology and engineering technology at community college and university levels, or to continue for a Ph.D. in technology or a closely related field.

Plan of Study

All required coursework for this major will be offered via distance education technology over an eighteen month to two-year period. Students who drop out of sequence will be able to take the course with the next cohort group, but will lengthen the time to complete the degree.

Curriculum plan: (3 cr. hrs. each)

Currently required courses for the MS Degree in Technology (12 hours)

a. IT50700 Measurement and Evaluation in Industry and Technology
b. IT50800 Quality and Productivity in Industry and Technology
c. TECH64600 Analysis of Research in Industry and Technology
d. TECH 59800 Directed MS Project or an additional 3 credit hour course with the approval of academic advisor.

Additional Courses required for the Requested Concentration (21 hours)

e. IT57100 Project Management in Industry and Technology
f. IT53500 Global Supply Chain Management
g. OLS 58900 Leadership and Ethics
h. IET 51000 Product & Process Development Optimization
i. METS2700 Technology from a Global Perspective
j. OLS 58000 Interpersonal Skills for Leaders
k. OLS 58800 Strategic Planning and Marketing in Technology

Total: 33 credit hours for MS degree in Technology with concentration in Technology Leadership & Management

9 credit hours of electives (3 courses)
A number of graduate level courses are available for use as electives; electives are approved by the student’s graduate committee for inclusion in the plan of study.

3 credit hours of capstone — TECH 59800 Directed MS Project (taken in two phases, across two semesters)

Admission Requirements

Admission will be based on the following criteria and documentation:

- B.S. from an accredited technology program or related fields.
- Undergraduate GPA of 3.0 or greater based on a 4.0 scale.
- Appropriate experience as documented in a resume.
- A goal statement or statement of purpose commensurate with the program and faculty strengths. (A template is available through Jody Kidd).
- Students who do not meet the requirements for unconditional admission may be considered for conditional admission.

Application Requirements

Applicants must submit all of the following:

- Online Application – Purdue University Graduate School Electronic Application found at: http://www.gradschool.purdue.edu/indexFlash.cfm;
- Official transcripts of all work listed on the application (must include undergraduate degree);
- Statement of purpose and resume; and
- Three letters of recommendation from academic or professional references (Recommendations from friends or family members are not given weight).
- A form can be found at: http://www.gradschool.purdue.edu/admissions/ADR

GRE is not required for the MS Technology degree, but may be considered for those applicants who do not meet the minimum GPA for unconditional admission.
CENTER FOR
LEARNING AND
ACADEMIC SUCCESS
Center for Learning and Academic Success

The Center for Learning and Academic Success consists of several important university initiatives that are known for their role in student retention and success. Academic Advising, Academic Recovery Program, Supplemental Instruction (SI), Tutorial, Success Workshops, as well as General Studies (GNS) 10300 and GNS 29000 are just a few of the CLAS services available to assist students' with academic preparation skills.

Academic Advising

Academic advising is a proven activity that helps students become academically successful from matriculation through graduation. CLAS advisors assist undeclared students with academic major decisions. CLAS advisors also work with students who are transitioning into academic majors, as well as those non-degree seeking. The advisors provide an academic presence at various University functions, and have a proven commitment for student success.

Academic Recovery Program

The Academic Recovery Program is designed to encourage both persistence and retention by providing intervention services for students who are at risk of academic dismissal, and are on probation due to their cumulative GPA. Purdue Calumet developed this program based on research and successful programs at other universities. Interventions include enrolling in GNS 290, a study skills course that addresses academic issues to encourage student success, working with an academic advisors to select appropriate courses for the upcoming semester, and developing strategies to assist students in making progress toward their degree objectives.

Learning Communities

New CLAS freshmen participate in learning communities through a predetermined block schedule of first-semester course and activities specifically aimed at first-year students. Taking part in a learning community will provide students the opportunity to develop personal connections with faculty and other students, take courses that research has shown are vital to student success, and broaden their learning experience. A block schedule is designed to give first-semester students the foundation they need to be successful at Purdue Calumet. Courses include Math, English, Speech, and a First Year Experience course. Within this framework, students may be enrolled in up to four courses with the same group of students. The cohesive, in-class and out-of-class activities planned around a central theme through the common reading program will offer students a richer academic experience. In addition, students benefit from the opportunity to integrate coursework in an interdisciplinary manner. Learning communities provide students increased faculty-to-student interactions while promoting faculty-to-faculty collaboration.

Student Academic Support (SAS)

The SAS provides tutoring to all Purdue Calumet students. Free open lab tutoring services are available Monday through Friday in most subject areas. A specialized group tutoring program, Supplemental Instruction (SI), is offered for specific traditionally difficult academic courses. SI focuses on both process and content. All tutors are current Purdue Calumet students of high academic standing and recommended by faculty members.

- Deborah Beal (2011) Center for Learning and Academic Success Manager of Student Academic Support, B.A., Rutgers University, 1986, M.B.A., Rutgers University, 1993
- Dhanfu E. Elston (2012) Director of Student Success and Transition, B.S. Clark Atlanta University, 1996, M.A. Clark Atlanta University, 2003, Ph.D. Georgia State University, 2011
- Patricia Smith (2013) Center for Learning and Academic Success Retention Advisor, B.A. Clark Atlanta University, 2005, M.B.A. Florida A&M University, 2013
- Lawrence J. Steffel (2000) Senior Retention Advisor, Advisor, B.S. Purdue University Calumet, 1969. M.S., Purdue University Calumet 1971
- Mary Lee Vance (2013) Center for Learning and Academic Success Director of Academic Advising, B.A., University of Wisconsin-La Crosse, 1979, M.E.P.D., University of Wisconsin La-Crosse, 1983, Ph.D., Michigan State University, 1993
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Randal Freebourn, Assistant Vice Chancellor for Business Services and Comptroller
Michael J. Kull, Assistant Vice Chancellor for Administrative Services
Mary Beth Rincon, Assistant Vice Chancellor for Human Resources
Carmen Panilio, Vice Chancellor for Enrollment Management and Student Affairs
Roy L. Hamilton, Interim Associate Vice Chancellor for Educational Opportunity Programs
Faculty and Administrative Staff*


Donna Alt (2011) CIT&G Technology Specialist. B.S. M.S. Purdue University.


Mohammad Anan (2008) Assistant Professor of Computer Engineering.

Alice Anderson (2010) Dean of the School of Education/Professor. Ph.D. Virginia Tech.


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Gina Bartucci Staff Therapist-Psych Assessment Specialist.

Scott Bayer (2012) Continuing Lecturer, English Composition, MS Indiana University


Lana Bilyk (2010) Academic Advisor, Masters Governors State University

Deborah Blades (2005) Senior Career Services Coordinator, Bachelors, Purdue University Calumet.

James Blakeley (2012) Server Administrator


Nicole Blodgett Visiting Assistant Professor Nursing, MS, University of Iowa.


David Blom Associate Director, Office of Equity & Diversity, BA, University of Wisconsin.


Richardo Calix (2011), Assistant Professor Computer Info Tech, Ph.D. Louisiana State University
Adam Carey (2011) Manager, University Archives, MS University of Wisconsin – Milwaukee
Brenda Casteen de Martinez Sponsored Student Coordinator, MA, Georgetown University.
Terri Chance (2002) Senior Business Manager, Bachelors, Purdue University.
Chandramouli, Magesh (2011) Assistant Professor of Computer Graphics Technology, Ph.D, Purdue University
Angelo Gico (2012) Academic Advisor, College of Nursing.
April Clark (2009) Assistant Professor Political Science. Ph.D. University of California Santa Barbara.
Michelle Clauss (2009) Associate Director Human Resources.
Laura Clouse (2010) Continuing Lecturer English Language Program, Masters, DePaul University.
Renée Conroy (2009) Assistant Professor Philosophy, PhD, University of Washington.
Beatriz Contreras Director of Student Financial Services, BA, University of Puerto Rico.
Sheryl Corey (2010) Assistant Director Advancement, Masters, Purdue University Calumet.


Richard Costello Athletic Director, MA, Lehigh University.


Joel Cummings Evening Building Supervisor.


Jennifer Daley Visiting Assistant Professor, MS, University of Cincinnati.


Mohamad Darwish (2012) Technology Specialist


Christine DeNicola (2006) Associate Dir NW IN Health Edu Ctr, MS College Of Mount St. Joseph


Carolyn Dildine (2011) Housing Assignments Coordinator, Bachelor, Purdue University.


Jennifer Dobbin (2011) Visiting Assistant Professor, MS University of Phoenix.

Thomas Dobes (2006) Technology Specialist; Bachelors, Purdue University.

Joseph Dominick (2011), System Analyst. BS, Purdue University


James Drzewiecki (2012) Head Men’s Soccer Coach BS, Purdue University Calumet


Sharon Duncan (2009) Clinical Assistant Professor–Special Education, PhD, National Louis University.

Shane Dunkle Visiting Instructor, International Programs, MA, University of Illinois.


Taryn Eastland Assistant Professor, Nursing. B.S., Purdue University Calumet, Nursing 2004; M.S. Purdue University Calumet, Nursing, Family Nurse Practitioner, 2006; PhD University of Illinois at Chicago, 2010.


Michelle Ellis (2011) Academic Advisor/Licensing Coordinator, Masters, Chicago State University.


Craig Engle (2010) Clinical Assistant Professor, BS, Purdue University. M.S., Purdue University Calumet, 2006.


Jennifer Evans (2011) Business Manager International Programs, Bachelors, Purdue University.


David Griffin Head Men's Baseball coach, BS, Calumet College.


Laura Guzman (2005) Benefit Training Administrator; Bachelors, Calumet College-St. Josephs.


Arlene Hambrick Visiting Instructor, Teacher Preparation, Ph.D., University of Massachusetts at Amherst.


Ningchun Han Instructional Technology Specialist, Professional Doctorate, Texas Tech University.


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Kennel Hawkins (2007) Coord/Counselor 21stCentury Scholars Prg, Bachelor's degree, Purdue University Calumet.


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Roberta Horbovetz (2011) Coordinator Field Experiences; Master's degree, Purdue University Calumet.


Tanika House (2008) Assistant Director of Financial Aid, Bachelor, Purdue University Calumet.


Scott Iverson Director of Housing and Residential Education, MS, Western Illinois University.


Alexis Jimenez Career Services Coordinator, BS, Child Development and Family Relations.


Amanda Kahle Student Organization Administrator, MBA, Purdue University Calumet.


Thomas L. Keon (2011) Chancellor, Bachelor of Science in Accounting. Bentley University; Master’s in Education, Suffolk University; MBA Babson College; Doctorate in Management, Michigan State University.


Tae-Hoon Kim (2011) Assistant Professor of Computer Information Technology. Ph.D., University of Pittsburgh, 2010


Linda Knox (2011) Director, Equity and Diversity, Masters, Loyola University Chicago.


<table>
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<tr>
<th>Name</th>
<th>Title/Position</th>
<th>Institution/University</th>
<th>Degree(s)</th>
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<tr>
<td>Sherrie Kristin</td>
<td>Library Enterprise Application Administrator</td>
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<tr>
<td>Michael J. Kull</td>
<td>Assistant Vice Chancellor for Administrative Services</td>
<td>B.S., Purdue University, 1972. M.P.A., Indiana University</td>
<td>1996.</td>
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<tr>
<td>Kara Latopolski</td>
<td>Asst. Director of Housing Systems &amp; Technology, MA, Mansfield University</td>
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<tr>
<td>William Law</td>
<td>Dean/Professor of Biological Sciences, Ph.D., University of Illinois at Chicago</td>
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<td>Talaya Legette</td>
<td>McNair Post-Bachelor Achievement Program Coordinator</td>
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<tr>
<td>Rebecca Lemanski</td>
<td>Continuing Lecturer, English Composition, Master’s degree, Purdue University Calumet</td>
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<tr>
<td>Gillian Leonard</td>
<td>Director of Institutional Research, MA, Purdue University Calumet</td>
<td>1992. B.S., Indiana University, 1997. Master’s Degree, Purdue University</td>
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<tr>
<td>Michael E. Leonard</td>
<td>Continuing Lecturer, B.S., Purdue University West Lafayette</td>
<td>1972. M.S., Purdue University Calumet, 1993.</td>
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<tr>
<td>Mark Letcher</td>
<td>Assistant Professor Secondyear English Education Ph.D. The Ohio State University</td>
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<td>Tiffany Lofay</td>
<td>Post Award Manager, Master’s degree, Purdue University Calumet</td>
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<td>Timothy Longacre</td>
<td>Supervisor, Networking, Bachelors, Purdue University Calumet</td>
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<tr>
<td>Timothey A. Loudermilk</td>
<td>Associate Network Administrator B.S., Purdue University Calumet, 2005.</td>
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<td>Aaron Lush</td>
<td>Server Administrator, Bachelor’s degree, Indiana University</td>
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<td>Jade Lynch-Greenberg</td>
<td>Continuing Lecturer, English Composition, B.A., Purdue University Calumet, 2004.</td>
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<tr>
<td>Sandra Lyons</td>
<td>Research and Development Specialist, Ph.D., University of Chicago.</td>
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<td>Jessica Madsen</td>
<td>Visiting Instructor, Masters, Northeastern University</td>
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<tr>
<td>Karen Maniscalco</td>
<td>Database Administrator B.S., Purdue University</td>
<td>1991.</td>
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<td>Maja Marjanovic</td>
<td>Director of Sponsored Programs, Masters, Purdue University Calumet</td>
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<td>Maureen Marthaler</td>
<td>Associate Professor of Nursing B.S., Lewis University</td>
<td>1979. M.S., DePaul University, 1984.</td>
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<td>Anthony Martin</td>
<td>Chief of Police, Bachelors, Governors State University</td>
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<td>Anka Matijevich</td>
<td>Assistant Director of Admissions &amp; Recruitment B.A., Indiana University</td>
<td>1993.</td>
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<td>Mary McGinnis</td>
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<td>2011.</td>
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</table>


Rebecca Medley (2010) Continuing Lecturer, English Composition.


Susan Misner (2011) Visiting Assistant Professor, Master, University of Illinois Chicago.


Megan Murphy Director Marriage & Family Therapy, Associate Professor, Ph.D., University of Georgia.


Jane Mutchier (2012) Dean and Professor of Accounting, Ph.D., University of Illinois Urbana.

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Kimberly Nikolovski (2008) Grad Programs & Intern Coordinator, MS, DePaul University.


Kathleen Paciga (2011) Assistant Professor Elementary Literacy; Ph.D., University of Illinois at Chicago


M. Carmen Panfilio (2013) Vice Chancellor for Enrollment Management & Student Affairs, Ph.D., Rutgers University.


Casey Parker (2011) Data Specialist; Bachelor's degree, Purdue University Calumet

Christopher Parker Visiting Professor of Biological Sciences, Ph.D., University of Texas at Austin.


Janoise Person (2011) Assistant Director Student Accounts, Bachelors, Indiana State University.


Dawn Pollock (2011) Accounting Manager; Bachelor's degree, St Joseph's College


Jerry Pschur (2011) Maintenance Services Manager; Bachelor's degree, Moravian College

Paul Quainette (2012) Visiting Instructor; Master's degree, Northern Illinois University


Indrajit Ray Visiting Assistant Professor of Civil Engineering. Ph.D., Indian Institute of Technology, India.


Robert Rector Assistant Professor of Civil Engineering. Ph.D., Kansas University.

Jose Reyes (2012) Associate Director Transfer Student Services, MBA, Governor's State University.


Victoria Riley-Grant (2011) Budget & Project Coordinator, Masters, Nova Southeastern University.


Cindy Robbins (2010) Visiting Assistant Professor, Masters, Purdue University Calumet.


AkiI Sadiki-Shakur (2007) Assitant Director, Veterans/Student Service Program. B.S., Purdue University Calumet, 2002.

Omar Sahmoudi (2012) Business Manager, International Programs; Bachelor's degree, 'Hassan II University'


Jeffrey J. Schieb (1998) Associate Director Institutional Research & Assessment, B.S., Purdue University, 1996.


Lynda Schoop (2011) Reference Librarian Educational Partnerships, Dominican University.


Karen Siegfried (2009) Staff Nurse, Bachelors, Purdue University Calumet.


Armin Silaen (2011) Post Doctorate Research Associate, PhD, University of New Orleans.


Lawrence J. Steffel (2000), Senior Retention Advisor, Advisor, B.S. Purdue University Calumet, 1969. M.S., Purdue University Calumet 1971.


Tabitha K. Stills (1998) Assistant Director; Fitness Center. B.S., Purdue University, 1998.

Terry Stinnett (2010) Information Access Specialist, Bachelors, Purdue University Calumet.


Pitparnee Stompor (2011) Operations Lab Manager, Bachelors, Purdue University


John Stupak Post Doc Research Associate, Ph.D., SUNY- Stony Brook.


Jennifer Talley-Rogers  Assistant Director English Language Program, MA, University Wisconsin-Milwaukee.


Heather Tarter Head Women's Softball Coach, BA, University of Northern Iowa.


Wei-Tsyi Evert Ting (1987) Interim Head, Department of Biological Sciences; Professor of Biological Sciences. B.S., National Taiwan University, 1978. M.S., Ohio State University, 1983. Ph.D., 1986.


Anastasia Trekel (1998) Clinical Assistant Professor; Masters, Purdue University Calumet.


Manghul Tu Assistant Professor/Comp Info Tech, Ph.D., University of Texas at Dallas.


Brenda Turgeon (2010) Assistant Professor Elementary Science, Ph.D. University Nevada-Reno.


Susan Van Til (1993) Academic Advisor, Bachelors, Purdue University Calumet.


Beth Vottero (2009) Assistant Professor of Nursing. Ph.D., Capella University, 2005.


Brandi Watson (2011) Academic Advisor Academic Partnership Masters Degree, Purdue University Calumet.


Freda Whisenton-Comer Assistant Director of Scholarships & Loans, MS, Governor’s State University.


Sara Witt (2011) Buyer & General Services Manager; Bachelor’s degree, Purdue University

Bin Wu (2009) Research Engineer. Masters Degree, Purdue University Calumet.


Sarah Yager (2011) Visiting Instructor; Master’s degree, Missouri State University


Yu Yang Assistant Professor of CIT, Ph.D. Purdue University.


Chen Ye (2011) Assistant Professor MIS, BS, Peking University, 1997. MS University of Illinois at Chicago (UIC), 2004. Ph.D. University of Illinois at Chicago (UIC), 2009


Yueqi Zhang (2009) Assistant Professor of Communication.


Jamie Zweig (2008) Clinical Assistant Professor of Nursing. M.S.N., St. Xavier University, 1997.

*Faculty and Administrative Staff listing was provided by Purdue Calumet’s Human Resources as of June 29, 2013. Any additions or changes after that date are not reflected in this list.
Purdue University Calumet's Course Descriptions are now available online at www.purduecal.edu. (See directions below) This on-line search will allow users to select a term and search using a subject code. Searches can be customized further by selecting a level (Graduate/Undergraduate), School and Course Attribute.

Course numbered 10000-49999 are primarily for undergraduate students. Courses numbered 50000-59999 are for undergraduate (usually juniors and seniors) and graduate students. Course numbered 60000-69999 and above are for graduate students only.

https://banweb.purduecal.edu/pls/proddad/bwckctlg.p_disp_dyn_ctlg

- Go to www.purduecal.edu and hover over “Students” in the top menu bar
- Click on “Course Descriptions”
- Select a Catalog Term, click Submit
- Select Subject Code from the drop down list, click on “Get Courses”
- Enhance the search by selecting additional criteria such as School and Attribute

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<th>Course Abbreviation and Number</th>
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| BIOL 48900 | Biological Sciences Research | (Cr. 1 to 12) Experimental Learning | Students will do research in the area of biological sciences with a primary investigator. They will contribute to ongoing research while learning current research techniques. They will analyze data and determine course of action to be taken in their experiments. During this process the students will develop critical thinking, oral, and written communication skills.

**SUBJ. CODE DESCRIPTION**

- **AD**: Art & Design
- **ACC**: Accounting
- **ANSC**: Animal Science
- **ANTH**: Anthropology
- **ARAB**: Arabic
- **ARET**: Architectural Technology
- **ASTR**: Astronomy
- **BA**: Business Administration
- **BHS**: Behavioral Sciences
- **Biol**: Biology
- **BUSM**: Business Management
- **CE**: Civil Engineering
- **CS**: Computer Science
- **CDFS**: Child Development and Family Studies
- **CET**: Civil Engineering Technology
- **CG****: Computer Graphics Technology
- **CHM**: Chemistry
- **CHNS**: Chinese
- **CIS**: Computer Information Systems
- **CMET**: Construction Management Engineering Technology
- **COM**: Communication
- **EAS**: Earth, Atmospheric Sciences
- **ECE**: Electrical, Computer Engineering
- **ECET**: Electrical, Computer Engineering Technology
- **ECON**: Economics
- **EDCI**: Education, Curriculum and Instruction
- **EDFA**: Educational Foundations and Administration
- **EDPS**: Education and Professional Studies
- **ENGL**: English
- **ENGR**: Engineering
- **ENTR**: Entrepreneurship
- **EQUI**: Equine Management
- **ET**: Engineering Technology
- **ETHN**: Ethnic Studies
- **FN**: Foods and Nutrition
- **FIN**: Finance
- **FLL**: Foreign Languages and Literatures
- **FM**: Fitness Management
- **FR**: French
- **GER**: German
- **GNS**: General Studies
- **GRAD**: Graduate Studies
- **GREK**: Greek
- **HEBR**: Hebrew
- **HIST**: History
- **HONR**: Honors
- **HSCI**: Health Sciences
- **HTM**: Hospitality and Tourism Management
- **IDIS**: Interdisciplinary Studies
- **IE**: Industrial Engineering
- **IET**: Industrial Engineering Technology
- **ISM**: Information Systems
- **IT**: Industrial Technology
- **ITAL**: Italian
- **ITS**: Information Technology Systems
- **JPNS**: Japanese
- **LAS**: Latin American Studies
- **LTHN**: Lithuanian
- **MA**: Mathematics
- **ME**: Mechanical Engineering
- **MET**: Mechanical Engineering Technology
- **MGMT**: Management
- **MKG**: Marketing
- **MSE**: Materials Engineering
- **MSL**: Military Science and Leadership
- **MUS**: Music History and Theory
- **NUR**: Nursing
- **OBHR**: Organizational Behavior
- **OLS**: Organizational Leadership and Supervision
- **PHIL**: Philosophy
- **PHYS**: Physics
- **PLSH**: Polish
- **PLSH**: Polish
- **POL**: Political Science
- **PSY**: Psychology
- **RUSS**: Russian
- **SCI**: Science
- **SERV**: Service Learning
- **SOC**: Sociology
- **SPAN**: Spanish
- **SRCT**: Serbo-Croatian
- **STAT**: Statistics
- **SWAH**: Swahili
- **TECH**: Technology
- **THTR**: Theater
- **URDU**: Urdu
- **WOST**: Women's Studies

*The Course Descriptions listing was exported from the Student Information System on June 20, 2013. Any additions or changes after that date are not reflected in this list. For more current information use the on-line course descriptions at https://banweb.purduecal.edu/pls/proddad/bwckctlg.p_disp_dyn_ctlg*
Art Design

**AD 10500 DESIGN I**
*(Lab 6, Cr. 3)*
Two-dimensional design fundamentals: concepts and processes. Studio problems are used to introduce design concepts, vocabulary, and skills applicable to continued study in a variety of visual disciplines. Includes introduction to a variety of two-dimensional media and computer applications.

**AD 10600 DESIGN II**
*(Lab 6, Cr. 3)*
Three-dimensional fundamentals: concepts and processes. Studio problems introduce design concepts, vocabulary, and construction skills applicable to continued study in a variety of visual disciplines. Includes introduction to a variety of 3-D media and 3-D computer graphics concepts.

**AD 11200 GRAPHIC ARTS I: TYPOGRAPHY**
*(Class 2, Lab. 2, Cr. 3)*
Students investigate mechanics of type, using both type and letter forms in a variety of design applications. Students will also experiment with typographic composition, contrast, text, and value in combination with language.

**AD 11300 BASIC DRAWING**
*(Lab 6, Cr. 3)*
An introduction to drawing and sketching as a means of communication of ideas.

**AD 11400 DRAWING II**
*(Lab 6, Cr. 3)*
Prerequisite: AD 11300
Continuation of AD 11300; emphasis is given to the exploration of a variety of media and the structuring of pictorial space.

**AD 14000 ENTREPRENEURSHIP IN ART AND DESIGN**
*(Class 3, Cr. 3)*
Basic business skills are surveyed and case studies of successful self-employed artists and entrepreneurs will be studied to develop a broad understanding of this important force in the economy. Guest speakers and selected readings will introduce the student to the scope of opportunities that exist for converting artistic and design skills into self-employment and entrepreneurship.

**AD 20300 ART ACTIVITIES FOR ELEMENTARY TEACHERS**
*(Class 1, Lab. 2, Cr. 2)*
An undergraduate course designed to assist the student in gaining basic skills in art media and method as a beginning classroom teacher. This exposure to the basic art program should provide a stimulating, enrichment art program for the classroom.

**AD 20400 GRAPHIC ARTS II: DIGITAL IMAGING**
*(Class 2, Lab. 2, Cr. 3)*
This course introduces the computer as a powerful tool for manipulating and creating images. Students are encouraged to use their own photography and develop their own styles. Adobe Photoshop software package is the primary image processing program used to digitally enhance, alter and retouch images. Electronic layout and typographical issues are discussed, and a page layout program is introduced to combine text with image.

**AD 22200 INTRODUCTION TO PHOTOGRAPHY**
*(Class 2, Lab. 2, Cr. 3)*
This course presents a study of basic photographic technique from a practical and artistic point of view. Students will be presented with the opportunity to develop aesthetic and compositional skills while building a portfolio of significant images. A 35mm camera with adjustable controls or a digital camera is required.

**AD 25500 ART APPRECIATION**
*(Class 3, Cr. 3)*
General Education, Transferable
Understanding and appreciation of the origins and growth of art. A trip to a major museum is included in the course.

**AD 29000 SPECIAL TOPICS IN ART AND DESIGN**
*(Class 1 to 3, Cr. 1 to 3)*
Topics will vary.

**AD 32800 VISUAL COMMUNICATION DESIGN I**
*(Lab 6, Cr. 3)*
A course designed to introduce creative problem-solving with emphasis on 2-D solution to conceptual problems in the areas of publication and promotional graphics using word, image and layout.

**AD 32900 VISUAL COMMUNICATION DESIGN II**
*(Lab 6, Cr. 3)*
Prerequisite: AD 32800
A course designed to introduce continuation of translation of concept into form with emphasis on corporate visual identity system.

**AD 39200 SPECIAL TOPICS IN ART**
*(Class 1 to 3, Cr. 1 to 3)*
Topics will vary.

**AD 40300 PORTFOLIO PROCESS AND PRESENTATION**
*(Class 2, Lab. 2, Cr. 3)*
The process of organizing, editing, and packaging work in a cohesive system will be illustrated in lecture, individualized studio projects, and on-site portfolio reviews. The course will focus on presentation as well as the building of the portfolio and students will participate in discussions, critiques, resume preparation, and mock interviews. Copyright issues and ownership of work will also be discussed.

**AD 44800 VISUAL COMMUNICATION DESIGN III**
*(Lab. 6, Cr. 3)*
Prerequisite: AD 39200
A course designed to introduce advanced design problems with emphasis on individual development and exploration of contemporary design issues. The study of surface design for packaging graphics will be introduced as well.

**AD 44900 VISUAL COMMUNICATION DESIGN IV**
*(Lab. 6, Cr. 3)*
Prerequisite: AD 44800
A course designed to introduce advanced graphic problem solving in the commercial environment; advanced production techniques for the visual communication designer. Field trips may be required.

**AD 49100 SPECIAL TOPICS IN ART**
*(Class 1 to 3, Cr. 1 to 3)*
Topics will vary.

**AD 59000 SPECIAL ART PROBLEMS**
*(Class 1 to 6, Cr. 1 to 6)*
Consent of the instructor and the head of the department required. Individual problems in art history, appreciation, design, crafts, drawing, and painting. Credit dependent upon amount of work done.

Accounting

**ACC 12000 PRINCIPLES OF ACCOUNTING I**
*(Class 3, Cr. 3)*
Basic introduction to accounting practices, financial statements, and the accounting cycle in various forms of business organizations. Emphasis is on the accounting of assets, liabilities and owners of equity. This course is not open to Business Management majors.

**ACC 12100 PRINCIPLES OF ACCOUNTING II**
*(Class 3, Cr. 3)*
Prerequisite: BA 12000 or ACC 12000 and BA 10500 or BUSM 10500
A continuation of ACC 12000. Emphasis is on reporting issues including financial and cash flow statements.

**ACC 20000 INTRODUCTORY ACCOUNTING**
*(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)*
Transferable
Prerequisite: MA 15300
An examination of the system by which accounting data is gathered from economic events. Construction and uses of financial statements.

**ACC 20100 MANAGEMENT ACCOUNTING I**
*(Class 3, Cr. 3)*
Transferable
Prerequisite: MA 15300 and ACC 20000 or MGMT 20000
An introduction to management's internal use of accounting information for decision making, production management, product costing, motivating and evaluating performance and budgeting.
ACC 30900 ACCOUNTING INFORMATION SYSTEMS  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MGMT 20100 or ACC 20100  
The course emphasizes accounting information systems, transaction cycles, and communication of financial information for management decisions within the context of business. Topics may include ERP systems, e-business and electronic commerce, systems documentation, database management, internal control, management reporting and projects using business software.

ACC 35000 INTERMEDIATE ACCOUNTING I  
(Class 3, Cr. 3)  
Prerequisite: MGMT 20100 or ACC 20100  
Financial reporting for interested external parties. Emphasis on asset valuation, income measurement, and preparation of financial statements, and on appreciation of discretion available to preparers.

ACC 35100 INTERMEDIATE ACCOUNTING II  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35000 or ACC 35000  
Continuation of Intermediate Accounting I. An examination of additional problems in financial reporting, including long-term assets, liabilities, owners’ equity, income taxes, earnings per share, leases, and pensions.

ACC 40200 FINANCIAL STATEMENTS ANALYSIS  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MGMT 31000 and MGMT 35000 or ACC 35000  
Develops the ability to use published financial statement information and related disclosures to assess the performance of the enterprise. Equity analysis, credit analysis, prospective analysis, cash flow analysis are covered.

ACC 40301 ACCOUNTING FIELD EXPERIENCE  
(Class 3, Cr. 3)  
Note: Designated Sections of ACC 40301 will fulfill the Experiential Learning requirement.  
This course provides an experiential learning experience while students learn about the International Financial Reporting Standards (IFRS) which are being used in more than 100 other countries and are being considered by the USA. Permission of department required.

ACC 40400 TAX ACCOUNTING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35000 or ACC 35000  
A foundation course in the law governing taxation of individuals, partnerships, corporations, and property transactions. Tax planning and professional responsibility are also emphasized.

ACC 40600 AUDITING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35100 or ACC 35100  
An introduction to the concepts and procedures of auditing, which is the systematic process of objectively obtaining and evaluating evidence about economic actions and events with regard to audit risk, materiality, and decision-making. Independent, governmental, internal, and international audit topics may also be addressed.

ACC 40700 COST ACCOUNTING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 20100 or ACC 20100  
This course emphasizes the application of cost management concepts for the purpose of facilitating managerial decision making and control. Topics include cost methods, cost analysis for decision making, budgeting, performance evaluation, and financial planning.

ACC 40800 GOVERNMENT ACCOUNTING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35000 or ACC 35000  
This course examines the accounting requirements of the three major activities of state and local governments; governmental activities, business activities, and fiduciary activities. Fund accounting and treatment of capital assets and long-term liabilities in governmental systems will be examined as well as the contents of a Comprehensive Annual Financial Report (CAFR).

ACC 41000 ADVANCED FINANCIAL ACCOUNTING  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MGMT 35100 or ACC 35100  
This is the advanced course in financial accounting. A range of contemporary topics in financial reporting such as business combinations and consolidations, foreign transactions, partnerships, governmental and not-for-profit accounting are covered.

Animal Science  
ANSC 10100 ANIMAL AGRICULTURE  
(Class 3, Cr. 3)  
Importance of livestock in the field of agriculture and the place of meats and other animal products in the human diet.

ANSC 22100 PRINCIPLES OF ANIMAL NUTRITION  
(Class 3, Cr. 3)  
Prerequisite: CHM 11500  
A study of the digestive processes, composition of feedstuffs, nutritional requirements, and formulation of practical rations for farm animals.

Anthropology  
ANTH 10500 INTRODUCTION TO CULTURAL ANTHROPOLOGY  
(Class 3, Cr. 3) General Education.  
An introduction to the science of man and his works. Emphasis on the nature of culture and culture change; relationship of culture and personality. Attention given to the variations with the Universal institutions of man: language, technology, the family, systems of social control, economics, warfare, religion, art, and values.

ANTH 20400 INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY AND HUMAN EVOLUTION  
(Class 3, Cr. 3)  
This course surveys biological anthropology through a review of evolutionary theory and genetics, the fossil evidence for current theories in human evolution with insight from modern non-human primates, and the influences of environmental stressors on modern human biological variations.

ANTH 34100 CULTURE AND PERSONALITY  
(Class 3, Cr. 3)  
Three hours of anthropology, sociology, child development or psychology, or equivalent. A cross-cultural survey stressing differing basic personality types and the process by which adult personality is acquired. Case studies of selected non-western cultures will be used to provide comparative perspective. (Not open to students with credit in SOC 34100).

ANTH 37900 NATIVE AMERICAN CULTURES  
(Class 3, Cr. 3)  
General survey of Native cultures of the Americas. Topics to be covered include prehistory, language, religion, aesthetics, culture contact and change, contemporary issues, and social, economic and political organization.

ANTH 41400 INTRODUCTION TO LANGUAGE AND CULTURE  
(Class 3, Cr. 3)  
Prerequisite: ANTH 10500  
This course introduces undergraduate students to the anthropological view of language. Communication systems of other animals will be discussed to highlight the importance of language in the development of culture. Various theories of language and the diversity of language will be investigated. The anthropologist’s view of language structure, linguistic change, and writing systems will be presented. There will be a strong emphasis on the relation of language to other aspects of culture. Non-Indo-European languages will be compared to American English throughout the course.

ANTH 59000 INDIVIDUAL RESEARCH PROBLEMS  
(G. 1 to 3)  
Individual research or reading in an area of anthropology under an anthropologist staff member. Does not include thesis work.

Arabic  
ARAB 10100 ARABIC LEVEL I
Architectural Engineering Technology

ARET 42500 SOLAR CONSTRUCTION
(Class 3, Cr. 3)
A study of building orientation, energy conservation principles, insulation, and a survey of passive and active solar energy systems. An investigation of building materials and systems of construction as they relate to passive solar energy systems.

ARET 49900 ARCHITECTURAL TECHNOLOGY
(Class 1 to 4, Lab 0 to 6, Cr. 1 to 6)
Hours, subject matter and credit to be arranged with staff. Course may be repeated for credit up to nine hours.

Astronomy

ASTR 26300 DESCRIPTIVE ASTRONOMY: THE SOLAR SYSTEM
(Class 2, Lab 2, Cr. 3)
Not available to students with credit in ASTR 36300. A descriptive, largely non-mathematical course in astronomy intended for non-science majors. Topics include: description of the sky; historical development of astronomy; motion of the sun and moon; solar and lunar eclipses; the seasons and the calendar; the sun and the planetary system; comets, meteors, and asteroids. Includes required observing sessions.

ASTR 26400 DESCRIPTIVE ASTRONOMY: STARS AND GALAXIES
(Class 2, Lab 2, Cr. 3)
ASTR 26400 is a largely non-mathematical course in astronomy intended for non-science majors. Topics will include ancient ideas about the origin of the Universe, cosmology, formation of Solar Systems, and the formation and evolution of life elsewhere in the Universe.

ASTR 36300 THE SOLAR SYSTEM
(Class 3, Cr. 3)
Prerequisite: MA 16400 or PHYS 15200 or PHYS 22000
This course is intended for students in science or engineering. The components of the course consist of an overview of solar system objects and an overview of the physical processes that control the evolution of solar system objects since formation. The overview of the solar system includes observations of the Sun, planets, asteroids and Kuiper-belt objects, comets, and interplanetary dust. Specific processes that are discussed include: hydrostatic equilibrium, orbital dynamics, radioactive decay, and heat flow. The role of these processes in shaping planetary surfaces and atmosphere is explored.

ASTR 36400 STARS AND GALAXIES
(Class 3, Cr. 3)
Prerequisite: MA 16400 or PHYS 15200 or PHYS 22000
This course is intended for students in science or engineering. This is the second of a two-semester introductory sequence on astronomy and astrophysics, although it is designed to be a stand-alone course. It is intended mainly for Science and Engineering majors who are comfortable with calculus-based contents. This course provides an overview on the formation and evolution of stars’ galaxies. Selected topics that are covered in more detail include stellar structure and atmosphere, properties of black holes, neutron stars, and white dwarfs, galactic dynamics, and dark matter in galaxies and clusters of galaxies.

Business Administration

BA 22400 PRINCIPLES OF MARKETING
(Class 3, Cr. 3)
An introduction to the principles and concepts underlying marketing decisions. The topics covered include distribution channels, pricing, promotion, product, consumer behavior, and environmental influences on marketing.

BA 39000 TOPICS IN BUSINESS
(Class 1 to 4, Cr. 1 to 4)
An opportunity to investigate and study particular problems and topics in the field of business.

BA 49000 PROBLEMS IN BUSINESS
Behavioral Sciences

BHS 10100 WORKING WITH PARENTS  
(Class 3, Cr. 3)  
An in-depth look at working with parents and families in Early Childhood programs.

BHS 10300 FRESHMAN EXPERIENCE IN BEHAVIORAL SCIENCES  
(Class 1, Cr. 1| General Education)  
This interdisciplinary course provides entering first-year students and transfer students with less than 60 credits an opportunity to become familiar with campus resources, academic life management, and discipline specific career exploration.

BHS 20100 STATISTICAL METHODS FOR THE BEHAVIORAL SCIENCES  
(Class 3, Cr. 3)  
Working knowledge of high school algebra required. Not open to students with credit in PSY 50000. An introduction to descriptive and inferential statistics as applied to the behavioral sciences.

BHS 20200 INFANT AND TODDLER SUPERVISED EXPERIENCE  
(Class 3, Cr. 3)  
Experiential Learning
Note: Designated sections BHS 20200 will fulfill the Experiential Learning requirement  
Prerequisite: CDFS 21000
Experiential Learning in Infant and Toddler classrooms.

BHS 20300 ADVANCED INFANT TODDLER CURRICULUM  
(Class 3, Cr. 3)  
Prerequisite: BHS 22800
An advanced look at infant/toddler development and theories while focusing on setting up an appropriate curriculum for the classroom.

BHS 20500 INTRODUCTION TO FAMILY DYNAMICS  
(Class 3, Cr. 3)  
Prerequisite: PSY 12000 or SOC 10000
An examination of the interpersonal process that takes place within family contexts. Emphasis is on family dynamics with an extended focus on family interaction, family relationships, intimacy, conflict management and stages of family development. Also considered are linkages between family process and the broader social environment and basic components of the research process.

BHS 20600 INFANT AND TODDLER SUPERVISED EXPERIENCE  
(Class 2, Lab. 3, Cr. 3)  
Note: Designated sections BHS 20600 will fulfill the Experiential Learning requirement  
Prerequisite: CDFS 21000
Directed in-service teaching for infant and toddler settings. Course will focus on all aspects of planning and guidance of infants and toddlers, addressing overall curriculum, development and observational assessment.

BHS 29000 TOPICS IN BEHAVIORAL SCIENCES  
(Class 1 to 3, Cr. 1 to 3)  
Variable credit, variable title course for group or individual study.

BHS 37500 PHYSICAL AGING, HEALTH, AND BEHAVIOR  
(Class 3, Cr. 3)  
Prerequisite: PSY 12000 or SOC 10000
This course is designed to provide students with knowledge concerning the effects of the aging process on physical systems of older adults. These systems include circulatory, respiratory, neurological, sensory, musculoskeletal, reproductive, etc. Students will also learn about acute and chronic illnesses, common among the elderly. The impact of physical health on medical treatment, and long-term care will be discussed.

BHS 38000 DISABILITY AND THE FAMILY LIFE CYCLE  
(Class 3, Cr. 3)  
This course provides students with information related to working with the families of individuals with disabilities. It focuses on the bidirectional impact of individuals with disabilities and their families throughout the life cycle.

BHS 38200 DISABILITY AND SOCIETY  
(Class 3, Cr. 3)  
This course is designed to introduce students to disability from progressive and contemporary diversity perspectives. Students are introduced to an overview of disability history, theory, and current thinking in the field of disability studies. Students in this course will examine and analyze the service, support and community contexts in which people with disabilities live, work and participate. Students will also be exposed to experiential learning activities that focus on understanding the challenges faced by individuals with disability related to inclusion across an array of educational, social, political, and health related systems. Students will gain knowledge related to the range of disability policy and how it relates to professional issues for those working with individuals with disabilities.

BHS 48400 GENETIC AND PHYSIOLOGICAL FACTORS UNDERLYING DEVELOPMENTAL DISABILITIES  
(Class 3, Cr. 3)  
This course will explore the genetic and physiological factors that contribute to the expression of some common developmental disabilities. This course will begin with a 2-week unit that explores the process by which genes influence human development, including: sensitive periods of development, teratogenic effects, genetic counseling, prenatal diagnostic tests, difficult births and the pre-term and small-for-date baby. The third unit (2-3 weeks) will focus on the physiology of the developing human nervous system during the prenatal period, infancy and early childhood. Development of the sensory systems will be given special attention. Approximately 9-10 weeks will be devoted to discussing the etiology, diagnosis (including differential diagnoses), treatment and prognosis of some of the major developmental disabilities. Discussion will include, but not be limited to: cerebral palsy, hearing loss, impaired vision, common Mendelian genetic disorders, neuromuscular disorders and various types of mental retardation.

BHS 48600 SEMINAR IN HUMAN DEVELOPMENT AND DISABILITY  
(Class 2, Cr. 3)  
Designated sections BHS 48600 will fulfill the Experiential Learning requirement  
The Seminar on Human Development and Disability will expose students to multiple perspectives related to the issues in human development and disability related issues. The purpose of the course is to provide an interdisciplinary experience for students preparing for work in the human services specifically with individuals with disability. Students will participate in a seminar originating at Riley Child Development Center at the Indiana University School of Medicine. Students will participate in seminar preparations provided by pediatricians, psychologists, psychiatrists, social workers, special educators, and occupational therapists. Students will also gain experience in critiquing disability related research in the context of guided class discussion.

BHS 49000 UNDERGRADUATE SPECIAL TOPICS  
(Class 0 to 6, Lab. 0 to 4, Cr. 0 to 6)  
Individual or group participation in supervised reading, laboratory experiences, field experiences or research in special areas of human development and family studies.

Biology

BIOL 10008 FOUNDATIONS OF BIOLOGY  
(Class 2, Lab. 2, Cr. 3)  
An introduction to core concepts in biology and basic laboratory skills used in the biological sciences.

BIOL 10100 INTRODUCTORY BIOLOGY  
(Class 3, Lab. 3, Cr. 4) General Education, TransferIN  
Prerequisite: MA 15300
Note: MA 15300 can be taken before or during the same semester as BIOL 10100. Introduction to Life Science for Science Majors. Molecular and cellular biology, basic chemistry, cell structure and physiology, cell division, genetics and development. Laboratories include illustration of basic concepts with emphasis on data collection and interpretation.

BIOL 10200 INTRODUCTORY BIOLOGY  
(Class 3, Lab. 3, Cr. 4) General Education, TransferIN  
Prerequisite: MA 15300 or BIOL 10100
BIOL 10700 FRESHMAN EXPERIENCE IN BIOLOGICAL SCIENCES  
(Class 1, Cr. 1) General Education  
The course consists of lectures by faculty and guest speakers, presentations by students and class discussion. Students in this course will become familiarized with the diverse fields of biological sciences and gain knowledge and skill for literature search, critical thinking, problem solving, and oral and written communications.

BIOL 21000 FIELD BIOLOGY  
Class 2, Lab. 2, Cr. 3) General Education  
Note: Designated sections of Biology 21000 will fulfill the Experiential Learning requirement.  
It consists of a week-long workshop at an off-campus field site. Activities will include field identification of animals and plants, a series of lectures by the course instructor and local experts, trips to local natural areas, and class discussions at the workshop site. Topics may include, but are not limited to, basic ecological and evolutionary principles, environmental ethics, local geology and ecology, natural resource management, habitat restoration and conservation, land use and human impacts on the most fundamental ecological principles, and an appreciation of human connectedness to other living species and the non-living environment. This course is offered for non-biology majors. This course cannot be counted toward the BS degree in biology.

BIOL 21300 HUMAN ANATOMY AND PHYSIOLOGY I  
(Class 3, Lab. 3, Cr. 4) General Education  
Prerequisite: BIOL 10100 or CHM 11900  
An introduction to human anatomy and physiology. Topics include: the basic structural and functional organization of the human body, cellular anatomy and physiology, body tissues, the integument, and the skeletal, muscular and nervous systems. Lecture material is reinforced and expanded upon in laboratory studies of gross anatomy, histology and physiology. Prerequisite for students not yet admitted to a degree program: One semester, 3 credit hour, college-level course in chemistry, biology or by permission of instructor. Suggested courses include: BIOL 12500, and the prerequisites of BIOL 10100 or CHM 11900.

BIOL 21400 HUMAN ANATOMY AND PHYSIOLOGY II  
(Class 3, Lab. 3, Cr. 4) General Education  
Prerequisite: BIOL 21300  
A continuation of BIOL 21300. Topics include: structure and function of the special senses and the endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems; basic hematology, fluid and electrolyte balance and acid-base balance. Lecture material is reinforced and expanded upon in laboratory studies of gross anatomy, histology, and physiology.

BIOL 22100 INTRODUCTION TO MICROBIOLOGY  
(Class 3, Lab. 3, Cr. 4) General Education  
Course prerequisite: One semester of general chemistry and one year life science. The isolation, growth structure, functioning, heredity, identification, classification, and ecology of microorganisms; their role in nature and significance to man.

BIOL 24300 INTRODUCTORY CELL BIOLOGY  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: BIOL 10100 and BIOL 10200 and CHM 11600  
Lecture emphasizes the unity of cellular processes among all living organisms. Topics covered include: molecular mechanisms regulating cellular activities involved in ion and solute transport; organelle biogenesis; protein trafficking and vesicular transport; structure and function of cell cytoskeleton; cell signaling, cycle and cycle control; and cancer biology. The laboratory complements lecture with experiments that incorporate procedures and techniques used in research, medical biotechnology, and pharmaceutical laboratories.

BIOL 24400 GENETICS  
(Class 3, Cr. 3)  
Prerequisite: BIOL 10100 and BIOL 10200 and CHM 11600  
The study of genes and genomes with emphasis on data analysis and problem solving; topics include patterns of inheritance, the relationship of DNA and phenotype, genome structure and engineering, the nature of heritable changes, and genes in population.

BIOL 24401 GENETICS LABORATORY  
(Lab. 3, Cr. 1)  
Prerequisite: BIOL 24400  
Experiments in microbial, plant, and animal (including human) genetics, emphasizing molecular approaches; exercises include molecular cloning and DNA manipulation.

BIOL 29500 SPECIAL ASSIGNMENTS  
(Class 0 to 99, Lab. 0 to 99, Cr. 0 to 99)  
Reading, discussions, written reports or laboratory work selected for enrichment in special areas of the biological sciences.

BIOL 30700 PLANT PHYSIOLOGY  
(Class 3, Cr. 3)  
Prerequisite: BIOL 10100 and BIOL 10200  
This is an intermediate-level course in plant biology. Understanding of basic concepts in biology are required. Topics may include but are not limited to plant cells, genome, gene expression, water transport, solute translocation, photosynthesis, carbohydrate, lipid & protein metabolisms; nutrient assimilation, plant growth, hormones, flowering & defense. Applications to agriculture, biotechnology, ecology, forestry, and other related areas will also be included.

BIOL 31600 BASIC MICROBIOLOGY  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: BIOL 10100 and BIOL 10200 and CHM 11500 and CHM 11600  
One year general chemistry and one year general biology. A study of microbial structures, metabolism, genetics, classification, growth and control of growth, the role and significance of microbes to humans and the environment. Bacteria, fungi, protozoa and viruses are covered. Emphasis is on the bacteria.

BIOL 33000 BIOSTATISTICS  
(Class 3, Cr. 3)  
Prerequisite: BIOL 10100 or BIOL 10200  
Biological applications of statistical principles and procedures. Topics include basic concepts of statistics and probability, sampling and experimental design, data collection, and various analytical methods to analyze the data collected.

BIOL 33300 ECOLOGY  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: BIOL 10100 and BIOL 10200  
Adaptations of living organisms to environment natural selection and evolution of species; ecological interactions at organism, population and community levels; dynamics of populations and communities; ecosystem structures and functions; and human impacts on ecosystems.

BIOL 33900 SOCIAL ISSUES IN BIOLOGY  
(Class 3, Cr. 3)  
Prerequisite: BIOL 10100 and BIOL 10200  
This course is required for biological science teaching majors only. Contemporary social issues in biology will be discussed in this course. Topics may include, but not limited to: religious conflicts of evolution, ethics of biological research and practice, and issues of human nutrition, substance abuse, sex education, and family planning. Cannot be counted for biology elective credits.

BIOL 34000 HUMAN PHYSIOLOGY  
(Class 3, Lab. 4, Cr. 5)  
Prerequisite: BIOL 21300 and BIOL 21400 or BIOL 10100 and BIOL 10200  
A study of human physiology for students entering health oriented fields. The following systems will be examined: nervous, muscular, circulatory, respiratory, urinary, digestive, and endocrine. Emphasis on the relationship of function to structure at various levels of organization. Attention will be drawn to homeostatic mechanisms and inter-system interactions.

BIOL 34200 BIOLOGICAL SCIENCE PRACTICUM  
(Class 0 to 3, Cr. 0 to 3)  
Note: Designated sections of Biology 34200 will fulfill the Experiential Learning requirement.  
Prerequisite: BIOL 10100 and BIOL 10200 and BIOL 24300 or BIOL 24400  
Students will do a practicum in an area related to their field of interest.

BIOL 35700 INTRODUCTORY ANIMAL PHYSIOLOGY  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: BIOL 10100 and BIOL 10200  
Prerequisite: One year of life science. A system analysis of animal physiology. With emphasis on mammals, the operation of systems such as respiratory, cardiovascular,
neuromuscular, and endocrine will be considered. Interactions between components of individual systems as well as intersystem interaction is discussed.

**BIOL 40500 CONSERVATION BIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 33300  

**BIOL 41200 CLIMATE CHANGE AND THE ENVIRONMENT**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 10100 and BIOL 10200 and BIOL 33300  
The objective of this course is to provide an understanding of the patterns, drivers and consequences of climate change in terrestrial and aquatic ecosystems and the impacts on human society.

**BIOL 41300 AQUATIC ECOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 10100 and BIOL 10200 and BIOL 33300  
This course is designed to provide students with the basic understanding of freshwater and marine aquatic environments with emphasis directed towards freshwater systems. The relationships between the chemical make-up of the system, the physical movements of the water, the geology of the sediments and the biology of the various systems will be examined.

**BIOL 41400 INVASIVE SPECIES ECOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 10100 and BIOL 10200 and BIOL 33300  
This course is designed to provide students with an up-to-date perspective on invasive species. Part one will cover characteristics of invasive species and the ecological and evolutionary processes that occur when non-native species are introduced into new habitats. There will also be a review of past and present pathways that have led to the introduction and spread of invasives. Part two will cover invasive species control and management. Course literature will be a mix of recent peer-reviewed articles, reports, and landmark papers.

**BIOL 41800 DRUGS AND DISEASE**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 24300  
This course provides students the opportunity to learn about common diseases in the United States and the current drugs utilized to treat various disease states. The students will have learned about cells and targets to the design and targeting for specific drugs and the mechanism of action.

**BIOL 42600 SENIOR CAPSTONE**  
(Lab 2, Cr. 1)  
Prerequisite: BIOL 31600 or BIOL 33300 or BIOL 35700  
Students will meet two hours a week to discuss current issues in biology and give presentations. This course will integrate material learned in previous biology courses to round out the academic experience of graduating seniors and provide a final opportunity for the department to assess student achievement.

**BIOL 42800 BIOLOGY SEMINAR**  
(Class 3, Cr. 1)  
Guest speakers, faculty and students will present current topics in biology.  
Prerequisites: 24 credit hours of biology courses.

**BIOL 47700 PHYCOLOGY**  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: BIOL 10100 and BIOL 10200  
The study of algae with emphasis on identification, morphology and ecology of fresh water species.

**BIOL 48800 BIOLOGICAL SCIENCES INTERNSHIP**  
(Class 0 to 3, Lab. 0 to 9, Cr. 1 to 3)  
Note: Designated sections of Biology 48800 will fulfill the Experiential Learning requirement  
Directed in-service training with off-campus employers that may include but are not limited to government agencies, private industries and community organizations. Can be repeated up to a total of 3 credits under the direction of the academic advisor.

**BIOL 48900 BIOLOGICAL SCIENCES RESEARCH**  
(Class 0 to 12, Lab. 0 to 36, Cr. 1 to 12)  
Note: Designated sections of Biology 48900 will fulfill the Experiential Learning requirement  
Prerequisites: 12 credits in BIOL Core Courses. Students will do research in the area of biological sciences with a primary investigator. They will contribute to ongoing research while learning current research techniques. They will analyze data and determine course of action to be taken in their experiments. During this process the students will develop critical thinking, oral, and written communication skills.

**BIOL 49500 SPECIAL ASSIGNMENTS**  
(Class 0 to 3, Lab. 0 to 9, Cr. 0 to 3)  
Prerequisite: BIOL 10100 or BIOL 10200  
Prerequisites: Three semesters of biological sciences. Reading discussions, written reports or laboratory work selected for enrichment in special areas of the biological sciences.

**BIOL 50700 MOLECULAR BIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 24300 and BIOL 24400 and BIOL 24401 or CHM 53300  
Molecular aspects of structure and function of nucleic acids and proteins, including recombinant DNA research. Prokaryotic and eukaryotic molecular biology are given equal weight.

**BIOL 50800 RECOMBINANT DNA TECHNIQUES**  
(Class 1, Lab. 5, Cr. 3)  
Prerequisite: BIOL 24300 or BIOL 24400 or BIOL 24401.  
Basic principles of genetic engineering, gene cloning with various vectors. Techniques include isolation of DNA, use of restriction endonucleases, separation of DNA fragments, transformation of E. coli with recombinant DNA, detection of DNA sequences in Southern blot hybridization, mRNA isolation, cDNA library construction, DNA sequencing, and PCR technology.

**BIOL 52500 PRINCIPLES OF NEUROBIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: CHM 53300  
A survey of fundamental topics in the physiology of the nervous system including a discussion of excitable membranes, the physiology and pharmacology of electrical and chemical synapses, and the organization and function of vertebrate nervous systems.

**BIOL 52700 EUKARYOTIC MICRORBIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: CHM 53300  
Eukaryotic microbes are a heterogeneous group of organisms that range from very simple unicellular forms to more complex forms that differentiate a variety of cell types and elaborate multicellular structures. The easily manipulated life cycles of these organisms have made several of them favorite tools of geneticists, biochemists and cell biologists. This course seeks to introduce students to biology of several 'model' organisms. Emphasis will be placed on the use of genetic analysis in studying these organisms and where applicable, parallels will be drawn between these organisms and their larger eukaryotic relatives. The course will consist of four parts: genetics system, growth and metabolic regulation, cell biology and development.

**BIOL 53300 MEDICAL MICROBIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 22100 or BIOL 31600  
Co-requisite: BIOL 53400  
Host parasite relationships, Immunology, Bacteria and viruses associated with infectious diseases.

**BIOL 53400 LABORATORY IN MEDICAL MICROBIOLOGY**  
(Lab 4, Cr. 2)  
Prerequisite: BIOL 53300  
Co-requisite: BIOL 53300  
Properties of microorganism associated with infectious diseases.

**BIOL 54100 MOLECULAR GENETICS OF BACTERIA**  
(Class 3, Cr. 3)  
Prerequisite: BIOL 31600  
Advanced bacterial genetics, with emphasis on the use of genetics as a powerful and creative intellectual activity that enables us to discover biological functions and to construct new organisms by the manipulation of DNA. Major topics include: mutations, genetic selections, recombination, regulatory mechanisms, and genomic evolution.
BIOL 56100 IMMUNOLOGY
(Class 3, Cr. 3)
Prerequisite: BIOL 22100 or BIOL 31600
Introduction to the basic principles of immunology and serology in the molecular, cellular and organismal level.

BIOL 56600 DEVELOPMENTAL BIOLOGY
(Class 3, Lab. 3, Cr. 4)
Prerequisite: BIOL 24400
 Principles of development of plants and animals; the formation of organ systems.

BIOL 57400 PLANT TAXONOMY
(Class 2, Lab. 4, Cr. 4)
The principles and techniques of identification and classification of vascular plants, consideration of speciation, evolutionary mechanisms, and phylogenetic systems. Laboratory and field work pertaining to the principles and techniques of plant taxonomy.

BIOL 58000 EVOLUTION
(Class 3, Cr. 3)
A study of evolution as a basic concept of the biological sciences; an examination of current methods of experimentation within the area, as well as evidence for and possible mechanisms of evolutionary change.

BIOL 58700 BIOGEOGRAPHY
(Class 3, Cr. 3)
Prerequisite: BIOL 33300
An introduction to the principles of biogeography. Distribution patterns, the role of history, the interactions of genetics and ecology in development of the species range, the species equilibrium theory, and the evolutionary biogeography of communities and regional biotas.

BIOL 58800 PLANT ECOLOGY
(Class 2, Cr. 2)
The physical-chemical and biotic environment affecting plants in nature; the dynamics of plant communities; ecological methods. Applications to agronomy, forestry, wildlife management, outdoor recreation, and other land use interests.

BIOL 58900 LABORATORY IN PLANT ECOLOGY
(Lab 4, Cr. 2)
Prerequisite: BIOL 58800
Class field trips and laboratory exercise.

BIOL 59100 FIELD ECOLOGY
(Class 2, Lab. 4, Cr. 4)
A study of interactions which influence distribution and abundance of organisms and the theory which attempts to account for observed patterns in populations, communities, and ecosystems; adaptive strategies of organisms to interactions with other organisms and their environments. Emphasis on field studies and techniques and methods of sampling in aquatic and terrestrial communities.

BIOL 59500 SPECIAL ASSIGNMENTS
(Class 0 to 18, Lab. 0 to 18, Cr. 1 to 18)
Special work, such as directed reading, independent study or research, supervised library, laboratory field work or presentation of material not available in the formal courses of the department. The field in which work is offered will be indicated in the student’s record. Required for M.S. candidates in the non-thesis option.

BIOL 60100 GRADUATE SEMINAR IN BIOLOGICAL SCIENCES
(Class 1, Cr. 1)
A one-credit course that provides graduate students with opportunities to (1) explore original research and peer-reviewed literature in the life sciences, (2) better grasp the depth and implications of recent scientific advances through discussion with students and faculty, (3) gain written and verbal communication skills through their presentation of topics of current scientific interest.

BIOL 69800 RESEARCH M.S. THESIS
(Class 0 to 18, Lab. 0 to 18, Cr. 1 to 18)

Business Management

BUSM 10000 MANAGEMENT LECTURES I
(Class 1, Cr. 1) General Education
An introduction to a survey of the field of management. Exposure to the different functional areas of management will be stressed. Focus will be on the individual development of the students in regard not only to future professional employment but also through his or her educational planning. Required for freshman management students.

BUSM 10100 INTRO TO BUSINESS
(Class 3, Cr. 3) Transferable
An introduction to the internal operations and external environment of contemporary business. Consideration is also given to the social economic role of business in our society. The basic business functions and role of management are also discussed.

BUSM 10500 QUANTITATIVE METHODS FOR BUSINESS
(Class 3, Cr. 3) General Education
Quantitative techniques applied in business situations that are essential to business activities. Topics covered include finance charges and compound interest, payroll tax deductions, depreciation, descriptive statistics and graphical analysis.

BUSM 19000 FRESHMAN LEVEL PROBLEMS IN MANAGEMENT
(Class 1 to 4, Cr. 1 to 4)
Investigation into specific topic areas of management. Arrange with instructor before enrolling.

BUSM 22500 FUNDAMENTAL MANAGERIAL STATISTICS
(Class 3, Cr. 3) General Education
Prerequisite: MA 22500
The foundation for statistical decision making. Topics include: probability theory, descriptive statistics, estimation, and statistical inference with managerial applications.

BUSM 29000 PROBLEMS IN MANAGEMENT
(Class 1 to 4, Cr. 1 to 4)
Arrange with instructor before enrolling. Investigation in a specific management field. Permission of instructor required.

BUSM 30100 MANAGEMENT CAREER LECTURES
(Class 2, Cr. 2)
Workshops and lectures involving students in the decision-making process for career planning. Students will explore career paths, develop a job search plan, and prepare and practice interviewing techniques. Skills in writing cover letters, constructing a resume, and interviewing will be a major focus of this course. Visiting professionals in Career Placement and Recruiting will share information, experiences and career opportunities in their fields.

BUSM 30500 BUSINESS STATISTICS
(Class 3, Cr. 3)
Prerequisite: MGMT 22500 or BUSM 22500
Introduction to business statistics as related to facilitating managerial decision-making. Topics include descriptive statistics, probability models, estimation, hypothesis testing, and regression analysis. Students uses software to do their own analysis.

BUSM 30600 MANAGEMENT SCIENCE
(Class 3, Cr. 3)
Prerequisite: MGMT 22500 or BUSM 22500
Use of optimization, simulation and decision theory models to support management decision making. Emphasis on modeling, interpreting results for managerial applications of linear and integer programming models, network problems, simulation models, and decision analysis. Computer applications are stressed.

BUSM 33010 NON PROFIT ORGANIZATIONAL STRUCTURES
(Class 3, Cr. 3)
This course covers the role and responsibilities of positions and structures including the role of volunteers in non-profit organizations.

BUSM 33300 TOTAL QUALITY MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: OBHR 3300 or OLS 25200 or BA 23000 or OBHR 22100
This course focuses on the management culture, philosophy, practices, and processes necessary to develop a total quality orientation. The course bridges quantitative, behavioral, and strategic concepts for designing organizations to be dynamic, integrated systems whose outputs are monitored for quality and continuously improved. Not open to students with credit in IET 37800.

BUSM 35400 LEGAL FOUNDATIONS OF BUSINESS I
(Class 3, Cr. 3)
An examination and study, for management students, of the nature and place of law in our society, both national and international, the social and moral bases of law enactment, regulation of business, legal liability, enforcement procedures, and the legal environment for managers.

**BUSM 36000 PRODUCTION/OPERATIONS MANAGEMENT**  
*(Class 3, Cr. 3)*  
Prerequisite: MGMT 22500 or BUSM 22500  
An introductory course concerning the management of production, distribution and service systems operations. Topics covered include design of products, processes and facilities, planning, scheduling, and controlling inventory and quality.

**BUSM 36100 BUSINESS OPERATIONS**  
*(Class 3, Cr. 3)*  
Prerequisite: ACC 12100 and STAT 13000  
The operations function in a business enterprise. Topics include measuring capacity and productivity, product and process design, facility location and layout, inventory and scheduling.

**BUSM 36300 TOTAL QUALITY TECHNIQUES**  
*(Class 3, Cr. 3)*  
Prerequisite: MGMT 22500 or BUSM 22500  
Building upon basic statistical principles, this course covers the topics of acceptance sampling, control charts, capability, experimental design and regression analysis. Not open to students with credit in IET 35500.

**BUSM 36400 EMERGING ISSUES IN TOTAL QUALITY TECHNIQUES**  
*(Class 3, Cr. 3)*  
Prerequisite: MGMT 36000 or IET 35500 or BUSM 36000  
Topic coverage will change as the field of quality management evolves. Issues such as Just in Time, Taguchi methods, Ishikawa, Ohno, Shingo, and Toyota systems will be studied.

**BUSM 38000 INTERNATIONAL BUSINESS**  
*(Class 3, Cr. 3) General Education*  
Prerequisite: MGMT 10100 or BUSM 10100 and ECON 25200 or ECON 21100  
An introduction to the nature of international business. The course addresses the international business environment, including economic, political, legal, and social aspects. The assessment of international opportunities and risk is also addressed.

**BUSM 38300 PRACTICUM IN QUALITY MANAGEMENT**  
*(Class 3, Cr. 3)*  
Prerequisite: MGMT 36300 or BUSM 36300 and MGMT 33300 or BUSM 33300  
This course is run in conjunction with the Small Business Institute of the College of Business. Students will design and implement a quality management system in an actual business.

**BUSM 39000 JUNIOR LEVEL PROBLEM IN MANAGEMENT**  
*(Class 1 to 4, Cr. 1 to 4)*  
Investigation into specific topic areas of management arranged with the instructor before enrolling.

**BUSM 39100 INTERNSHIP IN BUSINESS EXPERIENTIAL LEARNING**  
*(Class 1 to 3, Cr. 1 to 3) Experiential Learning*  
Designated sections of Business Management 39100 will fulfill the Experiential Learning requirement.  
Students work in a business organization in an organized and supervised situation, designed to provide experience and challenge in a business situation. Students are evaluated by the organization supervisor and the academic coordinator.

**BUSM 40010 NON PROFIT MANAGEMENT**  
*(Class 3, Cr. 3)*  
The course includes principles of non-profit management as well as the roles and responsibilities of a non-profit board of directors, and become acquainted with the fundamentals of the programming and budgeting process.

**BUSM 41400 NON PROFIT GRANT WRITING AND FUNDRAISING**  
*(Class 3, Cr. 3)*  
The purpose of this course is to prepare students to write grants for non-profit organizations and methods of basic fund raising and become acquainted with the fundamentals of the programming and budgeting process.

**BUSM 45000 STRATEGIC MANAGEMENT: CAPSTONE**  
*(Class 2, Lab 2, Cr. 3)*  
Note: Designated sections BUSM 45000 will fulfill the Experiential Learning requirement. Prerequisite: MGMT 31000 or FIN 31000 and MGMT 32400 or MKG 32400 and MGMT 36000 or BUSM 36000  
An extensive study of management problems in business at policy-making levels; primarily for students majoring in management. Should be taken only in the last semester of senior year.

**BUSM 46500 FORECASTING FOR MANAGEMENT**  
*(Class 3, Cr. 3)*  
Prerequisite: MGMT 22500 or BUSM 22500  
A course examining the statistical techniques of forecasting. Emphasis is placed on time-series data and computer-based methods of estimation and testing of marketing and financial data will be studied. Not open to students with credit in ECON 46500.

**BUSM 48900 INTERNATIONAL MANAGEMENT**  
*(Class 3, Cr. 3)*  
Prerequisite: OBHR 33000 or BA 23000 or OBHR 22100  
Explores how differences in cultural core values shape behavior and attitudes of workers, managerial colleagues, and negotiating partners. Special attention is directed towards the importance of culture in managerial decision making.

**BUSM 49000 PROBLEMS IN INDUSTRIAL MANAGEMENT**  
*(Class 1 to 4, Cr. 1 to 4)*  
Investigation in a specific management field. Arrange with instructor before enrolling. Permission of instructor required.

**BUSM 49500 INTERNSHIP IN MANAGEMENT**  
*(Class 1 to 4, Cr. 1 to 4)*  
Note: Designated sections BUSM 49500 will fulfill the Experiential Learning requirement. A special course in selected areas of management, designed to provide practical field experience under professional supervision in selected situations related to the student’s area of specialization.

**BUSM 49900 UNDERGRADUATE RESEARCH IN MANAGEMENT**  
*(Class 3, Cr. 3)*  
Note: Designated sections BUSM 49900 will fulfill the Experiential Learning requirement. Students will work with a faculty member on a research project in their major. They will contribute to ongoing research while learning current research techniques in management. During this process the student will develop critical thinking and oral and written communication skills. Permission of instructor required.

**Child Development and Family Studies**

**CDFS 12500 CHILDREN IN FAMILY CARE**  
*(Class 3, Cr. 3)*  
An introduction to issues concerning the care of young children, the course will focus on practices appropriate for a wide range of children in family settings.

**CDFS 21000 INTRODUCTION TO HUMAN DEVELOPMENT**  
*(Class 3, Cr. 3) General Education, TransferIN*  
Prerequisite: PSY 12000  
(Prerequisite: 3 credit hours of psychology) An introduction to the development of individuals from conception through adulthood and aging. Physical growth, social and emotional behavior, cognitive and language development are covered.

**CDFS 21600 A SURVEY OF EARLY EDUCATION PROGRAMS**  
*(Class 3, Cr. 3)*  
A survey of early education programs, including center-based, infant/toddler, family child care, and kindergarten. Course will include consideration of the history and theory of early childhood programs; program routines and organization for the healthy intellectual, social and physical growth of young children; professional relationships with parents and staff.

**CDFS 21700 ISSUES IN EARLY CHILDHOOD EDUCATION**  
*(Class 3, Cr. 3)*  
Study promoting positive development of children in a group environment. Course will focus on the importance of language, child initiative and activity, and social-emotional guidance. Issues will be discussed in light of multicultural diversity, and special needs of children.
CDFS 22800 DEVELOPMENTAL INFANT AND TODDLER CARE
(Class 3, Cr. 3)
Discussion of frameworks, principles and techniques for infant toddler programs; focusing on the role of healthy environments and nurturing relationships with adults.

CDFS 23500 CDA PORTFOLIO AND EXPERIENCE
(Class 3, Cr. 3)
Students must be regularly involved in an early care and education program. Students will prepare autobiographical and goal statements, assemble resources and participate in discussion of issues in early care and education programs specifically geared to supporting the CDA program.

CDFS 30501 ART, MUSIC AND MOVEMENT IN EARLY CHILDHOOD
(Class 2, Lab. 3, Cr. 3)
Course will focus on the development of expression in children of diverse backgrounds and needs. Students will develop resources and explore techniques. Discussions will include appropriate documentation and display of children’s work.

CDFS 30800 LANGUAGE AND LITERACY IN EARLY CHILDHOOD
(Class 2, Lab. 3, Cr. 3)
Open only to Early Childhood Development Majors. Course will focus on knowledge and teaching techniques for language arts and emergent literacy appropriate to children from ages 3 - 8. Students will develop resources and learn to plan for experiences with language and literature, including activities and materials such as: storytelling, and story dictation, finger plays, flannel boards, and puppets. Students will consider the, relation of language and literacy to, cognitive, social-emotional and physical development for children from diverse backgrounds and with diverse needs.

CDFS 31001 MATH, SCIENCE, AND SOCIAL STUDIES IN EARLY CHILDHOOD
(Class 2, Lab. 3, Cr. 3)
Course will focus on planning and resources for young children’s cognitive, social-emotional and physical development through exploration of and interaction with materials, people and places. Students will plan logico-mathematical, physical, and social knowledge activities which are appropriate for children with diverse backgrounds and needs. In addition, students will consider the relationships between experiences with, materials such as manipulatives, wood, prop, boxes, foods, and other sensory rich materials and with language and expressive activities. Overall planning, including curriculum webs, will be considered.

CDFS 33201 CHILD CARE ADMINISTRATION
(Class 3, Cr. 3)
Principles and practices of administering early childhood programs, including philosophical foundations, licensing requirements, administrative and operational decisions, home-school communication, and staff support.

CDFS 34000 TEACHING VERY YOUNG CHILDREN WITH SPECIAL NEEDS
(Class 3, Cr. 3)
This course emphasizes integrative, inclusive approaches to teaching very young children with special needs, and working with their families. It provides strategies for supporting social-emotional, motor, cognitive and communicative development within the context of the early childhood setting.

CDFS 35001 INTERNSHIP IN EARLY CHILDHOOD SETTINGS
(Class 3, Cr. 3)
Note: Designated sections of CDFS 35001 will fulfill the Experiential Learning requirement. A guided practical experience for students interested in young children. Students will spend 5 hours per week in any of a variety of settings serving children from ages 0-8. Under the guidance of the setting professional and the university supervisor, the student will decide on a topic for development, culminating in a student paper describing and documenting the experience. Note: This course must be taken in conjunction with one of the guided electives, associated with the early childhood development minor. This course does not count for practicum credit.

CDFS 35400 PRACTICUM IN EARLY CHILDHOOD I
(Class 2, Lab. 3, Cr. 3)
Note: Designated sections of CDFS 35401 will fulfill the Experiential Learning requirement. Directed teaching for early education settings with attention to developmentally appropriate guidance. Course will focus on interaction with individual children and small groups. Students will participate in classroom activity planning, documentation of children’s work and assessment.
Special subjects for investigation and experiment according to the individual student’s interest and need. Permission of instructor required.

**CDFS 60100 ADVANCED CHILD DEVELOPMENT**  
(Class 2, Lab. 2, Cr. 3)  
This course provides an overview of foundational and current developmental research on changes that occur within the individual throughout infancy, childhood, and early adolescence. Emphasis is given to process and mechanisms that have been proposed to explain developmental changes. This course includes attention to social and cultural contexts within which individuals develop.

**CDFS 60200 ADVANCED FAMILY STUDIES**  
(Class 3, Cr. 3)  
Integrative and comprehensive assessment of both classic and recent contributions in the field of family studies. Topics include both classic and recent contributions in the field of family studies. Other topics include major theory and research, historical, current, and future critical issues in family studies.

**CDFS 60300 THEORIES OF FAMILY THERAPY**  
(Class 3, Cr. 3)  
An examination of the history of family therapy, major family therapy theorists, and therapy treatment modalities.

**CDFS 61500 RESEARCH METHODS IN CHILD AND FAMILY STUDY**  
(Class 3, Lab. 1, Cr. 4)  
The basic research methods employed in the study of children and of families are examined. Students are afforded supervised practice in the application of selected research strategies and methodologies.

**CDFS 61800 PROGRAM DEVELOPMENT AND EVALUATION**  
(Class 3, Cr. 3)  
This course will acquaint students with the life cycle of interventions deployed by a variety of organizations including human services, public administration, and non-profits. Program development emphasis includes needs assessment, the replication of evidence-based practice, theory of change and the use of logic models, and grant writing. Program evaluation emphasis includes theoretical approaches to evaluation, the use of data and measures, and exposure to both formative and summative approaches to program evaluation.

**CDFS 65700 SOCIAL CONSTRUCTIONIST FAMILY THERAPIES**  
(Class 3, Cr. 3)  
Investigation of theory, research, and practice of constructivist and social constructionist family therapies. Readings include a wide range of original work by major theorists, such as White, deShazer, and Anderson and Goolishian.

**CDFS 66000 FAMILY THERAPY SKILLS**  
(Class 3, Cr. 3)  
Training in use of basic family therapy skills. Procedures are applied in practice groups and analogue situations. A systemic biopsychosocial view of addictions and of the techniques that family therapists employ to disrupt patterns within abusing and addictive family systems.

**CDFS 66300 STRUCTURAL AND STRATEGIC FAMILY THERAPIES**  
(Class 3, Cr. 3)  
Investigation of theory, research, and practice of structural and strategic family therapies. Readings will include a wide range of the original works of major theorists such as Erickson, Minuchin, Haley, Walzawick, and Palazzoli.

**CDFS 66400 BEHAVIORAL, EXPERIENTIAL, AND COMMUNICATIONAL FAMILY THERAPIES**  
(Class 3, Cr. 3)  
Investigation of theory, research, and practice of behavioral, experiential and communicational family therapies. Readings will include a wide range of the original works of major theorists.

**CDFS 66500 TRANS-GENERATIONAL AND SPECIALIZED FAMILY THERAPIES**  
(Class 3, Cr. 3)  
Investigation of theory, research and practice of trans-generational and specialized family therapies. Readings will include a wide range of original works of the major theorists.

**CDFS 66700 PRACTICUM IN MARRIAGE COUNSELING**  
(Class 3, Cr. 3)  
Admission by consent of instructor. (May be repeated for credit) Supervised counseling experience in working with premarital and marital problems.

**CDFS 66900 PRACTICUM IN FAMILY THERAPY**  
(Class 3, Cr. 3)  
Supervised counseling experience in family therapy. Admission by consent of instructor. (May be repeated for credit) Supervised counseling experience in family therapy.

**CDFS 67000 HUMAN SEXUALITY**  
(Class 3, Cr. 3)  
Admission by consent of instructor. Study of the broad scope of human sexual development and expression. Particular attention devoted to literature on sexual behavior over the life cycle, alternate forms of sexual expression, law, ethics, and cross-cultural perspectives.

**CDFS 67100 SEX THERAPY**  
(Class 3, Cr. 3)  
Prerequisite: CDFS 67000  
Examination of the literature, research and theories related to therapeutic interventions for sexual concerns in relationships. Particular attention is given to systemic approaches and to the relationship between marital and sex therapy.

**CDFS 67500 GENDER AND MULTICULTURAL PERSPECTIVES IN MARRIAGE AND FAMILY THERAPY**  
(Class 3, Cr. 3)  
Increases students’ sensitivity and understanding of how the social construction of gender and culture impact their professional development and the process of family therapy. Scholarly investigation and self-exploration will be integrated by studying the current literature and by analyzing videotapes of movie clips, television shows, and the therapy sessions.

**CDFS 67800 FIELD EXPERIENCE IN MARRIAGE AND FAMILY THERAPY**  
(Class 0 to 9, Cr. 3 to 9)  
Admission by consent of instructor. May be repeated for credit. Supervised clinical experience in a community agency working with a variety of marital and family problems. Depending on the number of credit hours for which one registered, will require 8-24 clinic hours and 3-9 exponential hours per week. Supervised clinical experience in a community agency working with a variety of marital and family problems.

**CDFS 68000 PROFESSIONAL ISSUES FOR CHILD AND FAMILY SPECIALISTS**  
(Class 3, Cr. 3)  
Prerequisite: Admission to doctoral studies or consent of instructor. Professional issues involved in working with children and families. Questions of ethics, legal relationships, and value problems may be pursued, as may such pragmatic inquiries as the role of professional organizations and labor unions in these fields.

**CDFS 69800 RESEARCH MS THESIS**  
(Class 0 to 18, Cr. 1 to 18)  

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**Civil Engineering**

**CE 11500 ENGINEERING DRAWING I**  
(Lab. 3, Cr. 1)  
A technical drawing course covering engineering geometry, orthographic projection, auxiliary views, dimensioning, and tolerance using sketching techniques, and 2-D CAD. Credit is not allowed for both CE 11500 and ME 11500. This course replaces ME 11500 Engineering Drawing I in the Civil Engineering curriculum. Initially it will be dual listed with ME 11500.

**CE 11600 ENGINEERING DRAWING II**  
(Lab. 3, Cr. 1)  
Prerequisite: CE 11500 or ME 11500  
A continuation of the technical drawing course covering 3-D parametric modeling, part assembly modeling, and detail and assembly drawings. Credit is not allowed for both CE 11600 and ME 11600. A minimum grade of C is required for course prerequisites.

**CE 20100 SURVEYING AND G.I.S.**  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: MA 16400 and PHY5 15.200  
CE 20400 CIVIL ENGINEERING MATERIALS  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MA 15900 and CHM 11500  
This course provides an introduction to the use, specification and test of common civil engineering construction materials such as steel, aluminum, aggregates, Portland cement concrete, asphalt cement concrete, constituents of masonry, fiber reinforced plastics (FRP’s) and timber. Practical behaviors of these materials systems will be emphasized. An understanding of these behaviors will be approached through examination of the materials characteristics. This course will provide introductory details of composites.

CE 27101 BASIC MECHANICS (STATICS)  
(Class 3, Cr. 3)  
Prerequisite: MA 16300 and MA 16400 and PHYS 15200 and MA 26100  
Review of vector algebra and equilibrium. Hydrostatics, virtual work. Static stability, friction. First and second moments of areas, volumes, and masses, center of gravity. A minimum grade of C is required for course prerequisites. Credit is not allowed for both CE 27101 and ME 27100.

CE 27300 MECHANICS OF MATERIALS  
(Class 3, Cr. 3)  
Prerequisite: ME 27100 and MA 26100  
Analysis of stress and strain, Mohr’s circle, equations of equilibrium and compatibility; stress-strain laws; extension torsions, bending and deflection of beams, buckling of columns, elastic stability and strain energy, Castigliano’s Theorem, pressure vessels, selected topics.

CE 27301 MECHANICS OF MATERIALS LAB  
(Lab 3, Cr. 1)  
Prerequisite: MA 16300 and MA 16400 and MA 26100 and PHYS 15200  
This lab will demonstrate the basic principles of strength of materials. Students will conduct tension tests, torsion tests, and learn to use strain gauges with data acquisition systems to conduct experiments such as finding modulus of elasticity and Poisson’s ratio, stress concentration, principal stress, and strain and deflection of beams.

CE 27500 BASIC MECHANICS II (DYNAMICS)  
(Class 3, Cr. 3)  
Prerequisite: MA 26100 and CE 27101  
Fundamental concepts, kinematics, translation and rotation. Kinetics, impulse, momentum, work, energy. Rectilinear and curvilinear translation of point masses. Plane motion of rigid bodies and vibration. Credit is not allowed for both CE 27500 and ME 27500. A minimum grade of C is required for course prerequisite.

CE 30800 CONSTRUCTION ENGINEERING MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: CE 27300 and CE 20400  
Introduction to the construction industry, phases in construction projects, construction contracts and legal structures, construction planning and scheduling, construction estimation, project cash flow, labor relations construction equipment management, quality management and construction safety.

CE 31200 FLUID MECHANICS  
(Class 3, Cr. 3)  
Prerequisite: MA 26400 and ME 27500 and ME 30500  
Continuum, velocity field, fluid statics, basic conservation laws for systems and control volumes, dimensional analysis. Euler and Bernoulli equations, viscous flows, boundary layers flow in channels and around submerged bodies, one-dimensional gas dynamics. Credit is not allowed for both CE 31200 and ME 31200. A minimum grade of C is required for course prerequisite.

CE 31300 FLUID MECHANICS LAB  
(Lab 3, Cr. 1)  
Prerequisite: CE 31200  
Introduction to fluid mechanics laboratory, experiments on flow patterns, viscosity profile in an air pipe, wind tunnel calibration, draining of a tank, pipe friction, boundary layer studies, falling ball experiments and viscosity measurements. Credit is not allowed for both CE 31300 and ME 31300. Initially it will be dual-listed with ME 31300.

CE 32200 INTRODUCTION TO CONSTRUCTION ENGINEERING  
(Class 3, Cr. 3)  
Prerequisite: CE 27300 and ME 31100  
Introduction to project planning and management — U.S. construction industry practice, organization of construction firms, cost of construction projects, cost estimating, quantity takeoff. Topics will include equivalence, present worth, uniform annual cost, depreciation, documents, contracts and management project scheduling inspection.

CE 32300 SOIL ENGINEERING  
(Class 2, Lab 3, Cr. 3)  
Prerequisite: ME 31200 and ME 31300  
Introduction to soil engineering and testing. Identification and classification tests, soil water systems, settlement principles, soil stresses, and shear strength testing.

CE 33400 STRUCTURAL ANALYSIS I  
(Class 3, Cr. 3)  
Prerequisite: CE 27300  

CE 34200 ENGINEERING HYDROLOGY AND HYDRAULICS  
(Class 2, Lab 3, Cr. 3)  
Prerequisite: ME 31200 and ME 31300  
Note: Designated sections CE 34200 will fulfill the Experiential Learning requirement.

CE 35100 INTRODUCTION TO TRANSPORTATION ENGINEERING  
(Class 3, Cr. 3)  
Prerequisite: STAT 34500 and ME 31200  
Planning and operations of transportation facilities. Vehicle, operation and infrastructure characteristics. Technological, economic, and environmental factors. Travel demand modeling and capacity analysis.

CE 35400 INTRODUCTION TO ENVIRONMENTAL ENGINEERING  
(Class 3, Cr. 3)  
Prerequisite: CE 27300 and ME 31100  
Introduction to air and water pollution, noise, and hazardous and solid wastes; consideration of treatment and management issues.

CE 40400 FINITE ELEMENT ANALYSIS  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MA 26400 and MA 26500 and CE 27300  
Brief history of finite element method and ANSYS; direct formulation, minimum total potential energy formulation, verification of results, trusses. Examples using ANSYS, one-dimensional elements. Numerical integration, Gauss Quadrature. Examples of one-dimensional elements in ANSYS; heat transfer problems; solid mechanics problems; two-dimensional elements. Pre-processing with ANSYS; boundary conditions; applications; heat conduction problems, torsion problems, beams and frames. Credit is not allowed for both CE 40400 and ME 40400. This will be one of the CE electives for Civil Engineering students.

CE 41100 BUILDING DESIGN  
(Class 3, Cr. 3)  
Prerequisite: ENGR 11400 and CE 32300 and CE 33400  

CE 41200 GROUNDWATER HYDROLOGY  
(Class 3, Cr. 3)  
Prerequisite: ME 31200 and CE 34200  
Planning and operations of transportation facilities. Vehicle, operation and infrastructure characteristics. Technological, economic, and environmental factors. Travel demand modeling and capacity analysis.

CE 42800 TRAFFIC MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: CE 35100
Driver, pedestrian, and vehicular characteristics. Traffic characteristics, study of highway capacity; analyses of traffic patterns. Principles of traffic control for improved highway traffic service. Use intersection, corridor or network analysis, computer evaluation, and optimization tools.

CE 42900 SENIOR ENGR DESIGN I
(Class 2, Lab. 3, Cr. 3)
Note: Designated sections CE 42900 will fulfill the Experiential Learning requirement. Prerequisite: ENGL 30700 and CE 20400 and CE 31200 and CE 32300 and CE 33400 and CE 34200 and CE 35100, The senior engineering design courses I and II constitute a two-semester sequence of an interdisciplinary activity. The objective of these courses is to provide engineering students with supervised experiences in the process and practice of engineering design. Projects are chosen by the students or the faculty. Students working in teams pursue an idea from conception to realistic design. The course concludes with a substantial written and oral design review before a faculty team. Class discussions will include the ethical responsibility of engineers, impact of engineering solution in a global/societal context, and small-group interactions.

CE 43000 TRANSPORTATION POLICY
(Class 3, Cr. 3)
Prerequisite: CE 35100
Current concepts, theories, and issues in managing transportation organizations. Study of transportation logistics and engineering systems with an overview of the operating context, leadership challenges, strategies and management tools that are used in today’s public and private transportation organizations. Analyze alternative models of decision-making, strategic planning, stakeholder valuation and analysis, government-based regulation and cooperation within the transportation enterprise, disaster communications, systems safety, change management and the impact of globalization.

CE 43600 URBAN TRANSPORTATION PLANNING AND MODELING
(Class 3, Cr. 3)
Prerequisite: CE 35100
Transportation data sources and cost analysis; management of transportation systems; transport financing; intelligent transportation systems planning; sustainable transportation concepts. Use of popular travel demand software and applications of geographic information systems (GIS) and global positioning systems (GPS).

CE 43900 SENIOR ENGINEERING DESIGN II
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ME 42900 or CE 42900
Note: Designated sections CE 43900 will fulfill the Experiential Learning requirement. The senior engineering design courses I and II constitute a two-semester sequence of an interdisciplinary activity. The objective of these courses is to provide engineering students with supervised experience in the process and practice of engineering design. Projects are chosen by the students or the faculty. Students working in teams pursue an idea from conception to realistic design. The course is climaxed by the presentation of a substantial written report and a formal oral presentation before faculty and students.

CE 44500 WATER RESOURCES SYSTEM DESIGN
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ME 31200 and CE 34200
Application of principles of hydrology, hydraulics and environmental engineering in the planning, design, and analysis of a comprehensive water resource project. The application of engineering concepts to the practical design of water supply, distribution, collection and treatment facilities will be emphasized. Written and oral presentation of student projects will be required.

CE 44600 WATER AND WASTEWATER TREATMENT
(Class 3, Cr. 3)
Prerequisite: CE 35400
Overview of engineering approaches to protect water quality with an emphasis on fundamental principles. Theory and conceptual design of systems for treating municipal wastewater and drinking water. Reactor theory, process kinetics, and models. Physical, chemical, and biological processes, including sedimentation, filtration, biological treatment, disinfection and sludge processing. Engineered and natural processes for wastewater.

CE 45200 AIR POLLUTION
(Class 3, Cr. 3)
Prerequisite: CE 35400
Analysis of air pollution sources. Effects of air pollutants on human health and environment. Technologies and methods used to control air pollution. Regional and global issues such as acid rain, ozone depletion, and global climate change.

CE 45800 SOLID WASTE MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: CE 35400
Planning and design of solid waste management systems; includes characterization and collection of domestic, commercial, and industrial solid wastes, waste minimization and recycling, energy and materials recovery, composting, incineration and landfill design.

CE 46200 HIGHWAY DESIGN
(Class 3, Cr. 3)
Prerequisite: CE 35100 and CE 33400
Introduction to traffic engineering and highway planning. Design, construction, and maintenance of highway facilities; earthwork, drainage structure, pavements. Preparation of environmental impact statement. This course has computer applications and will include completing a design project.

CE 47100 REINFORCED CONCRETE DESIGN
(Class 3, Cr. 3)
Prerequisite: CE 35400
Analysis and design of beams, one-way slabs, and columns. Design of building frames using pattern loading and moments coefficients.

CE 47600 REINFORCED CONCRETE AND STEEL STRUCTURES
(Class 3, Cr. 3)
Prerequisite: CE 27300 and CE 33400
Concrete design – beams, slabs, girders, columns, and footings for building frames and bridges. Introduction to pre-stressed concrete, ultimate strength design, basic design criteria. Design of structural steel beams; columns beams-columns, and bolted and welded connections. Introduction to design aspects of composite steel/ concrete beams. Design of continuous structures. Plastic analysis. Training in computerized structural analysis and design.

CE 48200 ENGINEERING RISK ANALYSIS
(Class 3, Cr. 3)
Prerequisite: CE 35400
Decision-making in the presence of uncertainty: reliability and probabilistic risk assessment (RPRA), decision analysis (DA), and cost-benefit analysis (CBA). Balancing risk and benefit in situations that involve human safety, potential environmental effects, and large financial and technological uncertainties.

CE 48500 ENVIRONMENTAL LAW AND PUBLIC POLICY
(Class 3, Cr. 3)
Prerequisite: CE 35400
Review and analyze federal and state regulation of air and water pollution and hazardous wastes. Analyze pollution as an economic problem and the failure of markets. Emphasize use of legal mechanisms and alternative approaches (such as economic incentives and voluntary approaches) to control pollution and to encourage chemical accident and pollution prevention. Focus on the major federal legislation, the underlying administrative system, and the common law in analyzing environmental policy, economic consequences, and the role of the courts. Discuss classical pollutants and toxic industrial chemicals, community right-to-know, and environmental justice. Also provides an introduction to basic legal skills.

CE 48900 CIVIL ENGINEERING PROJECTS
(Class 0 to 6, Lab. 0 to 18, Cr. 1 to 6)
Projects or special topics of contemporary importance or of special interest that are outside the scope of the standard undergraduate curriculum can be studied.
Interested students should seek a faculty advisor who works in the area of special interest and prepare a brief description of the work to be undertaken in cooperation with the advisor.

**CE 57000 ADVANCED STRUCTURAL MECHANICS**  
*Class 3, Cr. 3*  
Studies in stress and strain, failure theories, and yield criteria; flexure and torsion theories for solid and thin-walled members; and energy methods.

**Civil Engineering Technology**

**CET 10000 TECHNICAL COMPUTATIONS**  
*Class 3, Cr. 3*  
A study of elements from algebra and trigonometry appropriate to surveying, estimating, statics, and other construction-related courses. Graphs and reports are included.

**CET 10400 ELEMENTARY SURVEYING**  
*Class 2, Lab. 3, Cr. 3*  
Prerequisite: MA 14700  
Measurement of distances, directions and angles, using the tape, level, theodolite and total station. Computation of areas and traverses, lines and grades. Also, topographic surveys, an introduction to construction surveys, and an introduction to GPS measurement.

**CET 10800 ROUTE SURVEY AND DESIGN**  
*Class 1, Lab. 6, Cr. 3*  
Preliminary and construction surveys for route locations. Calculation and field work for simple and easement curves grade lines, and slope stakes. Preparation of plans, profiles, and cross-sections from field survey data earthwork estimates.

**CET 16000 STATICS**  
*Class 3, Cr. 3*  
Prerequisite: MA 14800  
Study of forces acting on bodies at rest. Coplanar and non-coplanar forces, concurrent and non-concurrent forces, hydrostatic forces, centroids and moments of inertia will be studied.

**CET 20800 ROUTE SURVEYING**  
*Class 2, Lab. 3, Cr. 3*  
Prerequisite: CET 10400  
Preliminary and construction surveys for highways and railroads, including calculation and field work for simple, compound, reverse, and easement curves, grade lines and slope stakes and the super-elevation of curves. Preparation of plans, profiles and cross-sections from field survey data. Earth-work estimates.

**CET 20900 LAND SURVEYING AND SUBDIVISION**  
*Class 1, Lab. 4, Cr. 3 or Class 2, Lab. 6, Cr. 4*  
Prerequisite: CET 20800 and CET 25300  
Theory and practice of land surveying, subdivision, filing and recording deeds, United States government survey of public lands, laws of land surveying, descriptions and area computations for land surveys. Subdivision planning, calculations and plotting, water main layouts, storm and sanitary sewer calculations and layouts. Street plans and profiles.

**CET 21000 SURVEYING COMPUTATIONS**  
*Class 3, Cr. 3*  
Prerequisite: CET 10400  
Analysis of errors in surveying measurements. Adjustments to surveying measurements, including an introduction to the least squares adjustment method. Computations using rectangular coordinates including intersections and coordinate transformations. Computations associated with horizontal and vertical control networks.

**CET 25300 HYDRAULICS AND DRAINAGE**  
*Class 3, Cr. 3*  
Prerequisite: CET 16000  
Basic hydrostatics, Bernoulli’s equation, flow in water and sewer lines, overland and ditch drainage, and culvert size determination.

**CET 26000 STRENGTH OF MATERIALS**  
*Class 3, Cr. 3*  
Prerequisite: CET 16000  
Co-requisite: MA 22100  
Study of stress-strain relationships, shear and bending moment diagrams, stresses and deflections of beams, axial loads, and combined stresses. Applied problems in the field structural design.

**CET 26600 MATERIALS TESTING**  
*Class 1 to 2, Lab. 2 to 6, Cr. 3*  
Prerequisite: CET 26000  
Testing of construction materials to determine physical and mechanical properties. Preparation of reports from data secured from such tests.

**CET 28000 STRUCTURAL CALCULATIONS**  
*Class 3, Cr. 3*  
Prerequisite: CET 26000  
Practice in the calculation of loads, reactions, shear, and moment for determinate structures. Introduction to indeterminate structures with emphasis on moment distribution.

**CET 29900 CIVIL ENGINEERING TECHNOLOGY**  
*Class 0 to 4, Cr. 1 to 4*  
Hours to be arranged with staff. Primarily for third and fourth semester students. Subject matter to be assigned by the staff. Course may be repeated for up to nine credit hours.

**CET 30300 LAND SURVEY SYSTEMS**  
*Class 3, Cr. 3*  
Prerequisite: CET 10400  
A study of ancient land survey systems which affected surveying in the United States, including metes and bounds systems. History and use of the United States Public Land Systems, including subdivision of sections, restoration of lost or obliterated corners, original surveys and retracement surveys. The study of other land system topics such as State Plane Coordinate Systems.

**CET 30400 LEGAL DESCRIPTIONS FOR SURVEY**  
*Class 3, Cr. 3*  
Prerequisite: CET 30300  

**CET 30600 CONSTRUCTION SURVEYING**  
*Class 2, Lab. 3, Cr. 3*  
Prerequisite: CET 10400  
Application of surveying skills relevant to the construction field. Projects include: layout of commercial and industrial buildings; transfer of horizontal and vertical control, establishment of route centerlines, establishment of lines and grades, determination of earthwork quantities, establishing slope stakes, triangulation, topographic mapping, etc. Instruments used will include transits, theodolites, automatic levels, construction lasers, and EDMs.

**CET 30900 PRINCIPLES OF HIGHWAY CONSTRUCTION**  
*Class 3, Cr. 3*  
Basic principles of highway construction, including materials, methods, interpreting of plans and specifications, earthmoving, drainage, paving, bridges, and retaining walls.

**CET 32200 ASTRONOMIC AND GEODETIC SURVEYING**  
*Class 3, Cr. 3*  
Prerequisite: CET 21000  
CET 21000 or equivalent or consent of instructor. Determination of directions based on astronomic observations. Computations associated with geodetic surveying and geodetic control surveys. Associations of geodetic locations and plane coordinate locations. Introduction to surveying by use of GPS methods.

**CET 33100 PROPERTIES AND BEHAVIOR OF SOILS**  
*Class 2, Lab. 3, Cr. 3*  
Prerequisite: CET 26600  
Identification and properties of soils with emphasis on laboratory and field testing. Behavior of soils relating to design and construction of structures and highways.

**CET 38600 REINFORCED CONCRETE CONSTRUCTION**  
*Class 2, Lab. 3, Cr. 3*  
A study of concrete as both a construction and a structural material. Field methods
and practices used in concrete construction. Fundamentals of reinforced concrete design as applied to beams, slabs, columns, walls and footings. The testing of reinforced concrete structural members.

**CET 40200 SURVEYING LAW**  
*(Class 2, Lab. 2, Cr. 3)*  
Prerequisite: CET 10400  
Legal aspects of surveying relative to boundary control, including sequential and simultaneous conveyances, adverse possession, riparian rights and boundaries and other interests in real property. Study of evidence and how it impacts boundary surveying. State laws and standards which impacts surveys.

**CET 40400 PROPERTY SURVEYING**  
*(Class 2, Cr. 3)*  
Prerequisite: CET 40200  

**CET 40800 CONSTRUCTION OF HIGHWAYS**  
*(Class 2, Lab. 3, Cr. 3)*  
Materials design and methods used in flexible and rigid pavement construction. Topics include preliminary layout and design of intersections and highways, soil requirements subgrade requirements, drainage requirements, construction procedures, and maintenance.

**CET 40900 PROPERTY SURVEYING**  
*(Class 2, Cr. 3)*  
Junior standing in CMET department required. Office and field work associated with land surveying. Laws of land surveying and public records of real property. Metes and bounds, federal subdivision, and state plane coordinate descriptions.

**CET 43200 FOUNDATION CONSTRUCTION**  
*(Class 3, Cr. 3)*  
A study of the design principles, construction methods equipment and construction procedures used in constructing shallow and deep foundations. Excavation procedures, temporary bracing, construction site dewatering, and loads on underground structures will also be studied.

**CET 44900 CIVIL ENGINEERING TECHNOLOGY**  
*(Cr. 1 to 4)*  
Hours, subject matter and credit to be arranged by staff. Course may be repeated for credit up to 9 hours.

### Computer Graphics Technology

**CGT 10100 INTRODUCTION TO COMPUTER GRAPHICS TECHNOLOGY**  
*(Class 3, Cr. 3)*  
This course provides an introduction to and a survey of the discipline of computer graphics. As an introductory course for incoming freshman, its topics include survey of the applications of computer graphics, the knowledge base and history of computer graphics, an examination of computer graphics technologies and careers in this rapidly emerging and evolving field, as well as an overview of the abundance of available resources for study and research in computer graphics at Purdue University Calumet.

**CGT 11000 TECHNICAL GRAPHICS COMMUNICATIONS**  
*(Class 2, Lab. 2, Cr. 3)*  
This course is an introduction to graphic language used to communicate design ideas using CAD. Topics include: sketching, multi-view drawings, auxiliary views, pictorial views, working drawings, dimensioning practices, and section views.

**CGT 11100 DESIGN FOR VISUALIZATION AND COMMUNICATION**  
*(Class 2, Lab. 2, Cr. 3)*  
An introductory design course for computer graphics majors. Students develop an understanding of the basic design elements and principles, composition and typography through exercises and projects. The focus is on visual thinking, exploring the relationship between type and image, and developing multiple solutions to a given problem.
CGT 25100 PRINCIPLES OF CREATIVE DESIGN  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 11000  
This course is an intermediate exploration of conceptualization and problem-solving using the integration of type and image as both visual and verbal communication. Topics such as systems of organization, visual hierarchy creativity, typography, color, and navigation are introduced and explored in a systematic way. Students will also be introduced to the issues of information and user interface design to create effective and visually stimulating communication devices.  
Prerequisite: CGT 216

CGT 25600 HUMAN COMPUTER INTERFACE THEORY AND DESIGN  
(Class 2 to 3, Lab. 0 to 2, Cr. 1 to 3)  
Note: Designated sections of CGT 25600 will fulfill the Experiential Learning requirement.  
Prerequisite: CGT 21100 and CGT 14100 and CGT 21600  
Co-requisite: CGT 21100 or consent of instructor  
This course introduces the theory and art of human computer interface (HCI) design. Students focus on theoretical research in the area of HCI and on designing interfaces and interface components. Emphasis is placed on designing and evaluating effective and usable interfaces for multimedia and hypermedia products. Topics such as systems of organization, visual hierarchy, creativity, typography color and navigation are introduced.  

CGT 29000 COMPUTER GRAPHICS TECHNOLOGY  
(Class 2 to 4, Lab. 2 to 4, Cr. 1 to 3)  
Course topics will be determined by the computer graphics faculty. Hours and subject matter shall be arranged by the instructor and approved by the CGT curriculum committee. This course will not be used for independent study.  

CGT 30100 CREATING GRAPHICS FOR DIGITAL DISPLAY  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 21100  
The process of creating, editing and reformatting graphics for web and multimedia presentation. Students will gain proficiency in the creation and manipulation of raster and vector based imagery in appropriate technology formats for multimedia delivery. Color theory, design, communication and presentation skills will be emphasized.  

CGT 30400 COLOR AND COMPOSITION  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 21600  
Students will examine traditional color harmonies and modernist theories. Interaction of color and the application of these ideas in the work of 20th Century artists are studied and adapted to student projects. Creative and expressive uses of color in all areas of design are encouraged.  

CGT 30500 INTERACTIVE ANIMATION AND DELIVERY METHODS  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 21600  
New and emerging computer technologies are used to create interactive media-rich web and stand-alone delivery projects. Students focus on the use of emerging scripting technologies that extend the capabilities of HTML, including JavaScript and ActionScript. Additionally, unique vector and raster implementations, such as Macromedia Flash, will be discussed and used. The course furthers the student's ability to utilize the time and location independent capabilities of web and new interactive multimedia content delivery methods.  

CGT 30700 ADVANCED GRAPHIC DESIGN FOR WEB AND MULTIMEDIA  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 25100 or CGT 35300  
This course focuses on the creation of intermediate to advanced graphic web design. Students are required to plan, design and implement a major web project and a final online presentation. Areas of concentration will include transforming existing print and presentation materials for use on the Internet, integration of original vector, raster and animation art, and refining of graphic design principles as they relate to graphic web design. Students will use leading industry standard software in the creation process. Prerequisites: CGT 21600 or permission of instructor.  

CGT 30800 PRE PRESS PRODUCTION  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 21600  
This course applies the fundamentals of computer graphics concepts of visual communication and creativity using industry standard software, QuarkXpress. Students gain expertise through exercises and projects in Typography, DeskTop Publishing, and image application. Emphasis will be on design and pre-press production. Prerequisite: CGT 21600 or permission of instructor.  

CGT 30900 INTERNSHIP IN COMPUTER GRAPHICS TECHNOLOGY  
(Class 2 to 3)  
Note: Designated sections of CGT 30900 will fulfill the Experiential Learning requirement. Internship course in computer graphics technology. Practical experience totaling at least 240 hours in computer graphics technology. Departmental approval is required.  

CGT 31000 DRAWING, ACTING AND SCRIPTS FOR ANIMATION  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 11200  
This course analyzes the symbiotic relationship between thinking and physical action, between emotion and its expression. Students will explore the visual storytelling process for film, animation, video games or multimedia. Students will learn the history of and gain needed drawing, skills to create storyboards, animatronics, along with the learning the importance to the production process. Students will learn how animation scripts are developed as well as how visual stories are told through technical elements such as composition, lighting, framing and perspective. Students will explore how to tap into their creativity and create interesting original animations.  

CGT 31600 INDUSTRIAL APPLICATIONS OF COMPUTER GRAPHICS TECHNOLOGY  
(Class 1 to 3, Cr. 0 to 3)  
Consent of Instructor (May be repeated for up to six hours additional credit) This includes specialized topics, skills and applied problem solving associated with Computer Graphics Technology. The level of coverage varies according to the audience. Several variable topics may be offered under this title.  

CGT 33000 MULTIMEDIA ANIMATION AND VIDEO GAME DESIGN AND DEVELOPMENT  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CGT 24100  
This course outlines all the details needed to create an original video game, build an effective game proposal outline with background information, the story, asset lists, hardware and software requirements. This course will teach the students to maximize design and development time of the original creator. Students will properly detail the proposal for a programming and artistic team to take a game from start to finish.  

CGT 34000 DIGITAL LIGHTING AND RENDERING  
(Class 2 to 3, Lab. 0 to 2, Cr. 3)  
Prerequisite: CGT 24100 and CGT 11600  
This course is designed to provide the basic knowledge and skills required in the creation of photorealistic still imagery. Emphasis is on a working knowledge of both virtual and real world lighting technologies and the tools necessary to create photorealistic imagery as well as an appreciation for production processes and deadlines.  

CGT 34100 MOTION FOR COMPUTER ANIMATION  
(Class 2 to 3, Lab. 0 to 2, Cr. 3)  
Prerequisite: CGT 24100 and CGT 11600  
This course focuses on the animation of human motion, animal motion, soft-body and rigid-body object motion. Traditional animation concepts and 3D computerized animation techniques will be theoretically explored and practically applied.  

CGT 34600 DIGITAL VIDEO AND AUDIO  
(Class 2 to 3, Lab. 0 to 2, Cr. 3)  
Prerequisite: CGT 24100  
Covers the use of digital technologies for video and audio focused toward use in multimedia, hypermedia and animation products. Students examine the methods of creating, sampling and storing digital audio and the constraints placed on these media assets when used for media-based products. Emphasis is placed upon the technology of digital video and audio including formats, data rates, compressors,
and the advantages and disadvantages of the different technologies.

**CGT 35100 INTERACTIVE MULTIMEDIA DESIGN**
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)
Prerequisite: CGT 25600
This course introduces the many facets of interactive multimedia design and production. Students are introduced to authoring programs used for information delivery with special attention focused on the integration of various media assets for communication. There is also concentration on the storage, management, and retrieval of media assets in a production environment. Considerable time is spent on the systematic design of interactive media products to meet specified goals of communication.

**CGT 35300 PRINCIPLES OF INTERACTIVE AND DYNAMIC MEDIA**
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)
Prerequisite: CGT 21600
This course explores the development of interactive and dynamic media components for multimedia and hypermedia products. The course examines the design, creation and integration of text, 2D animation and sound for use in CD, DVD and web media. Students also learn the basics of scripting and how it can be used to create interaction.

**CGT 35600 WEB PROGRAMMING, DEVELOPMENT AND DATA INTEGRATION**
(Class 2 to 3, Lab. 0 to 2, Cr. 3)
Prerequisite: CGT 25600
A course focusing on the development of dynamic content and applications to facilitate information distribution. The course stresses development strategies for managing the rapidly changing information of corporations and organizations for just-in-time distribution, using authoring programs to create interactive multimedia products that utilize database management systems, file systems, and XML to provide a method for visualizing and manipulating that data. Significant time is spent on intermediate to advanced programming and scripting.

**CGT 41100 CONTEMPORARY PROBLEMS IN APPLIED COMPUTER GRAPHICS**
(Class 2, Lab. 2, Cr. 3)
Note: Designated sections of CGT 41100 will fulfill the Experiential Learning requirement.
Prerequisite: CGT 25600 and CGT 35600 and CGT 31100 and CGT 35300
Contemporary Problems in Applied Computer Graphics is a group based course that attempts to identify, design, qualify, manage, create and present a final project relative to existing or emerging issues within the discipline. Activities and experiences will explore related topics such as project planning and management, user expectations, interpersonal communication skills and quality management. The course concludes with faculty, peers and practicing professionals evaluating oral, written and media presentations of final project.

**CGT 41500 SEMINAR FOR SENIOR DESIGN**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: Senior standing in Computer Graphics Technology
Preliminary work toward the senior design project is carried out with guidance from faculty. This course includes background research, review of previous projects, definition of project requirements, and the creation of a formal project proposal. Preparation for professional employment in applied computer graphics professions. Topics covered include job-hunting strategies, resumes, placement services, written and verbal correspondence, portfolios, interviewing strategies, salary negotiations, corporate culture, professional organizations, harassment, future planning, ethical and copyright concerns, graduate study and relocation.

**CGT 41600 SENIOR DESIGN PROJECT**
(Class 2 to 3, Lab. 0 to 3, Cr. 3)
Note: Designated sections of CGT 41600 will fulfill the Experiential Learning requirement.
Prerequisite: CGT 41100
Co-requisite: CGT 45000
This capstone course requires students to engage in a substantive endeavor directed at solving problems related to computer graphics. Activities include the creation and management of graphic systems and media assets per the requirements of the senior design proposal. Students are required to demonstrate professional attributes and attributes in the timely completion and presentation of their project.

**CGT 44200 PRODUCTION FOR COMPUTER ANIMATION**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: CGT 34100
An applied course covering advanced spline modeling techniques, lighting techniques, applied shading, motion dynamics and controllers, particle systems, application, customization programming, and pre-production development and planning. Study of emerging computer animation and spatial graphic technologies will be included.

**CGT 44600 POST-PRODUCTION AND SPECIAL EFFECTS FOR COMPUTER ANIMATION**
(Class 2 to 3, Lab. 0 to 2, Cr. 3)
A variety of commercial applications of technical animation and spatial graphics are analyzed and produced, with special emphasis upon client development, design, organization, scripting, storyboarding, technical production, management and evaluation.

**CGT 45000 PROFESSIONAL PRACTICES**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: CGT 41100
Preparation for professional employment in computer graphics professions. Topics covered include creative and publishing law, contracts, copyrights, corporate and freelance employment considerations; portfolio planning and interviewing. Arranged interviews and portfolio reviews.

**CGT 45100 MULTIMEDIA APPLICATION DEVELOPMENT**
(Class 2 to 3, Lab. 0 to 2, Cr. 3)
Prerequisite: CGT 35100 and CGT 35300 and CGT 35600 or CGT 25600
This course focuses on the development of applications that manipulate media assets. Significant time is spent on intermediate to advanced programming and scripting as well as the synchronization of aural and graphical components. Students are required to plan, design, and implement a major project and final presentation.

**CGT 45600 ADVANCED WEB PROGRAMMING, DEVELOPMENT AND DATA INTEGRATION**
(Class 2 to 3, Lab. 0 to 2, Cr. 3)
Prerequisite: CGT 35600
This course presents the most advanced technologies available for use on the World Wide Web and within corporate intranet environments. Emphasis and discussion is focused on the advantages of these technologies as well as on implementation to create unique solutions for business and industry. Strategies for planning, development and implementation will be discussed and demonstrated. Significant time is spent on advanced programming and scripting as well as manipulation and visualization of data from various sources, including robust database management systems. Students are required to plan, design, and implement a major project.

**CGT 49000 COMPUTER GRAPHICS TECHNOLOGY**
(Class 1 to 3, Lab. 4, Cr. 1 to 6)
Senior level course topics will be determined by the CGT faculty. Hours and subject matter shall be arranged by the instructor and approved by the CGT curriculum committee. This course will not be used for independent study.

**CGT 49100 SPECIAL TOPICS IN COMPUTER GRAPHICS TECHNOLOGY**
(Class 1 to 6, Cr. 1 to 6)
Consent of instructor. A variable title, variable content course pertaining to problems and research in graphical methods and representation.

**CGT 51200 HUMAN FACTORS OF COMPUTER INTERFACE DESIGN**
(Class 3, Cr. 3)
Addresses an array of human factors and issues related to human computer interaction and the graphic user interface. Theoretical and practical relationships are drawn between aesthetics and the cognitive sciences in the development of primary multimedia and hypermedia products. Methods to validate design solutions are learned through controlled usability testing and assessment through small and large prototype projects.

**CGT 51300 INTERACTIVE MULTIMEDIA DEVELOPMENT AND RESEARCH**
(Class 3, Cr. 3)
A survey of the interactive multimedia development process, knowledge base and applications in business and industry. Particular attention is paid to research issues surrounding theoretical, technological, and interactive techniques, and validating those approaches through applied research. Emphasis is placed on the interdisciplinary nature of the development of new media tools.

**CGT 52000 COMPUTER GRAPHICS PROGRAMMING**
(Class 3, Cr. 3)
Prerequisite: CGT 51100
This course provides a working knowledge of Computer Graphics programming using OpenGL and C++. OpenGL is the platform independent industrial standard APO and the leading edge technology for computer graphics application design. It has been used in the gaming industry as well as in research and for scientific visualizations. The course focuses on creating real-time and interactive applications and is structured into several blocks. OpenGL Introduction, modeling, texturing, transformations, lighting, and interactive application design. Students will develop various applications throughout the course focusing on different aspects of computer graphic programming.

CGT 58100 WORKSHOP IN COMPUTER GRAPHICS TECHNOLOGY
(Class 0 to 8, Lab. 0 to 8, Cr. 0 to 8)
Advanced study of technical and professional topics. Emphasis is on new developments relating to technical, operational, and training aspects of industry and technology education.

Chemistry

CHM 1000 PREPARATION FOR GENERAL CHEMISTRY
(Class 2, Lab. 2, Cr. 1)
An introduction to the basic ideas and laboratory techniques of chemistry together with relevant parts of algebra and elementary physics. Intended for those whose background does not permit them to proceed directly with a general chemistry course.

CHM 11000 GENERAL CHEMISTRY
(Class 2, Lab. 3, Cr. 3)
Laws and principles of chemistry, with emphasis on conceptual models and applications and of the importance in technology. Preparation equivalent to one year of high school chemistry is recommended for students enrolling in this course.

CHM 11200 GENERAL CHEMISTRY
(Class 2, Lab. 3, Cr. 3)
Continuation of CHM 11000.

CHM 11500 GENERAL CHEMISTRY
(Class 3, Lab. 3, Cr. 4) General Education, Transfer IV
Prerequisite: MA 15300
Laws and principles of chemistry, with special emphasis on topics of importance in science and engineering. Numerical problems and relationships are introduced whenever quantitative treatment is possible. Preparation equivalent to one year of high school chemistry is strongly recommended for students enrolling in this course. Students with inadequate preparation should enroll in CHM 10000. This course is required of student majoring in chemistry, physics, and engineering.

CHM 11600 GENERAL CHEMISTRY
(Class 3, Lab. 3, Cr. 4) General Education, Transfer IV
Prerequisite: CHM 11500
A continuation of CHM 11500.

CHM 11900 GENERAL CHEMISTRY
(Class 2, Lab. 3, Cr. 3 or Class 4, Lab. 3, Cr. 5) Transfer IV
Prerequisite: CHM 10000
A survey of organic, and biological chemistry. Intended primarily for students in the nursing program but may be taken by others with the consent of the instructor.

CHM 13100 CHEMISTRY AND ECOLOGY
(Class 2, Lab. 2, Cr. 3)
An introduction to the application of chemical principles to the world around us (our environment). It may be used in satisfaction of the physical science requirement for the School of Liberal Arts and Social Sciences.

CHM 13200 CHEMISTRY AND ECOLOGY
(Class 2, Lab. 3, Cr. 3)
A continuation of CHM 13100 involving the application of chemical principles to the world around us (our environment). It may be used to satisfy the physical science requirement for the School of Liberal Arts and Social Sciences, and serve as an introductory course for further study in the field of environmental science.

CHM 19400 FRESHMAN CHEMISTRY ORIENTATION
(Class 1, Cr. 1) General Education
Designed to provide incoming chemistry majors with the academic, survival, and computational skills to make a successful transition from high school to college. Discussion of opportunities within chemistry department including degree options, co-op program, undergraduate research, careers in chemistry, use of spreadsheet software, graphing packages, and drawing programs for chemical structures. Attendance and performance on assigned projects are the basis of the pass/no pass requirement.

CHM 21500 LABORATORY HEALTH AND SAFETY
(Class 1, Cr. 1)
Emphasis on the principles of prudent practice in the use and storage of laboratory equipment and materials, including consideration of governmental regulations regarding the disposal of toxic and hazardous material.

CHM 24100 INTRODUCTORY INORGANIC CHEMISTRY
(Class 3, Lab. 3, Cr. 4)
Prerequisite: CHM 11600
Descriptive inorganic chemistry dealing in a systematic way with the elements and the structures, properties, and reactions of their compounds.

CHM 25500 ORGANIC CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 11600
A study of aliphatic and aromatic hydrocarbons and their simple derivatives in terms of (a) structure, bonding, etc., (b) general syntheses and reactions, and (c) a logical modern rationale for fundamental phenomena as supported by reactivity orders, orientation effects, stereo-chemistry, and relative rates. Recommended for biology majors.

CHM 25501 ORGANIC CHEMISTRY LAB
(Lab. 3, Cr. 1)
Prerequisite: CHM 25500
Pre-requisite: CHM 25500 Laboratory experiments to accompany CHM 25500, illustrating methods of separation and the more common techniques and methods for preparing various types of organic compounds.

CHM 25600 ORGANIC CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 25500
A continuation of CHM 25500 with various functional groups such as the carboxylic, carbonyl, amino, etc., and including such polyfunctional natural products as carbohydrates and peptides.

CHM 25601 ORGANIC CHEMISTRY LAB
(Lab. 3, Cr. 1)
Prerequisite: CHM 25600
A continuation of CHM 25601, but emphasizing methods for identifying organic compounds, including simple “unknowns.”

CHM 26100 ORGANIC CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 11600
Recommended for students majoring in chemistry or chemical engineering. A comprehensive study of the chemical principles underlying aliphatic and aromatic compounds. The syntheses and reactions of these materials are discussed. Modern theory and stereochemistry are stressed to illustrate the logic inherent in the subject matter and to demonstrate the predictability of many of the chemical transformations.

CHM 26200 ORGANIC CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 26100
A continuation of CHM 26100, but with a broader scope. The chemistry of a variety of functional groups is discussed. Theory is employed extensively to demonstrate the coherence underlying seemingly diverse transformations. Qualitative organic analysis is introduced with particular emphasis on spectroscopic methods.

CHM 26300 ORGANIC CHEMISTRY LABORATORY
(Lab. 3, Cr. 1)
Prerequisite: CHM 26100
Laboratory experiments designed to illustrate the lecture material of CHM 26100. Elementary laboratory techniques essential to organic chemistry are introduced followed by the actual synthesis and purification of compounds discussed in CHM 26100.

CHM 26400 ORGANIC CHEMISTRY LABORATORY
CHM 2600 ORGANIC CHEMISTRY LABORATORY
(Lab 6, Cr. 2)
Prerequisite: CHM 26200
A continuation of CHM 26500. All experiments are designed to illustrate the principles discussed in CHM 26500. A major portion of the course is devoted to the methods employed in organic qualitative analysis. The student is expected to identify unknown compounds and mixtures.

CHM 26505 ORGANIC CHEMISTRY
(Class 3, Cr. 3)
A comprehensive study of the chemical principles underlying aliphatic and aromatic compounds. The syntheses and reactions of these materials are discussed. Modern theory and stereochemistry are stressed to illustrate the logical inherent in the subject matter and to demonstrate the predictability of many chemical transformations. Recommended for students majoring in Chemistry.

CHM 26600 ORGANIC CHEMISTRY LABORATORY
(Lab 6, Cr. 2)
Prerequisite: CHM 26200
A continuation of CHM 26500. All experiments are designed to illustrate the principles discussed in CHM 26500. A major portion of the course is devoted to the methods employed in organic qualitative analysis. The student is expected to identify unknowns and mixtures and is introduced to some modern instrumental techniques.

CHM 27300 INTRODUCTORY PHYSICAL CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: MA 22400 and PHYS 22100 and CHM 11600
An introductory treatment of the general properties of gases, liquids, and solids, with an emphasis on applications of physical chemistry in real systems. This course may be used by pre-medical, pre-dental, biology, and technology students.

CHM 29900 SELECTED TOPICS IN CHEMISTRY FOR LOWER DIVISION STUDENTS
(Class 0 to 99, Lab 0 to 99, Cr. 1 to 4)
Undergraduate special work, such as an individual project, not covered in the courses.

CHM 29400 SOPHOMORE CHEMISTRY SEMINAR
(Class 1, Cr. 1)
Required of sophomores majoring in any chemistry curriculum. Discussion of undergraduate research opportunities, upper-division courses, career opportunities, laboratory safety, use of the library and chemical information, and topics of current interest in chemistry.

CHM 31800 BIOMOLECULAR NMR SPECTROSCOPY/ MAGNETIC RESONANCE IMAGING
(Class 3, Cr. 3)
Prerequisite: CHM 25600 or CHM 33300 and PHYS 22100 or PHYS 25100
Designed for biotechnology, biology and chemistry majors. Topics will include: theory and modern experimental applications of proton nuclear resonance (H-NMR) spectroscopy as needed for structural elucidation of biomolecules; H-NMR spectroscopy in two, three, and four dimensions; and Magnetic Resonance Imaging (MRI) and its uses in diagnostic medicine.

CHM 32000 INTRODUCTION TO BIOCHEMICAL TECHNIQUES
(Class 1, Lab. 3, Cr. 2)
Prerequisite: CHM 25600 and CHM 23100
A survey of the theoretical basis and practice application of modern biochemical techniques including separation, qualitative analysis, and quantitative analysis methods.

CHM 32100 ANALYTICAL CHEMISTRY I
(Class 3, Lab. 3, Cr. 4)
Prerequisite: CHM 26100 and CHM 26200 or CHM 25500 and CHM 25600
Quantitative measurements on complex chemical systems that show matrix effects or require isolation of a component prior to its determination; general approaches to quantitation problems at the trace level; critical comparisons of competitive procedures, with emphasis upon principles of separation processes, including chromatography; recognition and evaluation of possible sources of error; approaches for optimizing conditions so as to minimize time and/or effort required to attain prescribed levels of accuracy and precision. Levels of accuracy and precision.

CHM 32400 ENVIRONMENTAL CHEMISTRY
(Class 3, Cr. 3)
This course focuses on the chemicals, chemical principles and chemical phenomena of environmental consequence. Topics include ozone depletion, greenhouse effect, air pollution, water pollution, acid rain, toxic chemicals, energy flow, and environmental technology.

CHM 33300 PRINCIPLES OF BIOCHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 11500 and CHM 11600 and CHM 25500 or CHM 26100
Structure and function of biologically important molecules. Intended for students in life science.

CHM 34200 INORGANIC CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 26605 or CHM 26200 or CHM 25600
Properties of inorganic compounds in terms of their electronic and molecular structures. A survey of the preparations and reactivities of important compounds of the representative elements with an emphasis on group trends. The elementary chemistry of the transition metals including magnetic and spectral properties of coordination compounds. Interpretation and correlation of inorganic compounds, electronic and molecular structures. The chemistry of the transition metals including magnetic and spectral properties of coordination compounds. Structure and bonding models. Acid-base solvolysis and thermodynamics of inorganic systems.

CHM 34300 INORGANIC CHEMISTRY LABORATORY
(Lab 3, Cr. 1)
Prerequisite: CHM 34200
Laboratory work to accompany CHM 34200.

CHM 37300 PHYSICAL CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 11600 and MA 26100 and PHYS 25100
Properties of gases; kinetic molecular theory; introduction to atomic and molecular structure; classical thermodynamics, including chemical equilibria, molecular interpretation of thermodynamics.

CHM 37400 PHYSICAL CHEMISTRY
(Class 3, Cr. 3)
Prerequisite: CHM 37300
Phase equilibria, liquids, electrolytic solutions and cells, structure of atoms and molecules, spectroscopy, chemical kinetics, and solid state.

CHM 37600 PHYSICAL CHEMISTRY LABORATORY
(Lab 6, Cr. 2)
Prerequisite: CHM 37300
Laboratory portion of CHM 373 and 374.

CHM 42400 ANALYTICAL CHEMISTRY II
(Class 2, Lab 6, Cr. 4)
Prerequisite: CHM 32100 and CHM 37300 and CHM 37400
Principles and application of optical and electrical methods of chemical analysis, including topics in instrumentation.

CHM 42500 MOLECULAR MODELING AND VISUALIZATION
(Class 3, Cr. 3)
Prerequisite: CHM 25600 or CHM 26200 or CHM 26605
Principles and applications of current theoretical and computational methods in molecular modeling. Advanced visualization methods will be used to study molecular structure.

**CHM 44400 COSMOCHEMISTRY**  
(Class 3, Cr. 3)  
Nucleosynthesis and chemical abundances. Origin, composition, and structure of the earth and extraterrestrial objects. Isotope geology, geo- and cosmochemistry with particular emphasis upon the moon and meteorites.

**CHM 46200 INTERMEDIATE ORGANIC CHEMISTRY**  
(Class 3, Cr. 3)  
Prerequisite: CHM 25600 or CHM 26605  
Theory and application of organic chemistry and reaction mechanisms to organic synthesis and contemporary research topics in closely related areas. Topics include stereochemistry, reactive organic intermediates, molecular orbital theory, photochemistry, organic materials chemistry, and chemical biology.

**CHM 49000 SELECTED TOPICS IN CHEMISTRY FOR UPPER DIVISION STUDENTS**  
(Class 0 to 4, Cr. 1 to 4)  
Variable Title. Selected topics not covered in other courses.

**CHM 49400 JUNIOR-Senior chemistry seminar**  
(Class 1, Cr. 1)  
Major emphasis on developing skills in oral and written presentations by students. The subject matter can be library material and/or accomplishments in undergraduate or co-op research.

**CHM 49800 RESEARCH IN CHEMISTRY**  
(Class 0 to 5, Lab. 3 to 12, Cr. 3 to 5)  
Note: Designated sections of CHM 49800 will fulfill the Experiential Learning requirement. Undergraduate Research, which will qualify as an Experiential Learning experience. Admission by special permission.

**CHM 49900 SPECIAL ASSIGNMENTS**  
(Lab. 3 to 15, Cr. 7 to 5)  
Undergraduate level special work, such as a senior thesis, not included in other courses.

**CHM 50400 ORGANIC CHEMISTRY**  
(Class 3, Lab. 3, Cr. 4)  
A general survey of practical and theoretical aspects of elementary organic chemistry followed by a more intensive study of a few selected topics. Designed primarily for secondary school teachers. Credit in this course may not be used toward a degree in chemistry.

**CHM 50500 ADVANCED CHEMISTRY FOR TEACHERS I**  
(Class 3, Cr. 3)  
Topics include atomic structure, modern theories of the chemical bond, a structured study of the Periodic Table, the chemical properties of the main group and transition elements, and chemical calculations. Modern concepts of inorganic chemistry will be introduced whenever possible. Designed primarily for junior/senior high school teachers. Credit in this course may not be used toward a degree in chemistry.

**CHM 50600 ADVANCED CHEMISTRY FOR TEACHERS II**  
(Class 3, Cr. 3)  
Topics include chemical thermodynamics, chemical equilibria, electrochemistry, chemical kinetics, and nuclear chemistry, presented from a physical/analytical perspective. Designed primarily for junior and senior high school teachers. Credit in this course may not be used toward a graduate degree in chemistry.

**CHM 51300 CHEMICAL LITERATURE**  
(Class 1, Cr. 1)  
Prerequisite: CHM 25600 and CHM 32100  
Types of information in technical publications; exercises in finding, assembling and using such data.

**CHM 53300 INTRODUCTORY BIOCHEMISTRY**  
(Class 3, Cr. 3)  
Chemistry and utilization in the living organisms of lipids, carbohydrates, proteins, enzymes, and hormones; physiological chemistry of the blood, urine, and other fluids and tissues; essentials of nutrition.

**CHM 53400 INTRODUCTORY BIOCHEMISTRY**  
(Class 3, Cr. 3)  
Prerequisite: CHM 53300  
Continuation of CHM 53300 with emphasis on enzymatic catalysis and metabolic transformations.

**CHM 53500 BIOCHEMISTRY LABORATORY**  
(Lab. 3, Cr. 1)  
Co-requisite: CHM 53400  
Laboratory work to accompany CHM 53400.

**CHM 54800 RADIONUCHEMISTRY**  
(Class 3, Cr. 3)  
Prerequisite: CHM 37400  
Elements of nuclear chemistry; the uses of isotopes in chemical research; elementary principles of radiation chemistry.

**CHM 54900 RADIOCHEMISTRY LABORATORY**  
(Lab. 3, Cr. 1)  
Prerequisite: CHM 54800  
Laboratory work to accompany CHM 54800.

**CHM 56100 ORGANIC CHEMISTRY**  
(Class 3, Cr. 3)  
A general survey of practical and theoretical aspects of elementary organic chemistry followed by a more intensive study of a few selected topics. Designed primarily for secondary school teachers. This course may not be used toward a degree in chemistry.

**CHM 56200 INDUSTRIAL ORGANIC CHEMISTRY**  
(Class 3, Cr. 3)  
Prerequisite: CHM 26200  
A survey of the use of the methods and principles of organic chemistry in the manufacture of commercially valuable products ultimately derived from petroleum, natural gas, coal, and biomass. Includes consideration of the preparation and uses of polymers, dyes, drugs, agrichemicals, food additives, and other bulk chemicals.

**CHM 56300 ORGANIC CHEMISTRY**  
(Class 3, Cr. 3)  
Prerequisite: CHM 26200  
Ionic and free radical reactions are discussed critically with emphasis on the synthetic and mechanistic aspects of the reactions studied. Selected topics in physical organic chemistry.

**CHM 56400 INTRODUCTION TO POLYMER CHEMISTRY**  
Prerequisite: CHM 26200  
An introduction to the synthesis, characterization, and physical properties of macromolecules. The reactions, thermodynamics, and kinetics of polymerization as well as the physical characterization, the molecular structure, and the fabrication of polymers will be discussed.

**CHM 59900 SPECIAL ASSIGNMENTS**  
(Class 0 to 4, Lab. 0 to 8, Cr. 1 to 4)  
Graduate level directed reading or special work not included in other courses.

**Chinese**

**CHNS 10100 CHINESE**  
(Class 3, Lab. 2, Cr. 4)  
Introduction to Chinese Level I

**CHNS 10200 CHINESE**  
(Class 3, Lab. 2, Cr. 4)  
Prerequisite: CHNS 10100  
Introduction to Chinese Level II

**Computer Information Systems**

**CIS 10300 SURVEY OF INFORMATION SYSTEMS AND INFORMATION TECHNOLOGY**  
(Class 3, Cr. 3)  
An introduction to information technology and computer information systems designed for department majors. Topics include university resources, career opportunities, ethics, computer concepts, problem solving techniques, logic, system
development life cycle, program development life cycle, database management systems, computer math, security and privacy issues, networks, and file management.

**CIS 11100 INTRODUCTION TO HUMAN COMPUTER INTERACTION**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MA 15300  
This course introduces foundational concepts of human computer interaction. Students focus on human-centered software development, usability testing and understanding interaction styles.

**CIS 14000 TELECOMMUNICATIONS IN BUSINESS**  
(Class 3, Cr. 3)  
This course is an introduction to how computer networks are used in business and industry environments.

**CIS 16600 INTRODUCTION TO PROGRAMMING**  
(Class 2, Lab 2, Cr. 3)  
General Education  
Prerequisite: MA 15300  
This course is an introduction to computer programming. Emphasis in this course is on the program development life-cycle, structured programming and top-down design. Topics include identifiers, data types, arithmetic operators if, if/else, looping, case selection, modules, arrays, and an introduction to classes. Extensive programming exercises are required.

**CIS 18000 INTRODUCTION TO PROJECT MANAGEMENT**  
(Class 3, Cr. 3)  
This course introduces foundational concepts of project management. Students focus on components of IS project management, the impact of IS projects on companies and basic theories of how to manage IS projects.

**CIS 18700 APPLIED COMPUTER OPERATING SYSTEMS**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: ECET 11000 or EET 11000 or CIS 21000 and MA 15300  
Pre-requisites: EET 11000, MA 15300  
This course is an introduction to computer operating systems and other software. Topics include: supervisor organization, utility programs, job control language, memory management and process management. Labs include installations of client-based operating systems like: Windows 9x, Windows 2000, Windows NT and Unix/Linux.

**CIS 20000 INTRODUCTION TO INFORMATION SYSTEMS POLICIES**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400  
An introduction to the need for and creation of policies for information systems and their impact on business. Course content will include information security policies, disaster recovery policies, and other related policy topics.

**CIS 20400 INTRODUCTION TO COMPUTER-BASED SYSTEMS**  
(Class 2, Lab 2, Cr. 3)  
General Education, Transfer RN  
An introduction to computer-based systems with an emphasis on how computers can assist the user. Computer concepts, terminology, and a survey of programming languages, operating systems, word processing, spreadsheets, databases, communications, graphics, and Internet are included. Extensive laboratory exercises are assigned.

**CIS 20500 INFORMATION SYSTEMS FOR MANAGEMENT**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: CIS 20400  
An integrated approach to Management Information Systems with emphasis on business systems analysis, design, development and implementation. A case problem will be presented which the students will implement via the above approach.

**CIS 21000 PERSONAL COMPUTER TECHNOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: CIS 20400  
The personal computer is explored at the application level. Topics covered include an in-depth study of DOS commands and application software review. An overview of digital circuits, the internal structure of microcomputers, microchip differences, PC communications, microcomputer operating systems and peripheral devices are discussed in relation to the evaluation of PC hardware and software. New technology topics round out the course.

**CIS 21500 STRUCTURED PROGRAM DEVELOPMENT**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MA 15300  
This course is an introduction to object-oriented program development. An overview of object-oriented analysis and design techniques and terminology is presented. Object-oriented programming techniques are implemented using a visual programming environment. Extensive written homework and computer laboratory exercises are assigned. Computer program solutions are implemented using a visual programming environment.

**CIS 21600 VISUAL PROGRAMMING**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: CIS 21500  
This course is an introduction to object-oriented program development. An overview of object-oriented analysis and design techniques and terminology is presented. Object-oriented programming techniques are implemented using a visual programming environment. Extensive written homework and computer laboratory exercises are assigned. Computer program solutions are implemented using a visual programming environment.

**CIS 21700 VISUAL BASIC PROGRAMMING**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: CIS 16600  
This course emphasizes VB program development. An overview of analysis and design techniques and terminology is presented. Object-oriented programming techniques are implemented using a visual programming environment. Numerous written homework and computer laboratory exercises are assigned.

**CIS 21800 C# PROGRAMMING**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: CIS 21500  
This course emphasizes VB program development. An overview of analysis and design techniques and terminology is presented. Object-oriented programming techniques are implemented using a visual programming environment. Numerous written homework and computer laboratory exercises are assigned.

**CIS 23000 DATA COMMUNICATIONS**  
(Class 3, Cr. 3)  
Prerequisite: ECET 11000 or EET 11000 or CIS 21000 and MA 15300  
The role of data communications in modern business environments is explored. Real time systems and data transmission techniques are covered. Topics include terminal equipment, communication media, data codes, error detection and correction, local area versus wide area networks, digital transmission techniques, terminal software, and the Open Systems Interconnection (OSI) model for network software. The primary emphasis in the course is on software aspects.

**CIS 24100 WEB DEVELOPMENT**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: CIS 16600  
This course is an in-depth study on the internet and World Wide Web. Topics include intra- and extra-net concepts, security issues, design criteria and other Web aspects. Focus is on teaching skills necessary to develop applications for use on the Internet. Students learn how to write HTML, VBScript, and JavaScript code, how to use Microsoft FrontPage and other tools to create web pages, and how to use image maps, forms and scripts, frames, animated GIF files tables, and style sheets. Students will complete a semester project working as a member of a team.

**CIS 24200 E-COMMERCE ARCHITECTURE**  
(Class 3, Cr. 3)  
Prerequisite: CIS 24100  
This course is an introduction to client/server and web-based architecture. Topics include the history and evolution of client/server systems, standards, client/server processing models, the role of the client and of the server, middleware, multi-tiered architectures, methods of data distribution, designing a client/server system, distributed RDBMS, transaction processing and E-commerce. New developments, trends and uses for E-commerce are discussed.

**CIS 25200 SYSTEMS ANALYSIS AND DESIGN**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: COM 11400 and ENGL 10400  
An introduction to the procedural requirements of the system cycle. Through actual problem solution, the student is introduced to the techniques of system planning, analysis, form and file design, documentation, implementation and evaluation.

**CIS 25300 APPLIED DATABASE TECHNIQUES**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: CIS 16600 and MA 15300  
An introduction to the development cycle, logic diagrams, debugging procedures, top-down design and top-down programming, is used to implement program solutions. Extensive programming exercises are assigned.
An introduction to the applied aspects of database systems and their associated languages. Topics include database terminology and concepts including data modeling, data dictionaries, redundancy, independence, security, privacy, and integrity. Extensive laboratory exercises are assigned.

**CIS 25500 FUNDAMENTALS OF INFORMATION ASSURANCE**  
(Class 3, Cr. 3)  
Prerequisite: CIS 14000  
Co-requisite: CIS 28600  
This course provides an integrated, comprehensive coverage of the information security policies, process, techniques, security tools, and awareness vital to information security. The classroom instruction provides a practical approach through case scenarios of both the principles and practice of information, computer, and network security for the enterprise and home.

**CIS 26100 RPG PROGRAMMING**  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: CIS 21500  
An introduction to programming in RPG/400. Extensive programming exercises are assigned including report generation, control breaks and the creation and maintenance of indexed files.

**CIS 26300 JAVA PROGRAMMING**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 16600  
The course uses the Java programming language creating object-oriented software, including applications utilizing a graphical user interface. Students will study the structure and style of Java and will be required to submit extensive programming laboratory exercises.

**CIS 26500 COBOL PROGRAMMING**  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: CIS 16600  
A study of the programming language, ANSI COBOL, which is especially useful for file and table handling and extensive input and output operations. The student will study the structure and details of COBOL and perform programming exercises dealing with practical applications like table handling, record selection and reporting.

**CIS 26600 C++ PROGRAMMING**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 16600  
Emphasis in this course is on object-oriented paradigm using C++. Topics include definition of classes, data abstraction, friend member functions, this pointer, static class member, operator overloading, inheritance, virtual function and polymorphism, template library. Extensive programming exercises in C++ are required.

**CIS 26700 SOFTWARE ENGINEERING REQUIREMENTS: DEFINITION AND QUALITY**  
(Class 3, Cr. 3)  
Prerequisite: CIS 25200 and CIS 26600  
This course introduces basic concepts and principles of software engineering requirements, its tools and techniques and methods for modeling software systems. It looks at how software quality assurance and configuration management are performed and how software process improvement is maintained in order to assure the highest quality in the development of software.

**CIS 27700 SE DESIGN, CONSTRUCTION AND EVOLUTION**  
(Class 3, Cr. 3)  
Prerequisite: CIS 26700  
This course covers the methods and techniques used in the design of software systems. It includes architectural and detailed design, with an emphasis on object-oriented methods, the design process, and the design documentation and review. It also examines issues, methods and techniques associated with constructing software, given an architectural and detailed design, and for maintaining software over its lifetime. Prerequisites: CIS 267

**CIS 28600 COMPUTER OPERATING SYSTEMS I**  
(Class 3, Cr. 3)  
Prerequisite: ECET 11000 or CIS 21000 or EET 11000 and MA 15300  
An introduction to computer operating systems and other system software. Topics include: supervisor organization, utility programs, job control language, memory management and process management.

**CIS 28800 LAN TECHNOLOGY**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 23000 and CIS 28700  
This course is an intermediate networking course and local area networking and design course. This is a laboratory and lecture course that covers the topics of topologies, networking protocols, hardware, and software of the local area network. Students will evaluate networking technologies, design local area networking solutions, and implement local area networking solutions.

**CIS 29000 COMPUTER PROJECT**  
(Class 0 to 4, Cr. 1 to 4)  
Independent study for sophomore students who desire to execute a computer-oriented project. Course may be repeated for up to six hours credit.

**CIS 30100 DATA AND FILE STRUCTURES**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 26600  
Methods of organizing, linking and retrieving information stored in computer memory or auxiliary storage: arrays, lists, stacks, queues, linked lists, trees. File organization and access: sequential, random, indexed, linked, inverted, and partitioned. Associated data manipulation algorithms: data entry, searching, retrieval, sorting, algorithmic analysis. Selected applications.

**CIS 30200 INFORMATION SYSTEMS BUDGETING AND PROCUREMENT**  
(Class 3, Cr. 3)  
An introduction to the budgeting and procurement processes and issues and their impact on business. Course content will include vendor selection and management costs on IS projects and planning IS budgets.

**CIS 30400 ADVANCED COMPUTER UTILIZATION**  
(Class 2, Lab. 2, Cr. 3) General Education  
Prerequisite: CIS 20400 and COM 11400  
This course is a continuation of CIS 20400. The objectives of the course are to teach students how to obtain and analyze information, apply advanced application skills, research a topic, generate reports and present the results. These computer skills are required in many disciplines today.

**CIS 31000 SERVER ADMINISTRATION**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 28800  
This course will prepare students for being a network and server administrator. Specific topics of the course will include administration of commercial operating systems in a commercial environment. Students will have practical knowledge on how to install, configure and implement a server solution. Students will be exposed to the theory of server technologies, directory services, and management theory of server systems.

**CIS 31200 LEGAL ISSUES IN INFORMATION TECHNOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: CIS 25500  
This course focuses on legal issues surrounding Information Technologies. Current legal issues in information technology are addressed including elements of contracting, payment systems, digital signatures, privacy concerns, intellectual property, IT torts and criminal liability including hacking, computer trespass and fraud. Examination of legal issues including privacy, systems abuse and legal practices in Information Technology will be explored.

**CIS 31500 WIRELESS NETWORK TECHNOLOGY**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 28800  
This course will introduce the fundamentals of wireless technology with an emphasis on information technology and implementation issues. Wireless communication theory, licensing standards, limitations, and emerging technologies will be explored in depth. This course has an extensive laboratory component and students will implement several wireless local area networking technologies.

**CIS 32300 OBJECT ORIENTED SYSTEMS ANALYSIS AND DESIGN**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400  
This is an introduction to the object-oriented analysis and design techniques for
systems development. Topics include problem analysis, data collection techniques, system and program design techniques.

CIS 34100 WEB DEVELOPMENT II
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 24100
This course is a continuation of CIS 24100. Advanced Web content generation techniques are covered. Topics include using advanced multimedia and database and application integration.

CIS 34200 MULTIMEDIA FOR WEB DEVELOPERS
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 24100
A.S. Degree in CIW Internet/Web Technology. This course is an introduction to the creation and use of graphics, animation, video, and audio on the Web. Students will design, create and deploy several instances of graphics video and audio on a series of Web pages. Topics include graphics, video and audio file formats, creating multimedia content, formatting images on Web pages, animation and video, and the use of graphics for purposes such as buttons dividers and image maps.

CIS 34500 COMPUTER GRAPHICS
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 16600 and MA 15300
A survey of computer hardware used to make graphic displays including printers, plotters, and cathode ray tubes. Programming techniques for plotting lines and special symbols and the organization and representation of data, and a survey of applications.

CIS 35100 DECISION SUPPORT AND EXPERT SYSTEMS
(Class 2, Cr 3 or Class 3, Lab 2, Cr 3)
Introduction to techniques employed in supporting decision-making in business, industry and government. Various types of models are developed and solved using manual and computerized techniques. Students analyze, prepare a model for, and develop solutions for selected types of problems. Decision support software packages may be specified to implement some solutions. Topics include an overview and relationship to Artificial Intelligence, project management, optimization techniques, statistical analysis, graphical analysis, simulation techniques, building management models, and presentations of results.

CIS 35300 ADVANCED DATABASE METHODS
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 25300 or MGMT 30800
Topics include processing statements of SQL blocks. Procedures, functions, packages, dependencies, database triggers, built-in packages, dynamic SQL and Object Technology and code tuning. Students acquire advanced skills in an applied environment reinforcing concepts and techniques of SQL programming.

CIS 35400 RELATIONAL AND OBJECT-ORIENTED DATABASE MODELING
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 25200 and CIS 25300
This course discusses the role of databases in the System Development Life Cycle, with an emphasis on rational base analysis and object-oriented database analysis and design techniques-logical modeling. Additional topics include the functions and components of state-of-the-art commercial DBMS software, distributed database, database models, and the role and function of the Database Administrator. Students will be assigned data modeling projects.

CIS 35500 DATABASE MANAGEMENT SYSTEM IMPLEMENTATION
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 35400
This course emphasizes the implementation of a relational DBMS. Students will use fourth generation languages and tools to implement design specifications. Additional topics include the implementation of physical data models, backup/ recovery facilities, concurrency control, integrity services and security mechanisms. Students will be assigned implementation projects.

CIS 35600 TOPICS IN DATABASE PROGRAMMING
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 26100 or CIS 26300 or CIS 26500 or CIS 26500
This course is an introduction to accessing a relational database using a programming language such as COBOL, C++, JAVA or RPG. Focus is on one language during the semester. Topics include defining and controlling transactions, sequential access techniques, use of primary and secondary keys, cursors, report generation, updating techniques, and dynamic SQL. This course is a variable title course. This course can be repeated, with a different title, for credit.

CIS 35700 DATA WAREHOUSE/DATA MINING
(Class 3, Cr 3)
Prerequisite: CIS 35400
This course is an overview of data warehousing and data mining together with in-depth explanations of critical issues in planning, design, deployment and ongoing maintenance of data warehousing. Students will gain a clear understanding of the techniques for extraction of data from sources, data transformations, data staging, data warehouse architecture and infrastructure and various methods for delivery. Additional topics will include an overview of On-Line Analytical Processing, Knowledge Discovery Database Process Model, Expert Systems, Neural Networks, Regression Analysis, Intelligent Agents as they relate to data warehousing.

CIS 36300 ADVANCED JAVA PROGRAMMING
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 26300
This course is a continuation of CIS 26300. Topics include multi-threading, client/server, database access and exception handling.

CIS 36500 TOPICS IN COBOL
(Class 2 to 3, Lab 0 to 2, Cr 3)
Prerequisite: CIS 26500
Advanced COBOL topics concerning indexed files with variable length records, direct files, sophisticated table handling employing subscribing and indexing, simulation and program use. The Report Writer feature of COBOL is also introduced. Programming exercises include advanced file maintenance techniques and menu-driven programs. Subprogram use. The Report Writer feature of COBOL is also introduced.

CIS 38300 ON-LINE PROGRAMMING TECHNIQUES
(Class 2, Cr 3 or Class 3, Lab 2, Cr 3)
Prerequisite: CIS 36500
An introduction to Command Level CICS used to illustrate the concepts and considerations required in the design, development and implementation of online application programs. CICS commands, program design, programming. Screen maps, debugging and testing are covered utilizing business-oriented assignments. Screen maps, debugging and testing are covered utilizing business oriented assignments.

CIS 38400 DATABASE INTEGRATION
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 35500
This capstone course combines database skill sets and techniques, providing students with an integrated comprehensive experience of various database platforms and programming languages. Topics include the latest development tools, database features and strategies, embedded SQL programming, administrative APIs, CLI, JDBC and OLE DB programming, JAVA programming, stored procedures and more. Students develop database applications in a variety of environments using a variety of programming tools, maximizing database performance, availability and efficiency.

CIS 38900 NOVELL LAN ADMINISTRATION
(Class 2, Lab 2, Cr 3)
Prerequisite: CIS 18700 and CIS 23000
The emphasis in the course is on illustrating the tasks that the LAN administrator must perform to maintain a NOVELL network. Topics include the SYSCON menu, menu creation, trustee assignments, assigning rights to users, file directories, installing software on the file server, login scripts, and network monitoring software.

CIS 39300 INDUSTRIAL PRACTICE III
(Class 1, Cr 1)
Prerequisite: CIS 29200
Practice in industry with written reports of the practice by the co-op student.

CIS 39400 INDUSTRIAL PRACTICE IV
(Class 1, Cr 1)
Prerequisite: CIS 39300
Practice in industry with written reports of the practice by the co-op student.
CIS 39500 INDUSTRIAL PRACTICE
Prerequisite: CIS 39400
Practice in industry with written reports of the practice by the co-op student.

CIS 40000 INFORMATION SYSTEMS STRATEGIC PLANNING
(Class 3, Cr. 3)
Note: Designated sections CIS 40000 will fulfill the Experiential Learning requirement.
Prerequisite: CIS 20000
Strategic planning methods for information systems are covered and their relationship to the overall strategic business plans. Course content will include enterprise resource plans and business process redesign.

CIS 41200 HUMAN COMPUTER INTERACTION
(Class 3, Cr. 3)
Prerequisite: CIS 11100
This course is designed for students who desire to understand the complex interaction of people with machines. Students will learn how to design, manage, maintain, train, refine and evaluate the user interface of interactive systems. Serious users of interactive systems will find that the course gives them a more thorough understanding of the design questions for user interfaces.

CIS 41300 EDP AUDITING AND CONTROL
(Class 2, Lab. 2, Cr. 3)
Prerequisite: CIS 25200
An introduction to the fundamentals of EDP auditing. Emphasis on understanding EDP controls the types of EDP audits and the concepts and techniques used in EDP audits. Exposure to risk assessment and professional standards in the field of EDP auditing are provided.

CIS 41400 INFORMATION SYSTEMS PROFESSIONALISM AND ETHICS
(Class 3, Cr. 3)
Prerequisite: CIS 25200
The course will cover ethical issues regarding the development of software and information systems and discuss the impact of these systems on society and businesses. Professional societies and their roles in information systems including their professional and ethical codes will be addressed.

CIS 41600 WIRELESS SECURITY
(Class 2, Lab. 2, Cr. 3)
Prerequisite: CIS 31500
This course will prepare students for being a wireless network administrator. Specific topics of the course will include encryption, VPN technologies over wireless, authentication mechanisms, and wireless topologies for security, radiation and signal propagation techniques, site analysis, monitoring and troubleshooting, and current threats against wireless devices. The course will cover advanced concepts specific to wireless security technologies and the implementation of protective technologies in the wireless realm.

CIS 42000 WIDE AREA NETWORK IMPLEMENTATION
(Class 2, Lab. 2, Cr. 3)
Prerequisite: CIS 31000 and CIS 28700
Co-requisite: CIS 31000
This course is an advanced networking course and enterprise level architecture and design course. Students will evaluate networking technologies, design enterprise level networking solutions and implement enterprise networking solutions.

CIS 42100 RISK ASSESSMENT FOR INFORMATION ASSURANCE
(Class 3, Cr. 3)
Prerequisite: CIS 31200
This course focuses on analysis of Risk Assessment models associated with information technology framework. This course describes threats associated with information technology security. IT security threats from hardware and software level as well as countermeasures for reducing those threats are explored in detail. Countermeasures for Information Security Vulnerabilities form the framework of People, Process, Computer level, Network technology and Encryption are discussed.

CIS 42200 NETWORK MANAGEMENT
(Class 2, Lab. 2, Cr. 3)
Prerequisite: CIS 42000
This course provides an integrated, comprehensive, up-to-date coverage of the techniques, standards, models for the network management vital to communications, networking, and services including current trends of next generation converged, networks and emerging 4GM wireless technologies. The classroom instruction provides a practical approach of both the principles and practices of network management from different perspectives.

CIS 42300 STRUCTURED SYSTEMS ANALYSIS AND DESIGN
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)
Prerequisite: CIS 35400
This is the first semester of a two-semester sequence in the advanced study of the system development life cycle. Topics include analysis and design using structured techniques to analyze existing information systems, preparation of the associated structured documentation to design new computer information systems, and preparation of the technical specification to implement the system.

CIS 42400 OBJECT ORIENTED ANALYSIS DESIGN
(Class 3, Cr. 3)
Prerequisite: CIS 35400
This is an in-depth study of the system development life cycle using object oriented analysis and design techniques. Other topics include project management, software quality assurance, computer-assisted software engineering (CASE), and other state-of-the-art techniques that the software engineering profession introduces to support the system development process.

CIS 42500 INFORMATION SYSTEMS CHANGE MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: CIS 40000
The course covers the purpose and techniques of IS change management and its impact on business planning and functions.

CIS 42600 APPLIED SOFTWARE DEVELOPMENT PROJECT
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)
Note: Designated sections CIS 42600 will fulfill the Experiential Learning requirement.
Prerequisite: CIS 42400 or CIS 32300
A capstone course integrating the knowledge and abilities gained through the other computer related courses in the curriculum with a comprehensive system development project.

CIS 42700 SYSTEM DEVELOPMENT PROJECT
(Class 3, Cr. 3)
This course represents a capstone course that integrates the knowledge, skills and abilities gained through the computer-related courses in the curriculum within a comprehensive system development project.

CIS 44000 ADVANCED NETWORK DESIGN
(Class 3, Lab. 2, Cr. 4)
Prerequisite: CIS 31000
This course will emphasize common carrier systems, ATM, Systems Network Architecture (SNA), Fiber Distributed Data Interface (FDDI), and Integrated Services Digital Network (ISDN). New developments in data communications will be discussed. Students will design and simulate a wide area network using a simulation software package.

CIS 44100 WEB SERVER MANAGEMENT
(Class 2, Lab. 2, Cr. 3)
Prerequisites: CIS 14000 and CIS 24100 and CIS 28600
This course is a study of the implementation, configuration and maintenance of Web server software. Students will install and configure a Web server. Topics include server layout and design considerations, CGI and back-end program management, data collection and management, backup and recovery procedures, security and secure transactions and logging and auditing.

CIS 44200 INTERNET/WEB SECURITY
(Class 3, Cr. 3)
Prerequisite: CIS 14000 and CIS 24100 and CIS 18700
This course is a study of existing methods and techniques for securing various components of computerized systems. Topics include types of attacks, monitoring and detection techniques, encryption methods, data security, authentication techniques and current trends in security.
CIS 44500 NETWORK SECURITY  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 31000  
This course is a study of existing methods and techniques for developing and implementing a security policy and for securing various components of computerized systems. Topics include types of attacks, monitoring and detection techniques, encryption methods, data security, authentication techniques and current trends in security. Labs will emphasize various hardware and software security and data protection packages.

CIS 44600 WEB DEVELOPMENT III  
(Class 2, Lab. 2, Cr. 3)  
This course is a study of advanced methods and techniques for developing and implementing Web and network-based applications. New topics and techniques in Web development are discussed. Extensive laboratory exercises and a comprehensive semester project are assigned.

CIS 44700 DISASTER RECOVERY AND CONTINGENCY PLANS FOR INFORMATION TECH  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 44500  
This course provides methods to identify vulnerabilities and take appropriate countermeasures to prevent and mitigate information technology failure risks for an organization. Topics include: disaster recovery plans, development of policies and procedures, preparation of disaster recovery plan, testing and rehearsal of the plan, and actually recovering from a disaster. The classroom instruction provides a practical approach to develop disaster recovery and contingency plans.

CIS 44900 INFORMATION TECHNOLOGY SECURITY MANAGEMENT  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 44700  
This course covers techniques for architecture design, security infrastructure, and policy design. The course provides a practical approach through case scenarios of both the principles and practice of design, implementation, testing and management of security technologies and security services.

CIS 45100 COMPUTER FORENSICS  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 44900  
This course covers methods to properly conduct a computer forensics investigation. The course uses case scenarios to illustrate the principles and practice of investigation. Topics include: digital evidence and controls, processing incidents using computer forensics tools, investigation reports and forensic analysis.

CIS 45700 DATABASE ADMINISTRATION  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 14000 and CIS 25300 and CIS 28600  
This course covers database administration tasks and techniques. Students will install and implement two relational database management systems. Topics include RDBMS architecture, installation, creating databases, configuration, migrating data, database object management, user account management, tuning and backup and recovery.

CIS 46000 PROGRAMMING SYSTEMS  
(Class 3, Cr. 3)  
A broad overview of some basic and advanced concepts in higher level languages and their design. Emphasis is on issues and breadth rather than on details. Topics cover basic characteristics of programming languages, formal methods of defining syntax and semantics, broad language areas of string and list processing, formula manipulation, on-line commands, simulation, concepts of languages for specialized application areas and for program validation, and current research topics and technical issues.

CIS 46100 ENTERPRISE SOLUTIONS  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 34100 or CIS 35500 or CIS 36300  
A course exploring enterprise-level solutions and trade-offs in achieving design goals. The solution patterns and best practices will be discussed. Topics include the design considerations in achieving application availability, scalability and reliability; technical issues involved in transaction, testing, optimization, and deployment; the practical solutions of different architectures, component-based multi-tiered solutions, and distributed applications.

CIS 46600 MULTITHREADING PROGRAMMING  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 36300 and CIS 30100  
This course covers multithreaded programming and distributed computing techniques. Topics include a review of object-oriented analysis and design, Universal Modeling Language (UML), Application Programming Interfaces (API), implementation of object-oriented design patterns, factorization, generalization, and object-oriented frameworks.

CIS 46900 OPERATING SYSTEMS PROGRAMMING  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 31000  
This course will prepare students for being a network administrator. Specific topics of the course will include structure of scripting languages, scripting tools, and scripting uses. Scripts will be utilized to configure and update server and client operating systems types. The strengths and weaknesses of scripting techniques and tools will be discussed.

CIS 48000 MANAGING INFORMATION TECHNOLOGY PROJECTS  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CIS 18000  
This course introduces the advanced application of knowledge, skills, tools, and techniques project managers use to plan, staff, estimate and manage information technology projects. Students will apply project management technology and techniques to business problems.

CIS 48300 COMPUTER HARDWARE/SOFTWARE SELECTION  
(Class 4, Cr. 4)  
The course is designed to provide EDP technical personnel with information required to plan, design, and select computer systems. Included are the formulation of corporate requirements, configuration of hardware and software to satisfy stated requirements, comparison and evaluation of hardware and software, installation considerations, implementation procedures, performance measurement approaches and contract negotiations.

CIS 49000 SENIOR PROJECT  
(Class 1 to 4, Lab. 1 to 4, Cr. 1 to 4)  
Independent study for seniors who desire to execute a complete computer oriented project.

CIS 49700 COMPUTER AND INFORMATIONAL SYSTEMS  
(Class 1 to 4, Cr. 1 to 4)  
Hours, credit, and subject matter to be arranged by staff.

Construction Management Engineering Technology

CMET 10000 FRESHMAN EXPERIENCE FOR CMET  
(Class 1, Cr. 1)  
This course will include utilization of campus resources, goal setting, values exploration, relationship of academic planning and life goals, discipline-specific career exploration and critical thinking.

CMET 10100 TECHNICAL COMPUTATIONS  
(Class 1, Cr. 1)  
Co-requisite: MA 14700  
A study of elements from algebra and trigonometry appropriate to surveying, estimating, statics, and other construction-related courses. Graphs and reports are included. Additionally, word processing, spreadsheets, and PowerPoint presentations will be included. The correct use of calculators will be addressed.

CMET 10200 TECHNICAL COMPUTATIONS  
(Class 2, Cr. 2)  
Co-requisite: MA 14700  
A study of elements from algebra and trigonometry appropriate to surveying, estimating, statics and other construction-related courses. Graphs and reports are included. Additionally, word processing, spreadsheets and PowerPoint presentations will be included. The correct use of calculators will be addressed.
CMET 10300 INTRODUCTION TO CONSTRUCTION MANAGEMENT  
(Class 3, Cr. 3) General Education  
This course will provide students with an introduction to the construction management discipline and prepare students for the program curriculum. Additionally, this course will serve as a Freshman Experience course, and will include utilization of campus resources, goal setting, values exploration, relationship of academic planning and life goals, discipline-specific career exploration and critical thinking.

CMET 19000 CONSTRUCTION EXPERIENCE I  
(Class 1, Cr. 1)  
Minimum of 10 weeks work experience in the construction industry, plus written report of directed academic project.

CMET 28000 QUANTITY SURVEY AND ESTIMATING  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: ARET 25000 or CET 20800  
A study of methods to estimate quantities of materials required in construction. Practice in making quantity surveys. Introduction to estimating labor and cost.

CMET 29100 CONSTRUCTION EXPERIENCE II  
(Class 1, Cr. 1)  
Minimum of 10 weeks work experience in the construction industry, plus written report of directed academic project.

CMET 32500 STRUCTURAL APPLICATIONS  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: CET 28000  
Techniques in analyzing statically determinant and indeterminate structures with a discussion of moment distribution. Standard design procedures for wood, steel, and concrete structures. Sizing of beams, columns and connections.

CMET 33500 SHORING, FORMWORK AND SCAFFOLDING DESIGN AND SAFETY  
(Class 3, Cr. 3)  
Prerequisite: CET 28000 and CET 33100 and CMET 34100  
Fundamentals in the design of shoring, concrete forms for beams, columns, slabs and walls; the design and selection of scaffolding systems. A discussion of erection and fabrication techniques with an emphasis upon safety.

CMET 34100 CONSTRUCTION OPERATIONS  
(Class 3, Cr. 3)  
Management, methods and equipment used in the construction of buildings, earthworks, bridges and roads. Contractor organization, job management, and safety. Excavation, formwork, concrete, masonry, and steel erection methods.

CMET 34400 CONSTRUCTION INSPECTION  
(Class 2, Lab. 3, Cr. 3)  
Note: Designated sections CMET 34400 will fulfill the Experiential Learning requirement.  
Prerequisite: ARET 27600 and CMET 34100  
Inspection procedures as applied to contracted construction, and the role inspection plays in the execution of the completed contract. The laboratory period is used for demonstration, guest lecturer presentations, and for field trips to construction sites, fabrication shops, and testing laboratories.

CMET 39000 CONSTRUCTION EXPERIENCE III  
(Class 1, Cr. 1)  
Minimum of 10 weeks work experience in the construction industry, plus written report of directed academic project.

CMET 42000 CONSTRUCTION LAW  
(Class 3, Cr. 3)  
Prerequisite: CMET 34400  
This course introduces general construction law and regulations and legal procedures relevant to construction projects. The course covers wide-ranging legal aspects during a construction project from planning, design, engineering, and construction phases through the post-construction phase. Topics in the course include typical legal aspects in the construction industry; contractual liabilities from owners, design professionals, and contractors’ perspectives; common issues for disputes and claims; suggestions to resolve legal arguments; and ethics in the construction industry.

CMET 44200 CONSTRUCTION COSTS AND BIDDING  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CMET 34100  
A study of methods to estimate quantities of materials required in construction. Practice in making quantity surveys. Estimating total job costs (material and labor, quality survey, overhead, subcontracts) and bidding practices of the construction industry. Topics in construction law and ethics.

CMET 44500 CONSTRUCTION MANAGEMENT I  
(Class 3, Cr. 3)  
Prerequisite: CMET 34400 and CMET 44200 and CMET 45000  
Business policy and problems relating to construction companies. Includes contractors’ organization, financial management, project management, supervision, cost analysis, and equipment economics, and topics in construction law and ethics.

CMET 45000 CONSTRUCTION SCHEDULING  
(Class 3, Cr. 3)  
Prerequisite: CMET 34100  
A study of the planning and control of construction projects. Time schedules for materials, labor and equipment, expediting material delivery, bar charts, Critical Path Method (CPM) scheduling. Precedence diagrams and Program Evaluation Review Techniques (PERT). The course emphasizes the use of computers for scheduling and updating of the construction process.

CMET 48700 DESIGN AND DEVELOPMENT FOR FACILITY MANAGEMENT  
(Class 2, Lab. 3, Cr. 3)  
A study of the functional relationships required to design modern commercial, office, hospital, industrial and institutional facilities. Development and leasing of commercial buildings. Design of office interiors including an introduction to furniture and communications systems. A basic introduction to drafting and blueprint reading.

CMET 48900 SENIOR PROJECT SURVEY  
(Class 3, Cr. 1)  
Students will develop a topic for the following design project, CMET 49000. Students will establish project scope, general and specific objectives, literature review and background, and establish time schedules for completion of the project. Students are encouraged to develop alternative proposals. Students will analyze a previously completed senior project.

CMET 49000 SENIOR PROJECT  
(Class 3, Cr. 3)  
Note: Designated sections of CMET 49000 will fulfill the Experiential Learning requirement.  
Prerequisite: CMET 48900  
The development of a project which will combine the skill and knowledge gained from various areas of study. The student will be expected to present a project which has been approved by his faculty advisor to a panel of departmental faculty chosen by the advisor. This presentation should include graphical material as well as oral and written communication.

CMET 49300 FACILITY OPERATIONS, SCHEDULING AND MANAGEMENT  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: MGMT 20000 and ARET 28300 and CMET 49200  
An introduction to the management, methods and equipment used in the remodeling or construction of commercial, office and institutional buildings. A study of the planning and control of construction projects including time schedules for materials, labor, equipment and maintenance; expediting material delivery; bar charts; Critical Path Method (CPM); and Program Evaluation Review Techniques (PERT) for scheduling. Business policy problems as they relate to facilities as well as financial management, project management, supervision, cost analysis and equipment costs will be discussed.

CMET 49500 INTRODUCTION TO FACILITY MANAGEMENT  
(Class 3, Cr. 3)  
An introduction to topics directly related to the management of large facilities with an emphasis on architectural and engineering systems, maintenance, cost management, life safety, and grounds and landscaping maintenance.

CMET 49900 SPECIAL ASSIGNMENTS  
(Class 0 to 4, Cr. 1 to 4)  
Hours, subject matter and credit to be arranged by staff. Course may be repeated for credit up to nine hours.
CMET 50100 TEMPORARY STRUCTURES IN CONSTRUCTION
(Class 3, Cr. 3)
This course is designed for students who want to learn analytical methods and techniques applicable in construction operations. It covers fundamental simulation algorithms and computer-aided quantitative analysis methods to be used for construction operations. Topics to be included are data analysis, operational analysis tools and simulation techniques that require comprehensive group projects involving modeling and analyzing actual construction operations. Course may be offered in classroom-based, distance or hybrid format.

CMET 50800 HIGHWAY CONSTRUCTION AND MAINTENANCE
(Class 3, Cr. 3)
This course is designed for students who are seeking to begin their careers in highway engineering and construction industry. Focused on the core issues of highway construction and maintenance, the course covers the entire highway construction project life cycle from the planning stage to key maintenance issues of the highway system. Detailed topics to be covered include primary elements of highway planning, principles of highway and pavement design, typical road plans and specifications, pavement parameters, and the key issues of highway construction and maintenance. This course also requires a term project where students can experience a real highway construction project.

CMET 52000 GREEN CONSTRUCTION
(Class 3, Cr. 3)
A survey of LEED® Green Building Rating System. An overview of the system will be discussed and each environmental category will be covered. An in-depth analysis of each possible credit in each category will be discussed. Students will develop strategies for each credit's attainment; listing the advantages and disadvantages of each strategy. Necessary documentation for credit attainment will also be covered. Graduate students with insufficient background may be required to take some leveling courses.

CMET 54100 ADVANCED CONSTRUCTION OPERATIONS
(Class 3, Cr. 3)
This course is designed for students who want to learn analytical methods and techniques to be applicable in construction operations. It covers fundamental simulation algorithms and computer-aided quantitative analysis methods to be used for construction operations. Topics to be included are: data analysis, operational analysis tools, simulation techniques, which require comprehensive group projects that involve modeling and analyzing actual construction operations. (Course may be offered in classroom-based, distance or hybrid format)

Communication

COM 10300 THE FRESHMAN SEMINAR IN COMMUNICATION
(Class 1 to 3, Cr. 1 to 3) General Education
This course provides entry-level COM majors with skills and materials deemed important to their ultimate success in Communications at Purdue University Calumet

COM 11400 FUNDAMENTALS OF SPEECH COMMUNICATION
(Class 3, Cr. 3) General Education, TransferW
A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process through discussion to speaking in standard speaker-audience setting.

COM 20100 INTRODUCTION TO MEDIA STUDIES
(Class 3, Cr. 3)
Introduction to Media Studies introduces student to the various fields in Mass Media including (but not limited to) Digital Media, Film, Journalism, the Internet, Radio, and Television. This course will survey the basic principles, theories, and processes of each specialized area.

COM 20200 ELECTRONIC MEDIA
(Class 3, Cr. 3)
Origin, development, nature, and function of radio and television in America.

COM 21000 DEBATING PUBLIC ISSUES
(Class 3, Cr. 3)
Prerequisite: COM 11400
Study of argumentation as applied to public discourse. Lectures on logic and reasoning, library research methods, and bibliography, identification and analysis of issues, construction or organization of cases, refutation and rebuttal, and the phrasing and delivery of the argumentative speech. Preparation of debate cases.

COM 21100 PRACTICUM IN SPEECH COMMUNICATION ACTIVITIES
(Class 1)
Practice and training in the theory and techniques of applied communication activities. May include projects in organizational communication or public relations, public presentations, or participation in competitive forensic events.

COM 21300 VOICE AND DICTION
(Class 3, Cr. 3)
Prerequisite: COM 11400
Introduction to the contemporary theories of interpersonal communication, with particular focus on the implications of the theories for the process of interpersonal and intrapersonal communication. Investigation and comparative analysis of rhetorical theories, linguistic theories, behavioral theories, quantitative theories and psychological theories will be emphasized, as will be construction and analysis of models of communication.

COM 21400 COMPARATIVE THEORIES OF INTERPERSONAL COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 11400
Introduction to the contemporary theories of interpersonal communication, with particular focus on the implications of the theories for the process of interpersonal and intrapersonal communication. Investigation and comparative analysis of rhetorical theories, linguistic theories and psychological theories will be emphasized, as will be construction and analysis of models of communications.

COM 22500 INTRODUCTION TO Rhetoric and Social Influence
(Class 3, Cr. 3)
Prerequisite: COM 11400
A study of rhetoric as an agent of social change. Analysis of strategies and techniques of non-oratorical as well as oratorical forms of contemporary rhetorical situations.

COM 22800 INTRODUCTION TO COMMUNICATION STUDIES
(Class 3, Cr. 3)
Prerequisite: COM 11400
Introduction to the various fields of Communication discipline including (but not limited to) Interpersonal Communication, Marketing Communication, Organizational Communication, Performance Studies, Public Relations, Rhetoric and Small Group Communication. This course will survey the basic principles, theories and processes of each specialized area.

COM 23600 MEDIA AND CULTURE
(Class 3, Cr. 3)
This course surveys film, music, art, popular magazines, television and other media in terms of their symbiotic relationship to diverse cultural practices including, among others, religion, romance, dance, sport, recreation, hobbies, and cuisine, and their connection to broader ethnic, gender and class cultural expressions. To understand how media represent, express and contribute to contemporary culture practices, students will consider mass market novels, professional sports, museums, music videos, talk radio, Hollywood and independent film, narrowcast cable television, websites, and other mass media genre.

COM 24200 INTRODUCTION TO BROADCAST NEWS
(Class 3, Cr. 3)
This course assists students in writing for broadcast journalism, and broadcast delivery training and offers a chance for exposure to area television and radio journalists.

COM 25000 MASS COMMUNICATION AND SOCIETY
(Class 3, Cr. 3) TransferW
A survey of the print, broadcast and film media in their relationship and influence on society. Study topics include: mass communication theories, documentaries, commercialism, news media, media effects and control, feedback, educational broadcasting, and audience analysis.

COM 25300 INTRODUCTION TO PUBLIC RELATIONS
(Class 3, Cr. 3)
Theories, methods, and practice of public relations and their application in industry, government, education, social agencies, and other institutions.

COM 25500 INTRODUCTION TO NEWS REPORTING AND WRITING
COM 30900 VISUAL COMMUNICATION
(Class 3, Cr. 3)
Visual Language is universal. This course will allow students to define visual language through investigating various visual mediums such as still images, film and television. Art elements of color, texture, space, composition, and design will be addressed. Various symbols and visual cues used to communicate messages will also be discussed.

COM 31000 FAMILY COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 11400 and COM 22800
The application of theories of interpersonal communication to family life. Emphasis on feedback, empathy, and trust as contributing factors to effective communication within families. A case study approach is used.

COM 31400 ADVANCED PRESENTATIONAL SPEAKING
(Class 3, Cr. 3)
Prerequisite: COM 11400
Development of a marked degree of skill in the composition and delivery of various types of speeches including presentations in corporate board rooms, orientation meetings, banquet halls, public forums. Special emphasis on speeches related to the student's major vocational area.

COM 31500 SPEECH COMMUNICATION OF TECHNICAL INFORMATION
(Class 3, Cr. 3)
Prerequisite: COM 11400
The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audio-visual materials in such presentations.

COM 31800 PRINCIPLES OF PERSUASION
(Class 3, Cr. 3)
Prerequisite: COM 11400
Persuasion and its effects on behavior with emphasis on evidence and reasoning and on emotional and personal proof; practice in critical reception as well as effective composition of persuasive discourse.

COM 31900 THE RHETORICAL TRADITION
(Class 3, Cr. 3)
A historical survey of major rhetorical theory as it relates to the development of Western Civilization, with major emphasis on Aristotle and the New Rhetoric.

COM 32000 SMALL GROUP COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 11400
The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audio-visual materials in such presentations.

COM 32000 SMALL GROUP COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 11400
A study of group thinking and problem-solving methods; participation in and evaluation of committee and informal discussion groups.

COM 32200 LEADERSHIP IN ORGANIZATION
(Class 3, Cr. 3)
Prerequisite: COM 11400
This program serves as the foundation for developing core leadership skills. Focusing on the dynamics of leadership development within a personal, academic, community, and organizational context, students will learn to apply basic leadership skills through a series of experiential learning sessions and lectures. These core skill areas include written, oral and interpersonal communication; processing experiences into practical application; understanding leadership styles and roles; human behavior; on-going self-assessment; diversity, as a value; basic technical competencies; and effective life/time management.

COM 32300 BUSINESS AND PROFESSIONAL SPEAKING
(Class 3, Cr. 3)
Prerequisite: COM 11400
The study of oral communication problems and responsibilities in the business-organizational environment. Participation in problem-solving from investigation and informative speaking to advocacy and parliamentary debate.

COM 32500 INTERVIEWING: PRINCIPLES AND PRACTICE
(Class 3, Cr. 3)
Prerequisite: COM 11400
Theory and practice of methods in selected things: informational, employment, and persuasive. Emphasis on communication between two persons, questioning techniques and the logical and psychological bases of interpersonal persuasion.

COM 32600 SPEECHWRITING
(Class 3, Cr. 3)
Prerequisite: COM 11400 and COM 22800
By studying the rhetorical and per-formative elements for creating a successful
speech, students will learn various speechwriting strategies that can be applied in political or organizational contexts.

**COM 32700 INTERNATIONAL COMMUNICATION**  
(Class 3, Cr. 3)  
Prerequisite: COM 20100  
Introduction to the historical development of international communication for trade and diplomacy to the globalization of media markets and media models in news and entertainment. Modernization, developmental, dependency, hegemony, free flow of information, political economy, and other historical, administrative and critical perspectives will also be discussed. Contemporary international media practices, including foreign direct investment cultural hybridity and contraflow.

**COM 33000 THEORIES OF MASS COMMUNICATION**  
(Class 3, Cr. 3)  
Prerequisite: COM 20100  
An examination of mass communication theories and theorists. Readings and discussion of McLuhan, Lippman, LaFleur, Lazarsfeld, Schramm, Stephenson, and other significant contributors.

**COM 33100 AUDIO PRODUCTION**  
(Class 1, Lab. 4, Cr. 3 or Class 2, Lab. 4, Cr. 3)  
Prerequisite: COM 20100  
Basic principles of producing, directing, and writing for radio. Included program types, production methods, techniques of the sound studio, principles of directing radio programs, and laboratory practice in production and direction.

**COM 33200 TELEVISION PRODUCTION**  
(Class 1, Lab. 4, Cr. 3)  
Prerequisite: COM 33100 and COM 20100  
Basic principles of producing, writing, and directing for television. Classroom television productions are produced in the Purdue Calumet television studio. Treats program types and television criticism, and explores creative treatment of visual, artistic, and nonverbal elements of communication in television.

**COM 33400 JOURNALISM FOR THE ELECTRONIC MEDIA**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: COM 20100  
The development and practice of electronic journalism with projects relating to straight news, feature reports, commentary, editorial, interview, and documentary.

**COM 34300 FUNDAMENTALS OF ORAL INTERPRETATION**  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
A study of basic theories of oral interpretation including the analysis and presentation of literature.

**COM 34700 RADIO AND TELEVISION PERFORMANCE**  
(Class 1, Lab. 4, Cr. 3)  
Prerequisite: COM 20100  
This course addresses the relationship between the producer, the director, and the talent in a production situation. Practice in performing for radio and television, as well as auditioning talent are the focus of this class.

**COM 35000 INTERCULTURAL COMMUNICATION**  
(Class 3, Cr. 3)  
Prerequisite: COM 11400 and COM 22800  
This course examines the communication process used by individuals from various cultures. The class will explore the current theories in intercultural communication which demonstrates strategies for interacting with diverse cultures and ideas.

**COM 35200 MASS COMMUNICATION LAW**  
(Class 3, Cr. 3)  
Prerequisite: COM 20100 or COM 25000  
Study of Anglo-American traditions and trends, as well as current American conditions of the laws of libel, privacy, fair comment and criticism, privilege, property rights, and copyright as many factors affect the print journalist and the broadcaster. Emphasis is on existing state and federal regulations and precedents.

**COM 35300 PROBLEMS IN PUBLIC RELATIONS**  
(Class 3, Cr. 3)  
Note: Designated sections COM 35300 will fulfill the Experiential Learning requirement.
techniques to class assignments.

**COM 44600 ADVERTISING MANAGEMENT**  
(Class 3, Cr. 3)  
Note: Designated sections of COM 44600 will fulfill the Experiential Learning requirement.  
Prerequisite: COM 25600 and BA 22400  
This course considers advertising from the perspective of managers and practitioners responsible for identifying and solving the advertising problems of a business. The course emphasizes the application of concepts, such as the planning of advertising strategy, the execution of target marketing, budgeting, creative development and media decisions, with the goal of developing integrated marketing communications campaigns.

**COM 44800 APPLIED MASS MEDIA RESEARCH**  
(Class 3, Cr. 3)  
Prerequisite: COM 20100 and COM 22800  
Through an examination of current research in mass media, Applied Mass Media Research will provide students with the necessary tools to conduct and critique research that pertains specifically to the mass media. Students will learn how to research a mass media related issue.

**COM 45100 FEATURE WRITING**  
(Class 3, Cr. 3)  
Note: Designated sections of COM 45100 will fulfill the Experiential Learning requirement.  
Prerequisite: COM 25500  
Examination of magazine staff organization, market analysis, and editorial content. Study of, and practice in, the writing of a variety of nonfiction materials for magazines. Emphasis is on the adaptation of topics and presentation of editorial policies and reader groups.

**COM 45200 PRACTICUM IN JOURNALISM**  
(Class 3, Cr. 2)  
Prerequisite: COM 25500  
Assigned projects in journalism.

**COM 46000 ADVANCED PUBLIC RELATIONS**  
(Class 3, Cr. 3)  
Note: Designated sections of COM 46000 will fulfill the Experiential Learning requirement.  
Prerequisite: COM 25300 and COM 25500  
Research, design and implementation skills applied by students individually and in groups to actual business communication problems.

**COM 4630 MASS MEDIA CRITICISM**  
(Class 3, Cr. 3)  
Prerequisite: COM 20100  
Utilizing the current media criticism theories and models, students will learn how to critique a variety of media genres. Students will examine the social and political messages inherent in media messages.

**COM 46500 VISUAL AESTHETICS IN TV AND FILM**  
(Class 3, Cr. 3)  
Prerequisite: COM 25500  
This course examines the visual aesthetics of television and film. Topics covered are picture composition, lighting, acting, directing, continuity, cinematography, editing, story line, and costume.

**COM 47000 WOMEN IN THE MEDIA**  
(Class 3, Cr. 3)  
Prerequisite: COM 11400 or COM 20100 or WOST 12100  
Focusing on the contributions made by women in newspaper, television, film, and performance, this course will explore how women are shaping societal and cultural values.

**COM 47500 IDENTITY IN FILM**  
(Class 3, Cr. 3)  
Prerequisite: COM 11400 and COM 22800 and COM 20100 or COM 23600 or COM 25000  
Identity in Film explores the construction of race, ethnicity, gender, class, sexuality, nationality, and subliminal identity in films created by an individual of that particular identity. The course examines identity and communication process through the sensibility of the film’s director or writer.

**COM 49000 INTERNSHIP IN COMMUNICATION**  
(Class 1 to 3, Lab. 0 to 6, Cr. 1 to 3)
Note: Designated sections of COM 49000 will fulfill the Experiential Learning requirement.
Prerequisite: COM 11400 and COM 22800
Variable title, variable pattern, variable credit (1–6). Experiential, supervised training in one of the areas of specialization in communication. Students will work in an organization under supervision and are required to devote to the internship the number of hours per week which the organization supervisor and academic coordinator have established. Students will spend a minimum of five hours per week at the place of the internship. Students will be evaluated by the organization supervisor and the academic coordinator.

COM 49100 SPECIAL TOPICS IN COMMUNICATION
(Class 1 to 3, Lab 0 to 3, Cr. 1 to 3)
Variable pattern. (Variable credit, 1–6.)

COM 50800 NONVERBAL COMMUNICATION IN HUMAN INTERACTION
(Class 3, Cr. 3)
An examination of theoretical writings and nonverbal study (e.g., the environmental influence, space and territory relationships, physical behavior, and vocal cues.) One unit will specifically concern itself with measurement, recording or transcription methods used in nonverbal study.

COM 51200 THEORIES OF INTERPERSONAL COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 21400
Review of contemporary theories, analysis of concepts, models, and pertinent research across the broad spectrum of interpersonal communication.

COM 51500 PERSUASION IN SOCIAL MOVEMENTS
(Class 3, Cr. 3)
Prerequisite: COM 31800
A study of the concept of persuasion in social movement theory and the role rhetoric has played historically in selected social movements such as suffrage, women’s liberation, civil rights, evangelism, and trade unionism.

COM 51700 COMMUNICATION IN POLITICS
(Class 3, Cr. 3)
Prerequisite: COM 31800
Development and application of critical standards to the rhetoric employed by candidates for public office. Study of the campaign strategies employed by parties and their candidates at various levels of government.

COM 51800 THEORIES OF PERSUASION
(Class 3, Cr. 3)
Review of contemporary theories, including analysis of concepts, models, and pertinent research across the broad spectrum of persuasive communication.

COM 52000 SMALL GROUP COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 32000
Survey and critical evaluation of theoretical and empirical literature dealing with human communication within small group settings.

COM 52100 THEORIES OF RHETORIC
(Class 3, Cr. 3)
A comprehensive study of the principle figures, theories, and movements in rhetoric from the classical era to the present.

COM 52500 ADVANCED INTERVIEWING AND CONFERENCE METHODS
(Class 3, Cr. 3)
Application of modern communication theory to interview situations, with emphasis upon problems involving superior-subordinate relations, information-getting, and interpersonal misunderstanding. Classroom demonstrations based upon real-life cases supplemented by off-campus interviews; practice in briefing techniques.

COM 53100 SPECIAL TOPICS IN MASS COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 25000
Critical analysis and evaluation of current and continuing problems in both commercial and public mass communication.

COM 53300 DOCUMENTARY TELEVISION
(Class 1, Lab 4, Cr. 3)
Prerequisite: COM 44100
Advanced theory and techniques in the production of documentary television. Viewing and evaluation of representative television documentaries, as well as experience in producing short documentary programs.

COM 53400 COMPARATIVE TELECOMMUNICATION SYSTEM
(Class 3, Cr. 3)
Historical, sociological, and political aspects of various systems of broadcasting throughout the world. Examination of American, Canadian, British, French, German, Soviet, and other broadcast institutions to discover why and how they are regulated and what impact they have on political, social, and economic development.

COM 53600 RADIO AND TELEVISION WRITING
(Class 3, Cr. 3)
Prerequisite: COM 20200
Study of forms and materials suitable for both media; practice in selection, adaptation, and organization of special program materials; special uses of media in education.

COM 53700 EDUCATIONAL/INSTITUTIONAL TELEVISION
(Class 3, Cr. 3)
Survey of the educational and instructional applications of radio and television materials; analysis of selected problems in the educational uses of the media; analysis and application of production practices as related to the learning process.

COM 54000 ADVANCED ORAL INTERPRETATION
(Class 3, Cr. 3)
A study of the theories of oral interpretation of literature that have emerged from the classical period of Greece and Rome to the present. Emphasis on the influence of leaders in the field during the 18th, 19th, and 20th centuries.

COM 54500 THEORIES OF ORAL INTERPRETATION
(Class 3, Cr. 3)
Study of the theories of oral interpretation of literature that have emerged from the classical period to the present. Emphasis on the influence of leaders in the field during the 18th, 19th, and 20th centuries.

COM 55900 CURRENT TRENDS IN MASS COMMUNICATION RESEARCH
(Class 3, Cr. 3)
An examination of current research as it contributes to understanding the process and effects of mass communication. Topics covered include gatekeepers and information control, audience selection processes and uses, media content and social learning, the effects of adult programming on children, and the effects of the media on the governmental process.

COM 56000 RHETORICAL DIMENSION OF MASS MEDIA
(Class 3, Cr. 3)
A study of the ways in which rhetorical elements and processes are embodied and modified by the media of mass communication. The rhetorical functions of print and electronic media are examined individually as well as within the context of specific campaigns and movements.

COM 57400 ORGANIZATIONAL COMMUNICATION
(Class 3, Cr. 3)
Survey of the theoretical and empirical literature dealing with human communication behavior as it occurs within the context of complex organizations. Among topics covered are superior-subordinate communication, communication networks, message distortion, feedback processes, conflict management, semantic and stylistic dimensions of messages, and communication in decision making.

COM 58200 DESCRIPTIVE/EXPERIMENTAL RESEARCH IN COMMUNICATION
(Class 3, Cr. 3)
Introduction to modes of quantitative research in communication, including problem formulation, basic measurement concepts, elementary methods of data collection and analysis, and basic designs for descriptive and experimental research. Individual and/or group research projects are planned, conducted and reported.

COM 58300 RESEARCH AND ASSESSMENT IN ORGANIZATIONAL COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 57400 and COM 58200
An overview of applied research methodologies in organizational communication, the course focuses on the design of field investigations and the use of self-report measures, network analysis, and interviewing in organizational communication.
CS 12400 PROGRAMMING II: C++
(Class 3, Cr. 3)
Prerequisite: CS 12300
This course is an extension of CS 12300 that introduces the C++ programming language. The topics of the course include: functions, program structure, pointers, objects classes, and inheritance in C++ files, standard template library, streams and the preprocessor.

CS 20600 COMPUTER ALGEBRA AND PROGRAMMING
(Class 3, Cr. 3) General Education
Prerequisite: MA 16400
Using a computer algebra system to solve mathematics problems, leaning how to translate mathematical notation and procedures into the language of the computer algebra system. Learning the basic concepts of programming languages, comparing programming concepts with mathematical concepts.

CS 22300 COMPUTER ARCHITECTURE AND ASSEMBLY LANGUAGE
(Class 3, Cr. 3)
Prerequisite: CS 12400 and MA 16300
An introduction to the fundamental concepts of computer architecture progressing from the digital logic level to the microarchitecture level and then to the instruction set level. Assembly language and the assembly process will also be included.

CS 27500 DATA STRUCTURES
(Class 3, Cr. 3)
Prerequisite: CS 12400 and MA 16300 or MA 21900 or MA 22300
Data structures describe the way that computer programs organize store information. This course introduces the specification, representation and manipulation of the basic data structures common to much of computer programming such as: linked lists, arrays, stacks, queues, strings, trees, graphs, search trees, heaps, hash tables, and B-trees.

CS 30100 LANGUAGE COMPETENCY
(Cr. 1)
Prerequisite: CS 12000
A course intended to give the student experience in an additional high-level language. Each section of this course is the responsibility of a particular faculty member who will advise the student and assign programming projects. A student may receive credit for at most three of these sections, but for no section whose language was a major component of a course for which credit has already been attained. Various languages will be offered each semester.

CS 30200 OPERATING SYSTEMS
(Class 3, Cr. 3)
Prerequisite: CS 27500 and CS 22300
An operating system manages all of the hardware and software resources of computer. This course provides an introduction to the basic concepts and terminology of operating systems. Topics will include multiprogramming, CPU scheduling, memory management, file systems, concurrent processes, multiprocessors, security, and network operating systems.

CS 30900 DISCRETE MATH STRUCTURE
(Class 3, Cr. 3)
Prerequisite: MA 16400
This course is the study of finite and discrete mathematical structures relating to the theory of computation. Topics will include directed and undirected graphs and their relation to these structures, combinatorial problems inherent in computation, Boolean algebra, and recurrence relations.

CS 31600 PROGRAMMING LANGUAGES
(Class 3, Cr. 3)
Prerequisite: CS 27500
The study of programming language features and their implementation in different types of programming languages. The design goals and motivations for various languages will be discussed. Topics will include a comparison of block-structured, object-oriented, functional, and logic programming languages. The advantages and disadvantages of each type of language will be considered. Specific examples of each type of language will be included.

CS 33200 ALGORITHMS
(Class 3, Cr. 3)
Prerequisite: CS 27500
An algorithm is a procedure for solving a problem in a finite number of steps. Algorithms, along with data structures, form the fundamental building blocks of computer programs. The types of algorithms discussed will include sorting,
searching, probabilistic, graph, and geometric algorithms. The following algorithm techniques are covered: backtracking, divide and conquer, branch and bound, greedy method, and dynamic programming.

**CS 34200 INTRODUCTION TO COMPUTER-BASED BIOMEDICAL IMAGE ANALYSIS**  
(Class 4, Cr. 4)  
Prerequisite: MA 15400  
Introduction to image manipulation and analysis. Biomedical materials to be analyzed include electrophoretic gels, bacterial agar plates, cells and tissues, x-ray films and CAT scan images. Personal computer systems and the basic programming skill of the C language also will be introduced.

**CS 40400 DISTRIBUTED SYSTEMS**  
(Class 3, Cr. 3)  
Prerequisite: CS 30200  
A distributed system is two or more computers working together as a single unit. These systems are essential to the understanding of present and future computer applications. This course will include the following topics: concurrent processing, threads, network programming, distributed file systems, remote procedure calls, sockets, distributed objects, client-server models, and internet protocols.

**CS 41000 AUTOMATA AND COMPUTABILITY**  
(Class 3, Cr. 3)  
Prerequisite: CS 27500 and CS 30900  
A finite automaton is a mathematical model for a computation system. Computer science embodies many examples of finite state systems. This course will cover the basic principles of deterministic and non-deterministic finite automata, Turing machines, formal language theory, regular expressions, context-free grammars, the halting problem, and insolvability.

**CS 41600 SOFTWARE ENGINEERING**  
(Class 3, Cr. 3)  
Prerequisite: CS 30200  
Software engineering is the study of the theory, methods, and tools which are needed to develop large, complex software systems. This course covers the specification, design, documentation, implementation, and testing of software systems. Software life cycle, principles of project management, and case studies are also covered. A group project will be assigned.

**CS 42000 SENIOR DESIGN PROJECT**  
(Class 3, Cr. 3)  
Note: Designated sections of CS 42000 will fulfill the Experiential Learning requirement.  
The objective of this course is to provide students with concrete experience in writing advanced computer programs for practical applications in science or industry. The student develops the necessary software using appropriate techniques and prepares documentation for the use and support of the completed system. Prerequisite: Senior level standing in Computer Science major.

**CS 44200 DATABASE SYSTEMS**  
(Class 3, Cr. 3)  
Prerequisite: CS 27500  
A database is a system whose purpose is to organize, retrieve, and maintain large amounts of information. This course introduces the concepts and structure used in designing and implementing database systems. Topics include hierarchical, network, relational, and object-oriented data models, database design principles, normalization, data dictionaries, query languages and processing.

**CS 45500 COMPUTER GRAPHICS**  
(Class 3, Cr. 3)  
Prerequisite: MA 26500 and CS 27500  
Computer graphics provides a mechanism for creating and manipulating images by means of a computer. This course covers two-dimensional curve drawings, view transformations, geometric modeling, projections, ray tracing, surface patch, three-dimensional object rendering, shading, and animation. Windows programming using OpenGL, and MFC will also be introduced.

**CS 46200 INTRODUCTION TO ARTIFICIAL INTELLIGENCE**  
(Class 3, Cr. 3)  
Prerequisite: CS 27500  
This course will cover the following topics: problems and problem spaces, heuristic search, forward and backward reason, breadth-first vs. depth-first search, and/or graphs, conversion to clause form and resolution. A brief introduction to Lisp programming will also be included.

**CS 48000 THE PRACTICUM IN APPLIED MATHEMATICS**  
(Class 3, Cr. 3)  
The practicum course of a small team (a faculty advisor and 1-4 students) working on a real problem obtained in conjunction with a local business or industry. Not more than two terms of CS 48000 may be taken for credit.

**CS 49000 TOPICS IN COMPUTER SCIENCES FOR UNDERGRADUATES.**  
(Class 1 to 5, Cr. 1 to 5)  
Supervised reading and reports in various fields. Open to students only with the consent of the department.

**CS 50100 INTRODUCTION TO COMPUTATIONAL SCIENCE**  
(Class 3, Cr. 3)  
Credit in this course may not be used toward a graduate degree in Computer Science. Computational concepts, tools, and skills for computational science and engineering scripting for file processing, high performance computing, and software development. Project may be required.

**CS 51400 NUMERICAL ANALYSIS**  
(Class 3, Cr. 3)  
Prerequisite: CS 41400  
Iterative methods for solving nonlinear equations; linear difference equations, applications to solution of polynomial equations; differentiation and integration formulas; numerical solution of ordinary differential equations; round off error bounds.

**CS 51500 NUMERICAL LINEAR ALGEBRA**  
(Class 3, Cr. 3)  
Prerequisite: CS 31400 or MA 26500 or MA 35100 and MA 51100  
Direct and iterative solvers of dense and sparse linear systems of equations, numerical schemes for handling symmetric algebraic Eigen value problems, and the singular-value decomposition and its applications in linear least square problems.

**CS 59000 TOPICS IN COMPUTER SCIENCES**  
(Class 1 to 5, Cr. 1 to 5)  
Directed study for students who wish to undertake individual reading and study on approved topics.

**Earth, Atmospheric Sciences**

**EAS 11000 SURVEY OF GEOLOGY**  
(Class 2, Lab. 2, Cr. 3 or Class 2, Lab. 3, Cr. 3)  
Transfer IN  
Not available for credit to students with credit in GEOS 11100 or EAS 11100. A survey of concepts, methods, and materials of physical and historical geology of professional and cultural interest to students who do not need the rigorous treatment of GEOS 11100 or 11200 or EAS 11100 or 11200. Laboratory will illustrate the methods and materials used in geologic studies.

**EAS 16100 SURVEY OF ASTRONOMY**  
(Class 2, Lab. 3, Cr. 3)  
An introduction to the science of astronomical observation and interpretation including the historical development of calendars, and the structure of the solar system, the classification and the life cycles of stars and other stellar objects, galaxies, and modern cosmological models. Laboratory exercises will be simple demonstrations of basic principles: the universe square law, composition of planets and their atmospheres, backyard urban observation, stellar spectra, and use of a computer-based planetarium.

**EAS 19100 INTRODUCTORY TOPICS IN EARTH AND ATMOSPHERIC SCIENCE**  
(Class 1 to 3, Cr. 1 to 3)  
This is a variable course. The title and content will vary.

**EAS 22000 SURVEY OF PHYSICAL GEOGRAPHY**  
(Class 2, Lab. 2, Cr. 3 or Class 2, Lab. 3, Cr. 3)  
A study of landforms, climates, soils and resources that comprise the world’s natural environments.

**EAS 22200 WEATHER STUDIES**  
(Class 2, Lab. 2, Cr. 3)  
Online Weather Studies covers the composition and structure of the atmosphere, the flow of energy to, from and through the atmosphere, and the resulting motions.
The basic physical principles of atmosphere conditions are stressed through the study of weather from meteorological data delivered via the Internet. Particular attention is given to severe weather topics and the effects of weather and climate on global societies.

**EAS 22300 OCEAN STUDIES**
(Class 2, Lab 2, Cr 3)
Online Ocean Studies examines the ocean as it interacts with other components of the Earth. Basic physical and chemical properties of the ocean are stressed through oceanographic data delivered via the Internet. Topics include the flow and transformations of water and energy into and out of the ocean, ocean circulation, marine life and its adaptations, climate change, and the human/societal impacts pertaining to the ocean.

**Electrical, Computer Engineering**

**ECE 15200 PROGRAMMING FOR ENGINEERS**
(Class 2, Lab 2, Cr 3)
Prerequisite: ENGR 15100
Introductory C programming course. Students will be introduced to basic syntax, standard mathematics library, control structures, user defined functions, arrays pointers, structures and file I/Os. Laboratory exercises will accelerate learning of fundamental materials through supervised practice.

**ECE 20100 LINEAR CIRCUIT ANALYSIS I**
(Class 3, Cr 3)
Prerequisite: MA 16300 and MA 16400 and PHYS 15200 and ECE 20700
Co-requisite: ECE 20700, MA 26100, PHYS 26100
Volt-Ampere characteristics of circuit elements; independent and dependent sources; Kirchoff’s Laws and circuit equations. Source transformations; Thevenin’s and Norton’s Theorems; Superposition. Transient response of RC, RL and RLC circuits. Sinusoidal steady-state and impedance. Instantaneous and average power. A minimum grade of C is required for the course prerequisites.

**ECE 20200 LINEAR CIRCUIT ANALYSIS II**
(Class 3, Cr 3)
Prerequisite: ECE 20100 and MA 26400 and ECE 20700 and ECE 21800
Co-requisite: ECE 21800
A continuation of ECE 20100. The complex frequency plane; resonance; coupled circuits. Two-port network parameters. Polyphase analysis. Fourier series; Fourier Transform; Laplace Transform.

**ECE 20700 ELECTRONIC MEASUREMENT TECHNIQUES**
(Class 3, Cr 1)
Co-requisite: ECE 20100
Introduction to basic instrumentation and measurement techniques; introduction to the experimental methods necessary for laboratory investigation. Introduction to laboratory report writing methods. The student is introduced to computer-aided circuit analysis methods.

**ECE 21800 LINEAR CIRCUITS LABORATORY II**
(Class 3, Cr 1)
Prerequisite: ECE 20700 and ECE 20200
Co-requisite: ECE 20200
A continuation of ECE 20700, with the introduction of advanced measurement methods and more sophisticated instrumentation.

**ECE 23300 MICRO COMPUTERS IN ENGINEERING**
(Class 2, Lab 3, Cr 3)
Prerequisite: ENGR 15100
Co-requisite: ECE 20100, ECE 20700
An introduction to microcomputers and microcontrollers with emphasis on single board embedded systems; gates, memory, microcomputer hardware, data representation, programming, input/output, interfacing, analog to digital conversion, digital to analog conversion, transducers, sensors, actuators, and the design and development of turnkey systems.

**ECE 25100 OBJECT ORIENTED PROGRAMMING**
(Class 2, Lab 3, Cr 3)
Prerequisite: ENGR 15200 or ECE 15200

The C++ and Java programming languages are presented. Students will be introduced to classes, inheritance, polymorphism, class derivation, abstract classes, interfaces, function overloading, container classes and template classes.

**ECE 27500 ELECTRONICS DEVICES**
(Class 3, Lab 3, Cr 4)
Prerequisite: ECE 20200 and ECE 21800
Electronic amplifiers; operational amplifier circuits; diode characteristics and circuit applications; bipolar junction transistor (BJT) and MOSFET characteristics, operating modes biasing, linear amplifier configurations; ideal characteristics of logic devices; basic logic devices using BJTs and MOSFETs.

**ECE 29100 INDUSTRIAL PRACTICE I**
Practice in industry and comprehensive written report of this practice. This course is for Cooperative Education Students Only.

**ECE 29200 INDUSTRIAL PRACTICE II**
Practice in industry and comprehensive written report of this practice. This course is for Cooperative Education Students only.

**ECE 30100 SIGNALS AND SYSTEMS**
(Class 3, Cr 3)
Prerequisite: ECE 20200 and MA 26400
Continuous and discrete signal and system analysis and representation, Fourier series and transforms, Bode plots, sampling and discrete Fourier transforms, Laplace Transforms Transient response characteristics, Discrete-time systems difference equations, Z-Transforms, S-plane to Z-plane mappings and stability relationships. Continuous and discrete systems: convolution, state space representation, and solution of state equations.

**ECE 30200 PROBABILISTIC METHODS IN ELECTRICAL ENGINEERING**
(Class 3, Cr 3)
Prerequisite: MA 26500 and ECE 20200 or ME 32500 and ECE 30100 and ECE 30100

**ECE 31100 ELECTRIC AND MAGNETIC FIELDS**
(Class 3, Cr 3)
Prerequisite: MA 26400 and PHYS 26100
Continued study of vector calculus, electostatics, and magneto statics. Maxwell’s equations. Introduction to electromagnetic waves, transmission lines, and radiation from antennas.

**ECE 31200 ENGINEERING PROJECT MANAGEMENT**
(Class 3, Cr 3)
Introduction to principles of engineering project management and techniques. Topics include technical feasibility studies, project specifications, scheduling, validation, lifecycles, costings, and economic analysis. The focus is on managing an engineering project through scheduling, budgeting, resource management, execution and control.

**ECE 33000 MICROCOMPUTER PROGRAMMING AND INTERFACING**
(Class 2, Lab 3, Cr 3)
Prerequisite: EE 37000 or ECE 37000
Co-requisite: ECE 37000
Assembly language, C++ programming, and interfacing techniques; control of digital hardware and peripheral devices by software; software structures and tools used in accomplishing low level hardware control.

**ECE 33500 ELECTRONICS SYSTEMS**
(Class 2, Lab 3, Cr 3)
Prerequisite: ECE 27500
Topics in multistage amplifiers, feedback amplifiers, oscillators, operational amplifiers, analog systems, power amplifiers and systems, communication systems.

**ECE 35400 SOFTWARE ENGINEERING DESIGN I**
(Class 3, Cr 3)
Prerequisite: ECE 25100
The design and implementation of larger scale software in Java. Introduction of software engineering design concepts. Application of fundamental concepts and
programming strategies useful in the context of any programming language.

**ECE 37000 DIGITAL SYSTEMS–LOGIC DESIGN**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ENGR 15200 or ECE 15200
Introduction to the logical design and analysis of digital systems; Boolean algebra; combinational logic; minimization techniques; Karnaugh mapping. Introduction to sequential systems analysis and design.

**ECE 37100 COMPUTER ORGANIZATION AND DESIGN**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECE 37000
Design of computer systems with emphasis on computer hardware. Topics discussed include: Introduction to Basic Design Concepts, Computer Abstraction and Technology, Role of Performance; Instruction Language, Arithmetic for Computers, Processor Data Path and Control, Enhancing Performances with Pipelining, and Exploiting Memory Hierarchy. Students design and implement a RISC processor in the laboratory.

**ECE 37500 DIGITAL INTEGRATED CIRCUITS**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECE 27500

**ECE 38000 COMPUTERS IN ENGINEERING ANALYSIS**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ENGR 15100 and MA 26400 and ME 27500 and ECE 20100 and ECE 20200
Theory and application of computers in simulation, data acquisition control, instrumentation, and in the solution of engineering problems. Development of mathematical models suitable for computer solutions, and numerical techniques. Traditional and modern software such as FORTRAN, C, LabVIEW, MATLAB, Lotus 1-2-3 and Excel will be used.

**ECE 38400 LINEAR CONTROL SYSTEMS**
(Class 3, Lab. 3, Cr. 4)
Prerequisite: ECE 30100

**ECE 39300 INDUSTRIAL PRACTICE III**
Practice in industry and comprehensive written report of this practice. For Cooperative Education students only.

**ECE 39400 INDUSTRIAL PRACTICE IV**
For co-operative engineering students only. Must be accepted for the Co-op program by the co-operative engineering representative. Practice in industry and comprehensive written report of this practice.

**ECE 39500 INDUSTRIAL PRACTICE V**
For co-operative engineering students only. Must be accepted for the Co-op program by the co-operative engineering representative. Practice in industry and comprehensive written report of this practice.

**ECE 42600 ELECTRIC DRIVES**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECE 27500 and ECE 31100
Introduction to electric drives and power electronics. Magnetic circuits and transformers. Principles of DC, synchronous, induction, and stepper motors; equivalent circuits and operating characteristics. Applications to drive systems. Laboratory experiments to illustrate principles.

**ECE 42900 SENIOR ENGINEERING DESIGN I**
(Class 2, Lab. 3, Cr. 3)
Note: Designated sections of ECE 42900 will fulfill the Experiential Learning requirement. Prerequisite: COM 30700 and ECE 27500 and ECE 31200 and ECE 37000 and ECE 38400 or CS 27500 and Penultimate semester.
The senior engineering design courses I and II constitute a two semester sequence of an interdisciplinary activity. The objective of these courses is to provide engineering students with supervised experience in the process and practice of engineering design. Projects are chosen by the students or the faculty. Students working in teams pursue an idea from conception to realistic design. The course is climaxd by the presentation of a substantial written report and a formal oral presentation before faculty and students.

**ECE 43200 ELEMENTS OF POWER SYSTEM ENGINEERING**
(Class 3, Cr. 3)
Prerequisite: ECE 42600
Fundamental concepts of power systems analysis, transmission line parameters, basic system models, steady–state performance, network calculations, power flow solutions, fault studies, symmetrical components, operating strategies and control.

**ECE 43900 SENIOR ENGINEERING DESIGN II**
(Class 2, Lab. 3, Cr. 3)
Note: Designated sections of ECE 43900 will fulfill the Experiential Learning requirement. Prerequisite: ECE 42900
The senior engineering design courses I and II constitute a two–semester sequence of an interdisciplinary activity. The objective of these courses is to provide engineering students with supervised experience in the process and practice of engineering design. Projects are chosen by the students or faculty. Students working in teams pursue an idea from conception to realistic design. The course is climaxd by the presentation of a substantial written report and formal oral presentation before faculty and students.

**ECE 44800 INTRODUCTION TO COMMUNICATION THEORY**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECE 30200 and ECE 30100 and ECE 27500
Signal analysis, introduction to digital communication and pulse code modulation. Introduction to amplitude modulation and frequency modulation. Introduction to information theory.

**ECE 45100 INDUSTRIAL AUTOMATION**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECE 37000
Operating principles, design, and application of programmable logic controllers. Data acquisition and data analysis using PCs: A to D and D to A converters, sensors and actuators, process variable measurement, signal conditioning: data acquisition and control software applications.

**ECE 45400 SOFTWARE ENGINEERING DESIGN II**
(Class 3, Cr. 3)
Prerequisite: ECE 35400
Design methods utilized in the development of complex software systems, and their application in concurrent, real–time, and distributed object–oriented software environments.

**ECE 45900 ADVANCED DIGITAL SYSTEM DESIGN**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECE 37000
Design, simulation, and testing of digital systems using a hardware description language and programmable logic devices. Complex programmable logic devices (CPLDs) and field programmable gate arrays (FPGAs) will be studied and utilized. Laboratory will include design, simulation implementation, and testing of designs on available FPGA/CPLD boards.

**ECE 46400 COMPUTER ARCHITECTURE AND ORGANIZATION**
(Class 3, Cr. 3)
Prerequisite: ECE 37100
ECE 46800 INTRODUCTION TO COMPILERS AND TRANSLATION ENGINEERING  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: ECE 37100  
The design and construction of compilers and other translators. Topics include  
compilation goals, organization of a translator, grammar and languages, symbol  
tables lexical analysis, syntax analysis (parsing), error handling, intermediate and  
final code generation, assemblers, interpreters, and an introduction to optimization.  
Emphasis is on engineering a compiler or interpreter for a small programming  
language—typically a C or Pascal subset. Projects involve the stepwise  
implementation (and documentation) of such a system.  

ECE 46810 OPERATING SYSTEMS  
(Class 3, Cr. 3)  
Prerequisite: ECE 37100  
The design of systems programs, in particular, operating systems, assemblers,  
loaders and compilers. The role of system programs as the link between computer  
hardware and software is emphasized. Topics include: multiprogramming,  
CPU scheduling, memory management, file systems, concurrent processes,  
multiprocessors, security, and network operating systems.  

ECE 47600 DIGITAL SIGNAL PROCESSING  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: ECE 30100 and ECE 23300  
Theory and implementation of real-time digital signal processing. Survey or  
continuous filter design using Butterworth, Chebychev, inverse Chebychev, elliptic,  
and Bessel approximations; type transformations; review of sampling theory,  
discrete time signals and systems, and Z-transforms; design of IIR filters using  
impulse invariance, bilinear transform, and a survey of direct techniques; design  
of FIR filters using Fourier series and windows, least squares error, and optimal  
equiripple techniques; properties and applications of discrete and fast Fourier  
transforms. Overview of spectral estimation techniques. Laboratory includes  
implementation of lecture topics.  

ECE 48300 DIGITAL CONTROL SYSTEMS  
(Class 3, Cr. 3)  
Prerequisite: ECE 38200 or ME 48500  
The course introduces feedback computer controlled systems, the components  
of digital control systems, and system models of the z-domain (state variable  
representations.) The objectives for system design and evaluation of system  
performance are considered. Various discrete-time controllers are designed including  
PID-controllers, state and output feedback controllers, and reconstruction of states  
using observers. The systems with the designated controllers are tested by simulations.  

ECE 49500 SELECTED TOPICS IN ELECTRICAL ENGINEERING  
(Class 0 to 4, Lab. 0 to 3, Cr. 1 to 4)  

ECE 49600 ELECTRICAL ENGINEERING PROJECTS  
(Hours and credits to be arranged.)  

ECE 50100 INTRODUCTION TO DIGITAL PROCESSING OF SPEECH SIGNALS  
(Class 3, Cr. 3)  
Prerequisite: ECE 30100  
A course on digital processing of speech signals expands and enhances the  
capabilities of electrical and computer engineering graduates. It is particularly  
useful for those specializing in areas including communication, signal processing  
and multimedia processing. The introductory topics in speech processing with  
computer projects are suitable for graduate students planning to advance their  
education and career in fields such as audio engineering, human-machine  
interfacing, speech and speaker recognition applications and multimedia  
applications. This course is aimed primarily for ECE graduate students specializing  
in communication and signal processing area.  

ECE 50201 INFORMATION THEORY  
(Class 3, Cr. 3)  
This course is a graduate level introduction to information theory. Information  
theory is probably the most elegant mathematical theories, with the most direct  
and significant engineering impacts to our life in the information age. Information  
theory has found its applications in many areas, including statistics, computer  
science, biology, economics, etc. The focus of this course will be on the direct  
application of information theory in digital communications. We believe that the  
most important part of learning information theory is to learn a new way of thinking  
about engineering problems. In this sense, this course is beneficial not only to  
communication major students, but also to students in other engineering disciplines.  

ECE 50300 NUMERICAL METHODS IN ENGINEERING  
(Class 3, Cr. 3)  
Prerequisite: MA 26400  
Numerical methods, solutions of equations of one variable, interpolation and  
polynomial approximation, numerical integration and differentiation, numerical  
solution of initial-value problems, solution of linear systems, iterative methods for  
solving linear systems, approximation theory, approximating eigenvalues, solutions  
of systems of nonlinear equations, boundary-value problems of ordinary differential  
equations, numerical methods for partial-differential equations.  

ECE 50500 NETWORK PROGRAMMING  
(Class 3, Cr. 3)  
Prerequisite: ENGR 15200  
This course will cover practical aspects of computer network programming, with  
emphasis on the Client/Server, P2P and distributed applications. The goal of this  
course is to introduce students to the basics of computer networks and internet  
programming. We will introduce the students to the TCP/IP protocol stack and  
some of its important protocols. Students will also be introduced to multi-tier  
application development and RPC technologies including: RMI, CORBA, EJB and Web  
Services. We will also look at industry trends and discuss some innovative ideas that  
have recently been developed. Some of the course material will be drawn from the  
web, industry white papers and internet RFCs.  

ECE 50600 BIOMEDICAL INSTRUMENTATION DESIGN  
(Class 3, Cr. 3)  
This course covers engineering aspects of detection, acquisition and processing  
of signals from the human body. Microcontrollers are used for common  
bio medical instrumentation design and implementation. The analog and digital  
electronics, analog to digital and digital to analog conversion, and interfacing with  
computers via microcontrollers are emphasized. The course is aimed primarily to  
graduate students specializing in inter-disciplinary engineering. Recommended  
prerequisites: Circuits and Electronics; Analog and Digital Signal Processing and  
Programming in C.  

ECE 50700 INTRODUCTION TO BIOMEDICAL IMAGING  
(Class 3, Cr. 3)  
This course covers the major aspects of modern medical imaging systems including  
x-ray imaging, computed tomography, magnetic resonance imaging, ultrasound  
imaging, single-photon emission tomography and positron emission tomography.  
The main emphasis is to explain and examine the fundamental physics and  
equipment underlying each imaging modality, and the image acquisition,  
reconstruction and artifact correction. Students will gain technical knowledge  
and an overview of current status of medical imaging technologies. The course is  
aimed primarily to graduate students specializing in interdisciplinary engineering.  
Prerequisite: college level physics, signals and systems, and programming  
experience in Matlab or C.  

ECE 50900 ADVANCED ELECTRIC DRIVES  
(Class 3, Cr. 3)  
Prerequisite: ECE 42600  
This course covers topics related to advanced methods for DC and AC electric drives  
control systems. The emphasis is on AC drives vector control techniques that are  
used when high performances are required to control torque, acceleration, speed  
and position; hybrid and electric vehicles, wind-electric energy generation, industrial  
robots, biomedical application, etc. Simulink-MATLAB based computer models are  
used to study the vector control of induction and synchronous AC machine, and  
real-time simulations are performed using dSPACE prototyping tool. This course  
is aimed primarily to ECE graduate students specializing in electric drives, power  
electronics and power systems area.  

ECE 51200 POWER SYSTEMS  
(Class 3, Cr. 3)  
Prerequisite: ECE 20200  
This course covers topics which are becoming increasingly important in present  
and future power systems such as: electric energy sources including renewable and
EMTDC software that is widely accepted in industry.
Pspice based computer simulations, use of Power-World simulator and PSCAD/EMTDC software that is widely accepted in industry.

ECE 51400 ADVANCED ENGINEERING ECONOMICS
(Class 3, Cr. 3)
Prerequisite: ME 31100 or ECE 31200 plus basic statistics
Effective project managers have complete command of their project costs and a thorough understanding of the financial aspects of their business. This course reviews the fundamentals of accounting; examines project cost accounting principles, applications, and impact on profitability; examines the principles of project costing, covers the elements involved in cash management; introduces the framework for how projects are financed and the potential impact financing has on the projects; and a framework for using an effective project cost system. The course is aimed primarily to engineering graduate students interested in project management.

ECE 51801 QUALITY CONTROL
(Class 3, Cr. 3)
This course examines the design in order to acquire a better product/process quality. Other aspects of design included are robust design, parameter design, or Taguchi techniques. This course also gives students a current understanding of the techniques and application of design of experiments in quality engineering design. The students will learn design of quality control systems in manufacturing, use of advanced statistical process controls, sampling inspection techniques, process capability, and other statistical tools. Also included are vendor sourcing and control tools, methods for establishing specifications and tolerances, quality function deployment and other quality control techniques. In addition, Six Sigma will be included. This course is aimed primarily to engineering graduate students interested in project management. Basic Statistics is a prerequisite.

ECE 51900 CONTROL THEORY II
(Class 3, Cr. 3)
Prerequisite: ME 48500

ECE 52501 STATISTICAL CONCEPTS IN ENGINEERING
(Class 3, Cr. 3)
This course is directed toward the graduate student who has never had a statistics course or whose last statistics course was taken some time ago and a refresher course is required. The primary purpose of this course is to provide a basic understanding of fundamental probability and statistical principles, their underlying assumptions, and their use in data analysis using real-world engineering problems. This course is aimed primarily to engineering graduate students interested in project management.

ECE 52701 SYSTEM ENGINEERING
(Class 3, Cr. 3)
In today's environment, there is an ever-increasing need to develop and produce systems that are robust, reliable, high quality, supportable, cost-effective, and responsive to the customer or user. Reflecting these worldwide trends, System Engineering course introduces students to the full range of system engineering concepts, tools and techniques, emphasizing the application of principles and concepts of system engineering and the way these principles aid in the development, utilization and support of systems. This course covers systems engineering and both a technical and a management perspective. The course is aimed primarily to engineering graduate students interested in project management.

ECE 52900 INTRODUCTION TO MICROWAVE ENGINEERING
(Class 3, Cr. 3)
Prerequisite: ECE 31100
This course is an introduction to the basic aspects of microwave techniques. The topics will include Maxwell's equations with their physical meaning and most relevant forms; microwave generation, propagation, boundary conditions, and

ECE 53000 WIRELESS COMMUNICATION SYSTEMS
(Class 3, Cr. 3)
Prerequisite: ECE 30200 and ECE 31100
This course is an introduction to the basic aspects of wireless communications. The topics will include cellular concept, channel assignment, handoff, trunking efficiency, frequency reuse, capacity planning, mobile radio propagation, multipath fading, modulation, multiple access techniques, and wireless networking.

ECE 53100 FIBER OPTIC COMMUNICATIONS
(Class 3, Cr. 3)
Prerequisite: ECE 31100
This course deals with the fundamental principles for understanding and applying optical fiber technology in the transmission of information. Study topics include the introduction to optical transmission in fibers, fiber structure and modes, signal degradation, light sources, photo detectors, optical receivers, digital transmission systems, and point to point link analysis. Also included is the use of a simulation tool, Ansoft Designer, that can examine the performance of key components such as laser diodes, optical couplers and photo detectors.

ECE 53200 COMPUTATIONAL METHODS FOR POWER SYSTEM ANALYSIS
(Class 3, Cr. 3)
Prerequisite: ECE 43200
System modeling and matrix analysis of three-phase power networks. Applications of numerical methods and computers to the solution of a variety of problems related to the planning, design and operation of electric power systems.

ECE 54400 DIGITAL COMMUNICATIONS
(Class 3, Cr. 3)
Prerequisite: ECE 44800
Introduction to digital communication systems and spread spectrum communications. Topics include analog message digitization, signal space representation of digital signals, binary and M-ary signaling methods, detection of binary and M-ary signals, comparison of digital communication systems in terms of signal energy and signal bandwidth requirements. The principle types of spread spectrum systems are analyzed and compared. Application of spread spectrum to multiple access systems and to secure communication systems is discussed.

ECE 54700 INTRODUCTION TO COMPUTER COMMUNICATION NETWORKS
(Class 3, Cr. 3)
Prerequisite: ECE 30200
A qualitative and quantitative study of the issues in design, analysis, and operation of computer communication networks as they evolve toward the integrated networks of the future, employing both packet and circuit switching technology. The course covers packet and circuit switching, the OSI standards architecture and protocols, elementary queueing theory for performance evaluation, random access techniques, local area networks reliability and error recovery, and integrated networks.

ECE 55400 ELECTRONIC INSTRUMENTATION AND CONTROL CIRCUITS
(Class 3, Cr. 3)
Prerequisite: ECE 33500 and ECE 30100
Analysis and design of special amplifiers, pulse circuits, operational circuits, DC amplifiers, and transducers used in instrumentation, control, and computation.

ECE 57400 SOFTWARE ENGINEERING METHODOLOGY
(Class 3, Cr. 3)
Prerequisite: ECE 59500
Introduces students to current software processes and life cycle models; software management methods for controlling and managing software projects. Topics include life cycles models, requirements gathering, software planning, software quality, risk management, software inspections, software metrics, software testing and software management concepts. Team project work is part of the course requirements. Students are expected to use their programming skills and knowledge of data structures to design and test software generated during their team project activities. A good working knowledge of C programming, UNIX tools and data structures

ECE 58900 STATE ESTIMATION AND PARAMETER ID OF STOCHASTIC SYSTEMS
ECET 10000 INTRODUCTION TO ELECTRICAL AND COMPUTER ENGINEERING TECHNOLOGY (Lab. 3, Cr. 1) General Education
An introduction to the different fields of Electrical and Computer Engineering Technology. Hands-on laboratory techniques along with the exposure to lab procedures and safety will be introduced. Students would be engaged in Internet and Library research and learn about University wide resources and how to utilize them.

ECET 10200 ELECTRICAL CIRCUITS I (Class 3, Lab. 2, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prerequisite: MA 14700 is a pre or co-require for ECET 10200
A study of DC electrical circuits, Ohm's Law, Kirchhoff's Laws, series and parallel circuits, power, magnetism, ammeters, voltmeters, ohmmeters, inductance, capacitance, and an introduction to alternating voltages, currents and reactance.

ECET 10900 DIGITAL FUNDAMENTALS (Class 2, Lab. 3, Cr. 3)
A study of binary codes, Boolean algebra, logic gates and flip-flops, small scale (SSI), medium scale (MSI) integrated circuits, Combinational logic design techniques and sequential logic components.

ECET 11000 COMPUTER SYSTEM ARCHITECTURE (Class 2, Lab. 2, Cr. 3) General Education
Introduction to PC-based system architecture. Identification, installation and upgrading of microcomputer modules, Windows Operating System. Ability to configure I/Os, I/O addresses and set switches and jumpers. Distinguish between the popular CPUs. Identify the categories of Memory. Identify the popular types of motherboards, their components and their architecture. Differentiate between the different buses and their interfaces. Basic concepts and terminology of Networking. Diagnosing and troubleshooting common module problems and system malfunctions.

ECET 15200 ELECTRICAL CIRCUITS II (Class 3, Lab. 2, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 10200 and MA 14800 is a prerequisite or co-require for AC circuits, including j-operator, phasers, reactance, impedance, and power are studied. Circuit laws, network theorems, and the fundamental concepts of Fourier analysis are applied in the study of passive filters, resonant circuits, single-phase and three-phase circuits, and elementary magnetic circuits.

ECET 15400 ANALOG ELECTRONICS I (Class 3, Lab. 3, Cr. 4)
Co-require: ECET 15200
A study of electronic devices such as the diodes, FET, BJT, Thyristors, MOSFET and operational amplifiers. Analysis and design of electronic circuits such as the comparator amplifier, filter, oscillator and voltage regulator. Other topics include the heat sinks and thermal design.

ECET 15900 DIGITAL APPLICATIONS (Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 10900
This course continues the study of combinational and sequential digital applications using programmable logic devices and standard logic devices. The input and output characteristics of the various common logic families, the appropriate signal conditioning techniques for on/off power interfacing, digital and analog signal interfacing techniques and memory devices and systems are discussed.

ECET 20900 INTRODUCTION TO MICROCONTROLLERS (Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 15900 and ECET 21000
An introduction to microprocessor hardware and software focusing on embedded control applications. Interconnection of components, peripheral devices, bus timing relationships, structured C language programming, debugging, input/output techniques, and use of PC-based software development tools are studied.

ECET 21000 STRUCTURED C++ PROGRAMMING FOR ELECTROMECHANICAL SYSTEMS (Class 2, Lab. 2, Cr. 3 or Class 2, Lab. 3, Cr. 3)
Use of C++ in structured programming and Top Down Design techniques. Problem solving in technology applications is emphasized. The laboratory exercise will emphasize the interfacing of electromechanical systems with software and generation of embedded coding.

ECET 21200 ELECTRICAL POWER AND MACHINERY (Class 2, Lab. 2, Cr. 3)
A study of power transformers, single and polyphase circuits. The study of DC machines, AC single and polyphase synchronous and induction machines, and an introduction to power electronics.

ECET 21400 ELECTRICITY FUNDAMENTALS (Class 2, Lab. 2, Cr. 3)
This course provides an introduction to the basics of electricity and electronics. The areas of study include both theory and application of DC and AC electric motors, as well as linear and digital devices.

ECET 21700 INTRODUCTION TO PROCESS CONTROL (Class 2, Lab. 3, Cr. 3)
Prerequisite: ECET 15400 or ECET 21400

ECET 26200 PROGRAMMABLE LOGIC CONTROLLERS (Class 2, Lab. 2, Cr. 3)
Prerequisite: ECET 15200 or ECET 21400
Introduction to programmable logic controllers (PLCs) to perform process control and motor control functions. Topics include PLC architecture, working principles, programming techniques, ladder logic programming, data manipulation, data highway, various input/output modules and their interface for actuation signal control.

ECET 26500 COMPUTER NETWORKS (Class 2, Lab. 3, Cr. 3)
This course is an introduction to Data communications and Networking hardware. The emphasis is on network hardware and topologies, physical interface standards, construction of transmission media, Local and Wide Area Network protocols as they relate to network hardware, hands-on Local Area Networks installation and troubleshooting.

ECET 29100 INDUSTRIAL PRACTICE I

Electrical, Computer Engineering Technology


ECE 59500 SELECTED TOPICS IN ELECTRICAL ENGINEERING (Class 0 to 3, Lab. 0 to 3, Cr. 2 to 3)
Formal classroom or individualized instruction on topics of current interest.

ECE 60400 ELECTROMAGNETIC FIELD THEORY (Class 3, Cr. 3)
Prerequisite: ECE 31100
Review of general concepts (Maxwell's equations, materials interaction, boundary conditions, energy flow); statics (LaPlace's equation, Poisson's equation); distributed parameter systems (classification of solutions, transmission lines, and waveguides); radiation and antennas (arrays, reciprocity, Huygen's principle); a selected special topic (e.g. magnetostatics, waves in anisotropic media and optical fibers).

ECE 67200 SYNTHESIS AND DESIGN OF ANALOG FILTERS (Class 3, Cr. 3)
Prerequisite: ECE 30100
Practice in industry with written reports of this practice by the co-op student.

**ECET 29200 INDUSTRIAL PRACTICE II**
Practice in industry with written reports of this practice by the co-op student.

**ECET 29600 ELECTRONIC SYSTEM FABRICATION**
(Class 1, Lab. 3, Cr. 2)
Prerequisite: ECET 15900 and ECET 15400
The course includes electronics schematic, printed circuit board design and fabrication using Electronic Design Automation (EDA) tools. Designing electronic circuit schematic, schematic annotation netlist file generations, electronic packaging selection, printed circuit board (PCB) artwork design using autorouter and manual router software tools. Populate the printed circuit board with electronic components; solder using hand tools and testing/debug the electronics hardware to an operational system using bench-top instruments. Course teaches prototyping electronic projects.

**ECET 29900 ELECTRICAL ENGINEERING TECHNOLOGY**
(Class 1 to 6, Lab. 0 to 6, Cr. 1 to 6)
Hours and subject matter to be arranged by staff. Course may be repeated for credit up to six hours.

**ECET 30300 COMMUNICATIONS I**
(Class 3, Lab. 2, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 15400
Signal representation in time and frequency domains, concepts of noise, impedance matching, mixing, heterodyning, filters, tuned amplifiers, oscillators and voltage controlled oscillators, phase-locked-loop, analog and digital modulation in amplitude, frequency and phase and multiple user communication systems. Other topics include transmission lines, electromagnetic wave propagation in space, and antenna systems.

**ECET 31000 BIOMEDICAL INSTRUMENTATION I**
(Class 3, Cr. 3)
Prerequisite: ECET 15400
An introduction to physiological variants, the concept of measurements and problems encountered in measurements from a living human body. Detailed study of transducer principles and circuit techniques in measurement in circulatory, digestive, muscular and nervous systems. System approach to intensive care monitoring and data acquisition. Evaluation of biomedical instruments to meet performance specifications and electrical safety.

**ECET 31200 POWER ELECTRONICS**
(Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 15400 or ECET 21700 and ECET 21200
Prerequisites - ECET 15400 for ECET majors ECET 21200 and ECET 21700 for Mechatronics majors.
Introduction to the characteristics of power semi-conductor devices, diode rectifiers, thyristors, commutation techniques, controlled rectifiers, ac voltage controllers, choppers, inverters, and motor drives.

**ECET 31500 DIGITAL DESIGN AND IMPLEMENTATION USING PROGRAMMABLE LOGIC**
(Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 15900 and ECET 29600
Devices (PLDs) Review of digital logic (sequential and combinational) design and implementation using conventional techniques. Digital system design and implementation as currently practiced in industry will be covered using state-of-the-art computer software. High level notations using PLD technology will be introduced for the synthesis of digital hardware.

**ECET 33000 INDUSTRIAL PROGRAMMING AND NETWORKING**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: ECET 26200
Networking industrial devices including services, computers, smart sensors, controllers, and input/output devices. Programming applications for transferring data between industrial applications.

**ECET 33100 GENERATION AND TRANSMISSION OF ELECTRICAL POWER**
(Class 3, Lab. 2, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 21200
A study of the generations and transmission of electrical energy. Includes techniques used by electric utilities for the protection of generating equipment and transmission line, an introduction to the economic considerations of power plant operation, and three-winding transformers and methods of solving unbalanced three-phase systems.

**ECET 36200 PROCESS CONTROL INSTRUMENTATION**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: ECET 21400 or ECET 21700
Introduction to process control principles and practices. Study of analog and digital signal conditioning; thermal, mechanical and optical transducers; electromechanical, pneumatic and hydraulic control devices; and the application of computer-aided tools for process control instrumentation.

**ECET 36700 INTERNETWORKING AND TCP/IP**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECET 26500
This course is a continuation of ECET 26500. The emphasis is on integrating the TCP/IP protocol suite on networking and internetworking devices such as repeaters, bridges, routers, gateways, and switches. Other topics from emerging networking technologies will be considered, as applied to high speed networks.

**ECET 38400 ADVANCED MATHEMATICAL METHODS IN EET**
(Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 15200 and MA 21900
An advanced course in mathematical analysis applied to networks that stresses network theorems and solutions in time and frequency domains. Emphasis is placed on the use of software tools.

**ECET 39200 DIGITAL SIGNAL PROCESSING**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ECET 38400 and ECET 20900
Introduction to the fundamentals of Digital Signal Processing: discrete-time principles, sampling theorem, discrete Fourier transform, fast Fourier transforms, time and frequency domain considerations, Z-transform, solution of difference equations and design of digital filters.

**ECET 39300 INDUSTRIAL PRACTICE III**
Practice in industry with written reports of this practice by the Co-op student.

**ECET 39400 INDUSTRIAL PRACTICE IV**
Practice in industry with written reports of this practice by the Co-op student.

**ECET 39700 ELECTRONIC PROJECT ENGINEERING**
(Class 2, Lab. 3, Cr. 3)
Note: Designated sections ECET 39700 will fulfill the Experiential Learning requirement.
Prerequisite: Junior standing and at least 12 hours of 30000- and/or 40000-level ECET courses.
Introduction to electronic project engineering principles and techniques. Topics include technical feasibility studies, project specification, scheduling, testing, validation and cost estimating. Focus is on teamwork. These principles and techniques are emphasized through the design and execution of an electronics project.

**ECET 40400 WIRELESS COMMUNICATION AND NETWORKING**
(Class 3, Lab. 3, Cr. 4)
Prerequisite: ECET 30300
An introduction to components, systems and the enabling technology underlying wireless communication and networking. Topics include basics of telegraphic engineering, wireless channel modeling, cellular telephony, signal coding, Inter Symbol Interference, Forward Error Coding techniques, modulation techniques, antenna diversity, spread spectrum communication, Frequency hopping mobile and multi-access communication. Introduction of wireless networking standards, infrared and laser communication, wireless location, and RFID systems.

**ECET 41000 PHYSICS OF RADIOLOGIC IMAGING**
(Class 3, Cr. 3)
Diagnostic imaging is among the rapidly advancing fields of non-invasive clinical medicine. This course will cover the physics principles behind imaging techniques. Quality assurance of diagnostic x-ray equipment and radiation safety also will be discussed. This course could be used as a Science/Math elective.
ECET 41200 POWER ELECTRONICS DESIGN AND APPLICATIONS  
(Class 3, Lab. 3, Cr. 3)  
Prerequisite: ECET 31200  
Introduction to the application of power electronics in AC and DC motor drives, dc switching power supplies, solid-state relays, inverters, uninterruptible and standby power supplies and utility interfaces. The course covers the topologies and design of power trains, drivers for the switching devices, protection, and the strategies for control and power factor improvement.

ECET 41300 DIGITAL AND DATA COMMUNICATIONS  
(Class 3, Lab. 2, Cr. 4 or Class 3, Lab. 3, Cr. 4)  
Prerequisite: ECET 30300  
A study of modern digital communication systems. Topics include modulation techniques for digital transmission of data, error detection and correction, data compression techniques, Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), etc. Topics in digital communication related to wired and wireless transmission media, along with fiber optics will be discussed. Topics in high speed switched networks will be introduced.

ECET 42300 CURRENT TRENDS IN TELECOMMUNICATION TECHNOLOGY  
(Class 3, Cr. 3 or Class 3, Lab. 3, Cr. 4)  
Prerequisite: ECET 41300  
This course is designed to update the student on the latest advances in communication. This course will be continuously updated to keep the student abreast of new developments in the telecommunication field.

ECET 44500 NEW TECHNOLOGY IN COMPUTER SYSTEMS  
(Class 3, Cr. 4 or Class 3, Lab. 3, Cr. 4)  
Prerequisite: ECET 21000  
The impact of new technologies on computer hardware and software is studied.

ECET 45500 OBJECT ORIENTED SYSTEM DESIGN  
(Class 3, Lab. 2, Cr. 4 or Class 3, Lab. 3, Cr. 4)  
Prerequisite: ECET 21000  
Course deals with the Designing of Graphic User Interface (GUI) applications using Object Oriented Programming (OOP) methodology utilizing C++ language constructs. The course will cover the basics of Windows programming, developing Windows, Windows Functions and Messages with emphasis on interfacing with the physical objects communicating with the software objects in the realm of Computer Communications and Networking.

ECET 45600 COMPUTER HARDWARE DESIGN  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: ECET 20900  
An extension of ECET 26900. Course topics include an in-depth investigation of computer systems hardware design with available processors and peripheral devices.

ECET 46200 APPLICATION OF COMPUTERS IN PROCESS CONTROL  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: ECET 21700  
Application of computers to control industrial processes. Study of continuous- and discrete-time control algorithms; digital signal processing; and system control concepts applied to process control.

ECET 46500 ADVANCED TOPICS IN COMPUTER NETWORKS  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: ECET 36700  
This course is a continuation of ECET 36700. Topics include emerging technologies in computer networks and related hardware, modeling, simulation, and analysis of existing LAN and WAN topologies. The course emphasizes hardware.

ECET 46700 IP TELEPHONY  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: ECET 36700  
This course provides an introduction to converged voice and data networks as well as challenges faced by its various hardware and software technologies. Students will learn the architecture, components, programming, functionality and features of Voice Over IP (VoIP), such as Voice Manager, Voice-Mail solutions, Call Control, as well as Quality of Service (QoS) technologies.

ECET 49000 SENIOR DESIGN  
(Class 1, Cr. 1 or Class 1, Lab. 2, Cr. 2)  
Note: Designated sections ECET 49000 will fulfill the Experiential Learning requirement.  
Prerequisite: ECET 39700  
An extensive individual design and/or analytical project performed in consultation with one or more faculty advisors. Collaboration with representatives of industry, government agency, or community institutions is encouraged. Evidence of extensive and thorough laboratory performance is required. PHASE I includes, but is not limited to, faculty acceptance of project proposal, defining and limiting project objectives, initial research and source contacts, procurement of materials, and periodic progress reports.

ECET 49100 SENIOR DESIGN PROJECT, PHASE II  
(Lab. 6, Cr. 2)  
Note: Designated sections ECET 49100 will fulfill the Experiential Learning requirement.  
Prerequisite: ECET 49000  
PHASE II includes, but is not limited to, continued research and finalized design, oral presentation to faculty and other interested parties, and a written technical report.

ECET 49900 ELECTRICAL ENGINEERING TECHNOLOGY  
(Class 0 to 9, Lab. 0 to 19, Cr. 1 to 9)  
Hours and subject matter to be arranged by staff. Course may be repeated for credit up to nine hours.

ECET 52100 SOLAR ENERGY SYSTEMS  
(Class 3, Cr. 3)  
An advanced course in solar energy topics, including radiation from the sun, technology and design of photovoltaic systems, solar lighting systems and solar-bio systems. Topics will also include energy storage using hydrogen and new advancements in solar technology. Course may be offered in classroom, hybrid or distance.

ECET 55100 OPTICAL NETWORKING  
(Class 3, Cr. 3)  
An introduction to components, systems, and the enabling technology underlying the optical networking. The enabling technology includes single-wavelength and Wavelength Division Multiplexing (WDM) systems. Optical layer architecture and design are the primary focus of the course, which includes current infrastructure architecture, the operation, deployment, administration and maintenance of networks, the fault and alarm handling, the protection strategy, the access schemes and interfacing with wireless/copper network systems. The course also introduces latest advances like the free-space optical networking and the optical burst networking.

ECET 55200 EMBEDDED SYSTEM DESIGN  
(Class 3, Cr. 3)  
Pre-/Co-requisite: consent of instructor/Graduate standing with C or C++ Programming background. The course focuses on microcontroller hardware and software integration for embedded control applications. The architecture, programming and interfacing of Microchip PIC16F88 microcontroller are studied. Interconnection of components, peripheral devices, C language programming, debugging, input/output techniques, and use of PC-based software development tools are studied.

ECET 55300 ROBOTIC SYSTEM DESIGN  
(Class 3, Cr. 3)  
Graduate student standing in School of Technology with Mathematics course sequence required in the BS EET or equivalent.  
An introduction to mathematical modeling, design, planning and control of robotic systems. The course dwells from geometry, kinematics, statics, dynamics, and control theory. The content comprises of lectures, readings, and problem solving. It follows roughly the same sequence as the material presented in the text book, so it can be read in anticipation of the lectures.

ECET 55400 HYBRID AND BATTERY TECHNOLOGY  
(Class 3, Cr. 3)  
This course will review different sources of energy and perform the comparison between these sources. Battery and storage technology, charging systems, and battery life cycle will be studied in detail. The storage for solar thermal systems, solar photovoltaic systems, wind, biomass and wave energy systems will be discussed and practical examples will be given. Hybrid Systems, the need for hybrid systems, range and type of hybrid systems will be discussed. Case studies of diesel-PC-battery, gas-PV-battery, biomass- diesel-battery systems, gas-electric...
and hybrid electric vehicles will be given. Graduate student status or Senior status with instructor approval. Leveling courses may be required based on student undergraduate degree.

**ECT 55500 SYSTEM RELIABILITY**  
(Class 3, Cr. 3) Graduate status or senior status with consent of instructor.  
This course deals with the statistics and reliability methods used in reliability engineering. The primary focus of the course is on the statistical methods used to estimate a product’s reliability from product failure data and calculate information. The course also touches on the probability modeling methods that use knowledge of system architecture and system component reliability to calculate system reliability.

**ECT 55600 ALTERNATIVE ENERGY TECHNOLOGY**  
(Class 3, Cr. 3)  
This course is an introduction to various sources of energy and their process of extraction. Nonrenewable versus renewable energy sources and their harvesting technology will be studied. This will include wind, solar, fuel cells, biomass, geothermal, hydropower, and ocean energy. Most emphasis will be on renewable energy sources such as wind and solar, geothermal and oceanic energy technologies and their harvesting systems. There will also be modeling simulation and analysis of wind and solar energy harvesting systems. Permission of instructor required.

**ECT 55700 ADVANCED PRINTED CIRCUIT BOARD LAYOUT DESIGN**  
(Class 3, Cr. 3)  
In this course, advanced Printed Circuit Board (PCB) design and layout are studied. Topics include PCB substrates material, design methodology, through hole technology (TH1), surface mount technology (SMT), mechanical design aspects, EMI, electrical characteristics, power systems, multilayer and stack up. Design for testability and manufacturability. Quality assurance in TH1 and SMT. Course also encompasses RF, high-speed digital and mixed signal PCBs throughout the semester.

**ECT 56100 WIRELESS NETWORKING**  
(Class 3, Cr. 3)  
Prerequisite: ECT 30300 Graduate status in the School of Technology or other school required.  
An introduction to components, systems and the enabling technology underlying the wireless networking. Topics include: basics of channel modeling, cellular telephony, coding, modulation techniques, antenna diversity, spread spectrum, ultra wideband, carrier hopping, mobile and multi-user access and location awareness technology. Wireless architectures, access, and design are the primary focus of his course, which includes architectures, fault and alarm handling, protection schemes and network management. Other topics include: paging, Wi-Fi, Wi-Max, CDMA, GSM, Bluetooth, adhoc networking, and interfacing with wireless/copper network systems.

**ECON 10100 SURVEY OF ECONOMICS**  
(Class 3, Cr. 3) General Education  
How economics forces such as globalization, technological changes, and public policy impact the lives of individuals. Examines the roles, the market-place and the pursuit of self-interest play in the behavior of an economic system. Presents economic systems alternative to the market/capitalist one.

**ECON 21000 PRINCIPLES OF ECONOMICS**  
(Class 3, Cr. 3) TransferIN  
Study of the basic economic institutions and the role they play in defining and achieving the nation’s economic goals. Emphasis will be placed on the interdependent nature of the economy and the effects of economic decisions on the individual and society.

**ECON 21100 CONTEMPORARY ECONOMIC PROBLEMS**  
(Class 3, Cr. 3) General Education  
Prerequisite: ECON 21000  
Economic theory applied to current issues and an analysis of the economic aspects of public policy.

**ECON 24000 PERSONAL FINANCIAL MANAGEMENT**  
(Class 3, Cr. 3) TransferIN  
Lectures and case analysis of managing one’s personal finances; including budgeting, credit analysis, insurance, taxation, housing, estate planning, private and business investment. Not available for credit in Management concentrations.

**ECON 25100 MICROECONOMICS**  
(Class 3, Cr. 3) TransferIN  
Prerequisite: MA 15300  
Microeconomics studies the choices individuals make and the incentives that influence those choices. Emphasis is on the incentives that determine market prices and resource allocation. The role of public policy in influencing incentives and efficiency is also addressed.

**ECON 25200 MACROECONOMICS**  
(Class 3, Cr. 3) General Education, TransferIN  
Prerequisite: ECON 21000 and MA 22500  
Analysis of the forces affecting national income, employment, interest rates, and the price level. Emphasis is placed upon the role of government fiscal and monetary policy in achieving full employment and stable prices.

**ECON 31100 ENVIRONMENTAL ECONOMICS**  
(Class 3, Cr. 3)  
Prerequisite: ECON 21000 or ECON 25100  
This course provides an overview of environmental issues and legislation in the United States. Emphasis is placed on understanding and analyzing environmental problems applying basic principles of economics. This course explores the causes of environmental problems and evaluates the various policy instruments that are often used to address them at the international, national, state and local levels.

**ECON 32200 PUBLIC FINANCE**  
(Class 3, Cr. 3)  
Prerequisite: ECON 21000 or ECON 25100  
The examination and analysis of public finance practices and problems in the federal fiscal system. Government activities that involve spending and taxation are analyzed applying basic principles of economics. Topics include public education, social security, healthcare, environment and tax systems. State and local government issues are also addressed.

**ECON 35100 INTERMEDIATE MICROECONOMICS**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
Theoretical treatment of consumer and producer behavior. Analysis of demand, production, cost, product and factor markets leading to general equilibrium and welfare implications. Emphasis is upon the development of skills necessary to analyze the behavior of individual economic agents. Not available for credit in Management concentrations.

**ECON 35200 INTERMEDIATE MACROECONOMICS**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
Macroeconomic behavior. The determinants of consumption, investment, and the aggregate demand for assets. The joint determination of income, the price level, and the rate of interest. The role of government and elements of economic growth.

**ECON 35300 BUSINESS CYCLES**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
This course provides an analysis of business fluctuation and the impact of government policy instruments. Special emphasis is placed on how macroeconomic factors influence managerial and personal decision making.

**ECON 36000 ECONOMETRICS**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 22500  
This course examines the statistical techniques used to analyze economic data, estimate causal effects, make predictions, and test economic theory. Students learn empirical skills used in analytical consulting, financial modeling, economic research, and by analysts in the private and public sectors. Emphasis is placed on estimating a single equation (e.g., a demand function) and the problems associated with such estimation. As part of the course, students will estimate equations using statistical software available in the Krannert computer lab.

**ECON 37500 UNITED STATES ECONOMIC HISTORY**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25100  
A study of the growth of the American economy from colonial times to the late
nineteenth century. Emphasis is placed on application of the tools of economic analysis to historical questions concerning the sources and rate of growth, the relationships between growth and structural and institutional change, and the impact of industrialization on the quality of life in the American economy.

**ECON 38000 MONEY AND BANKING**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
A course examining the role of financial intermediaries and central banks in market-oriented, open economies. Emphasis is placed upon the decision making of the United States' Federal Reserve System and its impact on the domestic and world economies.

**ECON 41500 CONTEMPORARY ECONOMIC PROBLEMS AND POLICIES**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25100  
A study of economic policies designed to improve the attainment of economic goals. Emphasis is placed on the examination of the relationship between private decision making and public policy in such areas as health care, transportation, environmental protection, and income distribution.

**ECON 41900 MANAGERIAL ECONOMICS**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25100 and MGMT 22500  
A comprehensive treatment of economic theory and analysis applied to business decisions. Both qualitative approaches are applied to managerial decision making situations. Emphasis is placed on the application of economic concepts and processes to practical business situations.

**ECON 43400 INTERNATIONAL TRADE**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
The course is a study of the reasons, as well as the benefits and costs of internationally trade. The effects of trade policy (e.g., tariffs, trade agreements) are examined. Balance of payments, foreign exchange, and international macroeconomics linkages are also examined.

**ECON 46100 INDUSTRIAL ORGANIZATION**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
This course examines the determinants of firm and market structure and the resulting market performance in imperfectly-competitive markets. Advanced topics include advertising, research and development, imperfectly competitive international markets, and market integration. Emphasis is placed on using theoretical models of firm and industry behavior to explain and analyze real-world examples of firm behavior.

**ECON 46200 THE ECONOMICS OF HEALTH CARE**  
(Class 3, Cr. 3)  
The course analyzes economic forces that shape the health care industry. Course content includes the market structure of the health care industry, public and private health care delivery systems, reimbursement methods for services, and the labor market for health care workers.

**ECON 46500 ECONOMIC FORECASTING TECHNIQUES**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 22500 and ECON 25200  
A course examining the statistical techniques of forecasting. Emphasis is placed on economic time series data and computer-based methods of estimation and testing.

**ECON 46700 ECONOMICS AND THE LAW**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25100  
This course analyzes the conditions under which laws promote or hinder the efficient use of resources in a society. The course reviews the relevant microeconomic theory underlying social decision making. It next develops the basis for property rights analysis and contract law. Discussion also focuses on risk allocation and liability issues associated with tort law.

**ECON 49000 PROBLEMS IN ECONOMICS**  
(Class 0 to 4, Cr. 1 to 4)  
Supervised reading and reports in various subjects. Open only to a limited number of seniors with superior records in previous courses. Arranges with instructor before enrolling.

**ECON 51300 ECONOMIC THEORY**  
(Class 3, Cr. 3 or Cr. 4)  
Theoretical analysis of a market economy with an emphasis on the decision processes of managers. Consideration is given to micro aspects of price determination, utilization of resources and market organizations, and to aggregative concepts of national income and employment.

**ECON 53000 MONEY AND FINANCE**  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
Analysis of monetary policy and the regulation of depository institutions. The macroeconomic implications (inflation and unemployment) of alternative monetary policy strategies, as well as the details of Federal Reserve System operating procedures will be studied. Recent issues in the regulation of depository institutions will be examined, including the provision of deposit insurance, the regulation of deposit interest rates, interstate banking restrictions, and regulatory policy towards insolvent banks. The international monetary system also will be examined as it relates to monetary policy and the regulation of depository institutions.

**ECON 53400 INTERNATIONAL TRADE THEORY**  
(Class 2, Cr. 2 or Class 3, Cr. 3)  
Prerequisite: ECON 25200  
Problems of the international economy are addressed in the light of economic theory. Emphasis is on real, as opposed to monetary topics. Topics may include trade barriers, multinational corporations, technology transfer, the European economic community, and economic constraints on the sovereignty of nation-states.

**Education, Curriculum and Instruction**

**EDCI 12000 TECHNOLOGY IN SOCIETY: ONLINE COMMUNICATION AND PUBLISHING**  
(Class 1, Cr. 1)  
Students will learn the importance of writing professionally and academically in an online setting through the exploration of blog tools including WordPress, one of the world's most popular blogging tools today. Permission of department required.

**EDCI 13000 TECHNOLOGY IN SOCIETY: DIGITAL MEDIA AND LEARNING**  
(Class 1, Cr. 1)  
Students will learn the importance of audio and video sharing mechanisms that exist on the Web and how to use them appropriately. They will explore issues related to presenting themselves professionally and adhering to copyright and other legal considerations.

**EDCI 14000 TECHNOLOGY IN SOCIETY: WEB TOOLS AND SOCIAL NETWORKING**  
(Class 1, Cr. 1)  
Students will learn importance of presenting themselves professionally in online social spaces, which are popular and commonly used today. Such spaces include Facebook, Twitter, LinkedIn, YouTube and Google Plus. Permission of department required.

**EDCI 20500 EXPLORING TEACHING**  
(Class 3, Cr. 3)  
Students will become familiar with the work of teachers and begin to develop their educational philosophies through examining what it means to teach and to learn and the nature and purpose of schools. Students will critically evaluate teaching as their chosen profession.

**EDCI 20600 INTRODUCTION TO TEACHING**  
(Class 3, Cr. 3)  
General Education  
Students will analyze the work of professional educators and begin to develop their own educational philosophies through examining the nature of teaching and learning in American schools. Students will critically evaluate the profession and practice teaching with a focus on current trends in K-12 education. Students will become familiar with teacher preparation requirements at the national, state and college levels.

**EDCI 21200 INTRODUCTION TO EARLY EDUCATION**  
(Class 3, Cr. 3)  
Prerequisite: EDPS 22000 and EDCI 32300  
Reviews history and philosophy of kindergartens and other programs for young children. Classroom organization and management alternatives are analyzed. Emphasis is placed on meeting individual needs of young children through group
and individual activities.

EDCI 26000 INTRODUCTION TO COMPUTERS IN EDUCATION
(Class 3, Cr. 3)
Prerequisite: CIS 20400
An introductory course covering instructional uses of microcomputers; the selection, evaluation, and management of hardware and software; and curricular applications for microcomputers.

EDCI 3001 LIFELONG HEALTH AND WELLNESS FOR TEACHERS AND CHILDREN
(Class 3, Cr. 3)
Prerequisite: EDCI 35500
This course includes topics important to personal health, wellness, and disease prevention for adults and children. Students will learn about health and wellness, and how to incorporate healthy habits into their daily lives. In addition, the health and safety of children will be covered. This course concludes by considering ways in which elementary schools can provide opportunities to promote student health.

EDCI 30400 LITERACY AND MIDDLE CHILDHOOD
(Class 3, Lab. 3, Cr. 3)
Prerequisite: EDCI 32100 and EDPS 37000
Exploring aspects of child development and its relevance to literacy, including early and middle childhood developmental influences. This course examines methods and materials appropriate for grades 3-6. Topics will include the instruction and assessment of students.

EDCI 30700 CORRECTIVE READING FOR THE CLASSROOM TEACHER
(Class 2, Lab. 3, Cr. 3)
Classroom procedures for the identification of reading difficulties; selection and application of appropriate methods and materials to provide corrective treatment. Emphasizes approaches to discovering and diagnosing reading: techniques for selecting materials in planning a remedial program, methods for teaching specific skills and techniques for evaluating progress. Appropriate laboratory and field experiences are provided.

EDCI 30800 PRACTICUM IN READING FOR THE CLASSROOM TEACHER
(Class 1, Lab. 4, Cr. 3)
Prerequisite: EDCI 30700
The course is designed for prospective teachers in elementary or secondary schools who desire advanced supervised practice in teaching reading to pupils experiencing reading difficulty. The practicum will provide extended diagnostic teaching experiences in a wide range of reading settings. The seminar will evaluate diagnostic and tutoring strategies, methods, material, and achievement.

EDCI 30900 READING IN MIDDLE AND SECONDARY SCHOOLS
(Class 3, Cr. 3)
Prerequisite: EDCI 35500 and EDPS 26000
A course for prospective secondary teachers. Emphasis is placed on techniques and strategies of teaching reading in secondary classrooms and incorporation of reading skills in the various content areas. Attention is given to teaching reading skills and providing for students of varying reading abilities. Provision for simulated activities, field experiences and observations.

EDCI 31100 MEDIA FOR CHILDREN
(Class 3, Cr. 3)
Prerequisite: EDPS 22000 and EDPS 26000 and EDFA 20000
Books, films, filmstrips, records, magazines and other resources provided in elementary media centers are studied and evaluated to meet the personal and educational needs of pupils in elementary schools. Emphasis is on wide reading of children's books and viewing of many media and their utilization with children.

EDCI 31200 THE EARLY EDUCATION PROGRAM: COGNITIVE AREAS
(Class 2, Lab. 2, Cr. 3)
Prerequisite: EDCI 21200
Presentation of various techniques for beginning academic learning through language arts, social studies, math, science, and the arts for preschool and kindergarten.

EDCI 31300 THE EARLY EDUCATION PROGRAM: SOCIAL AND EMOTIONAL AREAS
(Class 2, Lab. 2, Cr. 3)
Reviews the building of socialization skills. Emphasis is on dealing with feelings, expressing emotions, developing attitudes and self-concept. Explores parent-teacher cooperation.

EDCI 31500 TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL
(Class 2, Lab. 3, Cr. 3)
Prerequisite: EDCI 30400 and EDCI 31600 and MA 13700 and MA 13800 and MA 13900
Materials and methods used in teaching mathematics at various grade levels in the elementary school.

EDCI 31600 TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL
(Class 3, Lab. 3, Cr. 4)
Prerequisite: EDCI 32100 and EDPS 37000
Provides experiences in developing skills for teaching social studies as well as understanding of appropriate subject matter, including evaluation techniques and procedures.

EDCI 31700 TEACHING OF SCIENCE IN THE ELEMENTARY SCHOOL CURRICULUM
(Class 2, Lab. 3, Cr. 3)
Prerequisite: EDCI 30400 and EDCI 31600 and SCI 31500
Provides experiences in developing skills for teaching science as well as the understanding of appropriate subject matter; includes evaluation techniques and procedures.

EDCI 32000 PRINCIPLES OF PRACTICE IN ELEMENTARY AND SECONDARY SCHOOLS
(Class 2, Lab. 3, Cr. 3)
Prerequisite: EDCI 32500 and EDCI 35500
This course provides the pre-service teacher with classroom management principles and strategies for the elementary or secondary school classroom. This course will also highlight the teacher’s role in the community and the community’s role in the educational process. Because the nature of the classroom management differs substantially across developmental levels, separate course sections will be offered for elementary and middle/secondary students.

EDCI 32100 LITERACY AND THE YOUNG CHILD
(Class 3, Lab. 5, Cr. 4)
Prerequisite: EDCI 35500
Explores aspects of child development and its relevance to literacy, including early development influences and preschool learning. This course examines methods and materials appropriate for grades K-2. Topics will include the instruction and assessment of students.

EDCI 32300 EDUCATIONAL TECHNOLOGY FOR TEACHING AND LEARNING
(Class 3, Cr. 3)
Prerequisite: EDCI 35500 and EDCI 32000
Provides experiences in developing skills for teaching science as well as understanding of appropriate subject matter; includes evaluation techniques and procedures.

EDCI 32700 STRATEGIES OF SOCIAL STUDIES INSTRUCTION IN JUNIOR HIGH AND MIDDLE SCHOOLS
(Class 2, Lab. 3, Cr. 3)
Prerequisite: EDPS 26000 and EDCI 32000
Acquaints students with developmentally appropriate content, materials, methods and literature relating to the social studies field generally and the intense teaching areas particularly. Includes an overview of the role of the middle school social studies teacher today, junior high/middle school philosophy, use of technology, and planning of instructional units. Field experiences are integrated with classroom instruction.

EDCI 33100 ENGLISH TEACHING IN JUNIOR HIGH AND HIGH SCHOOLS
(Class 2, Lab. 3, Cr. 3)
Prerequisite: EDCI 30400 and EDCI 32000
Acquaints students with developmentally appropriate content methods and materials for teaching English in junior high/middle schools, including an overview of the role of the Middle School teacher today, junior high/middle school philosophy, use of technology, and planning of instructional units. Field experiences are integrated with classroom instruction.

EDCI 33200 STRATEGIES OF FOREIGN LANGUAGE INSTRUCTION IN JR HIGH AND MIDDLE SCHOOLS
(Class 2, Lab. 3, Cr. 3)
Prerequisite: EDPS 26000 and EDCI 32000
Acquaints students with developmentally appropriate content methods and materials for teaching foreign language both as a language experience and as a...
EDCI 33400 STRATEGIES OF MATHEMATICS INSTRUCTION IN JUNIOR HIGH AND MIDDLE SCHOOLS  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 32000  
Acquaints students with developmentally appropriate content materials and methods in teaching mathematics in the junior high/middle school. Includes an overview of the role of the middle school Mathematics teacher today, junior high/ middle school philosophy, use of technology, and planning of instructional units. Field experiences are integrated with classroom instruction.

EDCI 33600 STRATEGIES OF SCIENCE INSTRUCTION IN JUNIOR HIGH AND MIDDLE SCHOOLS  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000  
Acquaints students with developmentally appropriate content materials and methods for teaching science in the junior high/middle school (include Life and Physical Science). Includes an overview of the role of the middle school science teacher today, junior high middle school philosophy, the use of technology, and planning of instructional units. Field experiences are integrated with classroom instruction.

EDCI 34100 ENGLISH TEACHING IN SENIOR HIGH, JUNIOR HIGH AND MIDDLE SCHOOL  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 35500  
Acquaints students with developmentally appropriate content materials and methods for teaching high school, junior high, and middle school English. Includes an overview of the role of the high school, junior high/middle school English teacher today, the high school, junior high/middle school philosophy, the use of technology, and planning of instructional units. Field experiences are integrated with classroom instruction.

EDCI 34200 STRATEGIES OF FOREIGN LANGUAGE INSTRUCTION IN SENIOR HIGH, JUNIOR HIGH AND MIDDLE SCHOOLS  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDCI 35500 and EDPS 26000  
Acquaints students with developmentally appropriate content materials and methods for teaching senior high school, junior high and middle school foreign language and culture. Comparative studies of various teaching methods, analysis of current foreign language textbooks and accompanying materials, use of technology, and planning of instructional units are included. Field experiences are integrated with classroom instruction. Integrated with classroom instruction.

EDCI 34400 STRATEGIES OF MATHEMATICS INSTRUCTION IN SENIOR HIGH, JUNIOR HIGH AND MIDDLE SCHOOL  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 35500  
Acquaints students with developmentally appropriate content, materials and methods for teaching mathematics in the high school, junior high and middle school. Includes an overview of the role of the high school, junior high/middle school Math teacher today, the high school, junior high and middle school philosophy, use of technology, and planning of instructional units. Field experience are integrated with classroom instruction.

EDCI 34600 STRATEGIES OF SCIENCE INSTRUCTION IN SENIOR HIGH, JUNIOR HIGH AND MIDDLE SCHOOL  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 35500  
Acquaints students with developmentally appropriate content materials and methods in teaching science in the high school, junior high/middle school (includes life and physical sciences). Includes an overview of the role of the high school, junior high and middle school science teacher today, the high school, junior high and middle school philosophy, use of technology and planning of instructional units. Field experiences are integrated with classroom instruction.

EDCI 34700 STRATEGIES OF SOCIAL STUDIES INSTRUCTION IN SENIOR HIGH, JUNIOR HIGH AND MIDDLE SCHOOL  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 35500  
Acquaints students with developmentally appropriate content materials, methods and literature relating to the social studies field generally and the intense teaching areas particularly. Includes an overview of the role of the high school, junior high and middle school social studies teachers today, the high school, junior high and middle school philosophy, use of technology, and planning of instructional units. Field experiences are integrated with classroom instruction.

EDCI 35500 TEACHING AND LEARNING K-12 CLASSROOM  
(Class 2, Lab. 3, Cr. 3)  
Note: Designated sections of EDCI 35500 will fulfill the Experiential Learning requirement.  
Prerequisite: EDFA 20000 and EDPS 26000 and EDFS 22000  
Acquaints students with general methods of promoting the learning process in the K-12 school. Topics studied will include long-term and short-term instructional planning and evaluation; classroom organization including management, motivation of students, the use of media to promote instructional objectives; and individual and group learning procedures. Students will also study how curriculum goals are adapted and implemented in the classroom.

EDCI 36600 USE OF ASSESSMENT IN THE K-12 CLASSROOM  
(Class 3, Cr. 3)  
Prerequisite: EDCI 49700  
This course will acquaint students with standardized tests currently used in K-12 settings such as ISTEP and interpretation of test data to inform planning and instruction. In addition this course will address use of standardized tests to identify and develop education programming for students with special needs.

EDCI 48900 SUPERVISED STUDENT TEACHING  
(Class 6 to 9, Cr. 6 to 9)  
Prerequisite: EDCI 31500 and EDCI 31700  
Co-requisite: EDCI 49700  
Eight weeks of full-time student teaching in an academic subject or grade under the supervision of the public school teachers in charge of the classes and supervisors from university.

EDCI 49000 INDIVIDUAL RESEARCH AND TEACHING EXPERIENCE  
(Class 1 to 8, Cr. 1 to 8)  
Opportunity for undergraduate students to investigate particular problems in the field of education under supervision.

EDCI 49100 TOPICS AND ISSUES IN EDUCATION  
(Class 1, Cr. 1)  
Provides the student with the opportunity to strengthen the preparation program though the study of selected educational topics and issues based on individual needs and interests. One topic is dealt with in each enrollment.

EDCI 49700 SUPERVISED TEACHING  
(Class 6 to 12, Cr. 6 to 12)  
Note: Designated sections EDCI 49700 will fulfill the Experiential Learning requirement.  
Prerequisite: EDPS 37000  
Co-requisite: EDCI 49700  
Admittance to Teacher Education, completion of education methods courses required for the major area. Teaching full-time in a school classroom under the supervision of the teacher in charge of the class and a university supervisor.

EDCI 49800 SUPERVISED TEACHING  
(Class 8, Cr. 8 or Class 9, Cr. 9)  
Teaching full-time in a classroom under the supervision of the teacher in charge of the class and a University supervisor.

EDCI 49900 SUPERVISED TEACHING OR PRACTICUM IN AN ENDORSEMENT AREA  
(Class 3 to 9, Cr. 3 to 9)  
Prerequisites: Admittance to Teacher Education  
Teaching full-time in an endorsement area in a school classroom under the supervision of the teacher in charge of the class and a University supervisor. Completion of Education courses required for the Endorsement Area.

EDCI 50000 FOUNDATION OF LITERACY
EDCI 50100 PROBLEMS IN LITERACY ACQUISITION: EVALUATION AND INSTRUCTION
(Class 2, Lab 3, Cr 3)
Prerequisite: EDCI 50000
Examines informal and standardized instruments useful for evaluating students who experience difficulties acquiring reading, writing, and other aspects of language. Discusses corrective/remedial instructional strategies appropriate for the classroom and clinic. Supervised practicum.

EDCI 50200 READING IN MIDDLE AND SECONDARY SCHOOLS
(Class 3, Cr 3)
A course designed for teachers and prospective teachers in subject matter areas of the junior and senior high school. May be taken as part of the sequence leading to Reading Specialist of or for the Junior High-Middle School endorsement program. Surveys of techniques and objectives of reading within content areas. Teaching experience helpful but not required.

EDCI 50400 CHILDREN'S LITERATURE
(Class 3, Cr 3)
A survey of modern and traditional literature for children including authors and illustrators; guidance in uses of children's literature in relation to developmental interests, needs and skills of children; emphasis is on evaluating materials, reviewing sources and developing discrimination in choosing children's literature. This course is designed for beginning graduate students, who plan to be school library/media specialists, but is available for classroom teachers.

EDCI 51100 TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL
(Class 3, Cr 3)
Historical and current curriculum developments in mathematics education with implications for classroom practice; analysis of instructional strategies; cognitive development; use of research results.

EDCI 51300 FOUNDATIONS OF EDUCATIONAL TECHNOLOGY
(Class 3, Cr 3)
Provides a historical overview of the field and delineates the foundational knowledge, skill and attributes needed by professionals in the field of educational technology and instructional design. Students explore the field by engaging in collaborative projects, along with thinking and writing about various aspects of educational technology and the underlying instructional design theories.

EDCI 51400 LANGUAGE ARTS IN THE ELEMENTARY SCHOOL
(Class 3, Cr 3)
Research, recent trends and current development in the field of language arts and implications for classroom practices in the elementary school.

EDCI 51700 SURVEY OF SCIENCE EDUCATION
(Class 3, Cr 3)
Introduction to current issues and research in science education, broadly organized under themes of learning, teaching and science curriculum.

EDCI 51900 TEACHING LEARNERS OF ENGLISH AS A NEW LANGUAGE
(Class 3, Cr 3)
This course focuses on current issues and techniques in ESL instruction and assessment for students at the beginning or intermediate stages of English language acquisition Pre-K-12. Emphasis is on the design of materials and instruction that foster English language development in the content areas of the curriculum (i.e., Specially Designed Academic Instruction in English or SDIAE). Some familiarity with elementary and/or secondary teaching methods is assumed. Graduate status in the College of Education is required.

EDCI 52400 BILINGUAL/BICULTURAL EDUCATION
(Class 3, Cr 3)
Objectives, materials, procedures and evaluations used in the teaching and curriculum development of bilingual/ bicultural programs. Graduate status in the School of Education is required.

EDCI 52600 LANGUAGE STUDY FOR EDUCATORS
(Class 3, Cr 3)
Covers foundational knowledge in language and linguistics for teachers and educational researchers. Topics include structure and functions of language, language acquisition and development, language diversity, classroom discourse, language and media and literacy-language arts curriculum. A foundation for work in Literacy and Language Education. Graduate status in the School of Education is required.

EDCI 5301 SCHOOL CURRICULUM: LEADERSHIP, SCHOOL CULTURE AND CHANGE
(Class 3, Cr 3)
This course examines the needs of children and society, explores modern programs and procedures for developing a school community learning plan, and investigates ways to improve present school learning environments and curricula. Master's student standing.

EDCI 55400 PRODUCTION OF INSTRUCTIONAL MATERIALS
(Class 1 to 3, Lab 0 to 4, Cr 3)
Involves the design, development, and editing of digitally-based materials for use in computer-based learning environments. Includes planning and implementing text, graphics, audio, and video materials for use as communication and learning tools.

EDCI 56000 EDUCATIONAL TECHNOLOGY FOR TEACHING AND LEARNING
(Class 3, Cr 3)
Applications of microcomputers in educational and training settings. Course stresses appraisal, utilization, and evaluation of microcomputer software and hardware. Implementation and management of computers in instructional environments. Teaching of basic computer literacy concepts to learners of all ages.

EDCI 56100 COMPUTER ASSISTED INSTRUCTION
(Class 1, Lab 4, Cr 3)
Major trends in computer-assisted instructing and computer-managed instruction are reviewed. Various learning design strategies are applied within an existing instructional language such as PLANIT or TUTOR, or between a computer managed instruction system and a general interactive computer language such as BASIC. Consideration is also given to adjunct computer-based instructional materials, instructional gaming, and lesson conversion from one language to another. The course involves the development, coding and tryout of instructional material interactively on a general purpose computer.

EDCI 56600 EDUCATIONAL APPLICATIONS OF HYPERMEDIA
(Class 3, Cr 3)
Examines educational applications of hypermedia tools. The class will utilize HyperCard and its programming language hypermedia instructional materials. Incorporation of digitized media (sound, photographs, and motion clips) in hypermedia will be explored.

EDCI 57000 DELIVERY SYSTEMS FOR EDUCATION AND TRAINING
(Class 1 to 3, Cr 1 to 3)
Evaluation, selection, and utilization of instructional media and techniques used in the instructional program of the modern school with added emphasis on the design and development of multi-media presentation.

EDCI 57200 INTRODUCTION TO LEARNING SYSTEMS DESIGN
(Class 3, Cr 3)
An introduction to the principles of designing instructional materials and to instructional communication theory and techniques. Topics include objectives, student characteristics, media selection, communication variables, message design, and systematic evaluation.

EDCI 57300 INSTRUCTIONAL DEVELOPMENT PRACTICUM
(Cr 2 or Cr 3, Lab 12, Cr 3)
Provides supervised field experience in programs involving instructional design development activities. Students participate in ongoing projects in the design, development, and evaluation of instructional materials and training programs in business and industry, medical facilities, or other settings deemed appropriate.

EDCI 57500 FOUNDATIONS OF DISTANCE LEARNING
(Class 3, Cr 3)
Prerequisite: EDCI 57200
An introduction to the field of distance learning/education. Examination of basic concepts and principles of distance learning, the theoretical underpinnings of the field, research and application literature, and distance education delivery technologies. Focus is on integration of distance education technologies for learning and teaching.
EDCI 57800 REFERENCE RESOURCES
(Class 3, Cr. 3)
A study of reference services in school media centers including the most commonly used reference sources in library and audio-visual materials. Bibliographical form is emphasized.

EDCI 57900 AUDIO-VISUAL SERVICES
(Class 3, Cr. 3)
Current trends, functions, and processes of media services in educational situations with emphasis on non-print media equipment.

EDCI 58000 FOUNDATIONS OF CURRICULUM DEVELOPMENT
(Class 3, Cr. 3)
Introduction to major historical and philosophical sources of curriculum ideas. Significant forces influencing curriculum decision-making. Different theoretical approaches to the construction and analysis of curriculum.

EDCI 58100 CURRICULUM FOR EMERGING ADOLESCENTS
(Class 3, Cr. 3)
Middle-school curriculum concepts, characteristics of emerging adolescent youth, and implications for designing and implementing curricula concurrent with these characteristics and needs.

EDCI 58200 CATALOG CLASSIFICATION
(Class 3, Lab. 2, Cr. 3)
Principles of cataloging and classification of educational media and organization of these resources, with laboratory practice in cataloging books and audio-visual materials and in ordering and using printed cards.

EDCI 58400 SECONDARY SCHOOL CURRICULUM
(Class 3, Cr. 3)
Objectives, organization, and administration of the secondary school curriculum.

EDCI 58500 MULTICULTURAL EDUCATION
(Class 3, Cr. 3)
Concepts and theories of ethnicity and cultural pluralism: implications for educational change. Examination of value systems and cultural characteristics of various ethnic groups, different ethnic learning styles, ethnically pluralistic curriculum content and instructional materials, and conceptual curriculum design strategies for implementing multicultural education.

EDCI 58900 SPECIAL TOPICS FOR TEACHERS
(Class 1 to 4, Cr. 1 to 4)
Consideration of appropriate professional problems of experienced educational personnel in workshop or in-service programs.

EDCI 59000 INDIVIDUAL RESEARCH PROBLEMS
(Class 1 to 6, Cr. 1 to 6)
Opportunities for students to study particular problems under the guidance of a member of the staff. This plan of individualized instruction may be used in any field of education or vocational education. Does not include thesis work.

EDCI 59100 SPECIAL TOPICS IN EDUCATION
(Class 0 to 4, Cr. 1 to 4)
Group study of a current problem or special topic of interest to professional educational personnel. Intensive study of research, theory, or practical aspects of a particular within the usual graduate class format.

EDCI 60100 PROBLEMS IN LITERACY ACQUISITION: ADVANCED PRACTICUM
(Class 1, Lab. 5, Cr. 3)
Prerequisite: EDCI 50000 and EDCI 50100
Examines strategies for teaching elementary or secondary students who experience moderate to severe difficulties acquiring reading, writing, and other aspects of language. Supervised practicum.

EDCI 60300 READING IN THE ELEMENTARY SCHOOL
(Class 3, Cr. 3)
Research, recent trends and current developments in the field of reading instruction. Emphasis will be on improving developmental reading in the elementary school programs rather than on surveying remedial programs.

EDCI 60400 SOCIAL STUDIES IN THE ELEMENTARY SCHOOL
(Class 3, Cr. 3)
Social studies content and place in the modern elementary education curriculum. Materials, instruction techniques, evaluation procedures, and understanding the syntax of the structure of social studies.

EDCI 60500 TEACHING SCIENCE
(Class 3, Cr. 3)
Analysis of historical developments and present trends in science education; the designing, implementation, and evaluation of science programs; the role of research in present and future developments.

EDCI 60700 IMPLICATIONS OF RESEARCH AND THEORY FOR PROBLEMS IN ELEMENTARY SCHOOLS
(Class 3, Cr. 3)
Identification and study of the major problems of elementary schools. Emphasis on developing problem-solving skills and their use in planning solutions to problems identified by individual students.

EDCI 60800 INDIVIDUALIZING INSTRUCTIONS IN THE ELEMENTARY AND SECONDARY SCHOOL
(Class 3, Cr. 3)
This course explores the foundations underlying individualized instruction, the preparation of the individualized instruction materials for the classroom, the role of research in individualized instruction, and the future trends and issues in individualized instruction.

EDCI 61200 SEMINAR IN LITERACY
(Class 3, Cr. 3)
Recent trends and research in literacy. Topics provide in-depth study of literacy acquisition in educational settings.

EDCI 64900 ASSESSMENT IN CAREER AND TECHNICAL EDUCATION
(Class 3, Cr. 3)
Goals and rationale for evaluation in education and work training contexts; assessment and measurement methods, techniques, and procedures, reliability, validity, and accuracy; construction and selection of instruments; data and information collection, analysis and interpretation, meta evaluation, adaptations and modifications for special needs populations and using assessment data and information.

EDCI 66100 COMPUTER CURRICULUM DESIGN
(Class 3, Cr. 3)
Course examines role of micro-computers in elementary and secondary school curriculum. Emphasis placed on developing curricula for computer literacy, computer programming, and computer applications within subject matter areas. Students develop and evaluate computer curriculum projects based on these areas.

EDCI 66300 INTERACTIVE MULTIMEDIA
(Class 3, Cr. 3)
Prerequisite: EDCI 56100 and EDCI 57200
Examines computer-based interactive multimedia theory, research, design, development, and evaluation. Includes digital audio/video production and design of interactive multimedia for stand-alone or online delivery.

EDCI 66400 LEARNING ENVIRONMENT DESIGN
(Class 3, Cr. 3)
This course addresses the application of instructional design principles and computer technology to the design of online learning environments.

EDCI 67100 MATERIALS DESIGN FOR DISTRIBUTED LEARNING SYSTEMS
(Class 3, Cr. 3)
The design, development, and analysis of instructional materials for small-scale instructional systems. This course will involve the study and formulation of behaviorally stated objectives, content structures, systems analysis, consideration of materials preparation problems, and examination of various arrangements for control of stimulus presentations, and the consideration of various arrangements of mediational devices for evaluation.

EDCI 67200 ADVANCED PRACTICES IN LEARNING SYSTEMS DESIGN
(Class 3, Cr. 3)
Prerequisite: EDCI 57200
Applications of learning systems design to educational situations. In-depth
treatment of learner analysis, task analysis, learning activities design, learner verification and summative evaluation. Focuses on the application of instructional design concepts and principles within authentic ID situations.

EDFA 61000 SUPERVISION OF INSTRUCTION AND INSTRUCTIONAL PERSONNEL
(Class 3, Cr. 3)
Examination of the functions of school administration which focuses on achievement of instructional expectations of educational service. Emphasis on developing an individualized supervisory program for instructional personnel.

EDFA 61100 PERSONNEL ADMINISTRATION
(Class 3, Cr. 3)
Provision of a conceptual framework for dealing with school personnel problems. Emphasis placed on implications of social change for personnel administration, the nature and scope of the personnel function, problems created by conflict between individual needs and organizational demands, and the strategies and consequences of collective negotiations.

EDFA 61300 CLINIC FOR EDUCATIONAL LEADERS
(Class 1 to 6, Cr. 1 to 6)
Topics will vary.

EDFA 69400 INTERNSHIP IN EDUCATIONAL ADMINISTRATION:
BUILDING ADMINISTRATION
(Class 1 to 3, Cr. 1 to 3)
Amount of credit to be determined by nature and extent of assignment. Admission by the consent of instructor. Field experience in educational administration under university supervision in selected related school building administration.

EDFA 69500 INTERNSHIP IN EDUCATION
(Class 0 to 99, Lab 0 to 99, Cr. 1 to 10)
A special course in selected areas of education, designed to provide practical field experience under professional supervision in selected situations related to the candidate’s area of specialization.

**EDF: 69800 Research MS Thesis**  
(Class of 3, C: 1 to 18)  
Research for Master’s Thesis.

**Education and Professional Studies**

**EDPS 10300 Introduction to Higher Education**  
(Class of 3, C: 3)  
This course is designed to assist and guide students in maximizing their potential for success at the university by promoting academic growth. Through collaborative learning, this course will promote the concept of life-long learning through the use of the following strategies: utilization of campus resources; goal setting; time management; diversity training; values exploration; career exploration; and critical thinking skills. This course is highly recommended for all freshmen.

**EDPS 22000 Psychology of Learning**  
(Class of 3, C: 3)  
An examination of the learner and learning. Study of the cognitive, social, physical, moral and personality development from early childhood through adolescence; implications of developmental stages for educational planning and intervention. Principles of basic learning theories, facilitative conditions and strategies for enhancing learning; classroom management as a means to foster the learner’s development and learning. Survey of techniques for assessing the learner, learning and identification of learning dysfunctions.

**EDPS 26000 Introduction to Special Education**  
(Class of 3, C: 3)  
A survey of the field of special education: foundations, areas of exceptionality, teaching strategies, and current issues and trends.

**EDPS 27000 Characteristics of Individuals with Mild Disabilities**  
(Class of 3, C: 3)  
Prerequisite: EDPS 26000  
This course examines the characteristics of individuals with mild disabilities and their related academic and social outcomes, issues and implications for assessment and intervention.

**EDPS 28500 Diversity and Education**  
(Class of 2, Lab: 2, C: 3)  
This course integrates an understanding of diversity with principles of democratic education. Historical, Sociological, Cultural, Political, Philosophical, and Pedagogical Foundations of diversity are explored and related to issues of pedagogy in a pluralistic society. This course includes an experiential component.

**EDPS 30300 Career and Life Planning Seminar**  
(Class of 3, C: 3)  
This course is open to all students regardless of major or classification. Students will complete a personal assessment of their values, skills, personality traits, interests, life goals and life roles. Students will also become familiar with tools integral to a successful job search, including networking, resume writing, job search correspondence, and interviewing. Finally students will identify possible paths as they are guided through the process of integrating their knowledge of themselves with information they have gathered about the larger world of work.

**EDPS 37000 Teaching Students with Diverse Learning Needs in K-12 Class**  
(Class of 2, Lab: 3, C: 3)  
Note: Designated sections of EDPS 37000 will fulfill the Experiential Learning requirement.  
Prerequisite: EDCI 35500 and EDPS 26000  
The course develops a knowledge base and practical strategies that will enable teachers to help every student succeed—including students with disabilities, those with diverse cultural backgrounds; students with limited English proficiency; students who are considered at risk for academic failure, and those who are gifted and talented. Topics include planning and grouping strategies, classroom management, collaboration skills, curriculum adaptations, teaching strategies, and supported inclusive education. Field experiences are integrated with classroom instruction.

**EDPS 49000 Individual Research and Teaching Experience**  
(Class of 0 to 8, Lab: 0 to 16, C: 1 to 8)  
Opportunity for undergraduate students to investigate particular problems in the field of education under supervision.

**EDPS 49100 Topics and Issues in Education**  
(Class of 1, C: 3 of 3-C: 3)  
Provides the student with the opportunity to strengthen the preparation program through the study of selected educational topics and issues based on individual needs and interests. One topic is dealt with in each enrollment.

**EDPS 50000 Human Relations in Group Counseling**  
(Class of 2, Lab: 2, C: 3)  
Human relations skills; the functioning and use of group processes. Leadership styles are treated by the instructional component. Students participate in laboratories designed to increase personal awareness and relationship skills.

**EDPS 50100 Introduction to School Counseling**  
(Class of 3, C: 3)  
Treats the history, principles, services, and theoretical development of guidance with consideration given to counselor role and functions, current practices, and emerging trends and issues.

**EDPS 50300 Introduction to Mental Health Counseling**  
(Class of 3, C: 3)  
Provides an overview of mental health counseling as it relates to community issues and needs. Roles and settings for mental health counselor and specific intervention skills will be stressed.

**EDPS 50500 Foundations of Career Development and Assessment**  
(Class of 3, C: 3)  
Treats career development theories which emphasize aspects of the self in decision-making, occupational classification systems, and education and vocational information with applications to individual and group counseling.

**EDPS 50700 Counseling Multicultural and Diverse Populations**  
(Class of 3, C: 3)  
Counseling strategies for multicultural and diverse populations encountered by helping professionals. Among populations considered are ethnic and cultural minorities, older persons, the gifted, the disabled.

**EDPS 5100 Applied Behavior Analysis for Teachers**  
(Class of 3, C: 3)  
Application of learning theory, measurement procedures, verification of functional relationships, and developing knowledge of current significant research in applied behavior analysis.

**EDPS 53000 Advanced Educational Psychology**  
(Class of 3, C: 3)  
Theories of learning and development, research on instruction and learning, and principles of measurement applied to educational problems.

**EDPS 53100 Introduction to Measurement and Evaluation**  
(Class of 3, C: 3)  
An introduction to the basic concepts and principles of measurement and evaluation with special emphasis on descriptive statistics, and teacher-made and standardized tests.

**EDPS 53300 Introduction to Educational Research I: Methodology**  
(Class of 3, C: 3)  
An introductory course in educational research and evaluation methodology which considers the various methods of educational research, the formulation of research hypotheses, and the preparation of research reports.

**EDPS 56300 Identification, Evaluation, and Assessment of Exceptional Individuals**  
(Class of 3, C: 3)  
Advanced procedures for educational assessment of children who are exceptional. Emphasis is given to criterion-referenced, and observational assessment instruments and procedures. Practicum to operationalize skills and knowledge.

**EDPS 56400 Historical Perspectives, Etiology, and Characteristics of Individuals with Disabilities**  
(Class of 3, C: 3)  
Includes basic concepts (historical perspective, definition, classification, assessment
EDPS 56500 Intervention Strategies and Research (D, I, M, E)
(Class 3, Cr. 3)
Includes: (1) mental retardation (2) learning disabilities (3) emotional disturbance. One topic is dealt with in each enrollment.

EDPS 56600 Supervised Teaching in Special Education (D, I, M, E, S)
(Class 0 to 16, Cr. 1 to 16)
Supervised teaching of students with (D) Learning Disabilities, (M) Mildly Mentally Handicapped, (E) Emotional Disturbance. Laboratory experience is required. One topic is dealt with in each enrollment.

EDPS 56800 Social, Legal and Ethical Issues in Special Education
(Class 3, Cr. 3)
Survey of difference and similarities of children with exceptionality, including their nature and characteristics related to their developmental and educational needs. Analysis and practical application of social, legal, and ethical issues in the field of special education.

EDPS 57100 Advanced Assistive Technology Applications
(Class 3, Cr. 3)
Introduction and overview of assistive technology for communication, education, employment, recreation, and daily living activities.

EDPS 57400 Severely Emotionally Handicapped Individuals: Historical Perspectives, Etiology and Characteristics
(Class 3, Cr. 3)
Description and analysis of disordered behavior for purposes of assessing and determining probable etiology, prevalence, and moderating factors.

EDPS 57700 Learning Disabled Individuals: Historical Perspectives, Etiology and Characteristics
(Class 3, Cr. 3)
Etiology, And Characteristics Introduction to history, definition, and theories of learning disabilities; current research on assessment and intervention for students with learning and behavior problems.

EDPS 58900 Special Topics Teachers
(Class 3 to 4, Cr. 1 to 6)
Consideration of concerns of experienced educational personnel related to educational development, technology, methodology and curriculum. Designed for workshop or in-service formats. Not available for use in graduate degree programs.

EDPS 59000 Individual Reasearch Problems
(Class 0 to 6, Cr. 1 to 6)
Opportunities for students to study particular problems under the guidance of a member of the staff. This plan of individualized instruction may be used in any field of education or vocational education. Does not include thesis work.

EDPS 59100 Special Topics in Education
(Class 0 to 4, Lab. 0 to 95, Cr. 1 to 4)
Group study of a current problem or special topic of interest to professional educational personnel. Intensive study of research, theory, and practical aspects of a particular issue within the usual graduate class format.

EDPS 60000 Counseling Theories and Techniques
(Class 3, Cr. 3)
Examination of major counseling theories and counseling techniques, professional and ethical issues.

EDPS 60100 Counseling Theories and Techniques Laboratory
(Class 3 to 6, Cr. 3)
Use of counseling techniques in a supervised laboratory; application of theories and techniques within varying employment settings.

EDPS 60200 Group Counseling Theories and Techniques
(Class 3, Lab. 3, Cr. 4)
An examination of current concepts, theories, and techniques of group counseling in mental health and educational settings. Emphasis placed on human relations training, basic encounter, person centered, psychodrama, cognitive-behavioral, Adlerian and Gestalt approaches, research, and ethical considerations in lecture and skill-building exercise formats.

EDPS 60900 Program Development and Organization

IN HUMAN SERVICES
Issues and procedures in program development management, organization, and administration for school guidance, college student affairs, and mental health services. Also treats administrative theory, intervention strategies, staff development and evaluation.

EDPS 61000 Counseling Practicum
(Class 3, Cr. 3)
Prerequisite: EDPS 60000 and EDPS 60100
EDPS 61000 is field experience for first year master's students in school counseling, consisting of a minimum of 100 hours in a school under the supervision of both a site supervisor and a campus supervisor. Students must have permission of instructor to enroll.

EDPS 61400 Advanced Counseling Practicum
(Lab. 10, Cr. 1 to 3)
Supervised use of personal and career counseling techniques applied to complex and difficult client situations.

EDPS 61600 Supervised Field Practice
(Class 0 to 6, Cr. 1 to 6)
Supervised field practice in schools, colleges or agencies in which there are counseling or student personnel services.

EDPS 62000 Counseling Seminar
(Class 0 to 4, Cr. 1 to 4)
Recent investigation and research in (1)counselor supervision, (2)professional issues, (3)counseling theories, (4)education of counselors and student personnel workers, (5)counseling methodology, (6)vocational development, (7)elementary school counseling, (8)counselor consultation, and (9)other relevant topics.

EDPS 66300 Organization and Administration of Special Education
(Class 3, Cr. 3)
A seminar course in organization and administration designed to prepare personnel for administrative roles in special education. Areas of major concern to special education administrators and principals will be explored and various approaches to handling problems examined.

EDPS 66400 Seminar in Special Education (D, I, M, E, S)
(Class 0 to 4, Cr. 1 to 4)
A critical analysis of research, practice, and selected problems in special education for advanced graduate students.

EDPS 69500 Internship in Education
(Class 0 to 99, Cr. 1 to 10)
A special course in selected areas of education designed to provide practical field experience under professional supervision in selected situations related to the candidate’s area of specialization.

EDPS 69800 Research MS Thesis
(Cr. 1 to 18)

English

ENGL 00700 Writing Laboratory
(Lab. 1)
Emphasis on patterns of organization and fundamentals of usage in composition for ENGL 10400 students with an English Placement Score between 33 and 37.

ENGL 01110 Community Learning
(Class 3)
This course should provide students with the opportunity to practice English communication with native speakers while completing community service. Students will travel to an off-campus location in the community. At the sites, students may be engaged in activities such as games, sports, arts and crafts, tutoring, language teaching, intercultural activities with community members such as elementary school students.

ENGL 01800 Fundamentals of Reading
(Class 3)
Aims to build the student's functional reading level to meet the requirements of college textbooks. Stresses improvement of the basic silent reading skills of word recognition, vocabulary building, literal comprehension and rate fluency. Some
instruction in study techniques. Individualized and performance-oriented.

**ENGL 01900 ENGLISH COMPOSITION FOR ENGLISH AS A SECOND LANGUAGE (ESL)**
(Class 3, Lab. 1)
English composition for those students whose common use of English indicates a need for instruction in English as a second language. An equivalent of ENGL 02000.

**ENGL 02000 FUNDAMENTALS OF WRITING**
(Class 3, Lab. 1)
A review of writing fundamentals for those who need further training and practice. Emphasis will be on English grammar, punctuation, spelling, sentence structure, and paragraph organization.

**ENGL 02100 LOW-INTERMEDIATE GRAMMAR AND WRITING**
(Class 6)
This is a low-proficiency course that focuses on skills and strategies for effective academic writing. This course focuses on developing basic ability to write effectively in English through extensive practice in pre-writing, drafting, revising and editing. Students engage in discussion and small group work to develop and improve basic composition skills, including organization, rhetoric, grammar and mechanics and sentence structure.

**ENGL 02200 INTERMEDIATE GRAMMAR AND WRITING**
(Class 6)
Prerequisite: ENGL 02100 or TOEFL score, a writing sample.

This course focuses on skills and strategies for effective academic writing. This course focuses on the development of composition skills, with emphasis placed on organization, sentence structure, grammar, and idea clarity. Students engage in discussion and small group work to develop and improve composition skills, including organization, rhetoric, grammar and mechanics and sentence structure.

**ENGL 02300 ADVANCED GRAMMAR AND WRITING**
(Class 6)
Prerequisite: ENGL 02200 or TOEFL score, a writing sample or an interview.

This course focuses on skills and strategies for effective academic writing in the mainstream academic setting. Students at this level are expected to write at an advanced level. Students practice various rhetorical aspects of writing while focusing on improving the cohesion, unity and clarity of ideas. Students engage in discussion and small group work to enhance and develop advanced composition skills for academic writing.

**ENGL 02400 BUILDING SKILLS WITH STORIES**
(Class 3)
Building skills with stories is a multi-skills, foundations-level course. In this course, students will read fictional stories and use these stories as the context for practicing a variety of skills. A focus will be on developing vocabulary through target words in the stories and through expansion activities. Students will also work on grammar, pronunciation, and spelling as well as improve their writing through responses to the stories and their speaking through discussions about them. Permission of department required.

**ENGL 02500 INTRODUCTION TO AMERICAN CULTURE**
(Class 3)
This is an elective for students with Low-Intermediate skill level. Each section of ENGL 02500 will introduce American Culture through different themes and skill emphasis, such as film, reading and writing short stories, etc.

**ENGL 02600 FOUNDATIONS WRITING**
(Class 6)
Foundations Writing is an introductory writing course that focuses on skills and strategies for writing sentences and paragraphs. Through class activities and writing assignments, this course will build your grammar skills and improve your writing fluency. In the second half of the semester, you will be introduced to academic paragraphs. Permission of department is required.

**ENGL 03000 LISTENING AND SPEAKING**
(Class 6)
Foundations Listening & Speaking is a course intended for students who did not meet the qualifications for admittance into the ELP's Level 1 low-intermediate course. The purpose of this course is to prepare the students for successful matriculation into Level 1 and to provide them with solid listening and speaking skill sets in English, skills and abilities that will surely increase their changes of future academic success overall. Permission of department required.

**ENGL 03100 LOW-INTERMEDIATE LISTENING AND SPEAKING**
(Class 6)
Prerequisite: TOEFL score, a writing sample or an interview. This course focuses on developing basic listening and conversation skills. Students practice listening and speaking about various topics, both inside and outside of the classroom, in order to establish a solid foundation in this essential skill. A wide variety of listening excerpts, discussion prompts and small-group tasks, assist in the development of listening and oral fluency and accuracy.

**ENGL 03200 INTERMEDIATE LISTENING AND SPEAKING**
(Class 6)
Prerequisite: ENGL 03100 or TOEFL score, a writing sample or an interview.

This course focuses on strategies for the further development of listening skills and oral fluency in an academic context. Students at this level practice listening and speaking about various personal and academic topics, both inside and outside the classroom in order to expand these abilities. A wide variety of listening excerpts, discussion prompts, and small-group tasks, prepare students for listening and speaking in a mainstream academic setting.

**ENGL 03300 ADVANCED LISTENING AND SPEAKING**
(Class 6)
Prerequisite: ENGL 03200 or TOEFL score, a writing sample or an interview.

This course focuses on skills and strategies for the further development of effective academic and social listening and speaking skills in English. Students at this level are expected to practice listening and speaking extensively about various topics, both inside and outside the classroom, in order to expand their listening abilities. A wide variety of listening excerpts, discussion prompts, and small-group tasks, prepare students for listening and speaking in a mainstream academic setting.

**ENGL 03500 ENGLISH COMMUNICATION SKILLS**
(Class 3)
This is an elective for students with Intermediate skill level designed to provide students with additional instruction in reading, writing or listening and speaking. Each section of this elective will approach English language skills through a different theme and skill emphasis, such as film, reading and writing short stories, American culture etc.

**ENGL 04000 READING**
(Class 6)
Foundations Reading is designed for beginning students with limited or no basic formal instruction in reading in English. The purpose of this course is to develop a strong foundation in basic reading literacy skills, the General Service List vocabulary, beginning academic vocabulary, and spelling foundations to improve reading skills. Students at this level engage in silent sustained reading primarily of non-fiction, high interest texts in groups with teacher support. Permission of department required.

**ENGL 04100 LOW-INTERMEDIATE READING COMPREHENSION**
(Class 6)
Prerequisite: TOEFL score, a writing sample or an interview.

This course focuses on strategies for the further development of listening and speaking skills in English. Students at this level are expected to read both inside and outside the classroom in order to improve their reading skills. Students will practice a number of reading strategies for reading faster, understanding vocabulary in context and will practice using strategic reading skills. Discussion and small group work follow reading selection to help develop critical reading and thinking skills.

**ENGL 04200 INTERMEDIATE READING COMPREHENSION**
(Class 6)
Prerequisite: ENGL 04100 or TOEFL score, a writing sample or an interview.

This course focuses on skills and strategies for effective academic reading. Students at this level are expected to read extensively, both inside and outside the classroom, in order to improve and refine their reading skills. Students practice a number of reading strategies for reading faster, understanding vocabulary in context and will practice using strategic reading skills. Discussion and small group work follow reading sections to help develop critical reading and thinking skills. The increase in contact hours will provide the time needed for effective instruction.

**ENGL 04300 ADVANCED READING COMPREHENSION**
(Class 6)
Prerequisite: ENGL 04200 or TOEFL score, a writing sample, or an interview
This is an advanced reading course that focuses on skills and strategies for effective academic reading. Students at this level are expected to read extensively, both inside and outside the classroom, in order to improve and refine their reading skills. Students practice a number of reading strategies for reading faster and understanding vocabulary in context. Discussion and small-group work follow reading selections to help develop critical reading and thinking skills.

ENGL 04500 ACADEMIC STUDY SKILLS
(Class 3)
Prerequisite: ENGL 0500
This is an elective for students with Advanced skill level designed to provide students with additional instruction in reading, writing or listening and speaking. Each section of this course will approach academic study skills through a different theme and skill emphasis such as film, reading and writing short stories etc. This course may not be substituted for ENGL 10400 or ENGL 10500 nor be counted toward degree requirements.

ENGL 05100 TOPICS IN ESL
(Class 1 to 6)
Variable title, variable contact hours. May be repeated as topics vary. This course is available to students at all skill levels. This course may not be substituted for ENGL 10400 or ENGL 10500 nor be counted toward degree requirements.

ENGL 10000 ENGLISH COMPOSITION
(Class 3, Lab 2, Cr 4) General Education
For first-year students needing intensive instruction in the fundamentals of English composition as preparation for enrollment in other composition courses. Upon completion of this course, students will be assigned to subsequent composition courses according to the teacher’s recommendation.

ENGL 10400 ENGLISH COMPOSITION I
(Class 3, Cr 3) General Education, TransferN
Emphasis on the organization of the expository theme. Directed writings of themes based on personal experience, on the relationship between experience and language, and on the relationship between experience and ideas.

ENGL 10500 ENGLISH COMPOSITION II
(Class 3, Cr 3) General Education, TransferN
Prerequisite: ENGL 10400 or ENGL 10000
The second half of the basic composition sequence. Emphasis on the logical and rhetorical problems involved in writing discursive essays. Directed writing of themes based largely on reading of discursive prose and imaginative literature. Normally to be taken immediately following ENGL 10400 in the freshman year.

ENGL 10600 FIRST-YEAR COMPOSITION
(Class 4, Cr 4)
Extensive practice in writing clear and effective prose. Instruction in organization, audience, style, and research-based writing.

ENGL 10800 ACCELERATED FIRST-YEAR COMPOSITION
(Class 3, Cr 3) General Education
An accelerated composition course that substitutes for English 10400 for students with superior writing ability.

ENGL 18600 COLLEGE READING AND STUDY SKILLS
(Class 3, Cr 3)
Emphasizes development of effective textbook reading and review strategies, acquisition of college-level vocabulary, utilization of library resources, improvement of such classroom learning skills as lecture note-taking and test taking.

ENGL 20100 THE NATURE OF LITERARY STUDY
(Class 3, Cr 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A study of literary concepts and critical procedures as applied to representative poetry, fiction, and drama, with practice in critical writing.

ENGL 22000 TECHNICAL REPORT WRITING
(Class 3, Cr 3) General Education, TransferN
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A study of application of the principles of good writing in industrial reporting with emphasis on the techniques of presenting information graphically as well as in a clear, concise written form.

ENGL 23100 INTRODUCTION TO LITERATURE
(Class 3, Cr 3) General Education, TransferN
Prerequisite: ENGL 10400 or ENGL 10800 or ENGL 10000 or ENGL 10000
Reading and discussion of major works in English, American, and continental literature to develop an understanding of style, form, and ideas characteristic of great works. Emphasis on various types of literature.

ENGL 23600 MOTHERS AND DAUGHTERS IN LITERATURE
(Class 3, Cr 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Course acquaints students with a new body of literature by women. Students explore mother-daughter relationships as presented in this literature to enhance their understanding of feminist approaches to life. Not open to students with credit in WOST 23600.

ENGL 23700 INTRODUCTION TO POETRY
(Class 3, Cr 3) TransferN
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
How to read poetry intelligently; function of diction, metrics, figures of speech, and theme; place of a poem in history, uses of poetry, etc.

ENGL 23800 INTRODUCTION TO FICTION
(Class 3, Cr 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Readings and discussion of selected short stories and several novels, to promote awareness, understanding, and appreciation of the range, values, techniques, and meanings of reputable modern fiction.

ENGL 24000 SURVEY OF THE LITERATURE OF ENGLAND: FROM THE BEGINNINGS THROUGH THE NEOCLASSICAL PERIOD
(Class 3, Cr 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
An introduction to English literature from the Anglo-Saxon age through the eighteenth century neoclassical period, with emphasis on such major writers as Chaucer, Spenser, Shakespeare (non-dramatic work), Donne, Milton, Dryden, Pope, and Johnson. The course also treats significant minor writers in their relation to literary movements and ideas.

ENGL 24100 SURVEY OF THE LITERATURE OF ENGLAND: FROM THE RISE OF ROMANTICISM TO THE MODERN PERIOD
(Class 3, Cr 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A continuation of ENGL 24000, this course surveys English literature (excluding the novel) from the late 18th century to the 20th century, with emphasis on such major writers as Blake, Wordsworth, Keats, Tennyson, Arnold, Blake, Hardy, Yeats, T.S. Eliot, and Auden. The course also treats significant minor writers in their relation to literary movements and ideas.

ENGL 25000 GREAT AMERICAN BOOKS
(Class 3, Cr 3)
Prerequisite: ENGL 10400
Several books, such as The Scarlet Letter, Moby Dick and Walden Pond will be read and discussed as to their literary qualities and their cultural significance.

ENGL 25400 GREAT BRITISH BOOKS
(Class 3, Cr 3)
Prerequisite: ENGL 10400
An examination of great British works within the context of their intellectual, social, and literary traditions. Works such as Hamlet, Gulliver’s Travels, Pride and Prejudice and To the Lighthouse will be discussed.

ENGL 26000 INTRODUCTION TO WORLD LITERATURE: TO 1700
(Class 3, Cr 3) TransferN
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A comparison of some of the major works of world literature in translation, from the beginnings to 1700. Emphasis on Greek, Roman, Eastern and early European literature.

ENGL 26100 INTRODUCTION TO WORLD LITERATURE: SINCE 1700
(Class 3, Cr 3) TransferN
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A comparison of some of the major works of world literature in translation, from
ENGL 28600 THE MOVIES  
(Class 2, Cr. 3 or Class 3, Lab. 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
This course is a comprehensive introduction to the aesthetic and history of movies. Students will learn how films are constructed, how they represent and challenge cultural and aesthetic values, and how they are produced and distributed. The primary focus of the course is on narrative movies made in the United States, though some narrative movies and foreign films are included.

ENGL 30200 PUBLICATION DESIGN  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
This course focuses on the design layout and publication of various documents using personal computers. Emphasis is given to principles of publication design and page makeup, typography, and the use of personal computers in business publishing.

ENGL 30400 ADVANCED COMPOSITION  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Designed for students who wish additional training in composition beyond the basic requirements. Extensive practice in the writing of mature expository, critical, and argumentative prose.

ENGL 30700 WRITTEN AND ORAL COMMUNICATION FOR ENGINEERS  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Course focuses on written and oral communication specifically for the environment, with special attention given to purpose, organization, audience analysis, and appropriate situational protocol. Written work emphasizes technical reports, technical descriptions, research skills, principles of document design, collaborative writing, and routine correspondence. Oral work emphasizes project presentations, conference planning and leadership, and small group dynamics.

ENGL 30800 MODERN ENGLISH GRAMMAR  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
An introduction to the study of traditional, structural, and generative-transformational analyses of English. Some attention to new directions in grammatical description and application.

ENGL 31000 INTRODUCTION TO POPULAR CULTURE  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10800 or ENGL 10000  
A survey of mass culture, popular arts and media, including literature (dime novels and westerns), art and architecture (magazine illustrators and prefabricated housing), radio-TV-film, and music (ballads, jazz, rock), from mid-nineteenth century through present day. When appropriate, field trips will be scheduled.

ENGL 31200 ETHNIC AMERICAN WOMEN WRITERS  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
This course explores works by women writers of various ethnic backgrounds living and writing in America during the last century. The emphasis is on ways in which a writer’s ethnicity informs her writing and influences the content of her literary works. The course includes women writers of all ethnic backgrounds, including Native American, African American, Asian American, Hispanic American, Euro-American, and Jewish American. The major purpose is to introduce students to varied cultural voices in dialogue with American traditions as women writers express conflicting experiences within dual cultures. (Cross-listed as WOST 31200.)

ENGL 31300 AFRICAN AMERICAN WOMEN’S FICTION  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
African American Women’s Fiction examines novels and short stories produced since the mid-nineteenth century, including works by Toni Morrison and Alice Walker, as well as Post-Reconstruction, Harlem Renaissance, modern and contemporary authors such as Pauline Hopkins, Nella Larsen, Ann Petry and Gloria Naylor. The course concentrates on African American women’s fictional tradition, including critical theory.

ENGL 31400 MODERN POETRY  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
A study of poetry and poetic forms beginning with the 20th century. The course may examine major figures in North American, British, Continental, and Latin American traditions among others. Emphasis may include studies in prose, major movements and major themes.

ENGL 31500 AMERICAN FOLKLORE AND FOLK LIFE IN THE US  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800  
This course is an introduction to the study of Folklore and Folk Life in the United States. The course content will include the basic concepts of oral traditions, customs, and material culture. Students will complete a semester project of collecting and analyzing some expression of Folklore and Folk Life.

ENGL 31900 CREATIVE WRITING  
(Class 3, Cr. 3 Transfer)  
Prerequisite: ENGL 10600 or ENGL 10800 or ENGL 10000  
An introduction to the writing of genres traditionally considered as creative, such as short stories, drama, poetry, and creative non-fiction.

ENGL 32000 BY AND ABOUT WOMEN  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Course presents an international perspective on women’s social, political, economic and imaginative lives. The major emphasis will be global literatures from Africa, the Americas, Asia and the Middle East. (WOST 32400)

ENGL 32300 SEXUAL IDENTITY IN LITERATURE  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
This course explores how sexual identity informs literary works. Fiction, poetry, drama, personal narrative and essays from lesbian, gay, bisexual, and transgender (LGBT) writers may be included.

ENGL 32400 INTERNATIONAL WOMEN’S LITERATURE  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Course presents an international perspective on women’s social, political, economic and imaginative lives. The major emphasis will be global literatures from Africa, the Americas, Asia and the Middle East. (WOST 32400)

ENGL 32500 INTERNATIONAL SHORT STORY  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Course concentrates on an international selection of stories from both the Eastern and Western Hemispheres. Students will read, discuss and write about stories from Asia, Africa, the Americas and the Middle East, among other places.

ENGL 32600 ENGLISH LINGUISTICS  
(Class 3, Cr. 3 Transfer)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
An introduction to the nature and structure of language, as well as the study of dialects, semantics, and history of the language.

ENGL 32700 ENGLISH LANGUAGE I: HISTORY DEVELOPMENT  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800  
This course presents the basic facts of the historical development of the English language from its beginnings to the present. The major changes in the sounds of English, the growth of the lexicon, and the development of the grammatical system will be studied.

ENGL 33300 RENAISSANCE ENGLISH LITERATURE  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800  
A survey of Renaissance literature in England through an intensive reading or representative works by such authors as Spenser, Jonson, and Donne (Shakespeare’s plays not included.)

**ENGL 33500 RESTORATION AND 18TH CENTURY ENGLISH LITERATURE**  
(Class 3, Cr. 3)
Note: Designated sections ENGL 33500 will fulfill the Experiential Learning requirement.
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800
A survey of Restoration and eighteenth-century literature through an intensive reading of representative works by such authors as Dryden, Pope, Swift and Johnson (the novel and the drama excluded for the most part.)

**ENGL 34000 LITERATURE BY WOMEN OF COLOR**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800
This course focuses on literature written in English by women of color living in the United States. Writers included are of African-American, Native-American, Asian-American, and Latino/Hispanic descent. The course introduces students to the emerging body of writing by women of color, heightening awareness and appreciation of these women’s literary contributions. ENGL 34000 examines some of the cultural differences among these groups, as reflected in the literature. The course also explores obstacles, particularly those related to race, gender, and class, that women of color share. Finally, the course enhances understanding of the experiences shared by women from all cultures.

**ENGL 35000 SURVEY OF AMERICAN LITERATURE FROM ITS BEGINNINGS TO 1865**  
(Class 3, Cr. 3) Transfer IN
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
An introduction to American literature from the colonial period to the Civil War, emphasizing such major literary figures as Edward Taylor, Franklin, Poe, Hawthorne, Melville, Emerson, Thoreau, and Whitman. This course also treats significant minor writers in their relation to literary movements and ideas and includes the work of minority writers.

**ENGL 35100 SURVEY OF AMERICAN LITERATURE FROM 1865 TO THE POST WORLD WAR II PERIOD**  
(Class 3, Cr. 3) Transfer IN
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A continuation of ENGL 35000, this course surveys American literature from the Civil War to recent times, emphasizing such major literary figures as Dickinson, Twain, James, Crane, Frost, T.S. Eliot, Fitzgerald, Hemingway, and Faulkner. The course also treats significant minor writers in their relation to literary movements and ideas and includes the work of minority writers.

**ENGL 35500 AFRICAN AMERICAN LITERATURE, SLAVERY TO 1940**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10800 or ENGL 10000
An examination of the literary, social, and historical significance of major works of fiction, drama, poetry, and non-fiction. The course begins during slavery, continues through the reconstruction and post-reconstruction periods, and finishes at the conclusion of the Harlem Renaissance. Readings will be explored, when appropriate, with attention to the influences of folklore and music.

**ENGL 35600 AMERICAN HUMOR**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Humorous writings of the nineteenth and twentieth centuries are studied as to form and technique and also as a reflection of American life.

**ENGL 36300 AFRICAN AMERICAN LITERATURE, SLAVERY 1940 TO PRESENT**  
(Class 3, Cr. 3)
A continuation of ENGL 35500, this course surveys major works of fiction, poetry, drama, and non-fiction from the 1940s and 1950s, through the Black Arts Era of the 1960s and 1970s, and up to the present. Readings will be explored, when appropriate, with attention to the influence of folklore and music.

**ENGL 37300 SCIENCE FICTION AND FANTASY**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Representative works of science fiction and fantasy examined in relation to both mainstream and popular literature. Emphasis is on technique, theme, and form.

**ENGL 38100 THE BRITISH NOVEL**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10800 or ENGL 10000
A survey of representative British novels of the eighteenth and nineteenth centuries by such authors as Defoe, Fielding, Austen, Dickens, Eliot, and Hardy.

**ENGL 38200 THE AMERICAN NOVEL**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A survey of representative American novels of the nineteenth and twentieth centuries by such authors as Cooper, Twain, Hawthorne, Melville, James and Faulkner.

**ENGL 38300 MODERN DRAMA: IBSEN TO THE ABSURDISTs**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A survey of major works of Continental, English, and American drama, including such authors as Ibsen, Chekhov, Shaw, O’Neill, and Beckett.

**ENGL 38600 HISTORY OF THE FILM TO 1938**  
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A survey of the American and European cinema from its origin in technology and realism to the aesthetic implications presented by the coming of sound. Emphasis on the feature film and on the prevalent aesthetic attitudes in the first decades of the motion picture.

**ENGL 38700 HISTORY OF THE FILM FROM 1938 TO THE PRESENT**  
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A survey of international cinema for the period indicated. Emphasis on the feature film and its development as a communication tool, popular art form, and medium of personal expression.

**ENGL 39100 COMPOSITION FOR ENGLISH TEACHING MAJORS**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800
Intensive practice in writing exposition and in annotating high school students’ compositions.

**ENGL 39600 STUDIES IN LITERATURE AND LANGUAGES**  
(Class 3, Lab 0 to 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10800 or ENGL 10000
A course in the study of a special topic directed by an instructor in whose particular field of specialization the content of the course falls.

**ENGL 40000 CREATIVE NON-FICTION**  
(Class 3, Cr. 3)
Prerequisite: ENGL 31900 or ENGL 40500
Study of creative nonfiction sub-genres and techniques. Practice in the craft of short creative nonfiction writing. Workshop environment.

**ENGL 40300 LITERARY THEORY**  
(Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800 and ENGL 20100
This seminar addresses three major concerns in the study of literature: the problem and the possibility of theory; the problems of canon, form and genre; and the problems of meaning and significance.

**ENGL 40400 WEB PAGE DESIGN**  
(Class 3, Lab. 1, Cr. 3)
Provides students with a theoretical understanding of and practical training in developing Web sites. Students will learn the basics of HTML and working with Java and JavaScript. Emphasis is on analyzing real-world contexts (e.g. promotional, informational, instructional) and users of Web sites while authoring texts that meet these needs.

**ENGL 40600 REVIEW WRITING**  
(Class 3, Cr. 3)
Note: Designated sections ENGL 40600 will fulfill the Experiential Learning requirement.
ENGL 41800 SHORT FICTION WRITING (Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
This course provides an introduction to four areas of writing in the health sciences: patient education materials, pharmaceutical documentation, medical editing and medical journalism. The course will involve lectures, guest speakers, teamwork, and a real world project.

ENGL 41010 VIRTUAL WORLDS (Class 3, Cr. 3)
Note: Designated sections ENGL 41010 will fulfill the Experiential Learning requirement.
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800
This course provides students with an opportunity to live/work for one semester as an avatar in a virtual world. During this time, students will become part of different world communities, produce an ongoing research project that documents their experiences, and transform/repurpose that experience into a 3-D virtual learning space. Additionally, students will acquire skills in building, scripting and creating machinima.

ENGL 41700 PEER MENTORING (Class 3, Cr. 3)
Note: Designated sections ENGL 41700 will fulfill the Experiential Learning requirement.
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800 or ENGL 20100
A study of the literary critical or cinematic works of one or two influential authors or directors.

ENGL 41100 STUDIES IN MAJOR AUTHORS (Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800
A study of the literary critical or cinematic works of one or two influential authors or directors.

ENGL 41101 INTRODUCTION TO WRITING IN THE HEALTH SCIENCES (Class 3, Cr. 3)
Prerequisite: ENGL 10500 or ENGL 10800
This course provides an introduction to four areas of writing in the health sciences: patient education materials, pharmaceutical documentation, medical editing and medical journalism. This course will involve lectures, guest speakers, teamwork, and a real world project.

ENGL 41100 STUDIES IN GENRE (Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800 and ENGL 20100
A study of literary or cinematic works that share distinctive formal features.

ENGL 41200 STUDIES IN GENRE (Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800 and ENGL 20100
A study of literary or cinematic works that share distinctive formal features.

ENGL 41300 STUDIES IN HISTORY AND LITERATURE (Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800 and ENGL 20100
A study of literature or film produced during a particular well-defined historical period from the point of view of its social, political, religious, and economic contexts.

ENGL 41400 STUDIES IN LITERATURE AND CULTURE (Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800 and ENGL 20100
A study of literature or film from the perspective of the cultural norms and values it expresses, celebrates challenges, and imaginatively opposes.

ENGL 41401 WRITING IN HEALTH SCIENCES (Class 3, Cr. 3)
Note: Designated sections ENGL 41401 will fulfill the Experiential Learning requirement.
Prerequisite: ENGL 10000 or ENGL 10400 and ENGL 10800 or ENGL 10500 or ENGL 10800
This course provides an introduction for four areas of writing in the health sciences: patient education materials, pharmaceutical documentation, medical editing and medical journalism. The course will involve lectures, guest speakers, teamwork and a real world project.

ENGL 41800 SHORT FICTION WRITING (Class 3, Cr. 3)
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800 and ENGL 31900 or ENGL 40500
Study of short techniques and practices in the craft of short story literary fiction writing, Workshop environment.

ENGL 42000 BUSINESS WRITING (Class 3, Cr. 3) General Education
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Workplace writing in networked environments for management contexts. Emphasizes organizational context, project planning, document management, ethics, research, team writing. Typical genres include management memos, reports, letters, email, resumes (print and online), oral presentations.

ENGL 42300 TECHNICAL PUBLICATIONS WRITING (Class 3, Cr. 3)
Prerequisite: ENGL 10500 or ENGL 10800 or ENGL 22000
Designed to teach the student how to create software documentation, using contemporary management methods and the state-of-the-art capabilities of the personal computer.

ENGL 42501 WRITING FOR NEW MEDIA (Class 3, Cr. 3)
Course invites students to explore the emergence of new media (primarily online, interactive digital media) both in theory and in practical production terms as writers; students will examine how researchers define new media and experiment with repurposing traditional forms of print media to meet these challenges. Topics will include participatory culture, convergence theory, knowledge communities, trans-media production, among others.

ENGL 42600 DISCOURSE COMMUNITIES IN PROFESSIONAL WRITING (Class 3, Cr. 3)
Prerequisite: ENGL 10400
Course examines business and technical writers as two separate, yet related, discourse communities and explores to what extent various influences, such as classical rhetoric, modern discourse theory, cognitive psychology, and organizational climate, shape how members of these communities define, think about, and practice the art of writing. Class will explore how these theoretical approaches may account for interactions between writer, audience, text and subject matter.

ENGL 42700 SENIOR WRITING PROJECT (Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10300 or ENGL 10800
Course consists of a research and writing project in professional writing. Such a project should be a culmination of student coursework in professional writing, including the internship or supervised writing. As determined by the instructor in consultation with the student, projects may be in technical writing, business or industrial report writing, technical or scientific journalism, or literary journalism. Individual conferences only; no class meetings.

ENGL 42800 SPECIAL TOPICS IN WRITING (Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
A course in the study of a special topic directed by an instructor in whose particular field of specialization the content of the course falls. Sample topics may include writing in the medical field, writing and technology, or publicity and promotional writing.

ENGL 42900 SUPERVISED WRITING (Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Special writing projects for students in the Writing Option. Individual conferences only; no class meeting.

ENGL 43100 WEB USABILITY: WRITING AND READING ON THE WEB (Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Designed to teach the student how to create software documentation, using contemporary management methods and the state-of-the-art capabilities of the personal computer.

ENGL 43500 TOPICS IN WRITING FOR INTERACTIVE DIGITAL MEDIA (Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Focuses on examining a specific topic related to writing for interactive digital media. Special topics include writing for web-based shared or social media, such
as blogs, wikis, and social networks, editing online content, or digital storytelling, among others. Specific attention paid to application and examples in the areas of education, business and entertainment.

**ENGL 43600 WRITING FOR INFORMATIONAL INTERACTIVE MEDIA**  
(Class 3, Cr. 3)  
Note: Designated sections ENGL 43600 will fulfill the Experiential Learning requirement.  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Provides an introduction to writing for informational interactive media. Material presented includes: the role of the interactive writer, thinking interactively, interactive structure, script format and the special challenges of presenting information interactively. We will study sample informational interactive programs and scripts including: e-learning, educational and reference CDs and DVDs, and multimedia exhibits, among others. Students will create an original design proposal for an informational interactive application with flowchart, script and treatment.

**ENGL 43700 WRITING FOR NARRATIVE INTERACTIVE MEDIA**  
(Class 3, Cr. 3)  
Note: Designated sections ENGL 43700 will fulfill the Experiential Learning requirement.  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Provides an introduction to writing for narrative interactive media. Materials presented include: the role of the interactive writer, thinking interactively, interactive structure, script format and the special challenges of presenting information interactively. We will study sample narrative interactive programs and scripts including computer/video games, simulations, and worlds, among others. Students will create an original design proposal for a narrative interactive application with flowchart, script, and treatment.  
Course also explores career opportunities in this field.

**ENGL 44100 CHAUCER’S CANTERBURY TALES**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Critical reading of The Canterbury Tales in Middle English with attention to the literary and cultural background.

**ENGL 44200 SHAKESPEARE**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800 and ENGL 20100  
Shakespeare’s dramatic craftsmanship, characterization, poetry, humor, psychology, and modern pertinence illustrated in representative tragedies, comedies, and history plays.

**ENGL 44400 MILTON**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
An in-depth study of Milton’s works, including some of his early lyric poems, prose, and major works – Paradise Lost, Paradise Regained, and Samson Agonistes.

**ENGL 45100 FEATURE WRITING**  
(Class 3, Cr. 3)  
Note: Designated sections ENGL 45100 will fulfill the Experiential Learning requirement.  
Prerequisite: COM 25500  
Examination of magazine staff organization, market analysis and editorial consent. Study of and practice in the writing of a variety of nonfiction materials. Emphasis is on the adaptation of topics and presentation of editorial policies and reader groups.

**ENGL 45500 MAIN CURRENTS OF AMERICAN THOUGHT**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10300 or ENGL 10800  
A survey of dominant ideas and intellectual trends in America from 1607 to the present as revealed through American literature and as related to American life and culture.

**ENGL 46200 THE BIBLE AS LITERATURE: THE OLD TESTAMENT**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
An analysis of the historical books of the Old Testament, other narratives, and the books of Psalms, Proverbs, and Job, with emphasis on comprehension.

**ENGL 46300 THE BIBLE AS LITERATURE: THE NEW TESTAMENT**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
A study of a large part of the New Testament, with emphasis on the continuity of religious ideas displayed in the Old and New Testaments.
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reading in subjects of their own choice. Individual conferences only; no class meetings.

**ENGL 59300 CONTEMPORARY BRITISH FICTION**  
(Class 3, Cr. 3)  
Critical study of the British novel since World War II. Survey of scholarship and criticism. Examinations and critical papers.

**ENGL 59500 CONTEMPORARY AMERICAN FICTION**  
(Class 3, Cr. 3)  
Study of fiction of the past two or three decades as it relates to American literary traditions and thought. Survey of scholarship and criticism. Examinations and critical papers.

**ENGL 59600 ADVANCED STUDIES IN LITERATURE AND LANGUAGE**  
(Class 3, Cr. 3)  
A course in the study of a special topic directed by an instructor in whose particular field of specialization the content of the course falls. Emphasis on critical analysis, scholarly techniques, and secondary materials.

**ENGL 59700 CONTEMPORARY BLACK FEMINIST LITERATURE**  
(Class 3, Cr. 3)  
An intense examination of recent literary work by black women along with various critical theories constructed about black women's literature beginning with the premise that black feminism is a sign to be interrogated; a focus of contradictions.

**ENGL 60200 INTRODUCTION TO LITERARY METHODS**  
(Class 3, Cr. 3)  
Introduction to the methods of literary study, including investigation of significant critical modes, bibliographic techniques, and research paper writing.

**ENGL 60500 COMPUTERS IN LANGUAGE AND RHETORIC**  
(Class 3, Cr. 3)  
Seminar that investigates how computers figure in contemporary theories of text making. Typical topics: critiques of technology, hypertext, cyberspace, computer-mediated communication, Internet, electronic writing, online research, pedagogy and publishing.

**ENGL 60600 SEMINAR IN POETRY WRITING**  
(Class 3, Cr. 3)  
An advanced course in the writing of poetry. Workshop criticism. Study of the work of established writers.

**ENGL 67200 SEMINAR IN WOMEN'S LITERATURE AND FEMINIST THEORY**  
(Class 3, Cr. 3)  
A variable topic course investigating gender as a category of analysis. Intensive study of one or two women authors, of a particular genre or period, or of a critical issue relevant to women's literature and/or feminist theory.

**ENGL 68000 SEMINAR IN RHETORIC AND COMPOSITION**  
(Class 3, Cr. 3)  
Prerequisite: ENGL 59100  
A variable context course dealing with topics such as cultural studies and composition, medieval rhetoric, renaissance, rhetoric, literacy, historiographies of rhetoric, qualitative studies and professional writing theory.

**ENGL 69100 SEMINAR IN THE ENGLISH LANGUAGE ARTS**  
(Class 3, Cr. 3)  
Problems in the teaching of English: literature, language, rhetoric. Attention to recent scholarship and to its application in the public schools.

**ENGL 69600 SEMINAR IN LITERATURE**  
(Cr. 3)  
Advanced study of special subjects.

**ENGL 69800 RESEARCH MA/MFA THESIS**  
(Class 1 to 18, Cr. 1 to 18)

**Entrepreneurship**

**ENTR 10000 INTRODUCTION TO ENTREPRENEURSHIP**  
(Class 3, Cr. 3)  
Basic business skills are surveyed and case studies of successful entrepreneurs will be studied to develop a broad understanding of this important force in the economy. Guest speakers and selected readings will introduce the student to the scope of opportunities that exist for entrepreneurs.

**ENTR 10100 ENTREPRENEURSHIP IN ARTS AND DESIGN**  
(Class 3, Cr. 3)  
Basic business skills are surveyed and case studies of successful self-employed artists and entrepreneurs will be studied to develop a broad understanding of this important force in the economy. Guest speakers and selected readings will introduce the student to the scope of opportunities that exist for converting artistic and design skills into self-employment and entrepreneurship.

**ENTR 30000 GROWING THE FIRM**  
(Class 3, Cr. 3)  
Prerequisite: ENTR 1000 or MGMT 10100  
Emphasizes the strategic management of growth associated with a rapidly changing business. Focuses on the practical aspects of managing a growing business on a day-to-day basis. Practical application to entrepreneurship, such as growing a division or department within a larger organization.

**ENTR 30100 INTRODUCTION TO TECHNICAL ENTREPRENEURSHIP**  
(Class 3, Cr. 3)  
Basic business skills are surveyed and case studies of successful entrepreneurs in high-tech businesses will be studied to develop a broad understanding of this important force in the economy. Guest speakers and selected readings will introduce the student to the scope of opportunities that exist for promoting the growth of technical entrepreneurship.

**ENTR 30200 INNOVATION AND NEW PRODUCT DEVELOPMENT**  
(Class 3, Cr. 3)  
Prerequisite: ENTR 1000  
Explores the very earliest states of firm and product development: the process of idea generation, evaluation, and development. In addition to idea generation, focus will be on identifying ideas and developing products that have the best chance of success in the marketplace.

**ENTR 30300 ENTREPRENEURIAL FINANCE**
Equine Management

EQU 10000 INTRODUCTION TO EQUINE MANAGEMENT
(Class 3, Cr. 3)
The course provides an introduction to the various facets of the equine industry and discusses their impact on state and national economies. Topics include but are not limited to equine sports and disciplines, career opportunities, national organizations and governing bodies, international equine operations and equine economics contributions.

EQU 20000 SOFTWARE FOR EQUINE OPERATIONS
(Class 3, Cr. 3)
Prerequisite: MGMT 10200
Microsoft Office is used to create business newsletters and databases. Hands-on experience using various equine software packages and creation of a business website.

EQU 22000 GLOBAL PERSPECTIVE OF EQUINE INDUSTRY
(Class 3, Cr. 3)
A study of the global scope of the equine industry and the economic, political and social forces influencing growth. Attention will be given to the effects of changing political systems, regulation, taxation, exchange rates, global competition, demographics and other forces.

EQU 30000 EQUINE INTERNSHIP
(Class 3, Cr. 3)
Note: Designated sections EQU 30000 will fulfill the Experiential Learning requirement.
Prerequisite: EQU 10000
Students will work in an equine management environment in an organized and supervised situation designed to provide experience and challenges in a management situation.

EQU 32000 EQUINE TAXATION
(Class 3, Cr. 3)
Prerequisite: EQU 22000
The focus of the course is on federal income tax laws and their impact on the equine operations. Business and hobby issues will be addressed by analyzing cases applying the nine regulations and factors determining the issue. Also addressed are forms of business, methods of accounting, state and foreign taxes as they are forms of business, methods of accounting, state and foreign taxes as they affect equine operations.

EQU 33000 EQUINE STAFF MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: EQU 22000
Introduction to the organizational structure and human resources and people required for equine operations whether that be a horse show, breeding farm, race track, or horseman organization. Examples include the identification of a chain of command and the process of coordinating work. Topics that will be discussed include recruitment, selection, training and employee evaluation.

EQU 34000 EQUINE ETHICAL ISSUES
(Class 3, Cr. 3)
This course provides an introduction to ethical issues in the equine industry.

EQU 35000 EQUINE EVENT OPERATIONS
(Class 3, Cr. 3)
Introduction to methods combining with budgeting, spreadsheets, risk analysis, and business plans to facilitate event operations. Equine industry related problem solving incorporating research techniques, data collection, quantitative analysis and decision making.

EQU 37000 EQUINE SALES AND SERVICE MARKETING
(Class 3, Cr. 3)
Prerequisite: BA 22400 or MGMT 32400
Marketing principles applied to the equine industry. Emphasis on services marketing in equine businesses including application of 4 P’s to service, design and management of service processes, drafting, a service environment and managing relationships and building loyalties.

EQU 37200 EQUINE EVALUATION
(Class 3, Cr. 3)
Prerequisite: EQU 10000
This course presents concepts on equine evaluation and teaches students to apply selection criteria established by national breed associations for equine performance and value.

EQU 40000 EQUINE LEGAL ISSUES
(Class 3, Cr. 3)
Prerequisite: EQU 35000
An introduction to the legal aspects of the equine industry, to include an overview of commercial transactions, such as public and private sales of horses, stallion syndicate agreements, stallion service contracts, training agreements, boarding contracts, and applications of UCC code to equine industry.

EQU 41000 EQUINE GOVERNANCE STRUCTURES
(Class 3, Cr. 3)
Prerequisite: EQU 10000
This course discusses the role of international and national equine competition governance bodies, breeder registry and association governance, and USDA governance role in the equine industry.

EQU 42000 HORSE RACING AND GAMING SYSTEMS
(Class 3, Cr. 3)
The study of the economics of casino gaming lottery stems and pari-mutuel wagering. Emphasis will be placed on factors affecting wagering and gaming, including product pricing, quality, competition, profits, and marketing strategy.

EQU 44000 EQUINE STABLE MANAGEMENT
(Class 3, Cr. 3)
This course presents management practices essential for economic planning of equine stable operations. Students are provided with application examples and industry contacts.
EQU 45000 EQUINE SENIOR PROJECT
(Class 3, Cr. 3)
Note: Designated sections EQU 45000 will fulfill the Experiential Learning requirement.
Prerequisite: EQU 40000
This course requires students to combine their experience in an internship with their coursework to produce a three-year business plan for an equine operation.

EQU 48000 HORSE SHOW PROJECT MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: EQU 35000
This course covers basic project management skills applied to horse shows and includes scheduling, resource allocation, budgeting, and reporting to regulatory agencies.

EQU 49000 EQUINE SPECIAL TOPICS
(Class 1 to 4, Cr. 1 to 4)
Arrange with Instructor before enrolling. Investigation in a specific equine management field.

Electrical Technology

ET 10000 INTRODUCTION TO ENGINEERING TECHNOLOGY
(Lab 3, Cr. 1) General Education
This course will introduce engineering technology students to resources and skills that will help them to be successful in their studies and ultimately in their careers. This course will help students explore engineering technology by introducing campus, regional and national resources such as professional societies in their chosen fields. It will also help students improve in areas important to becoming better students. These areas may include topics such as planning academic careers, mentoring, improving study skills, goal setting, and utilization of library resources. In addition, the courses will focus on specific introductory concepts important to engineering technology students such as using campus computer resources and the TAC of ABET outcomes.

ET 15100 INTERNSHIP PROGRAM I
(Class 1 to 3, Cr. 1 to 3)
Note: Designated sections ET 15100 will fulfill the Experiential Learning requirement.
Permission of instructor is required. A practicum designed to combine University study with work experience directly related to the student’s plan of study.

ET 20000 INDUSTRIAL PRACTICE I
Co-op Work Experience

ET 25200 INTERNSHIP PROGRAM II
(Class 1 to 3, Cr. 1 to 3)
Note: Designated sections ET 25200 will fulfill the Experiential Learning requirement.
Prerequisite: ET 15100
A practicum designed to combine University study with work experience directly related to the student’s plan of study.

ET 30000 INDUSTRIAL PRACTICE II
Cooperative Education Experience.

ET 35000 INDUSTRIAL PRACTICE III
Cooperative Education Experience.

ET 35300 INTERNSHIP PROGRAM III
(Class 1 to 3, Cr. 1 to 3)
Prerequisite: ET 25200
A practicum designed to combine University study with work experience directly related to the student’s plan of study.

ET 40000 INDUSTRIAL PRACTICE IV
Cooperative Education experience.

ET 45000 INDUSTRIAL PRACTICE V
Cooperative Education experience.

ET 45400 INTERNSHIP PROGRAM IV
(Class 1 to 3, Cr. 1 to 3)
Note: Designated sections ET 45400 will fulfill the Experiential Learning requirement.

Prerequisite: ET 35300
A practicum designed to combine University study with work experience directly related to the student’s plan of study.

ET 49500 SENIOR PROJECT SURVEY
(Class 3, Cr. 3)
Prerequisite: OLS 33100 and IET 30800
Students will consider several projects and develop a topic for the following ET 49700 course. They will develop project scope, establish time schedules, and give a written and oral report on their proposal.

ET 49700 SENIOR PROJECT
(Class 1, Lab 4, Cr. 3)
Prerequisite: ET 49500
Senior Project directed work on individual projects for senior engineering technology students.

ET 49900 ENGINEERING TECHNOLOGY
(Class 1 to 6, Cr. 1 to 6)
Hours and subject matter to be arranged by staff. Course may be repeated for credit.

Ethnic Studies

ETHN 10000 INTRODUCTION TO ETHNIC STUDIES
(Class 3, Cr. 3)
The course provides students with general knowledge about racial and ethnic history, identity, and experience in the United States.

ETHN 20100 THE HISPANIC AMERICAN EXPERIENCE
(Class 3, Cr. 3) General Education
Dimensions of the Hispanic American experience, including history, education, politics, psychology, economics, religion, social organization, and art are covered in the course.

ETHN 20200 THE AFRICAN AMERICAN EXPERIENCE
(Class 3, Cr. 3)
Dimensions of the African American experience, including history, education, politics, psychology, economics, religion, social organization, and art are covered in the course.

ETHN 31300 AFRICAN AMERICAN WOMEN FICTION
(Class 3, Cr. 3)
This course examines fiction by African American women during the last century, emphasizing literary, cultural, and political aspects of the writing. The intersection of gender, race, class, and sexuality emerge as dominant issues within the fiction and the course as well. Both novels and short stories are explored.

ETHN 34000 LITERATURE BY WOMEN OF COLOR
(Class 3, Cr. 3)
This course focuses on literature written in English by women of color living in the United States. Writers included are of African American, Native American, Asian American, and Latino/Hispanic descent. The course introduces students to the emerging body of writing by women of color, heightening awareness of these women’s literary contributions. ETHN 34000 examines some of the cultural differences among these groups, as reflected in the literature. The course also explores obstacles, particularly those related to race, gender, and class that women of color share. Finally, the course enhances understanding of the experiences shared by women from all cultures.

ETHN 39000 TOPICS IN ETHNIC STUDIES
(Class 0 to 6, Cr. 1 to 6)
Variable titles.

ETHN 47500 ETHNIC IDENTITY IN FILM
(Class 3, Cr. 3)
Prerequisite: COM 21400 or ETHN 10000
Ethnic identity in film explore the construction of American ethnicity in mainstream American films. By examining films that reflect a particular ethnic sensibility and created by an individual of that particular ethnicity, this course will explore ethnic values and traditions.

Foods and Nutrition
FN 10500 NUTRITION IN THE 21ST CENTURY  
(Class 1, Cr. 1) General Education  
Analysis of current nutrition controversies and food safety concerns. This course does not satisfy the Nutrition competency for Nursing or HTM majors.

FN 12000 NUTRITION FOR A HEALTHY LIFESTYLE  
(Class 1, Cr. 1) General Education  
Basic understanding of nutrition guidelines and lifestyle risk factors related to diet. Assessment of the individual's diet and related behaviors. Solutions to everyday nutrition problems that lead to lifestyle enhancements are presented. This course does not meet nutrition competency requirement for Nursing, Early Childhood Education or Hospitality and Tourism Management majors.

FN 12100 VEGETARIAN NUTRITION  
(Class 1, Cr. 1) General Education  
This course does not meet nutrition competency requirement for Nursing, Early Childhood Education or Hospitality and Tourism Management majors. Issues to review when considering adoption of a Vegetarian Diet. Nutrition guidelines and risk factors related to vegetarianism are addressed. Various types of vegetarian diets and the benefits/risks each pose are discussed.

FN 20300 FOODS: THEIR SELECTION AND PREPARATION  
(Class 2, Lab. 3, Cr. 3)  
Principles of food selection, preparation, and meal planning.

FN 20500 FOOD SCIENCE I  
(Class 1, Lab. 5, Cr. 3)  
Prerequisite: CHM 11100 or CHM 11200  
Chemical and physical composition of foods: their changes during processing, storage and preparation.

FN 20800 NUTRITION IN WOMEN’S HEALTH  
(Class 3, Cr. 1) General Education  
Course does not meet nutrition competency requirements for Nursing, Early Childhood Education, or Hospitality and Tourism Management Majors. Not open to students with credit in WOST 20800. Exploration of women's health issues with emphasis on Nutrition. Review of current research in normal and preventative nutrition throughout the life cycle. Focus on women as individuals and on those who counsel and educate women.

FN 26000 NUTRITION FOR EARLY CHILDHOOD EDUCATORS  
(Class 2, Cr. 3)  
This course does not satisfy the nutrition competency for Nursing or Hospitality and Tourism Management majors. Study of the basic principles of food and nutrition from pregnancy through the primary years to achieve good nutritional status. Special emphasis on nutrition education, legislation, and regulation in pre-school and elementary classrooms (Grades K-3).

FN 26100 NUTRITION FOR HEALTH, FITNESS, AND SPORTS  
(Class 2, Lab. 2, Cr. 3)  
This course does not satisfy the Nutrition competency for Nursing or Hospitality and Tourism Management Majors. Study of the relationship between physical fitness/sports activity and nutrition resulting in optimum health. Special emphasis on nutritional demands during exercise or sports activities. Laboratory experience in the Fitness Center required.

FN 30300 ESSENTIALS OF NUTRITION  
(Class 3, Cr. 3) General Education, Transfer/W  
Basic nutrition and its application in meeting nutritional needs of all ages.

FN 31500 FUNDAMENTALS OF NUTRITION  
(Class 3, Cr. 3)  
Prerequisite: CHM 25100 and CHM 25200 and BIOL 21400  
Basic principles of nutrition and their applications in meeting nutritional needs during the life cycle.

FN 32200 COMMUNITY NUTRITION AND HEALTH PROMOTION ENTREPRENEURSHIP  
(Class 2, Cr. 2)  
Prerequisite: FN 30300 or FN 26000  
Study of strategies for improving nutritional status and community health. Examination of principles of entrepreneurship and application to the practice of community nutrition. Includes reviews of existing federal and non-governmental programs designed to meet food and nutrition needs of various population groups.

FN 33000 DIET SELECTION AND PLANNING  
(Class 3, Cr. 3)  
Prerequisite: FN 20300 or FN 20500 and FN 30300 or FN 31500  
Diet selection for health maintenance in culturally diverse populations based on current dietary guides with utilization of the computer for diet evaluation.

FN 36000 NUTRITION FOR THE AGING  
(Class 3, Cr. 3)  
Prerequisite: FN 30300  
This course does not satisfy the Nutrition competency for Nursing or Hospitality and Tourism Management majors. Nutritional needs and problems of the aging. Includes a review of community and institutional nutrition and food programs. Emphasis on the aging and their environment. Participation in community activities for the aging may be required.

FN 39000 INDEPENDENT UNDERGRADUATE RESEARCH  
(Class 1 to 3, Lab. 1 to 3, Cr. 1 to 3)  
Repeatable to a maximum of 6 credits. Credit and hours arranged.  
Prerequisites: Classification 5 and consent of instructor. Individual research projects undertaken with faculty supervision and covering various aspects of nutrition.

FN 54200 AP4 FIELD EXPERIENCE IN NUTRITION  
(Class 2 to 5, Cr. 2 to 5)  
Prerequisite: Admission to the AP4 Program. Clinical 20-40. Clinical experience of at least 450 hours in an approved health care or other appropriate facility in the area of nutritional care management. Emphasis on application of nutritional principles and patient/client education and counseling under the direction of a registered dietitian. Clinical experience ultimately to include total staff responsibility as a dietitian in nutritional care. Satisfactory/Unsatisfactory.

FN 54300 AP4 FIELD EXPERIENCE IN INSTITUTIONAL MANAGEMENT  
(Class 1, Cr. 2 to 5)  
Prerequisite: Admission to the AP4 Program. Clinical 20-40. Clinical experience of at least 450 hours in an approved health care or other appropriate facility in the area of institutional food service systems management principles applied to human resources and food service systems under the direction of a registered dietitian. Clinical experience ultimately to include total staff responsibility as a dietitian in institutional management. Satisfactory/Unsatisfactory.

FN 59000 SPECIAL PROBLEMS IN NUTRITION  
(Cr. 1 to 4)  
Credit and hours to be arranged. Prerequisite: Admission by consent of Instructor. Individual problems dealing with various aspects of nutrition.

Finance

FIN 21000 PRINCIPLES OF FINANCE  
(Class 3, Cr. 3)  
Prerequisite: BA 12000 or ACC 12000 and MGMT 10100 or BUSM 10100 and ECON 21000  
Analysis of the basic problems a business will confront in the formation, financial operations, and termination of a business. Important financial issues including capital formation, utilizing capital markets, and investments will be covered as well as a general understanding of money and capital markets and monetary institutions.

FIN 24000 PERSONAL FINANCIAL MANAGEMENT  
(Class 3, Cr. 3) Transfer/W  
Lectures and case analysis of managing one's personal finances includes budgeting, credit analysis, insurance, taxation, housing, estate planning, private and business investment. Not available for credit in Management concentrations. Credit will only be given for one of the following: ECON 24000, MGMT 24000 or MGMT 44200.

FIN 31000 FINANCIAL MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 20000 or ACC 20000 and MGMT 22500 or BUSM 22500  
Management of the financial affairs of the industrial enterprise. Working capital management, current asset management, capital budgeting, stock and bond valuation, and capital structure decisions.

FIN 34000 CORPORATE FINANCIAL PROBLEMS
and portfolio immunization. The determination of their theoretical prices as well as their application in hedging include forward, futures, options, swaps, and related contingent claims contracts.

FIN 41200 FINANCIAL MARKETS AND INSTITUTIONS
(Class 3, Cr. 3)
Prerequisite: MGMT 31000 or FIN 31000
Introduction to financial markets and management of financial institutions. Emphasis on determinants of interest rates, and measurement and management of financial risk. Concentration on management of depository firms such as banks and savings and loans.

FIN 44000 MANAGEMENT OF FINANCIAL INSTITUTIONS
(Class 3, Cr. 3)
Prerequisite: MGMT 31000 or FIN 31000
Management and policy topics providing insight on the internal operating procedures, and problems of financial institutions. Principles of loans analysis and the role of financial institutions in the capital markets are studied with an emphasis on commercial bank management.

FIN 44100 FUTURES AND OPTIONS
(Class 3, Cr. 3)
Prerequisite: MGMT 31000 or FIN 31000
Characteristics of futures and options and their relationship to stocks, bonds, and other financial assets. The determination of futures and option prices and how they are used for hedging and immunization processes.

FIN 44200 PERSONAL FINANCE
(Class 3, Cr. 3)
Lectures and discussion on problems of managing one's personal finances. Covers budgeting; use of and cost of credit; life and property insurance; income and estate taxation; housing; wills, trusts, and estate planning; saving and investments. Not available for credit towards economics and business economics concentrations. Credit only for one of the following: ECON 24000, MGMT 24000, MGMT 44200, FIN 24000 or FIN 44200.

FIN 44300 FUNDAMENTALS OF INVESTMENTS
(Class 3, Cr. 3)
Prerequisite: MGMT 31000 or FIN 31000
Operations of the markets in which securities are traded, and investments alternatives are studied. Theory and application of security valuation and portfolio selection techniques are examined with emphasis upon evaluation of investment performance.

FIN 44400 INVESTMENT MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: MGMT 44300 or FIN 44300
Treatment of problems of portfolio analysis, securities investment selection, and capital markets. Theoretical development, as well as quantitative and practical applications, as the level of the individual decision-maker.

FIN 44700 DERIVATIVES
(Class 3, Cr. 3)
Prerequisite: MGMT 44300 or FIN 44300
Overview of derivative contracts and their relationship to stocks, bonds and other tradable assets. Also, a description of risk and risk management. Special topics include forward, futures, options, swaps, and related contingent claims contracts. The determination of their theoretical prices as well as their application in hedging and portfolio immunization.

FIN 44800 REAL ESTATE PRINCIPLES
(Class 3, Cr. 3)
Prerequisite: MGMT 31000 or FIN 31000
This course focuses on the key aspects of negotiation, acquisition, and financing of real estate. Other topics include amortization, restoration, management and depreciation of real estate assets.

FIN 44900 INTERNATIONAL FINANCIAL MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: MGMT 31000 or FIN 31000 and ECON 25200
A study of the financial management of the international operations of the business. The course develops the international financial environment within which the multinational firm operates. Instruments such as currency forward, futures, and operations contracts available for the firm to manage additional risk associated with international operations.

Foreign Languages and Literatures

FLL 10300 FRESHMAN EXPERIENCE WORLDVIEWS
(Class 3, Cr. 3) General Education
This course provides students with a working knowledge of healthy living practices, an assessment of the students' present fitness status, and an opportunity to choose a physical activity, as well as develop additional wellness strategies that can be enjoyed throughout life.

FLL 19000 SPECIAL TOPICS
(Class 3, Lab. 0 to 4, Cr. 3)
Special topics related to world languages, cultures and literature. Variable title. This course may be repeated for credit, providing the topic is different.

FLL 20300 FRENCH CINEMA - INTRODUCTION TO FILM STUDY
(Class 3, Cr. 3)
The course is based on close readings of individual films. We will look at the concept of film analysis and the relationship among films, politics, and society. The written assignments are designed to develop students' writing skills in English and their ability to engage and to lead discussions on assigned topics. Course taught in English and open to all students.

FLL 29000 SPECIAL TOPICS
(Class 3, Cr. 3)
Special topics related to world languages, cultures, and literature. Variable title. This course may be repeated for credit, providing topics are different.

FLL 46400 COMPARATIVE STUDY OF MODERN LANGUAGES
(Class 3, Cr. 3)
An examination of French, German and Spanish phonology, syntax and morphology. Representative presentations of historical and contemporary descriptive considerations of these languages.

FLL 49000 SPECIAL TOPICS
(Class 0 to 4, Lab. 0 to 4, Cr. 1 to 4)
Special topics related to world languages, cultures, and literature. Variable title. This course may be repeated for credit, providing topics are different.

Fitness Management

FM 10000 INDIVIDUALIZED WELLNESS STRATEGIES
(Lab 2, Cr. 1)
This course is repeatable for credit. The course will provide students with a working knowledge of healthy living practices, an assessment of the students' present fitness status, and an opportunity to choose a physical activity, as well as develop additional wellness strategies that can be enjoyed throughout life.

FM 10100 CARDIOVASCULAR EXERCISE MACHINES
(Lab 2, Cr. 1)
This course is repeatable for credit. The course will provide students with a working knowledge of healthy living practices, an assessment of the students' present fitness status, and an opportunity to choose a physical activity, as well as develop additional wellness strategies, that can be enjoyed throughout life.

FM 10200 WEIGHT TRAINING
(Lab 2, Cr. 1)
This course is repeatable for credit. The course will provide students with a working knowledge of healthy living practices, an assessment of the students' present fitness status, and an opportunity to choose a physical activity, as well as develop additional wellness strategies, that can be enjoyed throughout life.

FM 10300 WALKING/JOGGING
This course is an introduction to dance partner techniques in Latin dance. It is an exercise class to facilitate the development of proper style and understanding of ballroom/Latin dance movements and techniques while providing aerobic benefit. This course also provides students with a working knowledge of healthy living practices, an assessment of students’ present fitness status and the opportunity to develop wellness strategies that can be enjoyed throughout life.

**FM 11702 ADVANCED WEIGHT TRAINING**

This course follows FM 10200, Weight Training, and is an advanced physical activity class designed to instruct students in advanced weight training principles and techniques. This course also provides students with a working knowledge of healthy living practices, an assessment of students’ present fitness status and the opportunity to develop wellness strategies that can be enjoyed throughout life.

**FM 11703 JIU JITSU**

This course provides instruction and practice of this martial art and combat sport that focuses on grappling and ground fighting, achieving a dominant position, and application of submission techniques. This course also provides students with a working knowledge of healthy living practices, an assessment of students’ present fitness status and the opportunity to develop wellness strategies that can be enjoyed throughout life.

**FM 11704 ZUMBA**

This is an introduction to Zumba, a Latin-inspired dance fitness class that incorporates Latin and international music and dance movements. It is an exercise class to facilitate the students’ development of a dynamic, exciting and effective fitness system which provides aerobic benefits. This course also provides students with a working knowledge of healthy living practices, an assessment of students’ present fitness status and the opportunity to develop wellness strategies that can be enjoyed throughout life.

**FM 21900 ISSUES AND PROBLEMS IN HEALTH**

Designed to acquaint students with various aspects of personal and community health problems. Emphasis will be on current health issues such as pollution, mental health, venereal disease, aging, medical care, etc.

**FM 25000 PRINCIPLES OF ADULT FITNESS**

The purpose of this course is to expose students to the effects of exercise on health over the life course. The health benefits of different types of exercise will be reviewed. Students will have the opportunity to utilize fitness equipment and develop their own exercise plans. Existing community programs and resources will be discussed.

**FM 26800 PHYSIOLOGY OF EXERCISE**

Prerequisite: CHM 11900 and BIOL 21400

Physiological concepts and principles underlying human responses and adaptations to exercise. Selected methods and techniques of assessing physiological function and evaluating performance in physical efforts in a laboratory setting.

**FM 28000 PRINCIPLES OF FIRST AID**

A course designed to instruct students in the immediate and temporary care given victims of an accident or illness. Covers dressings, bandaging, CPR, lacerations, insect and animal bites and other first aid topics. Certification Included.

**FM 30000 PRACTICUM IN HEALTH, FITNESS AND NUTRITION**

Note: Designated sections FM 30000 will fulfill the Experiential Learning requirement.

Prerequisite: FN 30300 or FM 31500 and FM 26800

Prerequisite: Limited to students enrolled in Nutrition, Fitness & Health degree.

Classification 4 or higher. Clinical field experience of at least 300 hours in an approved health, fitness, and/or nutrition facility under the direction of a certified or registered instructor. The on-campus Total Fitness Center and their degree/
professional staff is the primary site for this practicum.

**FM 30100 RECREATION LEADERSHIP**
(Class 3, Cr. 3)
Provides instruction in various aspects of recreation. Community, school, camping, travel and leisure time activities will be part of the instruction. Identification of the principles of recreation and the many organizations promoting recreational activities are included.

**FM 30200 ANATOMY AND KINESIOLOGY**
(Class 3, Cr. 3)
Prerequisite: BIOL 21300 and BIOL 21400
Overview of human body structures and functions appropriate for exercise science. Emphasis on musculoskeletal and neuromuscular systems as they relate to human movement.

**FM 30500 PRACTICUM IN FITNESS MANAGEMENT**
(Class 1, Lab. 4, Cr. 3)
Note: Designated sections FM 30500 will fulfill the Experiential Learning requirement.
Prerequisite: FM 30000 and FM 41000
Focus on the dynamics behind the explosion in Sport and Adventure Tourism. hard and soft adventure tourism, and management of leisure time are emphasized. Integration of Sport and Tourism disciplines. Sport participation and spectator travel, adherence in the group fitness setting, effective instructor-to-participant communication techniques, use of music and music selection, methods for enhancing group leadership, and the group fitness instructor's professional role.

**FM 31000 BEGINNING CONCEPTS OF PERSONAL TRAINING**
(Class 1, Lab. 2, Cr. 2)
Prerequisite: FM 26800 and FM 30200
This course is designed to give the students the knowledge and understanding necessary to prepare for the ACE Personal Trainer Certification Exam and become personal trainers. This course presents the ACE Integrated Fitness Training (ACE-IFT) Model as a comprehensive system for designing individualized programs based on each client’s unique health, fitness and goals. The information covered by this course and the ACE-IFT Model will help students learn how to facilitate rapport, adherence, self-efficacy and behavior changes in clients, as well as design programs that help clients to improve posture, movement, flexibility, balance, core function, cardiorespiratory fitness, and muscular endurance and strength.

**FM 31300 BEGINNING CONCEPTS OF GROUP EXERCISE**
(Class 1, Lab. 2, Cr. 2)
Prerequisite: FM 26800 and FM 30200
This course is designed to provide theoretical knowledge and practical skills in preparation for the ACE Group Fitness Instructor Certification Exam. Topics include guidelines for instruction safe, effective and purposeful exercise, essentials of the instructor-participant relationship, the principles of motivation to encourage adherence in the group fitness setting, effective instructor-to-participant communication techniques, use of music and music selection, methods for enhancing group leadership, and the group fitness instructor’s professional role.

**FM 31400 BEGINNING CONCEPTS OF PERSONAL TRAINING**
(Class 1, Lab. 2, Cr. 2)
Prerequisite: FM 26800 and FM 30200
This course is designed to provide theoretical knowledge and practical skills in preparation for the ACE Group Fitness Instructor Certification Exam. Topics include guidelines for instruction safe, effective and purposeful exercise, essentials of the instructor-participant relationship, the principles of motivation to encourage adherence in the group fitness setting, effective instructor-to-participant communication techniques, use of music and music selection, methods for enhancing group leadership, and the group fitness instructor’s professional role.

**FM 32000 PHYSICAL GROWTH THROUGHOUT THE LIFE SPAN**
(Class 2, Cr. 2)
Prerequisite: FM 26800 and FM 30200
Designed to acquaint fitness and health professionals with the physical growth and development of individuals throughout the life span. Includes factors relating to movement, behavior, learning, motor skills, and nutrition.

**FM 37500 SPORT-RELATED TOURISM AND LEISURE MANAGEMENT**
(Class 3, Cr. 3)
Not open to students with credit in FM 37500
Integration of Sport and Tourism disciplines. Sport participation and spectator travel, hard and soft adventure tourism, and management of leisure time are emphasized. Focus on the dynamics behind the explosion in Sport and Adventure Tourism.

**FM 39000 UNDERGRADUATE SPECIAL PROBLEMS**
(Class D to 6, Lab. D to 4, Cr. D to 6)
Optional lab 2–4. Repeatable to a maximum of 6 credits. Credit and Hours arranged. Open to Fitness Majors only or by consent of Instructor. Individual or group participation in supervised reading, laboratory experiences, field experiences, or research in special areas of the field of fitness management.

**FM 41000 EVALUATION, TESTING AND ASSESSMENT OF EXERCISE**

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**Forestry and Natural Resources**

**FNR 22500 DENDROLOGY**
(Class 3, Lab. 3, Cr. 4)
Prerequisite: BIOL 11000
Field identification, taxonomy, and ecological characteristics of trees, shrubs, and herbs found in forests prairies, old fields, and wetlands.

**French**

**FR 10100 FRENCH LEVEL I**
(Class 3, Lab. 1, Cr. 3)
Continuation of FR 10100.
Prerequisite: FR 10200
A conversational approach to the culture of France with a review of French language skills as needed.

**FR 20200 FRENCH LEVEL IV**
(Class 3, Lab. 1, Cr. 3) Transfer
Note: Designated sections FR 20200 will fulfill the Experiential Learning requirement.
Prerequisite: FR 20100
Continuation of FR 20100 and the presentation of intellectual readings.

**FR 23000 FRENCH LITERATURE IN TRANSLATION**
(Class 3, Cr. 3)
Reading and analysis of major French writers of the modern period with particular emphasis on the evolution of literary genres in relation to cultural, political, and social trends. Knowledge of French not required.

**FR 26100 FRENCH COMPOSITION**
(Class 3, Cr. 3)
Note: Designated sections FR 26100 will fulfill the Experiential Learning requirement.
Prerequisite: FR 20200
The essentials of French grammar as applied in composition.

**FR 29000 SPECIAL TOPICS IN FRENCH**
(Class 3, Cr. 3)
Special topics related to French and to francophone cultures and literatures. Variable title. This course may be repeated for credit, providing the topics are different.

**FR 30700 COMMERCIAL FRENCH**
FR 35000 HISTORY AND CULTURE OF FRENCH CUISINES
(Class 3, Cr. 3)
Prerequisite: FR 20200
This course will provide students with the fundamentals of effective expression and communication as these apply to French business situations. It will concentrate on commercial vocabulary, reading, writing and speaking as related to international business.

FR 36500 FRENCH CONVERSATION
(Class 3, Cr. 3)
Prerequisite: FR 20200

FR 39000 SPECIAL TOPICS IN FRENCH
(Class 0 to 3, Lab. 0 to 6, Cr. 1 to 3)
Special topics related to French and to francophone cultures and literatures. Variable title. This course may be repeated for credit, providing topics are different.

FR 40500 INTRODUCTION TO FRENCH LITERATURE I
(Class 3, Cr. 3)
Prerequisite: FR 20200
Introduction to the periods of French literature from the beginning through the eighteenth century. Reading and discussion of representative works. The rudiments of literary criticism.

FR 40600 INTRODUCTION TO FRENCH LITERATURE II
(Class 3, Cr. 3)
Prerequisite: FR 20200
Introduction to the periods of French literature from the late eighteenth century to the present time. Reading and discussion of representative works. The rudiments of literary criticism.

FR 40800 LANGUAGE PRACTICUM IN BUSINESS
(Cr. 3)
Prerequisite: GER 26100 and FR 30700 and FR 36500
The course will consist of on-the-job experience in international corporations, industry, commerce, government, or health and social agencies where French is used. The course is designed to expose students to their chosen vocational field.

FR 45000 FRENCH CIVILIZATION
(Class 3, Cr. 3)
The study of modern French life with emphasis on the customs and daily life of the people. Lectures in the language.

FR 46100 INTERMEDIATE FRENCH COMPOSITION
(Class 3, Cr. 3)
Note: Designated sections FR 46100 will fulfill the Experiential Learning requirement. Prerequisite: FR 26100
A continuation of FR 26100. In this course, stress is given to the development of more complex grammar and its application in the written language. Emphasis is placed on the structure of composition and basic refinement and precision brought about by grammar and vocabulary.

FR 46500 INTERMEDIATE FRENCH CONVERSATION
(Class 3, Cr. 3)
Prerequisite: FR 36500
Continued and more advanced practice in French conversation and study of phonetics for accuracy in pronunciation and intonation. Students are encouraged to study contemporary French culture as a basis for their conversations.

FR 49000 TOPICS IN FRENCH
(Class 3, Cr. 3)
Note: Designated sections FR 49000 will fulfill the Experiential Learning requirement.
Prerequisite: FR 20200
Variable title.

FR 51100 ADVANCED FRENCH CONVERSATION
(Class 3, Cr. 3)
Prerequisite: FR 46500
Additional practice in speaking and understanding French. Talks based on material given in class.

FR 51500 ADVANCED FRENCH COMPOSITION
(Class 3, Cr. 3)
Note: Designated sections FR 51500 will fulfill the Experiential Learning requirement.
Prerequisite: FR 26100
Additional training in writing French.

FR 54200 THE CLASSICAL AGE
(Class 3, Cr. 3)
Prerequisite: FR 40500
The social background and the formation of classical traits of seventeenth century in France. Readings from Corneille, Racine, Moliere and minor authors.

FR 55500 CONTEMPORARY FRENCH THEATRE
(Class 3, Cr. 3)
Prerequisite: FR 40600
Readings and discussion of works in the twentieth-century theatre: Cocteau, Giraudoux, Montherlant, Claudel, Sartre, Camus, Anouilh, Ionesco, Beckett, Genet.

FR 55800 FRENCH NOVEL OF THE TWENTIETH CENTURY
(Class 3, Cr. 3)
Prerequisite: FR 40600
Contemporary novel as an insight into twentieth-century French life. Analysis of works by selected authors.

FR 58100 FRENCH CULTURE
(Class 3, Cr. 3)
Development of the cultural life of the French people as reflected in architecture, art, history, literature, music, and philosophy. Lectures in French.

FR 59000 DIRECTED READING IN FRENCH
(Class 1 to 4, Cr. 1 to 4)
Admission by consent of the chairperson for French courses. May be repeated for credit.

GER 10100 GERMAN LEVEL I
(Class 3, L 1, Cr. 3)
Introduction to German.

GER 10200 GERMAN LEVEL II
(Class 3, L 1, Cr. 3)
Prerequisite: GER 10100
Continuation of GER 10100.

GER 20100 GERMAN LEVEL III
(Class 3, L 1, Cr. 3)
Prerequisite: GER 10200
A conversational approach to the culture of Germany with a review of German language skills as needed.

GER 20200 GERMAN LEVEL IV
(Class 3, L 1, Cr. 3)
Prerequisite: GER 20100
A continuation of GER 20100 and the presentation of intellectual readings.

GER 23000 GERMAN LITERATURE IN TRANSLATION
(Class 3, Cr. 3)
Reading and analysis of selected German writers and their works with particular emphasis on the social, political, and intellectual climate of the times. The course content will change from semester to semester. Knowledge of German not required.

GER 24400 FOURTH COURSE IN SCIENTIFIC GERMAN
(Class 3, Cr. 3)
Prerequisite: GER 20100
Credit will not be given for both GER 20200 and 24400.

GER 26100 GERMAN COMPOSITION
Prerequisite: GER 26100
The essentials of German grammar as applied in composition.

GER 30700 COMMERCIAL GERMAN
(Class 3, Cr. 3)
Prerequisite: GER 20200
This course will provide students with the fundamentals of effective expression and communication as these apply to German business situations in particular. It will concentrate on commercial vocabulary, reading, writing, and speaking as related to international business.

GER 36500 GERMAN CONVERSATION
(Class 3, Cr. 3)
Prerequisite: GER 20200
(May be taken concurrently with GER 20200 with instructor approval.) Intensive practice in German conversation. Pattern practice, preparation and delivery of dialogues and topical talks. Introduction to basic phonetics and practice in pronunciation.

GER 40500 INTRODUCTION TO GERMAN LITERATURE I
(Class 3, Cr. 3)
Prerequisite: GER 20200
Survey of German literature from the beginning through the eighteenth century. Reading and discussion of representative works and the fundamentals of literary criticism.

GER 40600 INTRODUCTION TO GERMAN LITERATURE II
(Class 3, Cr. 3)
Prerequisite: GER 20200
A continuation of GER 40500 covering the basic German literature survey from the eighteenth century to the present time.

GER 40800 LANGUAGE PRACTICUM IN BUSINESS
(Cr. 3)
Prerequisite: GER 26100 and GER 30700 and GER 36500
The course will consist of actual on-the-job experience in international corporations, industry, commerce or government where German is used. The course is designed to expose students to their chosen vocational field.

GER 45000 GERMAN CIVILIZATION
(Class 3, Cr. 3)
Prerequisite: GER 20200
The study of modern German life with emphasis on the customs and daily life of the people. Lectures in the language.

GER 46100 INTERMEDIATE GERMAN COMPOSITION
(Class 3, Cr. 3)
Prerequisite: GER 26100
A continuation of GER 26100. In this course, stress is given to the development of more complex grammar and its application in the written language. Emphasis is placed on the structure of composition and basic refinement and precision brought about by grammar and vocabulary.

GER 46500 INTERMEDIATE GERMAN CONVERSATION
(Class 3, Cr. 3)
Prerequisite: GER 36500
Continued and more advanced practice in German conversation and the study of phonetics for accuracy in pronunciation and intonation. Students are encouraged to study contemporary German culture as a basis for their conversations.

GER 49000 TOPICS IN GERMAN
(Class 3, Cr. 3)
Prerequisite: GER 20200
Variable title. (May be repeated for credit.)

GER 51100 ADVANCED GERMAN CONVERSATION
(Class 3, Cr. 3)
Prerequisite: GER 46500
Additional practice in speaking and understanding German. Talks based on material given in class.

GER 51500 ADVANCED GERMAN COMPOSITION
(Class 3, Cr. 3)
Prerequisite: GER 26100
Additional training in writing German.

GER 54500 GERMAN PROSE FROM NATURALISM TO THE PRESENT
(Class 3, Cr. 3)
Prerequisite: GER 40600
Development of the novel and short story of the period with special emphasis on the major authors.

GER 54600 GERMAN LITERATURE SINCE 1945
(Class 3, Cr. 3)
Prerequisite: GER 40600
Major literary movements and tendencies in Germany, Austria, and Switzerland since 1945. Involves the close reading of literary texts, investigation of major problems addressed by literary criticism, and discussion of historical context.

GER 55400 GERMAN DRAMA BEFORE NATURALISM
(Class 3, Cr. 3)
GER 55500 GERMAN DRAMA FROM NATURALISM TO THE PRESENT
(Class 3, Cr. 3)
Prerequisite: GER 40600
GER 55600 THE GERMAN NOVELLE
(Class 3, Cr. 3)
Prerequisite: GER 40600
A survey of the development of the Novelle, a literary genre which presents Germany’s unique contribution to the European literature of the nineteenth century.

GER 58100 GERMAN CULTURE
(Class 3, Cr. 3)
The development of the cultural life in German-speaking lands as reflected in architecture, art, history, literature, music, and philosophy. Lectures in German.

GER 59000 DIRECTED READING IN GERMAN
(Class 0 to 4, Cr. 1 to 4)
(May be repeated for credit)

General Studies

GNS 10300 INTRODUCTION TO HIGHER EDUCATION
(Class 3, Cr. 3)
Designed to assist and guide students in maximizing their potential for success at the university by promoting academic growth. This course will emphasize utilization of campus resources, goal setting, values exploration, the relationship of academic planning to life goals, career exploration, and critical thinking strategies. This course is required of all students in the Developmental Studies Program, except those with credit in GNS 29000 or EDPS 10300.

GNS 16000 INTRODUCTION TO CHEMISTRY
(Class 2, Lab. 3, Cr. 3 or Class 3, Lab. 3, Cr. 3)
A survey of modern chemistry using everyday examples and contemporary experiments to illustrate the general theories and unifying concepts. The subject matter is so widely diversified that those desiring to continue will be prepared to successfully complete chemistry courses required for careers in health, agriculture, industry, energy, transportation, conservation, or other fields.

GNS 29000 TOPICS FOR STUDY
(Class 0 to 3, Cr. 1 to 3)
A variable credit, variable title course for either group or individual study.

Graduate Studies

GRAD 59000 SPECIAL TOPICS
(Class 1 to 3, Cr. 1 to 3)
Hours and credit to be arranged.

Greek
GREEK 10100 MODERN GREEK LEVEL I
(Class 3, Lab 1, Cr. 3)
Introduction to Modern Greek.

GREEK 10200 MODERN GREEK LEVEL II
(Class 3, Lab 1, Cr. 3)
Prerequisite: GREK 10100
Continuation of GREK 10100 - Modern Greek Level I

Hebrew
HEBR 10100 HEBREW LEVEL I
(Class 3, Lab 1, Cr. 3)
Introduction to Hebrew
HEBR 10200 MODERN HEBREW LEVEL II
(Class 3, Lab 1, Cr. 3)
Prerequisite: HEBR 10100
Continuation and extension of the first semester. The course aims to develop fluency in reading, comprehension, and spoken language. Knowledge of grammar and vocabulary is expanded.

History
HIST 10400 INTRODUCTION TO MODERN WORLD
(Class 3, Cr. 3)
General Education
Traces the historical, political, and geographical expansion of European society and culture into the Americas, Africa, and Asia. Such topics as the major political revolutions, nationalism, the development of the European states, and the environmental impact from the era of the Reformation to the present are studied.

HIST 10600 INTRODUCTION TO HISTORY AND SOCIAL STUDIES
(Class 3, Cr. 3)
This course is designed as both the introductory course for History Majors and Social Studies Education Majors and fulfills the general education requirement for the freshman experience class. It is designed to provide the basic tools of college-level reading and writing needed to become effective historians and Social Studies teachers.

HIST 11000 THE PRE-MODERN WORLD
(Class 3, Cr. 3)
A survey of the ancient and medieval periods from late prehistoric times to the 17th century. Major emphasis is placed on ancient civilizations; the development and flowering of medieval political, religious, economic, and cultural institutions in Western and non-Western societies; the impact of geographic and environmental factors in the historic social and cultural changes, and the dawn of modern times.

HIST 15100 AMERICAN HISTORY TO 1877
(Class 3, Cr. 3)
General Education, Transfer IN
A study of development of American political, economic, and social institutions in their geographical and environmental context from the early explorations and Colonial settlements through Reconstruction.

HIST 15200 UNITED STATES SINCE 1877
(Class 3, Cr. 3)
General Education, Transfer IN
A study of the growth of the United States from 1877 to the present. The new industrialism, agrarian problems, geographical and environmental consequences, depression, the New Deal, the two world wars, the Cold War and similar topics are analyzed

HIST 21500 SUB SAHARA AFRICA
(Class 3, Cr. 3)
A survey of Sub Sahara African history which traces the development of this part of Africa from prehistoric times to the present. Major emphasis is directed toward recognizing the importance of Africa and Africans in history and pre-history. A brief survey of the early history of Africa, the Middle Age of African history with Africa's rich cultural and artistic heritage, the nature of African political systems, the rise and decline of the powerful kingdoms and empires, the era of the Atlantic Slave Trade, the colonial period, nationalist movements, and the diverse economic and political systems that have developed in post-independence Africa.

HIST 22800 ENGLISH HISTORY TO 1688
(Class 3, Cr. 3)
This course is designed to survey the growth and development of English society from its beginning through the 17th century. Emphasis is put upon those institutions and events that influenced the establishments of the English legal system.

HIST 22900 ENGLISH HISTORY SINCE 1688
(Class 3, Cr. 3)
A continuation of HIST 22800. Emphasis is placed upon Great Britain as a world and imperial power. Attention is given particularly to the industrial revolution, the growth and achievements of democratic institutions, and the role Britain has played in western civilization in recent times.

HIST 23100 INTRODUCTION TO UNITED STATES FOREIGN POLICY
(Class 3, Cr. 3)
General Education
A brief analysis of the foreign policies of the early United States leading up to the American Revolution. Lectures, discussion, and readings will examine such areas as the United States relationships with the major powers, the Third World and international organizations. Students with credit in POL 23100 - Introduction to United States Foreign Policy - may not receive credit for this class.

HIST 27100 LATIN AMERICAN TO 1824
(Class 3, Cr. 3)
General Education
This course is designed to introduce students to the major themes and issues in the contemporary history of United States foreign policy. Lectures, discussion and readings will examine such areas as United States relationships with the major powers, the Third World and international organizations. Students with credit in POL 23100 - Introduction to United States Foreign Policy - may not receive credit for this class.

HIST 27200 LATIN AMERICAN FROM 1824
(Class 3, Cr. 3)
General Education
A survey of Latin American history from its origins to the end of the major movements toward independence with emphasis on discovery, colonization, expansion and the transfer of institutions from Spain to Portugal.

HIST 29500 RESEARCH AND WRITING IN HISTORY
(Class 3, Cr. 3)
This course is designed to train history majors in the fundamentals of historical research and writing. This course or HIST 58200 - The Art of History- is required of all History majors.

HIST 30100 EPISODES IN AMERICAN RELIGIOUS HISTORY
(Class 3, Cr. 3)
Introduces students to the study of religion in the United States by focusing on particular groups or movements. Each religious episode is placed in the appropriate historical context and in relation to other religious experiences and expressions. Subjects vary but could include Puntanism, Mormonism, and twentieth-century popular religion.

HIST 30600 THE UNITED STATES IN 1960’S
(Class 3, Cr. 3)
Prerequisite: HIST 15100 or HIST 15200
A description and analysis of major domestic and foreign, social, political, military, and diplomatic issues confronting the United States in the 1960’s and approaches and efforts to resolve these issues. The class will utilize the 1960’s as a laboratory to provide students with both historical and political science skills and approaches to the issues and themes of a particular period. May be taken for history or political science credit.

HIST 30800 BRITAIN AND THE EMPIRE
(Class 3, Cr. 3)
Prerequisite: HIST 10400
This course will examine Britain and her empire from the reign of Queen Victoria through the career of Margaret Thatcher. It will investigate the political, economic and social role of the imperial power and explore how various subject peoples reacted.

HIST 30900 THE MIDDLE EAST
(Class 3, Cr. 3)
Prerequisite: HIST 10400
A survey beginning with the period of European involvement in the Ottoman Empire up to the present. The course includes the study of political Zionism and Arab nationalism, the role of the major powers between the two World Wars and that of the United States and the Soviet Union during the Cold War, and the developments in the Middle East in the post-Cold War era.

HIST 30901 HISTORY OF IRAQ AND JORDAN
(Class 3, Cr. 3)
This course will cover the history of Iraq and Jordan from the two Hashemite Monarchies after World War I through the beginning of the 21st century. The course
will examine the relationship of both states with Britain, the United States, Israel and the Arab world. In addition, the course will focus attention on Arab leaders, including King Hussein and Saddam Hussein.

**HIST 3300 MODERN GERMANY**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
Defines the nature of the medieval Holy Roman Empire in the early modern era. Examines after 1806 the development of German nationalism and the unification movements; the position of the Germans of Austria; the period of German unity under the Hohenzollerns, Weimar Republic, and Hitler; and the post-World War II division and reunification of Germany.

**HIST 3400 MODERN RUSSIA**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
Analyzes the development of the modern Russian territorial state and its civilization from the pre-Petrine Era through the rise and eclipse of the Communist regime.

**HIST 3500 MODERN NATIONALISM**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
Examines the nature and development of modern nationalism as a force of integration and disintegration in various major European and non-European states.

**HIST 3600 HISTORY OF ARCHITECTURE II**  
(Class 3, Cr. 3)  
Prerequisite: HIST 15100 or HIST 15200  
The study of Western architecture of the eighteenth, nineteenth and twentieth centuries with an emphasis on the related structural, technological, socioeconomic and cultural influences that contributed to the architectural expressions of these periods. Not open to students with credit in ARET 31000.

**HIST 3900 THE HISTORY OF MODERN ISRAEL**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
This course will cover the history of political Zionism, the establishment of the state of Israel, and the economic, social, and political development of the country from 1948 until the present. It also will examine the Arab-Israeli conflict and the peace process, and the relationship between the United States and Israel.

**HIST 32100 EUROPE IN 19TH CENTURY**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
Analyzes major developments from the downfall of Napoleon to the outbreak of World War I. Emphasis is placed on main currents in international relations; domestic affairs of major European States; the Revolution of 1848; and ideological, cultural and intellectual trends of the period.

**HIST 32500 HISTORY OF CRIME IN AMERICA**  
(Class 3, Cr. 3)  
Prerequisite: HIST 15100 or HIST 15200  
A study of the history of crime in America from the 19th century to the present. Emphasis will be placed on violent crime, the public’s response to it, and the cultural expressions of crime through literature and the popular media.

**HIST 33100 GREAT FIGURES IN HISTORY**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400 or HIST 15200 or HIST 15100  
A series of autobiographical and biographical sketches of figures, distinguished as well as lesser-known, in all fields of activity.

**HIST 33400 SCIENCE AND TECHNOLOGY IN WESTERN CIVILIZATION II**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400 or HIST 15200  
A survey of some of the main features of the historical development of science and technology in the western world from Newton to the present. Emphasis is placed upon the relation between the achievements of individual investigators and the major aspects of the society and culture in which they lived.

**HIST 33600 HISTORY OF ORGANIZED CRIME IN AMERICA**  
(Class 3, Cr. 3)  
Prerequisite: HIST 15100 or HIST 15200  
An examination of the evolutionary process leading to the complex social phenomenon of organized crime. Emphasis will be placed upon the rise of gangs, the Mafia mystique, the immigrant and crime, and the cultural expressions of organized crime through literature and the popular media.

**HIST 33800 ASIA IN THE MODERN ERA**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400 or HIST 11000 or HIST 15100 or HIST 15200  
The history of Modern China, Japan, India, and Indo-China. In addition to politics and government, emphasis is placed on institutional and cultural developments, religion and philosophy, social structure, and art. The interaction of Western and Oriental civilizations is stressed.

**HIST 3401 HISTORY OF MODERN CHINA**  
(Class 3, Cr. 3)  
This course is an introduction to various aspects of Chinese civilization from its origin to 1900. While offering a comprehensive overview of the 4000 years of Chinese history, this course focuses on the changes and continuities of Chinese economy, culture, politics and society.

**HIST 3402 HISTORY OF MODERN CHINA**  
(Class 3, Cr. 3)  
Note: Designated sections HIST 3402 will fulfill the Experiential Learning requirement.  
This course is an introduction to various aspects of the Chinese civilization from 1900 to the present. While offering a comprehensive overview of the 110 years of Chinese history, this course focuses on the changes and continuities of Chinese economy, culture, politics and society.

**HIST 34600 THE ERA OF WORLD WARS I AND II, 1914-1945**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400 or HIST 15200  
Analyzes the causes, major campaigns, and legacy of the two major conflicts of the twentieth century. Examines the rise of totalitarian dictatorships, in particular Nazi Germany and Communist Russia. Emphasis is placed on the biographical study of the great historic personalities who helped shape the era, including Adolf Hitler, Benito Mussolini, Josef Stalin, Winston Churchill, and others.

**HIST 34700 THE ROARING TWENTIES**  
(Class 3, Cr. 3)  
Prerequisite: HIST 15200 or HIST 10400  
An assessment and analysis of the nature of political, social, religious, economic, cultural, and intellectual change and the response to that change in the United States of the 1920’s.

**HIST 3480 DEPRESSION DECADE**  
(Class 3, Cr. 3)  
Prerequisite: HIST 15200  
The Great Depression of the 1930’s had a profound and often tragic impact on American life and society. This course will attempt to analyze that impact and its social, political, economic, cultural, diplomatic, and institutional consequences.

**HIST 34900 INTRODUCTION TO JEWISH STUDIES**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400 or POL 10100 or HIST 11000  
Also cross-listed as IDIS 33000 and POL 34900. An interdisciplinary seminar touching on many aspects of the Jewish experience, from biblical times to the present. The course introduces students to aspects of the rich and multi-faceted history, literature, theology, and culture of Jews and Judaism from antiquity to the present: from the ancient Near East to Europe, America and back to the modern Near East. The course begins with an examination of basic concepts of Judaism, such as God, Torah, People, Land and Identity. It involves concepts from Jewish historical, theological, and literary roots from the formation of ancient Israel to contemporary Israel and Jewish-American Culture.

**HIST 36300 EUROPE SINCE 1945**  
(Class 3, Cr. 3)  
Must be Sophomore standing. This course will cover the restoration of Western Europe after World War II and the division of Europe into two mutually hostile camps: one communist, the other capitalist. The course will review the history of the Cold War and explore the political, social and economic factors that led to the
end of the Soviet empire. The course will also attempt to discuss the aftermath of the demise of the Soviet Union, ethnic violence, social disintegration, and economic decline. It will also look at the beginning of democratic institutions.

HIST 36400 ENGLAND IN THE 20TH CENTURY

Class 3, Cr. 3
Prerequisite: HIST 10400
Emphasizing political and social history, this course will investigate the British role in both World Wars. The course will also explore how the British adapted to their changing circumstances. Readings and lectures will cover a variety of issues, including the role of British women, establishment of the welfare state and Britain's reluctance fully to embrace the European community.

HIST 36500 WOMEN IN AMERICA

Class 3, Cr. 3
Prerequisite: HIST 15100 or HIST 15200
Not open to students with credit in WOST 36500. A survey of the history of women in America from colonial times to the present. Emphasis is on changing status of women, social and cultural influences, movements for women's contributions to American society.

HIST 36900 RESEARCH IN HISTORY

Class 3, Cr. 3
Note: Designated sections HIST 36900 will fulfill the Experiential Learning requirement.
Prerequisite: HIST 10400 or HIST 11000 or HIST 15200 or HIST 15100
A research writing and oral presentation course organized around semester-long topics or themes, selected by the instructor to reflect his/her area of knowledge and interest. Readings and course bibliographical materials will change with each offering. The class will focus primarily on undergraduate research and writing. This course will be mandated for all majors.

HIST 37000 THE HOLOCAUST

Class 3, Cr. 3
Prerequisite: HIST 10400 or HIST 15200
A survey of the Holocaust from 1933 to 1945. The course includes analysis and historical descriptions of such topics as the background and nature of Nazi racism, Nazi persecution from 1933 to 1941, the Final Solution from 1941 to 1945, the concentration camp experience, resistance, the apathy and indifference of bystanders, rescue efforts, assessment of the significance of the Holocaust, and historical interpretation of the Holocaust.

HIST 37300 THE CARIBBEAN

Class 3, Cr. 3
General Education
Will explore various topics and issues unique to the Caribbean. Emphasis will be placed on European and African influence on the complex nature of Caribbean history languages and literature, societies and cultures.

HIST 37400 UNITED STATES ECONOMIC HISTORY

Class 3, Cr. 3
Prerequisite: HIST 10400 or HIST 11000 or HIST 15100 or HIST 15200
Also ECON 37500. Not open to students with credit in ECON 37500. A study of the growth of the American economy from colonial times to the late 19th century. Emphasis is placed on the application of the tools of economic analysis to historical questions concerning the sources and rate of growth, the relationships between growth and structural and institutional change, and the impact of industrialization on the quality of life in the American economy.

HIST 37600 HISTORY OF INDIANA

Class 3, Cr. 3
Note: Designated sections HIST 37600 will fulfill the Experiential Learning requirement.
Economic, political, and social history of Indiana from the state's earliest beginnings as a part of the old Northwest Territory to the present.

HIST 38000 AMERICAN ENVIRONMENTAL HISTORY

Class 3, Cr. 3
Prerequisite: HIST 10400 or HIST 11000 or HIST 15100 or HIST 15200
This class will focus on who and why Americans living at particular times and places used and transformed their environment. Examining such familiar topics as colonization, the frontier, the industrial revolution, slavery, the Civil War, and the emergence of modern-day consumer culture, the class will show how the interaction of Americans with the natural world has influenced the development of a distinctive society.

HIST 38800 THE WORLD OF IDEAS I

Class 3, Cr. 3
Prerequisite: HIST 11000 or HIST 10400 or HIST 15100 or HIST 15200 or POL 10100
Not open to students with credit in POL 38800 or PHIL 38800. The first half of a two-semester chronological sequence based on reading and discussing source materials and documents drawn from Political Science, Economics, History, Sociology, Psychology, and Philosophy. This course is designed to familiarize students with the major ideas and ideals which have shaped world civilization.

HIST 39000 THE WORLD OF IDEAS II

Class 3, Cr. 3
Prerequisite: HIST 10400 or HIST 15100 or HIST 15200 or HIST 11000 or POL 10100
Not open to students with credit in POL 39000 or PHIL 39000. The second half of a two-semester chronological sequence based on reading and discussing primary source materials and documents drawn from Political Science, Economics, History, Sociology, Psychology, and Philosophy. This course is designed to familiarize students with the major ideas and ideals which have shaped world civilization. Major themes of this course are Liberty, Human Nature, and The Individual and Society.

HIST 39000 TOPICS IN HISTORY

Class 3, Cr. 3
Prerequisite: HIST 10400 or HIST 11000 or HIST 15100 or HIST 15200
May be repeated for credit. Variable title.

HIST 39300 HISTORICAL GEOGRAPHY

Class 3, Cr. 3
Prerequisite: HIST 10400 or HIST 11000 or HIST 15100 or HIST 15200 or EAS 11000 or EAS 22000
This class addresses general topics in the discipline of Geography. It seeks to educate students so that they can consider the spatial dimensions of historical, political, economic, and social themes and problems. In addition, the course seeks to develop the general skills of the discipline, especially those related to cartography. Students receiving credit for this as GEOG class may not also receive credit as a HIST class and vice versa.

HIST 39700 THE AFRO-AMERICAN

Class 3, Cr. 3
A survey of the history of the Afro-Americans in the United States from their African background to the present. Emphasis is placed upon the changing economic, social, and political status of Afro-Americans in the United States, and upon their contributions to American society.

HIST 41000 COMMUNITY PRESERVATION PROJECT

Class 3, Cr. 3
Note: Designated sections HIST 41000 will fulfill the Experiential Learning requirement.
Students will gain a broad understanding of the field of historic preservation. We will examine different types of historically significant resources, methods of documentation and interpretation, and the process of historic designation. This course requires 30 hours of field work.

HIST 42400 LATIN AMERICAN SOCIETIES

Class 3, Cr. 3
Note: Designated sections HIST 42400 will fulfill the Experiential Learning requirement.
Prerequisite: HIST 11000 or HIST 15100 or HIST 15200 or HIST 10400 or HIST 27100 or HIST 27200
This course gives students an opportunity to learn the history of Latin American societies, speaking with Latin Americans from various segments of society, and integrating traditional studies with cultural immersion. This course may be offered at least once a year, each time addressing a different topic related to the history of Latin American societies, and including a trip to a different country in Latin America. May be repeated for credit.

HIST 42600 HISTORY OF US-CHINA RELATIONS

Class 3, Cr. 3
This course covers the history of US-Chinese relations since 1784. While mapping the changing American strategies from containment to engagement with China, the course focuses on political, economic, social, and cultural aspects between the two nations. The course also addresses US-Chinese diplomatic relations and the involvement of other major players, such as Russia, Japan, Taiwan and Europe.
HIST 46100 THE REVOLUTIONARY ERA, 1763 TO 1800
(Class 3, Cr. 3)
An analysis of the origins, nature, and consequences of the American Revolution; of the achievements and difficulties of the new nation under the Articles of Confederation; of the drafting and adoption of the Constitution; and of the initial political, economic, and social progress of the United States under the Federalists.

HIST 47200 HISTORY OF MEXICO
(Class 3, Cr. 3) General Education
A history of the Mexican people from the pre-Columbian period to the present. Special emphasis is placed on the successful social revolutions that led to the development of today's dynamic nation.

HIST 49000 TOPICS IN HISTORY
(Class 3, Cr. 3)
Prerequisite: HIST 10400 or HIST 11000 or HIST 15100 or HIST 15200
Topics will vary.

HIST 51000 THE AGE OF ABSOLUTE MONARCHY, 1600-1789
(Class 3, Cr. 3)
The Age of Absolute Monarchy will study the Reformation and the great revolutionary upheavals of the late 18th century.

HIST 51300 MODERN EUROPE
(Class 3, Cr. 3)
This course will focus on the major themes of the era 1789-1859: The French Revolution, the ascendancy of France in Europe, and the reaction to that hegemony.

HIST 52500 PROBLEMS IN TWENTIETH CENTURY GERMAN HISTORY
(Class 3, Cr. 3)
Prerequisite: HIST 10400 or HIST 11000 or HIST 15100 or HIST 15200
A study in depth of three major periods of German history in the century: pre-1914, the Weimar Republic, and the Third Reich. Emphasis is placed on the transformation which occurred in German society as a result of the upheavals of this century.

HIST 53500 MODERN EUROPE
(Class 3, Cr. 3)
The period to be covered in this course are those years which are regarded as the zenith of European civilization: 1850-1914. The structure is both chronological and topical.

HIST 53800 SOCIAL AND CULTURAL HISTORY OF MODERN RUSSIA
(Class 3, Cr. 3)
A survey of family policies, education, the relationship of ethnic minorities to the state, the role and status of artists, and questions of social stratification in the Soviet Union since 1917.

HIST 55200 EUROPE SINCE 1914
(Class 3, Cr. 3)
This course will concentrate on political, social, economic, and intellectual legacies of the two world wars. Special emphasis will be placed upon the structure of peace and security from 1919 through the Cold War. The present status of East-West relations will be considered.

HIST 5300 COLONIAL AMERICA, 1600-1776
(Class 3, Cr. 3)
A study of the expansion of Europe, the age of exploration and discovery, and the establishment of colonies in the New World. Particular attention will be paid to the emergence of an American culture during the 17th and 18th centuries, the nature of the British Empire, and the emergence of dissent and revolution.

HIST 55400 THE ERA OF SECTIONALISM, 1820-1865
(Class 3, Cr. 3)
This course will concentrate on the rise to dominance of those forces and factors that led to a disastrous Civil War: slavery and anti-slavery, economic jockeying among the sections, expansionism, the creation of false sectional stereotypes, and the rise of hostile sectional parties. The Civil War will be analyzed in military and political terms.

HIST 55500 THE EMERGENCE OF MODERN AMERICA, 1865-1916
(Class 3, Cr. 3)
An examination of the nation that emerged emotionally exhausted from a civil war. The interaction of a flourishing industrial establishment, floods of immigrants, rapid urbanization, and smoldering racism combined to transform antebellum America into a complex and relatively sophisticated society during those years. Emphasis will be placed upon an analysis of these forces and the men who tried to control them.

HIST 56200 ENVIRONMENTALISM IN UNITED STATES HISTORY
(Class 3, Cr. 3)
A survey of the differing perspectives, attitudes, and values with which Americans have perceived and acted toward, upon, and within their physical environment from the late 18th century to the present.

HIST 56400 MODERN AMERICA, 1917-PRESENT
(Class 3, Cr. 3)
A history of the United States from the first World War to the present; the political, social, economic, diplomatic, and intellectual developments in America during those years will be examined in their world context.

HIST 56900 HISTORY OF THE AMERICAN SOUTH
(Class 3, Cr. 3)
This course will stress those political and social traits that make the region between the Potomac and Rio Grande rivers a cultural province conscious of its identity. This regional course will focus on those differences which made the South a unique region and the interrelations between the South and the nation of which it was a part. Half of the course will deal with the major events in the South's history after the Civil War, especially dealing with industry, agriculture, and the rise and fall of Jim Crow.

HIST 57500 THE AMERICAN FRONTIER
(Class 3, Cr. 3)
This course will involve study of the nature and importance of the westward movement in American history from the Revolution to the 20th century. The westward movement will be treated in its varied aspects. Emphasis will be placed upon social and economic aspects as well as upon the spread of government. Although the Turner thesis will be discussed, no attempt will be made to pursue a thesis.

HIST 58200 THE ART OF HISTORY
(Class 3, Cr. 3)
A balanced presentation of the art of studying, understanding, researching, and writing history. It will present a balanced view of problems in American and European historiography; causality and methodology will be emphasized. Careful attention will be paid to research methods, the mechanics of the university library, and writing style.

HIST 58400 SOCIAL HISTORY OF THE UNITED STATES
(Class 3, Cr. 3)
Social and cultural development of the American people since the late 18th century.

HIST 58600 UNITED STATES FOREIGN AFFAIRS TO WORLD WAR I
(Class 3, Cr. 3)
An examination of the economic, political and ideological factors which shaped American foreign policy from the colonial era until WWI. Course emphasizes the drive for territorial and commercial expansion which propelled the United States to a position of world power.

HIST 58700 UNITED STATES FOREIGN AFFAIRS, WORLD WAR I TO PRESENT
(Class 3, Cr. 3)
An examination of the economic, political, and ideological factors which shaped American foreign policy from WWI until present. Course emphasizes the intimate relations between domestic conditions and the growing involvement of the United States in world affairs.

HIST 58900 HISTORY OF RELIGION IN AMERICA
(Class 3, Cr. 3)
A historical examination, from colonial beginnings to the present, of American religions and their role in the social, political, and economic life of the nation.

HIST 59000 DIRECTED READING IN HISTORY
(Class 0 to 3, Cr. 1 to 3)
May be repeated for credit. A reading course directed by the instructor in whose particular field of specialization the content of the reading falls. Approval of each reading project must be secured from the department.

HIST 60100 READING SEMINAR IN EUROPEAN HISTORY
(Class 0 to 3, Cr. 1 to 3)
Must be at Graduate standing to take this course. May be repeated for credit.—— Bibliography and historiography of selected fields of topics in European history; may vary in subject matter from semester to semester.

HIST 65100 READING SEMINAR IN AMERICAN HISTORY

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Honors Program

HONR 10000 FRESHMAN HONORS SEMINARS
(Classes 3, Credits 3)
Admission to the Honors Program. A freshman experience course directed to honors students. This course provides an orientation to the Honors Program, the university environment and an introduction to research methods, covering library research, experimental design, survey design, statistical analysis, critical thinking, logic and ethics. Students will critically examine research topics by evaluating evidence and the conclusions that may be drawn.

HONR 29000 SPECIAL TOPICS
(Classes 1 to 4, Credits 1 to 4)
Admission to the Honors Program. Restricted to Honors Program students, this course will involve an investigation of a specific problem or topic.

HONR 39000 JUNIOR LEVEL TOPICS
(Classes 1 to 4, Credits 1 to 4)
Admission to the Honors Program. Restricted to Honors Program students, this course will involve an investigation of a specific problem or topic.

HONR 40000 HONOR CAPSTONE PROJECT
(Classes 1 to 3, Credits 1 to 3)
Admission to the Honors Program. Restricted to students in the Honors Program with at least Junior standing. This is an upper-level honors course mandating a major supervised research effort or practicum resulting in a written report and public, oral dissemination.

HONR 49000 SENIOR LEVEL TOPICS
(Classes 1 to 4, Credits 1 to 4)
Admission to the Honors Program. Restricted to honors program students, this course will involve an investigation of a specific problem or topic.

Health Sciences

HSCI 10500 FACTS OF LIFE
(Classes 3, Credits 3)
The study of the human body in health and disease. Topics include basic structure and function of the human body and an overview of human biology as related to genetics, evolution, impact on the environment, and human wellness issues. Career opportunities will be discussed.

HSCI 20000 PRECEPTORSHIP IN THE MEDICAL SCIENCES
(Lab 1)
Sophomore or higher standing; consent of the preceptorship committee. The course is designed to provide a pre-professional school experience for students seeking careers in fields such as medicine, dentistry and physical therapy. Individual programs will be designed by the health professional advisor, the student and a practicing health professional. The student will spend one week in a clinical setting under the direction of health professionals. Such units as hospital rotations, dental office experience, government health office experience, etc., will be included. A written report of the experience will be made to the advisor and cooperating health professionals.

HSCI 23000 INTRODUCTION TO PARAMEDICINE
(Classes 3, Credits 3)
This course includes instruction in the roles and responsibility of the paramedic, orientation to the hospital and field settings, medical legal aspects of care, patient assessment, trauma management, management of stress and behavioral emergencies, pastoral care orientation, pre-hospital scene management, universal precautions, hazardous materials identification and response.

HSCI 23100 PATHOPHYSIOLOGY OF DISEASE STATES
(Classes 4, Credits 4)
The pathophysiology, assessment and treatment of shock as well as review of fluid and electrolyte abnormalities in medical emergencies will be examined.

HSCI 23200 INTRODUCTION TO ANATOMY AND PHYSIOLOGY
(Credits 4)
Review of topographical anatomy, cellular anatomy and physiology and human organ systems.

HSCI 23300 EMERGENCY PHARMACOLOGY
(Classes 4, Credits 4)
Emphasis of this course is therapeutic effects, indications, route of administration, dosages, and side effects of medications used in the pre-hospital setting. Techniques of venipuncture, intravenous, cannulation, percutaneous injection, arterial blood gas analysis, nasogastric intubation and urinary catheterization are taught.

HSCI 23400 CARDIOPULMONARY EMERGENCIES
(Classes 4, Credits 4)
Pathophysiology, assessment and treatment of cardiopulmonary emergencies are discussed. Fundamentals of airway management electrocardiography, and interpretation of normal and abnormal ECG patterns are studied. Effects of medications on the cardiopulmonary system is emphasized.

HSCI 23500 MEDICAL AND ENVIRONMENTAL EMERGENCIES
(Classes 4, Credits 4)
Topics discussed include neurological environmental, pediatric, obstetric, gynecological, endocrine and toxicological emergencies. Special emphasis on the needs of the geriatric, psychiatric and communicable diseases patient will be stressed.

HSCI 23600 ADVANCED LIFE SUPPORT
(Classes 4, Credits 4)
American Heart Association cardiopulmonary resuscitation standards; advanced cardiac life support lectures and practical skills stations will be taught. Advanced Cardiac Life Support certification will be achieved.

HSCI 23700 PREHOSPITAL SEARCH AND RESCUE
(Lab 2, Credits 1)
This course provides classroom and field experiences designed to expose the student to effective search and rescue operations. Concepts explored include incident command, disaster triage techniques, principles of extrication, water high-rise and confined space rescue.

HSCI 23800 CLINICAL EXPERIENCES I
(Lab 2, Credits 1)
Prerequisite: HSCI 23000 and HSCI 23100
This course provides the clinical setting to correlate the knowledge objectives from HSCI 23000 and HSCI 23100. Included are rotations in the Emergency Department, Social Services, Behavioral Treatment Center, Pastoral Care and Pathology.

HSCI 23900 CLINICAL EXPERIENCES II
(Credits 1)
Prerequisite: HSCI 23800
A continuum of HSCI 23800 with an emphasis on invasive techniques in critical care units. Rotation in the Emergency Department, Clinical Laboratory (including morgue), Surgery, Anesthesiology, Cardiovascular, and Medical Intensive Care Units are provided. Exposure to Cardiac Catheterization and Telemetry is included.

HSCI 24000 CLINICAL EXPERIENCES III
(Credits 2)
Prerequisite: HSCI 23800 and HSCI 23900
Students will be rotated through pediatrics, nursery, obstetrics, neuro surgical intensive care unit, physical medicine and rehabilitation. Geriatric extended care facility; a continuation of Emergency Department, Critical Care Units, and sampling of other hospital-based specialty care areas will be included.

HSCI 24100 FIELD INTERNSHIP I
(Credits 1)
In this course students are assigned to paramedics in the pre-hospital setting, performing assessment, treatments, documentation and pre-hospital field communications under direct supervision.

HSCI 24200 FIELD INTERNSHIP II
(Credits 2)
Prerequisite: HSCI 24100
A continuum of HSCI 24100 with an emphasis on invasive techniques in the pre-hospital setting. Advanced cardiac and respiratory assessment and management, including endotracheal intubation, intravenous cannulation and medication administration will be performed with the guidance of the paramedic preceptor.
HSCI 24300 FIELD INTERNSHIP III
(Class, 2)
Prerequisite: HSCI 24100 or HSCI 24200
A continuum of HSCI 24100 and HSCI 24200. The emphasis of this course is to provide the student an opportunity to refine the proficiency of previously learned skills and to synthesize all knowledge as it relates to the patient with an emergent pre-hospital need. The student at this point should be able to assess and perform appropriate interventions and therapy for all patients and situations to which they are exposed. The student will be placed in the position of team leader and primary care paramedic with the direct supervision on the paramedic preceptor.

HSCI 24400 PATIENT ASSESSMENT
(Class, 4)
Prerequisite: HSCI 23200
Techniques of the physical exam will be demonstrated and practiced in this course with special emphasis on organ systems as they are being studied. Relating the physical exam to the clinical impression will also be emphasized. Students will be assigned to physician preceptors.

HSCI 45000 PHYSICAL EXAM II
(Class, 1)
A continuum of HSCI 24400 with emphasis on relating the physical exam to the clinical impression. Students will be assigned to physician preceptors.

HSCI 45100 CLINICAL BIOCHEMISTRY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
This course is designed to provide principles of biochemistry for clinical application for medical technologists. The course encompasses an introduction to carbohydrate, amino acid and lipid metabolism. Also included are lectures on basic endocrinology, enzymes, and biosynthesis of steroid hormones. Physiological principles are stresses with respect to liver, lung and kidney function. Special emphasis is placed on correlation of the theoretical and clinical areas.

HSCI 45200 CLINICAL CHEMISTRY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
This course is designed to provide the medical technologist with the principles and application of clinical chemistry. Methods of instrumental analysis include a variety of automated procedures, electrophoresis, immunoelectrophoresis, immunodiffusion, radioisotopes, steroids, hormone assay, and toxicology. Quality control for clinical chemistry is included. Supervised clinical laboratory experience is offered, with students rotating through the various areas of clinical chemistry on a sequential rotational basis.

HSCI 45300 CLINICAL HEMATOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Study of the functions, maturation and morphology of blood cells. Blood cells, platelets and reticulocyte counting procedure. Experiences in the study of cellular content of other body fluids are offered. Lectures and laboratory are designed to teach techniques of sedimentation rates, hematocrits, corpuscular indices, hemoglobin red cell fragility and special staining procedures. Also routine and special coagulation studies are taught. Supervised experience in clinical hematology offers opportunities for study in routine and special hematology and coagulation procedures.

HSCI 45400 CLINICAL IMMUNOHEMATOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
A review of serologic principles and technical fundamentals of transfusion practice; a comprehensive consideration of all blood groups, with emphasis on ABO and Rh–Hr blood group systems. Extensive practice is gained in pre-transfusion techniques and antibody identification in the laboratory. Other blood types and antigen–antibody relationships are taught in laboratory and lectures. Also included are blood donor room procedures; preparation of blood components; correlation of blood component therapy with disease states; quality control of all reagents, procedures, and equipment used; and laboratory safety measures, all of which offer the best patient care and protection of laboratory personnel.

HSCI 45500 CLINICAL MICROBIOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Lectures and clinical laboratory experience in diagnostic procedures as aids to the diagnosis of human disease. Proper selection of techniques for the isolation and identification of medically important bacteria. Special emphasis is placed on newer methods of anaerobic bacteria identification. Also includes lectures and laboratory identification in the fields of mycology and micro bacteriology, with emphasis on isolation and identification. Practical applications of fluorescent antibody tests are performed.

HSCI 45600 CLINICAL NUCLEAR MEDICINE
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Lectures and clinical rotation designed to familiarize the medical technology student with the terminology, instrumentation, dosages and in vitro and rationale procedures pertinent to a nuclear medicine department.

HSCI 45700 CLINICAL PARASITOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Techniques of specimen examination, identification of cysts and ova, life cycles of parasites.

HSCI 45800 CLINICAL SEROLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Lectures and a laboratory experience in serology, including the preparation of antigen, flocculation tests for syphilis, heterophile antibody tests, creative proteins, RA test, FTA, rubella testing. Also included are lectures in immunology that include classifications of immunoglobulins, mechanism of antibody formation; immune response, types of antigen-antibody reactions; and theories of radioimmunoassay.

HSCI 45900 CLINICAL TOXICOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
A basic orientation in the use of instrumentation, such as mass spectrophotometry and liquid and gas chromatography that is used in the specialized toxicology laboratory.

HSCI 46000 CLINICAL URINALYSIS
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Routine analysis, chemical tests, sediment identification, renal function tests, and pregnancy tests.

HSCI 46100 CLINICAL VIROLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Techniques involved in the performance of virology studies for rubella, influenza, mumps, Newcastle disease, herpes, polio, hepatitis. Tissue cultures are maintained for primary virus isolation.

HSCI 46200 CLINICAL CYTOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Lectures and laboratory experience in examination of body fluids: e.g., spinal fluid, synovial fluid, and seminal fluid. Lectures on the use and application of various types of microscopy.

HSCI 46300 CLINICAL HISTOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Histologic technique (principles of dehydration, embedding, sectioning, routine staining, frozen sections, decalcification, exfoliative cytology).

HSCI 46400 CLINICAL ANATOMY AND PHYSIOLOGY
(Class 1 to 10, Lab 0 to 10, Cr 1 to 10)
Review of the structure and function of the systems most concerned with laboratory tests; heart, kidney, liver, hematopoietic system, etc.

Hospitality and Tourism Management

HTM 10000 INTRODUCTION TO THE HOSPITALITY AND TOURISM INDUSTRY
(Class 1 to 3, Cr 1 to 3) General Education
Co-requisite: HTM 10100
An overview of supervisory careers, opportunities, and responsibilities in the food service and lodging industry.

HTM 10100 HOSPITALITY AND TOURISM STUDENT SEMINAR
(Class 1, Cr 1) General Education
Co-requisite: HTM 10000
This course assists the student new to Purdue Calumet to become acquainted with the Purdue system and with the HTM department and program. Information presented to assist students with developing strategies for academic and career-related success at Purdue Calumet.

HTM 14100 FINANCIAL ACCOUNTING FOR THE SERVICE INDUSTRIES
(Class 3, Cr 3)
Fundamental accounting principles and procedures applied to the hospitality and service industries. Includes study of uniform system of accounts, financial
statements, special purpose journals and subsidiary ledgers unique to the hospitality and service industries.

**HTM 18100 LODGING MANAGEMENT**
(Class 3, Cr. 3)
Organization, management and operating procedures of lodging facilities. Guest-employee interactions will be analyzed along with current trends and cutting edge topics in the lodging industry. A history of lodging industry will be discussed.

**HTM 19100 SANITATION AND HEALTH IN FOODSERVICE, LODGING AND TOURISM**
(Class 3, Cr. 3)
Food safety and other health related issues in the hospitality and travel industries. Application of sanitation principles in restaurants, hospitals, schools, hotels, cruise ships, airlines, and international travel are covered. Students must pass a National Sanitation Certification Examination to receive credit.

**HTM 21200 ORGANIZATION AND MGMT IN THE HOSPITALITY AND TOURISM INDUSTRY**
(Class 3, Cr. 3)
Prerequisite: Classification 3 or higher. Basic principles of planning, organizing, directing and controlling human and physical resources will be addressed. Students will learn how these principles can be applied to maximize the organizational effectiveness of hospitality and tourism business.

**HTM 23100 HOSPITALITY AND TOURISM MARKETING**
(Class 3, Cr. 3)
Provides students with a customer-oriented approach to marketing in hospitality and tourism. Techniques available to hotels, restaurants, tourism, and travel businesses are discussed and evaluated including packaging, the travel trade, advertising, sales promotion, merchandising, and personal selling.

**HTM 24100 MANAGERIAL ACCT AND FINANCIAL MGMT HOSPITALITY OPERATIONS**
(Class 3, Cr. 3)
Prerequisite: MGMT 20000 or HTM 14100
Managerial and financial analyses of numerical data used for decision-making. Consideration of systems, techniques, information types, and presentational forms used by the hospitality industry.

**HTM 25100 COMPUTERS IN THE HOSPITALITY INDUSTRIES**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: CIS 20400
Consent of Coordinator or CIS 20400. Explore the applications of computers in the hospitality industry. Special emphasis is placed on those impacting the management of the organization.

**HTM 26100 DIETETIC TECHNOLOGY FIELD EXPERIENCE**
(Class 1 to 6, Lab 0 to 6, Cr. 1 to 6)
Repeatable to a maximum of 5 credits. Clinical 6-12 hours. Prerequisite: Limited to enrollment in Dietetic Technician Program. Clinical experience of at least 450 hours in an approved health care facility in the areas of nutritional principles, patient/client education and counseling, management and supervision of human resources, and food preparation/sanitation/safety at the technician level, under the direction of a Registered Dietitian. Last semester credit shall include full staff responsibility as a Dietetic Technician.

**HTM 29100 QUANTITY FOOD PRODUCTION AND SERVICE**
(Class 2, Lab. 6, Cr. 4)
Prerequisite: FN 20300 or FN 20500 and HTM 19100
An introduction to food preparation methods and service techniques in quantity food settings. Students become familiar with ingredients and culinary terminology, and learn to read and evaluate menus. Recipe conversion and costing skills are developed. Different production schemes and product fluid are examined, and the relationship between back-of-the-house and front-of-the-house activities is discussed.

**HTM 30100 HOSPITALITY AND TOURISM INDUSTRY PRACTICUM**
(Class 1, Cr. 1)
Note: Designated sections HTM 30100 will fulfill the Experiential Learning requirement.
This course requires six (6) credit hours in HTM or the consent of coordinator. Pass/Not Pass. Training and practical experience at the entry-level, totaling at least 300 hours, in an approved hospitality or tourism operation.

**HTM 30200 HOSPITALITY AND TOURISM INDUSTRY PRACTICUM**
(Class 1 to 2)
Prerequisite: HTM 30100
Supervised and structured industry practical experience. Requires signed learning agreement between student and employer prior to initiating internship; a minimum of 400 work hours for each credit hour. Maximum number of credit hours given for a summer experience is one. Maximum number of credits given in a semester experience is two.

**HTM 30900 HOSPITALITY AND TOURISM MANAGEMENT PUBLICITY AND PROMOTION**
(Class 3, Cr. 3)
Prerequisite: HTM Major and Classification 5 (Junior standing)
Repeatable to a maximum of 6 credits.
Written and oral skills activities focusing on the promotion of the academic major. Newsletter writing and production, public speaking events, preparation and design of academic recruitment materials and other portfolio building public relations types of activities required. Good independent study habits and research skills are developed.

**HTM 31100 PROCUREMENT MANAGEMENT FOR FOODSERVICE**
(Class 3, Cr. 3)
or Co-requisite: HTM 29100.
Identifies and describes foods, supplies, and related merchandise used in the foodservice industry. Provides methods and criteria for recognizing quality, evaluating, specifying, purchasing, and inspecting these products. Discusses the use of technology in the purchasing component of the foodservice industry.

**HTM 31200 HUMAN RESOURCES MANAGEMENT FOR THE SERVICE INDUSTRIES**
(Class 3, Cr. 3)
Prerequisites or Co-requisites: Classification 3 or higher. The principles and practices of managing human resources for effective operations of hospitality and tourism businesses will be covered including: analysis and design work, recruiting, selections, training and development, performance management, compensation, employee relations, and strategies for supporting organizational strategies.

**HTM 31400 FRANCHISING.**
(Class 3, Cr. 3)
Prerequisite: Classification 5 (Junior) or better. The study of franchise administration, operations, and marketing with a special emphasis on hospitality related franchises. Includes a study of the legal regulation of franchises, the franchisee-franchiser relationship and unique problems in operating a franchise.

**HTM 31500 PRIVATE CLUB MANAGEMENT AND OPERATION**
(Class 3, Cr. 3)
A study of the organization, administration, operation, and opportunities within the private club industry with emphasis on the manager's duties.

**HTM 31600 CASINO MANAGEMENT**
(Class 3, Cr. 3)
All students must be 21 years of age. An overview of the development, operations, and management of casino enterprises. Includes the evolution of gaming, regulatory statutes and agencies, operational concerns, marketing strategies, financial controls, security/surveillance requirements, ethical considerations, and the economic/social impact on the community. Field trip required.

**HTM 32100 EQUIPMENT FOR RESTAURANTS, HOTELS, AND INSTITUTIONS**
(Class 3, Cr. 3)
Prerequisite: HTM 29100
Principles of selection, operation, and maintenance of food service equipment, including materials, structural details, design, cost, performance, and specification standards.

**HTM 32200 HOSPITALITY FACILITIES MANAGEMENT**
(Class 3, Cr. 3)
Technical and managerial issues related to the operation and maintenance of the physical plant and equipment in hospitality industry facilities.

**HTM 32300 FOOD SERVICE LAYOUT AND DESIGN**
(Class 3, Cr. 3)
Prerequisite: HTM 29100 and HTM 32200
Arrangement of food service equipment for efficient use of space. An introduction to computer-aided design for equipment placement within constraints. Development of workflow patterns and other engineering considerations.
HTM 33100 HOSPITALITY AND TOURISM SALES AND SERVICE  
(Class 3, Cr. 3)  
Application of sales and customer service methods used to generate revenues for hospitality and tourism businesses. Emphasis is placed on a hands-on assignment which requires students to identify a product that they will market and sell, as well as participate in a sales blitz.  

HTM 34100 COST CONTROLS IN FOODSERVICE AND LODGING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 20000 or HTM 14100  
Application of cost controls; development of cost reduction methods through management policy and decisions; examination of cost control techniques for food, labor, and supplies in addition to the emphasis on beverage management control.  

HTM 35200 INTERNATIONAL CUISINES AND CULTURE  
(Class 1, Lab. 4, Cr. 3)  
Research in and hands-on food preparation of various international cuisines with corresponding study of their cultures and languages.  

HTM 36100 MANAGED SERVICES FOR THE FOODSERVICE INDUSTRY  
(Class 3, Cr. 3)  
Focuses on the unique aspects of contract and institutional foodservice management as it compares to commercial foodservices; including operations in airline, business dining, school and campus, healthcare, conference and convention center, vending, correctional, and leisure foodservices.  

HTM 37100 INTRODUCTION TO TOURISM  
(Class 3, Cr. 3)  
Principles, practices, and philosophies which affect the economic, social, cultural, psychological, and marketing aspects of human travel and the tourism industry.  

HTM 37200 GLOBAL TOURISM GEOGRAPHY  
(Class 3, Cr. 3)  
Introduction and analysis of specific world travel destinations, including the exploration of geographic features, customs and tradition, population centers, visitor attractions, political, religious, language and other cultural differences as these relate to the hospitality and travel industry. The course is designed to teach students specific geographic knowledge, and develop a deeper understanding and empathy for cultural values and traditions that exist outside their own culture.  

HTM 37500 SPORT-RELATED TOURISM AND LEISURE MANAGEMENT  
(Class 3, Cr. 3)  
Not open to students with credit in FM 37500  
Integration of Sport and Tourism disciplines. Sport participation and spectator travel, hard and soft adventure tourism and management of leisure time are emphasized. Focus on the dynamics behind the expansion in Sport and Adventure Tourism.  

HTM 37901 ECOTOURISM, SUSTAINABLE TOURISM DEVELOPMENT AND CONSERVATION  
(Class 3, Cr. 3)  
The history of ecotourism in the hospitality industry, the pros and cons of the impact of sustainable development on people, the hospitality industry, ecology and communities, and a review of recent initiatives in conservation of resources.  

HTM 38100 EXECUTIVE HOUSEKEEPING MANAGEMENT  
(Class 1, Lab. 4, Cr. 3)  
Management principles and practice relative to the internal maintenance of public lodging facilities. Experience in room preparation, cleanliness, tools, record keeping and departmental organization.  

HTM 38300 RESORT CRUISE AND ENTERTAINMENT OPERATIONS  
(Class 3, Cr. 3)  
Comprehensive analysis of the operations of different styles of resorts, as well as cruise lines, gaming, and other entertainment attractions. Operating structures, systems, and management practices are compared with traditional hotels. The resort development process is explained and alternative resorts concepts are discussed, including resort condominium and vacation/internal ownership.  

HTM 38500 EDUCATIONAL CRUISE STUDY  
(Class 3, Cr. 3)  
Note: Designated sections HTM 38500 will fulfill the Experiential Learning requirement.  
Note: Must be 21 years of age and have a valid passport. Exploration of the cruise line industry with a focus on hospitality and leisure management, as well as the cruise industry history and marketing operations. Includes experiential learning multi-day cruise component with land and sea lectures, tours and exposure to many languages/cultures.  

HTM 3900 UNDERGRADUATE SPECIAL PROBLEMS  
(Class 1 to 6, Lab. 0 to 4, Cr. 0 to 6)  
Repeatable to a maximum of six (6) credits. Credits and hours arranged. Open to HTM majors only or by consent of Instructor. Individual or group participation in supervised reading, laboratory experiences, field experiences, or research in special areas of the hospitality or tourism field.  

HTM 39100 SPECIALTY FOODSERVICE AND CATERING  
(Class 1, Lab. 1 to 6, Cr. 3)  
Prerequisite: HTM 29100  
Exploration and creative use of specialty foods and unusual cuisine for the hospitality field. Concepts of management for the effective operation of quantity specialty food service organizations within a financial framework involving menu-planning, customer-relations, and production service logistics.  

HTM 4100 HOSPITALITY AND TOURISM LAW  
(Class 3, Cr. 3)  
Overview of the fundamental legal framework that governs the conduct of hospitality and tourism managers. Topics include civil rights, contracts, court procedures, ethics, and risk management.  

HTM 41900 SENIOR SEMINAR IN HOSPITALITY AND TOURISM MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: Classification 7 or higher or consent of Instructor. The exploration, discussion and presentation of current research concerned with or related to the hospitality and tourism management industry.  

HTM 4200 FRAUD EXAMINATION FOR HOSPITALITY MANAGERS  
(Class 3, Cr. 3)  
Prerequisite: HTM 24100 or MGMT 20100  
Fraud Examination will cover the principles and methodology of fraud detection and deterrence. The course includes such topics as skimming, cash larceny, check tampering, register disbursement schemes, billing schemes, payroll and expense reimbursement schemes, non-cash misappropriations, corruption, accounting principles and fraud, fraudulent financial statements, and interview witnesses. The impact of the Sarbanes-Oxley Act of 2002 on the hospitality industry and issues of compliance will be addressed.  

HTM 49100 BEVERAGE MANAGEMENT  
(Class 2, Cr. 2)  
Student must be minimum 21 years of age and HTM major. Principles and practices regarding the production, selection, purchasing, storage, and service of alcohol beverages in the hospitality industry. State of Indiana responsible alcohol service certification is required to earn course credit.  

HTM 49101 SALES AND SERVICE FOR BEVERAGE OPERATIONS  
(Class 2, Lab. 2, Cr. 3)  
Must be 21 years of age. Principles and practices regarding the production, selection, purchasing, storage, marketing, and service of alcoholic and non-alcoholic beverages in the hospitality industry. Includes lab component for hands-on experience. Students must acquire responsible alcohol service certification to earn course credit.  

HTM 49200 ADVANCED FOODSERVICE MANAGEMENT  
(Class 1, Lab. 7, Cr. 4)  
Note: Designated sections HTM 49200 will fulfill the Experiential Learning requirement. Prerequisite: HTM 21200 and HTM 29100 and HTM 31100 and HTM 34100 and HTM 49101  
Prerequisite: Classification 7 or higher. Utilize managerial skills and techniques with planning, organizing, directing and controlling a full-service restaurant operation. Management teams of two to three students develop, market, and operate an international theme restaurant that is open to the public. Emphasis is placed on utilizing effective management skills to create a high quality, profitable operation with well-planned systems and highly motivated, organized employees.  

HTM 49900 FEASIBILITY STUDIES AND BUSINESS DEVELOPMENT HOSPITALITY  
(Class 3, Cr. 3)  
Prerequisite: HTM 21200 and HTM 23100 and HTM 24100  
Tourism Prerequisite: Classification 7 or higher. The study of business development.
The course will cover all stages of feasibility and development activities with emphasis on strategic planning, design of systems and models, and problem analysis.

**Interdisciplinary Studies**

**IDIS 10001 UNDERGRADUATE INTERDISCIPLINARY RESEARCH**

Note: Designated sections IDIS 10001 will fulfill the Experiential Learning requirement. Applied Experiential research opportunity in student's major field and one other discipline, guided by a classroom instructor. Research opportunity requiring 15 hours more or less of experiential research activity during the semester. Must be taken with a for credit course in the major requiring a research paper or research project.

**IDIS 15001 BASIC EXPERIENTIAL UNDERGRADUATE RESEARCH**

(Class 1, Cr. 1)

Note: Designated sections IDIS 15001 will fulfill the Experiential Learning requirement. Prerequisite: Classification of 3 or 4. This course can be repeated once. Applied experiential research opportunity in student's major field and one other discipline, directed by a tenure-track faculty member. Requires research project presented in at least a classroom environment and requiring 15 hours of individual experiential research during the semester.

**IDIS 25001 INTERMEDIATE EXPERIENTIAL UNDERGRADUATE RESEARCH**

(Class 2, Cr. 2)

Note: Designated sections IDIS 25001 will fulfill the Experiential Learning requirement. Prerequisite: Classification of 3 or 4. This course is repeatable once. Applied experiential research opportunity in student's major field of study and one other discipline, directed by a tenure-track faculty member. Requires research project presented in a school-wide or University-wide forum and requiring 30 hours of individual experiential research during the semester.

**IDIS 27000 AFRICAN AMERICAN EXPERIENCE**

(Class 3, Cr. 3)

Dimensions of the African American experience, including history, education, politics, psychology, economics, religion, social organization and art will be covered.

**IDIS 33000 INTRODUCTION TO JEWISH STUDIES**

(Class 3, Cr. 3)

Also cross-listed as HIST 34900 and POL 34900. An interdisciplinary seminar touching on many aspects of the Jewish experience, from biblical times to the present. The course introduces students to aspects of the rich and multi-faceted history, literature, theology, and culture of Jews and Judaism from antiquity to the present: from the ancient Near East to Europe, America and back to the modern Near East. The course begins with an examination of basic concepts from Judaism, such as God, Torah, People, Land, and Identity. It involves concepts from Jewish historical, theological, and literary roots from the formation of ancient Israel to contemporary Israel and Jewish-American Culture.

**IDIS 35001 ADVANCED EXPERIENTIAL UNDERGRADUATE RESEARCH**

(Class 3, Cr. 3)

Note: Designated sections IDIS 35001 will fulfill the Experiential Learning requirement. Prerequisite: Classification of 5 or 6. This course can be repeated once. Applied experiential research opportunity in student's major field and one other discipline, directed by a tenured faculty member. Requires research project presented in a regional or state-wide conference setting or professional meeting or a submitted/published paper (refereed journal) and requiring 45 hours of individual experiential research during the semester.

**IDIS 45001 UNDERGRADUATE/GRADUATE EXPERIENTIAL UNDERGRADUATE RESEARCH**

(Class 4, Cr. 4)

Note: Designated sections IDIS 45001 will fulfill the Experiential Learning requirement. Prerequisite: Classification of 7 or 8. This class can be repeated once. Applied experiential research opportunity in the student's major field and one other discipline, directed by a tenured faculty member, required level 4 research project presented at a national conference or professional meeting or a submitted/published paper (refereed journal) and requiring more than 45 hours of individual or more than 90 hours of paired student's experiential research during the semester.

**IDIS 49000 DIRECTED READING IN INTERDISCIPLINARY STUDIES**

(Cr. 1 to 3)

Reading under the direction of the instructor in a particular field of study.

**IDIS 49100 SPECIAL TOPICS IN INTERDISCIPLINARY STUDIES**

(Class 1 to 3, Cr. 1 to 3)

Topics may vary.

**Industrial Engineering Technology**

**IET 10400 INDUSTRIAL ORGANIZATION**

(Class 3, Cr. 3)

A detailed survey of organizational structures: operational, financial, marketing, and accounting activities; duties of management; planning, control, personnel, safety, wages, policy, and human factors necessary for effective management.

**IET 10600 PRINCIPLES OF ERGONOMICS**

(Class 2, Lab 2, Cr. 3)

This course is designed for students interested in the areas of engineering technology, industrial/operations management, and occupational health. An understanding of how to prevent musculoskeletal disorders and improve manual working conditions will be gained through the use of applicable real life exercises and exploration of research in various industries. This course will cover a general study of the musculoskeletal system as well as guidelines for lifting, reaching, seated work, manual work, hand tools and vibration.

**IET 20400 TECHNIQUES OF MAINTAINING QUALITY**

(Class 2, Lab 2, Cr. 3 or Class 2, Lab. 3, Cr. 3)

Prerequisite: MA 11000 and MA 11200 or MA 14700

An analysis of the basic principles of quality control. Includes statistical aspects of tolerances, basic concept of probabilities, frequency distribution, X and R charts and uses of mechanical, electronic, air and light devices for checking and measuring to determine quality levels of acceptance.

**IET 22400 PRODUCTION PLANNING AND CONTROL SERVICE ENVIRONMENTS**

(Class 2, Cr. 3 or Class 1, Lab. 2, Cr. 3)

Prerequisite: STAT 30100

Applications include the integration of concepts in operations and quantitative methods to analyze production/service situations and highlight ways of improving quality, productivity and efficiency, while meeting customer requirements. Topics include product/service design, capacity planning, process capabilities, forecasting, scheduling, and inventory management.

**IET 26400 FUNDAMENTALS OF LEAN WORK DESIGN**

(Class 2, Lab. 2, Cr. 3)

Prerequisite: MA 14700

Fundamentals of problem-solving applied to methods design. Application of methods tools and work measurement. Includes time study, predetermined time systems, work sampling and computer based standard time data. Fundamental problem solving techniques and Lean methodology are applied to solve work methods issues and design proper work systems. Work methods tools are used to conduct macro and micro system analysis and various work measurement techniques are learned including time study, predetermined time sampling and computer-based standard time data.

**IET 27200 JOB EVALUATION**

(Class 2, Cr. 2 or Class 3, Cr. 3)

A survey of the basic principles and significance of job evaluation. An analysis of current practices and techniques used in job analysis, job descriptions, and job evaluation.

**IET 27300 PRINCIPLES OF QUALITY AND PROCESS IMPROVEMENT**

(Class 3, Cr. 3)

This course focuses on the management culture, philosophy, practices, and processes necessary to develop a total quality orientation. The course bridges quantitative, behavioral, and strategic concepts for designing organizations to be dynamic, integrated systems whose outputs are monitored for quality and continuously improved.

**IET 29900 INDUSTRIAL ENGINEERING TECHNOLOGY**

(Class 0 to 4, Lab. 0 to 9, Cr. 0 to 9)

(Course may be repeated for credit up to nine hours.) Hours and subject matter to be arranged by staff.
IET 30800 ENGINEERING PROJECT MANAGEMENT AND ECONOMIC ANALYSIS
(Class 3, Cr. 3)
Introduction to principles of engineering project management and techniques. Topics include technical feasibility studies, project specifications, scheduling, validation, life cycle costing, and economic analysis. The focus is on managing an engineering project through scheduling, budgeting, resource management, execution and control.

IET 31000 PLANT LAYOUT AND MATERIAL HANDLING
(Class 3, Cr. 3)
Prerequisite: MET 10000 and IET 26400
Plant layout involves the design of a production system. The layout must provide for machines, work places, material handling systems, and storage in the capacities necessary so feasible schedules can be met for parts and products; auxiliary services such as offices, shipping and handling, security, maintenance, etc., must support the firm’s requirements for safe and efficient production. The design of this system must possess an appropriate degree of flexibility to cope with future design change, new products, volume variations and advancing technology.

IET 31100 INTERNATIONAL QUALITY STANDARDS
(Class 3, Cr. 3)
This course addresses what compliance with ISO and other international standards means to an organization and how an organization may attain certification. Students will gain a working understanding of standards, requirements, and methodologies of compliance. Emphasis will be on how implementation of the standards can serve as one of the building blocks of an organization’s quality system.

IET 32500 ESSENTIAL LOGISTICS
(Class 3, Cr. 3)
Prerequisite: IET 22400
Students shall learn the elements of business objective logistics, increase of greater asset productivity, building customer loyalty and market share. Integration of real-time information technology to make production and distribution more efficient, global competition and global technology and elimination of lengthy distribution channels.

IET 35500 STATISTICAL PROCESS CONTROL I
(Class 3, Cr. 3)
Prerequisite: STAT 30100
Evaluation, analysis and installation of various procedures that comprise total quality control. Market research, product design, manufacturing planning, purchasing, production, and delivery are covered. Data analysis, quality improvement, quality design and vendor relations are included.

IET 36500 STATISTICAL PROCESS CONTROL II
(Class 3, Cr. 3)
Prerequisite: IET 35500
A continuation of IET 35500. Product control and acceptance techniques, customer relations, and quality assurance are covered.

IET 40200 LOGISTICS AND THE GLOBAL SUPPLY CHAIN
(Class 3, Cr. 3)
Prerequisite: IET 22400
Students shall learn the elements of business objective logistics, increase of greater asset productivity, building customer loyalty and market share. Integration of real-time information technology to make production and distribution more efficient, global competition and global technology and elimination of lengthy distribution channels.

IET 41100 APPLICATIONS OF LEAN AND SIX SIGMA METHODOLOGIES
(Class 3, Cr. 3)
Prerequisite: IET 27300 and IET 35500
This hands-on course focuses on emerging business practices that are geared toward making an organization more effective and efficient. Highlighted topics will include use of lean and six sigma methodologies in today’s business environments. These methods are used for achieving long term profits through customer satisfaction, waste elimination and elevation of employee skills to eliminate waste and defects at the source. Application of these methods in various environments such as service, health care and manufacturing organizations will be explored. Students are expected to work in teams to apply systematic problem-solving processes to solve case studies and/or real-world issues. Supporting concepts such as implementation of new business practices and culture changes will also be explored.

IET 45000 PRODUCTION COST ANALYSIS
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)
An introduction to financial statements and to the study of the costs of production in terms of break-even and least cost alternatives, including present and future costs when related to time value of money, budgeting, labor and overhead, production cost control and the role of the supervisor and the engineering technologist to cost control computer applications for determining rate of return for complex problems are introduced.

IET 49500 SENIOR PROJECT SURVEY
(Class 3, Cr. 3)
Note: Designated sections IET 49500 will fulfill the Experiential Learning requirement.
Prerequisite: OLS 33100 and IET 30800
Students will consider several projects and develop a topic for the following IET 49700 course. They will develop project scope, establish time schedules, and give a written and oral report on their proposal. Note: course should be taken no sooner that the 2nd semester before graduating.

IET 49700 SENIOR PROJECT
(Class 2, Lab. 2, Cr. 3)
Note: Designated sections IET 49700 will fulfill the Experiential Learning requirement.
Prerequisite: IET 49500
Hours to be arranged. Directed work on individual projects for senior industrial engineering technology students.

IET 49900 INDUSTRIAL ENGINEERING TECHNOLOGY
(Class 1 to 4, Lab. 0 to 9, Cr. 1 to 9)
Hours and subject matter to be arranged by staff. Course may be repeated for credit.

IET 51000 PRODUCT AND PROCESS DEVELOPMENT OPTIMIZATION
(Class 3, Cr. 3)
Product and process development optimization is an efficient statistical procedure for planning a series of experiments such that the data obtained can be analyzed to yield valid and objective conclusions. It can be used to screen a set of variables to identify those with most effect, optimize an experimental process or retrospectively analyze a set of experimental data. Both the design and analysis steps require the application of techniques for statistical data analysis. Leveling courses may be required based on student undergraduate degree.

Information Systems

ISM 10200 COMPUTER UTILIZATION FOR MANAGEMENT
(Class 2, Lab. 2, Cr. 3)
An introduction to computer application software with an emphasis on use within the management area. Topics include word processing, spreadsheets, presentations, and databases, with applications targeted specifically for marketing, finance, human resource, accounting and economics.

ISM 21100 PRINCIPLES OF INFORMATION SYSTEMS
(Class 2, Lab. 2, Cr. 3) General Education
Prerequisite: MGMT 10200 or ISM 10200
An introduction to information systems from the perspective of a manager. This course provides an overview of information systems, systems theory, human information processing, and current legal and ethical issues relating to computer usage. Extensive lab experiences and advanced spreadsheet and database management applications in business context are assigned.

ISM 30700 SYSTEM ANALYSIS AND DESIGN
(Class 2, Lab. 2, Cr. 3)
Introduces the information systems student to the procedural requirements of the systems development life cycle (SDLC). A case study approach is used to introduce
the student to the techniques of systems planning, analysis, form and file design, documentation, implementation and evaluation.

**ISM 30800 DATABASE MANAGEMENT ANALYSIS AND DESIGN**
(Class 2, Lab. 2, Cr. 3)
This course discusses the functions of components of database management systems and the role of databases in the System Development Life Cycle. Both relational and object-oriented database techniques are discussed. Data modeling tools presented include enterprise models, entity relationships diagrams, the data dictionary, object diagrams and normalization techniques. Also, the role and function of the Database Administrator are addressed.

**ISM 31100 MANAGEMENT INFORMATION SYSTEMS**
(Class 3, Cr. 3)
Prerequisite: MGMT 10200 or ISM 10200
An introduction to the capabilities, limitations, and applications of computers in the business environment. Topics include information systems, hardware, software, data management, telecommunications and networking, decision support, artificial intelligence, expert systems, security, privacy, ethical issues in information systems, and implementation of effective Information Technology (IT) utilization.

**ISM 31800 E-BUSINESS STRATEGY**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: MGMT 31100 or ISM 31100 or MGMT 21100 or ISM 21100
An overview of e-business from design to operations of organizations engaging in the fast-paced highly competitive, global environment of e-commerce. Topics include the e-business, strategic use of IT for competitive advantage, e-business impact on organization, globalization, and the impact on options created through applied IT. It is designed for students pursuing leadership roles in defining IT policy and strategy.

**ISM 32000 ADVANCED SPREADSHEET APPLICATIONS**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: MGMT 21100 or ISM 21100
This course can be used as a business elective for BS in Management majors to prepare students to analyze data and solve real-life business problems, using Microsoft Excel as a tool. Moving beyond the basic point and click focus of most computer application texts, it challenges students to use critical thinking and analysis to find efficient solutions to real-life situations. Topics include statistical analysis tools, data visualization and manipulation, logic in decision making, financial analysis, what-if analyses, goal-seeking tools and solver model.

**ISM 32200 E-BUSINESS APPLICATIONS**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: MGMT 21100 or ISM 21100 and MGMT 32400 or ISM 32400
This course can be used as a business elective for BS in Management majors. The course content takes an in-depth look at web design concepts and techniques. The course examines theoretical concepts that make the world of web design unique. Also, this course adopts a practical hands-on approach when examining web page styles. Along with examining different coding techniques and technologies, this course explores the advancement of Web development, as well as, E-business problem-solving strategies.

**ISM 32500 LOGISTICS**
(Class 3, Cr. 3)
This course analyzes the elements of business logistics. The course will focus on the integration of real-time information technology to increase the effectiveness of production and distribution. Global competition and technology and channels of distribution will also be discussed.

**ISM 41600 INFORMATION SYSTEMS CONTROL AND AUDIT**
(Class 3, Cr. 3)
Prerequisite: MGMT 31100 or ISM 31100 or MGMT 21100 or ISM 21100
The study of information systems (IS) control and (IS) auditing assesses whether computer systems safeguard assets, maintain data integrity, and facilitate the implementation of the goals of the organization. The reasons why companies control and audit computer systems, the nature and purposes of the information systems audit function and the overall approach to a systems audit will be studied.

**ISM 41700 BUSINESS PROBLEM-SOLVING WITH ADVANCED SPREADSHEETS**
(Class 2, Lab. 2, Cr. 3)
Note: Designated sections ISM 41700 will fulfill the Experiential Learning requirement.
Prerequisite: MGMT 21100 or ISM 21100
This course addresses the need of using advanced spreadsheet application to analyze and solve business problems. This course will be offered as an elective course for MIS/CIS majors and other business major/minor students in the College of Business. It is a design project/undergraduate research experiential course where students will learn the process of designing and implementing solutions for business problems with spreadsheets.

**ISM 41800 KNOWLEDGE MANAGEMENT AND BUSINESS INTELLIGENCE**
(Class 3, Cr. 3)
Prerequisite: MGMT 21100 or ISM 21100
This course explores the theories, strategies, methods, and tools for managing organizational knowledge and making business decisions more efficiently and effectively through utilizing intelligent Information Systems (IS) in a fast-paced, highly competitive, global environment. Topics include decision-making process and modeling, decision support systems, expert systems, artificial intelligence, data mining, knowledge representation and reasoning, etc.

**ISM 48300 BUSINESS DATA COMMUNICATIONS**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: MGMT 21100 or ISM 21100
This course can be used as a business elective for BS in management majors. It introduces the subject of data communication and the use of telecommunication in business applications. Topics include client-server architecture, network hardware and software, distributed computing, key issues in telecommunication and network management, and the fundamentals of data communications. In addition, this course covers both legacy networks and modern high-speed networks used in business communications.

**ISM 48600 PROJECT MANAGEMENT**
(Class 2, Lab. 2, Cr. 3)
Note: Designated sections ISM 48600 will fulfill the Experiential Learning requirement.
Prerequisite: MGMT 31100 or ISM 31100 or MGMT 21100 or ISM 21100
This course explores the application of Decision Support Systems (DSS), Expert Systems (ES), and Knowledge Management Systems (KMS) to a company’s strategic decision-making process. Topics include the decision-making process, decision contexts and types, expert system opportunities, knowledge management, and the roles of decision-making tools.

**ISM 48700 KNOWLEDGE AND DECISION MANAGEMENT**
(Class 3, Cr. 3)
Prerequisite: MGMT 21100 or ISM 21100 or MGMT 31100 or ISM 31100
This course explores the application of Decision Support Systems (DSS), Expert Systems (ES), and Knowledge Management Systems (KMS) to a company’s strategic decision-making process. Topics include the decision-making process, decision contexts and types, expert system opportunities, knowledge management, and the roles of decision-making tools.

**ISM 48801 E-AUCTION IN PRACTICE**
(Class 2, Lab. 2, Cr. 3)
Note: Designated sections ISM 48801 will fulfill the Experiential Learning requirement.
Prerequisite: MGMT 21100 or ISM 21100 and MGMT 31100 or ISM 31100
The course will cover fundamentals of e-Auction and exchange instruments and provide an immersion experience via projects and classroom experiments designed to provide experiential learning and using case studies and hands-on online store practice.

**ISM 48901 ENTERPRISE RESOURCE PLANNING IMPLEMENTATION**
(Class 2, Lab. 2, Cr. 3)
Note: Designated sections ISM 48901 will fulfill the Experiential Learning requirement.
Prerequisite: CIS 25200 or MGMT 30700 or ISM 30700
This course addresses the need of using advanced spreadsheet application to analyze and solve business problems. This course will be offered as an elective course for MIS/CIS majors and other business major/minor students in the College of Business. It is a design project/undergraduate research experiential course where students will learn the process of designing and implementing solutions for business problems with spreadsheets.

**Industrial Technology**
IT 50700 MEASUREMENT AND EVALUATION IN INDUSTRY AND TECHNOLOGY  
(Class 3, Cr. 3)  
An introduction to measurement strategies in industrial, technical, and human resource development environments. The evaluation of measurement outcomes will be the primary focus of the course.

IT 50800 QUALITY AND PRODUCTIVITY IN INDUSTRY AND TECHNOLOGY  
(Class 3, Cr. 3)  
Examines the contemporary issues of continuous improvements in quality and productivity in manufacturing and service industries. Includes a close examination of the evolving philosophies bearing on the scope, improvement, and cost of quality assurance programs in industry and technology.

IT 53500 GLOBAL SUPPLY CHAIN MANAGEMENT  
(Class 3, Cr. 3)  
The objective of this course is to provide in-depth knowledge of global supply chain management and its application in industries. This course explores supply chain management, expanding beyond the linkage between producer and distributor to include other enterprises in the product life cycle, beginning with concept design and ending in disposal. Learning methodologies include lecture, case study and collaborative student group activities in applied research.

IT 57100 PROJECT MANAGEMENT IN INDUSTRY AND TECHNOLOGY  
(Class 3, Cr. 3)  
The factors influencing decisions during the initiation, implementation and termination of industrial and manufacturing projects are examined. Students work as project teams, using project management tools to develop implementation strategies.

Italian

ITAL 10100 ITALIAN LEVEL I  
(Class 3, Lab. 1, Cr. 3)  
Introduction to Italian.

ITAL 10200 ITALIAN LEVEL II  
(Class 3, Lab. 1, Cr. 3)  
Prerequisite: ITAL 10100  
Continuation of ITAL 10100 (Italian Level I)

ITAL 20100 ITALIAN 201 - LEVEL III  
(Class 3, Cr. 3)  
Prerequisite: ITAL 10200  
This course is an elective for students in the University colleges and departments who wish to choose Italian in order to meet the mandatory two years language requirements. It forms the basis of a four semester sequence to deepen the mastery of another language as well as the foundation for additional knowledge of the business, cultural and literary practices of Italy.

ITAL 20200 ITALIAN LEVEL IV  
(Class 3, Cr. 3)  
Prerequisite: ITAL 20100  
This course offers another choice in order to fulfill the foreign language requirements as well as providing the community with additional educational options.

Information Technology Systems

ITS 10000 INFORMATION TECHNOLOGY FUNDAMENTALS  
(Class 3, Cr. 3)  
This is the freshman experience course that also covers pervasive themes in IT, organization issues and history of IT, IT and its related informing disciplines, application domains, computer math and other IT topics.

ITS 11000 WEB SYSTEMS TECHNOLOGY  
(Class 2, Lab. 2, Cr. 3)  
This course covers web technologies, information architecture, digital media, web development, vulnerabilities, social software and other topics.

ITS 12000 INFORMATION TECHNOLOGY INTERACTION  
(Class 2, Lab. 2, Cr. 3)  
This course covers human factors, HCI aspects of application domains, human-centered evaluation, developing effective interfaces, accessibility, emerging technologies, human-centered software and other topics.

ITS 13000 PLATFORM TECHNOLOGIES  
(Class 2, Lab. 3, Cr. 3)  
This course covers architecture and organization, computer infrastructure, enterprise deployment software, firmware, hardware and other topics.

ITS 13500 OPERATING SYSTEMS TECHNOLOGIES  
(Class 2, Lab. 2, Cr. 3)  
This course covers operating systems concepts, applications, administrative activities, installation, customization, maintenance, security and other topics.

ITS 14000 INTRODUCTION TO PROGRAMMING METHODS  
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)  
Introduction to computer algorithms and logic. This course covers introduction concepts of information technology computer programming. Topics include algorithm development, programming logic, evaluating software programs, developing software through a variety of tools, and analysis/development of software specifications. Extensive laboratory assignments are assigned.

ITS 17000 NETWORK TECHNOLOGIES  
(Class 2, Lab. 2, Cr. 3)  
This course covers routing and switching, physical layer, foundation of networking, security, application considerations, network management and other topics.

ITS 19900 TOPICS IN INFORMATION TECHNOLOGY I  
(Class 0 to 4, Lab. 0 to 4, Cr. 1 to 4)  
This course covers topics in information technology or security topics.

ITS 20000 ETHICAL AND LEGAL ISSUES IN IT  
(Class 3, Cr. 3)  
This course covers professional communications, social context of computing, teamwork concepts and issues, intellectual properties, legal issues in computing, organization context, professional and ethical issues, responsibilities, privacy and civil liberties and other topics.

ITS 24000 PROGRAMMING FUNDAMENTALS  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: MA 20500 and ITS 14000  
This course covers fundamental data structures, fundamental programming constructs, object-oriented programming, algorithms and problem-solving, event-driven programming, recursion and other topics.

ITS 24500 INTEGRATIVE PROGRAMMING  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 24000  
This course covers scripting techniques, integrative coding, overview of program languages, software security practices, data mapping and exchange, emerging technologies, intersystem communication, and other topics.

ITS 25000 FUNDAMENTALS OF INFORMATION ASSURANCE  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 13500 and ITS 17000  
This course covers security mechanisms, fundamental aspects, operational issues, policy, attacks, security domains, forensics, information states, security services, threat analysis, vulnerabilities, and other topics.

ITS 26000 APPLIED DATABASE TECHNOLOGIES  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 24000  
This course covers database query languages, information management concepts and fundamentals, data organization, data modeling, managing the database environment, special purpose databases, and other topics.

ITS 27000 INTERNETWORKING TECHNOLOGIES  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 17000  
This course covers requirements, acquisition/sourcing, integration, project management, testing and quality assurance, organizational context, architecture and other topics.

ITS 29900 TOPICS IN INFORMATION TECHNOLOGY II  
(Class 0 to 4, Lab. 0 to 4, Cr. 1 to 4)  
This course covers topics in information technology or security topics.

ITS 30000 SIMULATION AND GAME DEVELOPMENT I
**ITS 33000 ADVANCED OPERATING SYSTEMS**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 24500  
This course covers the comparison and contrast of operating systems, the detailed examination of architecture, customization and implementation of the features of specific operating systems. Extensive laboratory exercises are assigned.

**ITS 34000 ADVANCED PROGRAMMING**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 24500  
This course covers advanced topics in programming languages, GUI development, threaded applications, components, testing and debugging, methods and advanced topics in event-driven and object oriented programming techniques. Extensive laboratory exercises are assigned.

**ITS 35000 SYSTEMS ASSURANCE**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 25000  
This course covers the implementation of systems assurance with computing systems. Topics include confidentiality, integrity, authentication, non-repudiation intrusion detection, physical security, and encryption. Extensive laboratory exercises are assigned.

**ITS 35200 DISASTER RECOVERY AND PLANNING**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 35000  
This course covers risk management and business continuity. Topics include disaster recovery strategies, mitigation strategies, risk analysis, and development of contingency plans for unexpected outages and component failures. Extensive laboratory exercises are assigned.

**ITS 35400 INFORMATION ASSURANCE RISK ASSESSMENT**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 35000  
This course covers industry and government requirements and guidelines for information assurance and auditing of computing systems. Topics include risk assessment and implementation of standardized requirements and guidelines.

**ITS 35600 SECURING WIRELESS SYSTEMS**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 25000  
This course covers the implementation of secure wireless systems and computing systems. Topics include intrusion detection, physical security, communications security, and encryption with wireless systems. Extensive laboratory exercises are assigned.

**ITS 36000 DISTRIBUTED APPLICATION ARCHITECTURE AND DESIGN**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 26000  
This course covers the application development life cycle, modeling techniques, software architecture, design patterns, best practices, and development strategies. Extensive laboratory exercises are assigned.

**ITS 36200 DISTRIBUTED APPLICATION DEVELOPMENT**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 36000  
This course is a project-oriented course in multi-tier application development, interface design and implementation, component based application development, and configuration of multi-tier applications. Extensive laboratory exercises are assigned.

**ITS 36400 DATABASE MODELING AND IMPLEMENTATION**  
(Class 2, Lab. 2, Cr. 3)  
Note: Designated sections ITS 36400 will fulfill the Experiential Learning requirement.  
Prerequisite: ITS 36000  
This is an advanced course that covers the design of distributed databases, data modeling, normalization rules, query languages, layout and design of forms, transaction management, and implementation of the database design. Extensive laboratory exercises are assigned.

**ITS 37000 DATACOMMUNICATIONS AND NETWORKING**  
(Class 3, Cr. 3)  
Prerequisite: ITS 27000  
This course covers network and communication conduits, error detection and correction, media, and the open system model.

**ITS 37200 SYSTEM ADMINISTRATION AND MANAGEMENT**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 27000  
This course covers system performance analysis, benchmarking, acceptance testing, security strategies, file systems analysis, auditing, server roles, and best practices. Extensive laboratory exercises are assigned.

**ITS 39900 TOPICS IN INFORMATION TECHNOLOGY III**  
(Class 0 to 4, Lab. 0 to 4, Cr. 1 to 4)  
This course covers topics in Information Technology or Security.

**ITS 40000 SIMULATION AND GAME DEVELOPMENT II**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 30000  
This course is a continuation of ITS 30000 covering advanced technical aspects of simulation and game development including technology synthesis, system architectures for real-time game and simulation, network, data driven systems, and artificial intelligence. Extensive laboratory exercises are assigned.

**ITS 40400 SYSTEM MODELING AND SIMULATION**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 40000  
This course covers topics in Information Technology or Security.

**ITS 43000 SYSTEMS PROGRAMMING**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 40000  
This course covers defensive programming techniques, bounds analysis, error handling, advanced testing techniques, detailed code auditing, software specification in a trusted assured environment. Extensive laboratory exercises are assigned.

**ITS 45000 SOFTWARE ASSURANCE**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 34000  
This course covers multiple platform scripting tools and script development for customization of systems features, batch operations, and automated system management. Extensive laboratory exercises are assigned.

**ITS 45200 COMPUTER FORENSICS**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 35400  
This course covers the techniques used in the forensic analysis of computerized systems for gathering evidence to detail how a system has been exploited or used. Extensive laboratory exercises are assigned.

**ITS 45400 ASSURED SYSTEMS DESIGN AND IMPLEMENTATION**  
(Class 2, Lab. 2, Cr. 3)  
Note: Designated sections ITS 45400 will fulfill the Experiential Learning requirement.  
Prerequisite: ITS 45000 or ITS 45200  
This course covers the design and implementation of assured systems in an enterprise environment. Topics include hardening of operating systems, choice of...
platforms, design criteria within the assured system domain. Extensive laboratory exercises are assigned.

**ITS 45900 TOPICS IN INFORMATION ASSURANCE AND SECURITY**  
(Class 3, Cr. 3)  
Prerequisite: ITS 45000 and ITS 45200  
This course covers special topics and emerging technologies in information assurance and security.

**ITS 46000 DISTRIBUTION APPLICATION CONFIGURATION AND MANAGEMENT**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 36200 and ITS 36400  
This course covers application deployment techniques, life cycle management, performance testing and tuning, maintenance, and quality assurance. Extensive laboratory exercises are assigned.

**ITS 46200 APPLICATION INTEGRATION**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 46000  
This course covers service oriented computing, integration of disparate enterprise applications, and implementing interfaces between platforms and applications. Extensive laboratory exercises are assigned.

**ITS 46900 TOPICS IN DISTRIBUTED ENTERPRISE APPLICATION**  
(Class 3, Cr. 3)  
Prerequisite: ITS 46000  
This course covers special topics and emerging technologies in distributed enterprise applications.

**ITS 47000 LARGE SCALE HIGH PERFORMANCE SYSTEMS**  
(Class 3, Cr. 3)  
Prerequisite: ITS 37000 and ITS 37200  
This course covers the configuration of networks and communication conduits, error detection and correction, media, and the open system model. Extensive laboratory exercises are assigned.

**ITS 47200 NETWORK DESIGN AND IMPLEMENTATION**  
(Class 2, Lab. 2, Cr. 3)  
Note: Designated sections ITS 47200 will fulfill the Experiential Learning requirement.  
Prerequisite: ITS 47000  
This course covers the design and implementation of enterprise level networks. Topics include network topologies, protocols, technologies, services, design and architecture and implementation of the network design. Extensive laboratory exercises are assigned.

**ITS 47900 TOPICS IN NETWORKING**  
(Class 3, Cr. 3)  
Prerequisite: ITS 47000  
This course covers special topics and emerging technologies in networking.

**ITS 48000 IT PROJECT DEVELOPMENT AND MANAGEMENT**  
(Class 4, Cr. 4)  
Prerequisite: ITS 35000 or ITS 36000 or ITS 37000 or ITS 37200  
This course covers the planning, design, selection, and project management of information technology systems. This course contains the development of requirements, configuration of hardware and software, management of the procurement and implementation process, performance requirements, contract negotiation, and legal issues within a comprehensive project.

**ITS 49000 SENIOR PROJECT/UNDERGRADUATE RESEARCH**  
(Class 3, Cr. 3)  
Note: Designated sections ITS 49000 will fulfill the Experiential Learning requirement.  
Prerequisite: ITS 45900 or ITS 46200 or ITS 47900  
This capstone course brings together the different domains of Information Technology. This course contains topics of distributed application development, networking, information assurance and security that integrate around and an unconstrained problem of substantial complexity with an undefined solution and the implementation of the design solution.

**ITS 49900 TOPICS IN INFORMATION TECHNOLOGY IV**  
(Class 0 to 4, Lab. 0 to 4, Cr. 1 to 4)  
This course covers topics in information technology or security topics.

**ITS 56000 DATABASE MANAGEMENT SECURITY**  
(Class 3, Cr. 3)  
This seminar course covers the concepts of security as it applies to data and database security, including auditing methods using Oracle and SQL server. The course is an appropriate entry-level graduate course for interdisciplinary students. Students should have taken mid-level database security, and programming classes as an undergraduate.

**ITS 56200 DATABASE ADMINISTRATION**  
(Class 3, Cr. 3)  
This seminar course covers the concepts of database administration, including topics such as architecture, advanced data management, and performance monitoring. The course is an appropriate entry-level graduate course for interdisciplinary students. Students should have taken mid-level database and programming classes as undergraduates.

**ITS 56400 DATA WAREHOUSING AND BUSINESS INTELLIGENCE**  
(Class 3, Cr. 3)  
This semester course covers data warehousing and business intelligence concepts with an emphasis on dimensional modeling as it applies to business intelligence. The course is an appropriate entry-level graduate course for interdisciplinary students. Students should have taken mid-level database and programming classes as undergraduates.

**ITS 56600 DATABASE OBJECT-ORIENTED MODELING AND ARCHITECTURE**  
(Class 3, Cr. 3)  
This seminar course covers the concepts of database modeling and architecture including topics as relational modeling, advanced object-oriented modeling and object persistence. Graduate student standing or senior status with consent of instructor. Graduate students without an ITS background may be required to take additional leveling courses.

**ITS 56800 DATABASE APPLICATION INTEGRATION**  
(Class 3, Cr. 3)  
This seminar course covers the concepts of database application and integration including topics as transactional processing, data integrity and integration with the web. Graduate student standing or senior status with the consent of instructor. Graduate students without an ITS background may be required to take additional leveling courses.

### Japanese

**JPNS 10100 JAPANESE LEVEL I**  
(Class 3, Lab. 3 or Class 3, Lab. 2, Cr. 4)  
A basic study of standard Japanese. Students will be introduced to spoken and written forms of the language from the beginning. Language form and use are emphasized, along with relevant cultural aspects. Hiragana and Katakana.

**JPNS 10200 JAPANESE LEVEL II**  
(Class 3, Lab. 3 or Class 3, Lab. 2, Cr. 4)  
Prerequisite: JPNS 10100  
A continuation of the study of elementary Japanese. Task-oriented activities will be incorporated to encourage language use as well as pattern practice for linguistic accuracy. Relevant cultural aspects will be included. 50 Kanji.

**JPNS 20100 JAPANESE LEVEL III**  
(Class 3, Lab. 3 or Class 3, Lab. 2, Cr. 4)  
Prerequisite: JPNS 10200  
A study of intermediate Japanese. Occasional use of authentic materials for listening and reading practice. Task-oriented exercises, communicative activities, and pattern practice are used to facilitate learning of the spoken and written language. 60 Kanji.

**JPNS 20200 JAPANESE LEVEL IV**  
(Class 3, Lab. 3 or Class 3, Lab. 2, Cr. 4)  
Prerequisite: JPNS 20100  
A continuation of intermediate Japanese. Active use of authentic materials for listening and reading practice. Task-oriented activities, communicative activities, and pattern practice are used to facilitate learning of the spoken and written language. 60 Kanji.
Latin American Studies

LAS 20100 THE HISPANIC AMERICAN EXPERIENCE
(Class 3, Cr. 3) General Education
Dimensions of the Hispanic American, including history, education, politics, psychology, economics, religion, social organization and art are topics covered in this course.

LAS 27100 LATIN AMERICA TO 1824
(Class 3, Cr. 3) General Education
A survey of Latin American history from its origins to the end of the major movements toward independence, with emphasis on discovery, colonization, expansion, and the transfer of institutions from Spain and Portugal.

LAS 27200 LATIN AMERICA SINCE 1824
(Class 3, Cr. 3) General Education
A survey of Latin American History from independence to the present with particular attention on political, economic, and social problems connected with modernization.

LAS 33000 US AND LATIN AMERICA
(Class 3, Cr. 3) General Education
This course will explore political, economic and social aspects of relations between the United States and various Latin American Nations from independence to the present.

LAS 34000 LATIN AMERICAN POPULATION ISSUES
(Class 3, Cr. 3)
Explores demographic changes and migration trends relating to Latin America. Topics addressed will include internal and external migration, birth rates and international population policy.

LAS 37300 THE CARIBBEAN
(Class 3, Cr. 3) General Education
Will explore various topics and issues unique to the Caribbean. Emphasis will be placed on European and African influence on the complex nature of Caribbean history, languages, literature, societies and cultures. Students may take the course for credit in either Latin American Studies or History, but not both.

LAS 37600 LATIN AMERICAN CINEMA
(Class 2, Lab. 2, Cr. 3)
A study of films produced in Latin America or addressing Latin American topics/issues. Students will engage in critical analysis of the films, and expect to develop greater understanding of the social context of subjects introduced. May include documentaries or feature films. Approximately two hours each week will be devoted to viewing films and two hours to class lecture/discussion.

LAS 37700 LATINO/HISPANIC CINEMA
(Class 2, Lab. 2, Cr. 3)
A study of films produced by Hispanic-Americans and/or depicting the Hispanic American experience. Students will engage in critical analysis of the films and expect to develop greater understanding of the social context of subjects introduced. May include documentaries of feature films. Approximately two hours each week will be devoted to viewing films, and two hours to class lecture/discussion.

LAS 39000 LATIN AMERICAN THEMES OF CULTURE, POLITICS AND ECONOMY
(Class 3, Cr. 3)
Topics addressed will include general themes of culture and political economy in Latin America.

LAS 45000 HISPANIC HERITAGE OF THE CALUMET REGION
(Class 3, Cr. 3)
An exploration of the history of Hispanic immigration into the Calumet Region. The course will include an examination of cultural diversity, politics, community organizations, and contributions of local Hispanic-Americans.

LAS 47200 HISTORY OF MEXICO
(Class 3, Cr. 3) General Education
A history of the Mexican people from the pre-Columbian period to the present. Special emphasis is placed on the successful social revolutions that led to the development of today’s dynamic nation.

LAS 48000 PRACTICUM IN LATIN AMERICAN STUDIES
(Class 1 to 3, Cr. 1 to 3)
This course is designed to offer students credit for field experience in Latin American Studies. Work may include study abroad, community service or research. May be repeated for additional credit.

LAS 49000 TOPICS IN LATIN AMERICAN STUDIES
(Class 3, Cr. 3)
Special topics course designed to address various subjects. This course may be repeated for credit. Variable title.

Lithuanian

LTHN 10100 LITHUANIAN LEVEL I
(Class 3, Lab. 3, Cr. 3)
This course stands as an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

LTHN 10200 LITHUANIAN LEVEL II
(Class 3, Lab. 3, Cr. 3)
Prerequisite: LTHN 10100
Continuation of Lithuanian 10100. This course stands as an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

Mathematics

MA 10000 AN INTRODUCTION TO MATHEMATICAL SCIENCES
(Class 3, Cr. 3)
This course is intended to integrate freshman mathematics majors into the department, help them adjust to university life, assist them in developing their academic and intellectual capabilities; introduces them to contemporary issues in mathematics, provide an overview of the careers open to those with degrees in mathematics. This course must be taken Pass/No Pass only. Credit by exam is not available for this course.

MA 11500 INTERMEDIATE ALGEBRA
(Class 3, Cr. 3)
Prerequisite: MA 02100
The purpose of this course is to strengthen and expand students’ basic algebraic skills and problem-solving capabilities and to prepare them for higher mathematics courses. For the purposes of general education requirements, MA 11500 is not a college level mathematics course, and therefore cannot be used to satisfy the general education requirement for mathematics at Purdue University Calumet.

MA 13700 MATHEMATICS FOR ELEMENTARY TEACHERS I
(Class 3, Cr. 3)
Prerequisite: MA 11500
Designed for prospective elementary school teachers. Problem solving. Numerical reasoning including self-generated and conventional algorithms. Whole and fractional number systems, elementary number theory. (At Purdue University West Lafayette, not available for credit in the College of Science.)

MA 13800 MATHEMATICS FOR ELEMENTARY TEACHERS II
(Class 3, Cr. 3)
Prerequisite: MA 13700
Continues the study of number systems through integers, rational numbers and real numbers. Quantitative and proportional reasoning as a foundation for algebraic reasoning. Elementary statistical and probabilistic reasoning. (Not available for credit in the College of Science.)

MA 13900 MATHEMATICS FOR ELEMENTARY TEACHERS III
(Class 3, Cr. 3)
Prerequisite: MA 13700
Geometric, measurement and spatial reasoning in one, two and three dimensions as the basis for elementary school geometry. Metric and non-metric geometry, transformation geometry. (At Purdue University West Lafayette, not available for credit in the College of Science.)

MA 14700 ALGEBRA AND TRIGONOMETRY FOR TECHNOLOGY
(Class 3, Cr. 3) General Education
Prerequisite: MA 11500
NOT open to students with credit in MA 15100 or 15300. MA 14700 and 14800 is a
### COURSE DESCRIPTIONS

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<th>Prerequisites</th>
<th>Notes</th>
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<td><strong>MA 14800 ALGEBRA AND TRIGONOMETRY FOR TECHNOLOGY I</strong></td>
<td>(Class 3, Cr. 3)</td>
<td>General Education, Transfer</td>
<td>MA 14700 or MA 15300</td>
<td>Not open to students with credit in MA 15100 or MA 15400. Continuation of MA 14700. MA 14800 concentrates on trigonometry.</td>
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<tr>
<td><strong>MA 15300 ALGEBRA AND TRIGONOMETRY I</strong></td>
<td>(Class 3, Cr. 3)</td>
<td>General Education, Transfer</td>
<td>MA 11500</td>
<td>Not open to students with credit in MA 14700 or 14800. MA 15300 is College Algebra. The content of MA 15300 and 15400 is similar to Algebra and Trigonometry. The pace and emphasis is directed to students who do not intend to take MA 16300. MA 15300 is College Algebra.</td>
</tr>
<tr>
<td><strong>MA 15400 ALGEBRA AND TRIGONOMETRY II</strong></td>
<td>(Class 3, Cr. 3)</td>
<td>Transfer</td>
<td>MA 15300</td>
<td>Not open to students with credit in MA 14800 or 15100. Continuation of MA 15300. MA 15400 is Trigonometry.</td>
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<tr>
<td><strong>MA 15900 PRECALCULUS</strong></td>
<td>(Class 5, Cr. 5)</td>
<td></td>
<td>MA 11500</td>
<td>Algebra and Trigonometry topics designed to prepare students for calculus.</td>
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<tr>
<td><strong>MA 16300 INTEGRATED CALCULUS AND ANALYTIC GEOMETRY I</strong></td>
<td>(Class 5, Cr. 5)</td>
<td>General Education, Transfer</td>
<td>MA 15900 or MA 15400</td>
<td>Topics from plane analytic geometry. Introduction to differentiation and integration. Applications.</td>
</tr>
<tr>
<td><strong>MA 16400 INTEGRATED CALCULUS AND ANALYTIC GEOMETRY II</strong></td>
<td>(Class 5, Cr. 5)</td>
<td>Transfer</td>
<td>MA 16300</td>
<td>Continuation of MA 16300. Completion of introductory study of topics in plane analytic geometry and the calculus of one variable, infinite series.</td>
</tr>
<tr>
<td><strong>MA 20500 DISCRETE MATHEMATICS FOR COMPUTER TECHNOLOGY</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 14700 or MA 15300</td>
<td>The course covers topics in discrete mathematics which are essential to the discipline of computer technology. These include: logic, sequences, mathematical introduction, basic set theory, functions, recursion, relations, graphs, and trees.</td>
</tr>
<tr>
<td><strong>MA 21900 CALCULUS FOR TECHNOLOGY I</strong></td>
<td>(Class 4, Cr. 4)</td>
<td></td>
<td>MA 14800</td>
<td>MA 21900 and 22200 is a two-semester sequence in the techniques of calculus for students enrolled in selected technical curriculum. MA 21900 develops topics from analytic geometry and introduces differentiation and integration. The offering pattern depends on the term offered. Not open to students with credit in MA 16300, MA 22300 or MA 22500.</td>
</tr>
<tr>
<td><strong>MA 22200 CALCULUS FOR TECHNOLOGY II</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 21900</td>
<td>Not open to students with credit in MA 16400 or 22400. Covers differentiation and integration of trigonometric, exponential, and logarithmic functions, infinite series, and first-order differential equations.</td>
</tr>
<tr>
<td><strong>MA 22300 INTRODUCTORY ANALYSIS I</strong></td>
<td>(Class 3, Cr. 3)</td>
<td>Transfer</td>
<td>MA 15400</td>
<td>MA 22300 and 22400 form a two-course sequence and provide an introduction to the differential and integral calculus of one and several variables, and elementary differential equation, with applications to business, behavioral, and biological sciences. Students may not have credit in more than one of the following: MA 16300, MA 22100, MA 22300 or MA 22500.</td>
</tr>
<tr>
<td><strong>MA 22400 INTRODUCTORY ANALYSIS II</strong></td>
<td>(Class 3, Cr. 3)</td>
<td>Transfer</td>
<td>MA 22300</td>
<td>Not open to students with credit in MA 16400 or 22200. Continuation of MA 22300.</td>
</tr>
<tr>
<td><strong>MA 22500 CALCULUS FOR BUSINESS AND ECONOMICS</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 15300</td>
<td>Functions and Limits. Differentiation and integration of algebraic functions of one variable. Applications of differentiation and integration. Not open to students with credit in MA 16300, MA 22100 or MA 22300.</td>
</tr>
<tr>
<td><strong>MA 23700 ADVANCED TOPICS IN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS I</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 13700 or MA 13800 or MA 13900</td>
<td>Topics in algebra and functions such as axioms, algebraic notions and equations. Modeling of problems, concepts of a functional, representation of functions, and types of functions (linear, quadratic, exponential, etc.) number systems, number theory, and set theory. Appropriate technologies for teaching such topics will be used.</td>
</tr>
<tr>
<td><strong>MA 23800 ADVANCED TOPICS IN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHER II</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 13700 and MA 13900</td>
<td>Topics in proportionality, geometry and measurement such as proportional reasoning and rescaling in geometric contexts, perspective congruence and similarity, basic geometric figures, transformations, coordinate Geometry, geometric measurements in multiple dimensions, constructions, proof and argumentation. Appropriate technologies for teaching such topics will be used.</td>
</tr>
<tr>
<td><strong>MA 23900 ADVANCED TOPICS IN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHER III</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 13700 and MA 13900</td>
<td>Topics in proportionality, geometry and measurement such as proportional reasoning and rescaling in geometric contexts, perspective congruence and similarity, basic geometric figures, transformations, coordinate Geometry, geometric measurements in multiple dimensions, constructions, proof and argumentation. Appropriate technologies for teaching such topics will be used.</td>
</tr>
<tr>
<td><strong>MA 26100 MULTIVARIATE CALCULUS</strong></td>
<td>(Class 4, Cr. 4)</td>
<td></td>
<td>MA 14600</td>
<td>Solid analytic geometry, partial differentiation, multiple integrals.</td>
</tr>
<tr>
<td><strong>MA 26400 DIFFERENTIAL EQUATIONS</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 26100</td>
<td>Not open to students with credit in MA 26200. A first course in ordinary differential equations. First order differential equations, linear and nonlinear systems of differential equations, and second order differential equations.</td>
</tr>
<tr>
<td><strong>MA 26500 LINEAR ALGEBRA</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 16400</td>
<td>Not open to students with credit in MA 26200. An introduction to linear algebra. Systems of linear equations, matrix algebra, vector spaces, determinants, eigenvalues, eigenvectors, diagonalization of matrices, applications.</td>
</tr>
<tr>
<td><strong>MA 31200 PROBABILITY</strong></td>
<td>(Class 3, Cr. 3)</td>
<td></td>
<td>MA 26100</td>
<td>A calculus-based introduction to probability theory and stochastic processes. Topics include probability spaces, random variables, distributions, expectation conditional probability, and discrete-state-space Markov chains.</td>
</tr>
</tbody>
</table>
| **MA 31500 INTRODUCTION TO ABSTRACT MATHEMATICS** | (Class 3, Cr. 3) | | MA 26100 | This course is a bridge from the mainly computational mathematics courses to the upper-level abstract courses. It focuses on the development of students’ abilities to
MA 33000 CONCEPTS IN GEOMETRY
(Class 3, Cr.3)
Prerequisite: MA 26100
Fundamental concepts in geometry: Euclidean, non-Euclidean (including spherical and hyperbolic geometry), and fractal geometry.

MA 34500 CODING AND INFORMATION THEORY
(Class 3, Cr.3)
Prerequisite: MA 26500
An introduction to topics in coding and information theory: error-detecting and error-correcting codes, variable-length codes, decoding, entropy, information, channel capacity, Shannon’s theorems, basics of algebraic coding theory.

MA 34800 DISCRETE MATHEMATICS
(Class 3, Cr.3)
Prerequisite: MA 26500
Completion of MA 26500 with C or better required. A problem-centered introduction to topics in discrete mathematics including induction, permutations, combinations graphs, recurrence relations and generating functions.

MA 35100 ELEMENTARY LINEAR ALGEBRA
(Class 3, Cr.3)
Prerequisite: MA 26100
Not open to students with credit in MA 26500 or 35000. Systems of linear equations, finite dimensional vector spaces, matrices, determinants, applications to analytical geometry.

MA 40300 MATHEMATICAL RESEARCH
(Class 1 to 3, Cr. 1 to 3)
Note: Designated sections MA 40300 will fulfill the Experiential Learning requirement.
Undergraduate research in the mathematical sciences under the direction of a faculty member. May be used to fulfill an experiential learning requirement. Variable credit 1–3.

MA 44600 INTRODUCTION TO REAL ANALYSIS
(Class 3, Cr. 3)
Prerequisite: MA 26100
An introduction to basic concepts of real analysis: topology of the real line, sequences, series, and various forms of convergence. Applications to derivatives and integrals.

MA 45300 ELEMENTS OF ALGEBRA
(Class 3, Cr. 3)
Prerequisite: MA 26500 and MA 31500
Some basic properties of integers, polynomials, and fields (subfields) of the complex numbers, finite fields with emphasis on concrete examples and applications.

MA 45400 GALOIS THEORY
(Class 3, Cr. 3)
Prerequisite: MA 45300
Field extensions and auto isomorphisms. Galois Theory.

MA 47200 INTRODUCTION TO APPLIED MATHEMATICS
(Class 3, Cr. 3)
Prerequisite: MA 26400 and MA 26500 and CS 20600
Completion of MA 26400, MA 26500 and CS 20600 with a C or better. An introduction to the basic ideas and methods of applied mathematics. Topics taken from elementary partial differential equations, separation of variables and Fourier series, Fourier transforms, calculus of variations, applied linear algebra, numerical methods, modeling.

MA 48000 THE PRACTICUM IN APPLIED MATHEMATICS
(Class 3, Cr. 3)
The practicum course consists of a small team (a faculty advisor and 1–4 students) working on a real problem obtained in conjunction with a local business or industry. Not more than two terms of MA 48000 and/or CS 48000 may be taken for credit. (This course is the same as CS 48000.)

MA 49000 TOPICS IN MATHEMATICS FOR UNDERGRADUATES
(Class 0 to 5, Cr. 1 to 5)
Supervised reading and reports in various fields. Open only to students with the consent of the department.

MA 51000 VECTOR CALCULUS
(Class 3, Cr. 3)
Prerequisite: MA 26400 and MA 26500
Not open to students with credit in MA 36200. Functions of several variables: partial derivative, differential; quadratic approximation, extreme; vector calculus, gradient; line, surface and volume integrals; divergence, curl, Laplacian, integral theorems; mappings, continuity, differentiability, inverse mapping; implicit functions; orthogonal coordinates.

MA 52000 BOUNDARY VALUE PROBLEMS OF DIFFERENTIAL EQUATIONS
(Class 3, Cr. 3)
Prerequisite: MA 26400
Fourier series. Sturm-Liouville Theory; Orthogonal expansions, separation of variable in partial differential equations, spherical harmonics.

MA 52100 INTRODUCTION TO OPTIMIZATION PROBLEMS
(Class 3, Cr. 3)
Prerequisite: MA 26500
Linear programming, simplex algorithm, calculus of variations, necessary and sufficient conditions of extrema.

MA 52500 INTRODUCTION TO COMPLEX ANALYSIS
(Class 3, Cr. 3)
Prerequisite: MA 26400 and MA 26500
An introduction to normal linear spaces; Hilbert spaces; linear operations; spectral theory; selected applications.

MA 54000 ANALYSIS I
(Class 3, Cr. 3)
Prerequisite: MA 44600
Real number system, basic topology, infinite series, continuity, differentiation, integration.

MA 54100 ANALYSIS II
(Class 3, Cr. 3)
Prerequisite: MA 54000
Sequences and series of functions, uniform convergence, equicontinuous families, the Stone-Weierstrass Theorem, Fourier series, introduction to Labesque measure and integration.

MA 55300 INTRODUCTION TO ABSTRACT ALGEBRA
(Class 3, Cr. 3)
Prerequisite: MA 45300
Basic properties of groups, rings, integral domains, fields, polynomials Solvable groups. Finitely generated abelian groups. Algebraic and transcendental field extensions. Separable extensions. Normal extension, Galois theory.

MA 55400 LINEAR ALGEBRA
(Class 3, Cr. 3)
Prerequisite: MA 26500

MA 55500 ALGEBRAIC CODING THEORY
(Class 3, Cr. 3)
Prerequisite: MA 34500 or MA 45300
This course studies error-correcting codes in depth, with an emphasis on their mathematical properties. Included will be discussions of: Hamming codes, Golay codes, BCH codes, cyclic codes, quadratic residue codes, as well as polynomials over finite fields and weight distributions.

MA 55600 INTRODUCTION TO THE THEORY OF NUMBERS
(Class 3, Cr. 3)
Prerequisite: MA 26100
Divisibility, congruences, quadratic residues, diophantine equations, the sequence of primes.

MA 56000 FUNDAMENTAL CONCEPTS OF GEOMETRY
(Class 3, Cr. 3)
Prerequisite: MA 26100
Foundations of Euclidean geometry, including Euclid’s elements and detailed study of an axiom system such as that of Hilbert. Independence of the parallel axiom and introduction to non-Euclidean geometry.

MA 56100 PROJECTIVE GEOMETRY
(Class 3, Cr. 3)
Prerequisite: MA 26100
Ideal elements, duality, harmonic sets, projective metric; theory of conics, involution, imaginary elements.

MA 57100 ELEMENTARY TOPOLOGY
(Class 3, Cr. 3)
Prerequisite: MA 44600

MA 58100 INTRODUCTION TO LOGIC FOR TEACHERS
(Class 3, Cr. 3)
Prerequisite: MA 26100
Sentential and general theory of inference and nature of proof; elementary axiom systems.

MA 58300 HISTORY OF ELEMENTARY MATHEMATICS
(Class 3, Cr. 3)
A survey of elementary mathematics before calculus will be made to link the history of mathematics to that of other sciences and to the social history of the relevant periods. Some acquaintance with ancient history of Europe is desirable.

MA 58700 GENERAL SET THEORY
(Class 3, Cr. 3)
Prerequisite: MA 45300

MA 59800 TOPICS IN MATHEMATICS
(Class 0 to 5, Cr. 1 to 5)
Semester 1 and 2 SS. Cr. 1-5 (When offered at Indianapolis, cr. 0-6. May be repeated for credit.) Supervised reading courses as well as dual-level special topics courses are given under this number.

Mechanical Engineering

ME 11400 ENGINEERING DRAWING
(Class 1, Lab. 3, Cr. 2)
A technical drawing course covering geometric constructions pictorial and multi-view drawing, sections, graphical vector solutions, dimensioning detail and assembly drawings. Development of free hand sketching techniques as well as use of drafting instruments.

ME 11500 ENGINEERING DRAWING I
(Lab. 3, Cr. 1)
A technical drawing course covering engineering geometry, orthogonal projection, auxiliary views, dimensioning, and tolerance using sketching techniques, and 2-D CAD.

ME 11600 ENGINEERING DRAWING II
(Lab. 3, Cr. 1)
Prerequisite: ME 11500
A continuation of the technical drawing course covering 3-D parametric modeling, part assembly modeling, and detail and assembly drawings.

ME 27100 BASIC MECHANICS I (STATICS)
(Class 3, Cr. 3)
Prerequisite: MA 16300 and MA 16400 and PHYS 15.200 and MA 26100
Co-requisite: MA 26100
Review of vector algebra and equilibrium. Hydrostatics, virtual work, static stability, friction. First and second moments of areas, volumes, and masses, center of gravity. A minimum grade of C is required for the course prerequisites.

ME 27500 BASIC MECHANICS II (DYNAMICS)
(Class 3, Cr. 3)
Prerequisite: MA 26100 and ME 27100

ME 29100 INDUSTRIAL PRACTICE I
For co-operative engineering students only. Practice in industry and comprehensive written report of this practice.

ME 29200 INDUSTRIAL PRACTICE II
For co-operative engineering students only. Practice in industry and comprehensive written report of this practice.

ME 30500 GENERAL THERMODYNAMICS I
(Class 3, Cr. 3)
Prerequisite: MA 26100 and PHYS 26100
Properties of pure substances, work and heat, first and second laws of thermodynamics, entropy, irreversibility and availability, power and refrigeration cycles, thermodynamic relations.

ME 30600 GENERAL THERMODYNAMICS II
(Class 3, Cr. 3)
Prerequisite: ME 30500
Thermodynamic relations. Power and refrigeration cycles, methods of thermodynamic analysis, technical thermodynamics and design, energy conversion. Thermodynamics of combustion processes and equilibrium.

ME 31100 ENGINEERING PROJECT MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: MA 16400
Introduction of principles of engineering project management and techniques. Topics include technical feasibility studies, project specifications, scheduling, validation, lifecycle costing, and economic analysis. The focus is on managing an engineering project through scheduling, budgeting, resource management, execution and control.

ME 31200 FLUID MECHANICS
(Class 3, Cr. 3)
Prerequisite: MA 26400 and ME 27500 and ME 30500 and ME 31300
Continuum, velocity field, fluid statics, basic conservation laws for systems and control volumes, dimensional analysis, Euler and Bernoulli equations, viscous flows, boundary layer flow in channels and around submerged bodies, one-dimensional gas dynamics.

ME 31300 FLUID MECHANICS LABORATORY
(Lab. 3, Cr. 1)
Prerequisite: ME 31200
Introduction to fluid mechanics laboratory, experiments on flow patterns, velocity profile in an air pipe, wind tunnel calibration, draining of a tank, pipe friction, boundary layer studies, falling ball experiments, and viscosity measurements.

ME 32000 KINEMATIC ANALYSIS AND DESIGN
(Class 2, Lab. 3, Cr. 3)
Prerequisite: MA 26400 and ME 11600 and ME 27500
Graphical, analytical, and computer techniques for analyzing displacements, velocities, and accelerations in mechanisms. Analysis and design of linkages, cams and gears. Laboratory projects include analysis, design, construction, and evaluation of mechanisms.

ME 32500 DYNAMICS OF PHYSICAL SYSTEMS
(Class 3, Cr. 3)
Prerequisite: ECE 20100 and ME 27500 and MA 26400
Development and solution of linear models; translational and rotational mechanical systems, electrical systems, electromechanical systems, thermal systems, hydraulic systems. The Laplace transform, transfer functions, and Bode plots, state variable representation and solutions. Computer analysis and simulation.
ME 34500 MECHANICAL ENGINEERING EXPERIMENTATION
(Class 2, Lab 3, Cr 3)
Prerequisite: CE 27300 and MA 26400 and ME 32500
Mechanical measurements and methods of experimentation. Calibration standards, statistical replication and error minimization, transducers and instrumentation, dimensional analysis and the design of an experiment. Laboratory experiments will require formal reports and will deal with displacements, velocities, pressures, and elastic strains.

ME 39300 INDUSTRIAL PRACTICE III
For co-operative engineering students only. Practice in industry and comprehensive written report of this practice.

ME 39400 INDUSTRIAL PRACTICE IV
For co-operative engineering students only. Practice in industry and comprehensive written report of this practice.

ME 39500 INDUSTRIAL PRACTICE V
For co-operative engineering students only. Practice in industry and comprehensive written report of this practice.

ME 40400 FINITE ELEMENT ANALYSIS
(Class 2, Lab 2, Cr 3)
Prerequisite: MA 26400 and MA 26500 and CE 27300
Brief history of finite element method and ANSYS; direct formulation; minimum total potential energy formulation; verification of results; trusses. Examples using ANSYS, one-dimensional elements. Numerical integration, Gauss Quadrature. Examples of one-dimensional elements in ANSYS, heat transfer problems; solid mechanics problems; two-dimensional elements. Pre-processing with ANSYS; boundary conditions; applications; heat conduction problems; torsion problems; beams and frames. Credit is not allowed for both ME 40400 and CE 40400. This will be one of the ME electives for Mechanical Engineering students.

ME 41600 HEAT TRANSFER
(Class 3, Cr 3)
Prerequisite: ME 30500 and ME 31200 and ME 31300 and ME 41700
Steady state and transient heat transfer by conduction, laminar and turbulent convection, film condensation and boiling, and by radiation. Combined heat and mass transfer by diffusion and convection. The analysis and design of heat exchangers for process heat transfer.

ME 41700 HEAT TRANSFER LAB
(Class 3, Lab 1)
Prerequisite: ME 31300 and ME 41600
Heat transfer laboratory with measurements of temperature and flows. Experiments include temperature profiles in solids, thermal conductivity, radiation, and the determination of various heat and mass transfer coefficients.

ME 42600 HEATING AND AIR CONDITIONING ANALYSIS
(Class 3, Cr 3)
Prerequisite: ME 41600

ME 42900 SENIOR ENGINEERING DESIGN I
(Class 2, Lab 3, Cr 3)
Note: Designated sections ME 42900 will fulfill the Experiential Learning requirement.
Prerequisite: ENGL 30700 and ME 30500 and ME 31100 and ME 31200 and ME 34500 and MSE 20000
Prerequisite: Penultimate semester. The senior engineering design courses I and II constitute a two-semester sequence of an interdisciplinary activity. The objective of these courses is to provide engineering students with supervised experience in the process and practice of engineering design. Projects are chosen by the students or the faculty. Students working in teams pursue an idea from conception to realistic design. The course is climax ed by the presentation of a substantial written report and a formal oral presentation before faculty and students.

ME 43900 SENIOR ENGINEERING DESIGN II
(Class 2, Lab 2, Cr 3)
Note: Designated sections ME 43900 will fulfill the Experiential Learning requirement.
Prerequisite: ME 42900
The senior engineering design courses I and II constitute a two-semester sequence of an interdisciplinary activity. The objective of these courses is to provide engineering students with supervised experience in the process and practice of engineering design. Projects are chosen by the students or faculty. Students working in teams pursue an idea from conception to realistic design. The course is climax ed by the presentation of a substantial written report and a formal oral presentation before faculty and students.

ME 44000 AUTOMOTIVE PRIME MOVERS: GREEN ENGINES AND CLEAN FUELS
(Class 2, Lab 2, Cr 3)
Prerequisite: ME 30000
Internal combustion engines (ICE), hybrid engines (HE), fuel-cell engines (FCE), and alternative/renewable fuels. ICE topics—engines with advanced combustion systems such as clean diesels, direct-injection spark-ignition engines (DISI), and low-temperature combustion (UTC) compression-ignition. HE topics—different components of hybrid engines and the powertrain design. FCE topics—fundamentals of fuel cells and automotive applications. Clean fuel topics—biofuels, hydrogen, and natural gas, as well as, other cleaner fossil fuels for automotive applications. Well-to-wheel energy and cost analysis of prime movers design/fuels. Course includes a laboratory component.

ME 46100 MACHINE DESIGN I
(Class 3, Lab 3, Cr 4)
Prerequisite: CE 27300 and ME 34500
Application of mechanics and mechanics of materials to the analysis and design of machine elements. Stress and deflection analysis, statistical considerations under steady and variable loading, stress principles applied to fasteners, springs, welded joints, and general mechanical elements. Fits and tolerances. Antifriction Bearings. Spur gears. Laboratory includes problems, solutions of design problems, and experiments.

ME 46600 MACHINE DESIGN II
(Class 2, Lab 3, Cr 3)
Prerequisite: ME 32000 and ME 46100
Comprehensive study in the design and analysis of gearing, rolling and journal bearings, clutches and brakes, and flexible mechanical elements. Introduction to reliability engineering. Laboratory includes projects and solution of design problems.

ME 48500 LINEAR CONTROL SYSTEMS
(Class 3, Lab 3, Cr 4)
Prerequisite: ME 32500
Introduction to classical control theory. Transfer functions, block diagram manipulation, and signal flow graphs. Transient and steady state responses; characteristics, and design. Sensitivity analysis and disturbance rejection. System stability. Root locus analysis and design. Frequency response analysis using Bode and polar plots. Nyquist criterion and Nichols chart. Controller design using Bode plots. Laboratory will include design, simulation of topics covered, and a number of practical experiments. Credit is not allowed for both ECE 38400 and ME 48500.

ME 48600 INTRODUCTION TO MANUFACTURING ENGINEERING
(Class 2, Lab 3, Cr 3)
Prerequisite: CE 27300 and MSE 20000
Modern manufacturing processes and methods including forming, shaping, machining, and joining. Productivity, quality improvement, material and energy conservation, automatic processing and inspection, process planning, manufacturing control, robotics, CAD, CAM, and computer integrated manufacturing.

ME 49700 MECHANICAL ENGINEERING PROJECTS
(Class 0 to 6, Lab 0 to 6, Cr 1 to 6)
May be repeated for credit. Junior standing or higher required. Projects or special topics of contemporary importance or of special interest that are outside the scope of the standard undergraduate curriculum can be studied under the Mechanical Engineering Projects course. Interested students should seek a faculty advisor by meeting with individual faculty members who work in their area of special interest and prepare a brief description of the work to be undertaken in cooperation with their advisor.

ME 50000 ADVANCED THERMODYNAMICS
The empirical, physical basis of the laws of thermodynamics. Availability concepts and applications. Properties and relations between properties in homogeneous and heterogeneous systems. The criteria of equilibrium. Application to a variety of systems and problems including phase and reaction equilibrium.

**ME 50200 NUMERICAL HEAT AND MASS TRANSFER**
(Class 3, Cr. 3)
Prerequisite: ME 31200 and ME 41600
This course is to introduce students with basic concepts and techniques in computational heat transfer and fluid dynamics, and to prepare students for development and application of computer codes for engineering design and scientific research. The topics will include finite volume methods (FVM), discrete modeling of Navier-Stokes equations and energy equations, iterative solution algorithms, grid generation, boundary conditions, convergence and accuracy, applicability and pitfalls of commercial codes, and hands-on projects.

**ME 50500 INTERMEDIATE HEAT TRANSFER**
(Class 3, Cr. 3)
Prerequisite: ME 41600

**ME 51300 ENGINEERING ACOUSTICS**
(Class 3, Cr. 3)

**ME 51500 QUALITY CONTROL**
(Class 3, Cr. 3)
This course examines the design in order to acquire a better product/process quality. Other aspects of design included are robust design, parameter design, or Taguchi techniques. This course also gives students a current understanding of the techniques and applications of design experiments in quality engineering design. The students will learn design of quality control systems in manufacturing, use of advanced statistical process controls, sampling inspection techniques, process capability and other statistical tools. Also included are vendor sourcing and control tools methods for establishing specifications and tolerances, quality function deployment, and other quality control techniques. In addition, Six Sigma will be included. The course is aimed primarily to engineering graduate students interested in project management. Basic Statistics is a course prerequisite.

**ME 51600 ADVANCE ENGINEERING PROJECT MANAGEMENT**
(Class 3, Cr. 3)
Prerequisite: ME 3100 or ECE 31200
Overview and concepts of project management (principles, body of knowledge, strategies); planning successful projects (defining, specifying, delivery options, scheduling, budgeting); implementing (organizing the team, work assignments, team building, team launch, effective leadership); risk analysis; executing (performance measurement, maintaining the schedule, adjustments/mid-course corrections, record keeping, status reporting, communications managing conflict, time management). The course is aimed primarily to engineering graduate students interested in project management.

**ME 51900 INTRO TO WIND ENERGY**
(Class 3, Cr. 3)
Prerequisite: ME 31200
This course is intended for the undergraduate and graduate engineer or scientist who is interested in the wind energy technology; introduce the students to the technology and economics of converting wind energy to electricity and the environmental concerns of wind energy. Topics include: Introduction to renewable energy; Wind Characteristics; Wind Resource Estimation; Wind Turbine Aerodynamics; Wind Energy System Economics; Wind Turbine Siting and Environmental Aspect and Impact.

**ME 52100 AIR QUALITY MODELING**
(Class 3, Cr. 3)
Prerequisite: ME 31200
This course is intended for the undergraduate and graduate engineer or scientist who is interested in the modeling of air pollution: the basic concepts of air quality and air pollution modeling; overview of practical and advanced approaches to air pollution modeling; evaluation and applications to air pollution related modeling. In order to obtain accurate assessments and forecasts of the effects of air contaminant dispersion, modeling based on solution of the nonlinear equations of fluid motion using Computational Fluid Dynamics (CFD) is a good choice. In this course problems of engineering interest will be examined, related to both indoor and outdoor contaminant dispersion. Some of the homework problems will require use of a CFD code - several source codes will be provided as well as access to commercial CFD codes.

**ME 52300 ELECTRONICS SYSTEM COOLING**
(Class 3, Cr. 3)
Prerequisite: ME 41600
This is an introduction to thermal analysis and management of electronic equipment with focus on cooling of electronic devices. The emphasis of this course is on the application of fundamental heat transfer principles to predict thermal load, temperature distribution, and hot-spot in electronics. Topics include: Introduction to various modes of heat transfer; Fins and heat sinks-design, analysis, and optimization; thermoelectric and refrigeration cooling; Nano fluids; liquid cooling; boiling heat transfer and phase change thermal storage system, heat pipes; Analysis and design studies for chip modules, printed circuit boards, and trend in thermal packaging. The course is aimed primarily to ME graduate students specializing in thermal and fluid science area.

**ME 52400 DESIGN AND ANALYSIS-HEATING, VENTILATION, AND AIR CONDITIONING**
(Class 3, Cr. 3)
Prerequisite: ME 41600
This course is an introduction to analysis and design of HVAC&R system. The emphasis is on the application of fundamental heat transfer and fluid mechanics principles to analyze HVAC systems. The topics covered include: Introduction and basic concepts, Psychrometrics, air conditioning systems, equipment selection, duct design and piping design. Heating and cooling loads, solar radiation and heat transmission in buildings. Heat pumps. Application of air conditioning to residence, computer rooms, light commercial and high-rise buildings. This course is aimed primarily to ME graduate students specializing in thermal and fluid science area.

**ME 53200 STATISTICAL CONCEPTS IN ENGINEERING**
(Class 3, Cr. 3)
Prerequisite: ME 41600
In today’s environment, there is an ever-increasing need to develop and produce systems that are robust, reliable, high quality, supportable, cost-effective, and responsive to the needs of the customer or user. Reflecting these worldwide trends, System Engineering course introduces students to the full range of system engineering concepts, tools, and techniques, emphasizing the application of principles and concepts of system engineering and the way these principles aid in the development, utilization, and support of systems. The course covers systems engineering from both a technical and management perspective. The course is aimed primarily to engineering graduate students interested in project management.

**ME 53400 SYSTEM ENGINEERING**
(Class 3, Cr. 3)
Prerequisite: ME 41600
In today’s environment, there is an ever-increasing need to develop and produce systems that are robust, reliable, high quality, supportable, cost-effective, and responsive to the needs of the customer or user. Reflecting these worldwide trends, System Engineering course introduces students to the full range of system engineering concepts, tools, and techniques, emphasizing the application of principles and concepts of system engineering and the way these principles aid in the development, utilization, and support of systems. The course covers systems engineering from both a technical and management perspective. The course is aimed primarily at engineering graduate
students interested in project management.

**ME 54300 ADVANCED ENGINEERING ECONOMICS**
(Class 3, Cr. 3)
Prerequisite: ME 31100 or ECE 31200
Effective project managers have complete command of their project costs and a thorough understanding of the financial aspects of their business. This course reviews the fundamentals of accounting; examines project cost accounting principles, applications, and impact on profitability; examines the principles of project costing; covers the elements involved in case management; introduces the framework for how projects are financed and the potential impact financing has on the projects; and a framework for using an effective project cost system. The course is aimed primarily at engineering graduate students interested in project management.

**ME 56000 KINEMATICS**
(Class 3, Cr. 3)
Prerequisite: ME 32000
Geometry of constrained plane motion with applications to linkage design. Type and number synthesis. Path curvature, inflection circle, cubic of stationary curvature. Finite displacements, three and four separated positions. Graphical, analytical, and computer techniques.

**ME 56300 MECHANICAL VIBRATIONS**
(Class 3, Cr. 3)
Prerequisite: CE 27300 and ME 32500

**ME 57500 THEORY AND DESIGN OF CONTROL SYSTEMS**
(Class 3, Cr. 3)
Covers the analysis and design of control systems from both a classical and modern viewpoint, with emphasis on design of controllers. Classical control design is reviewed, including both root locus and Bode domain design methodologies. The state space representation is introduced, along with notions of stability, controlling, and observability. State feedback controllers for pole placement and state observers are discussed with emphasis on their frequency domain implications.

**ME 59700 ADVANCED MECHANICAL ENGINEERING PROJECTS I**
(Class 0 to 6, Lab. 0 to 3, Cr. 1 to 6)
Must be master's standing. May be repeated for credit. Projects or special topics of contemporary importance or of special interest that are outside the scope of the standard graduate curriculum can be studied under the Mechanical Engineering Projects course. Interested students should seek a faculty advisor by meeting with individual faculty members who work in their area of special interest and prepare a brief description of the work to be undertaken in cooperation with their advisor.

**ME 64000 STRUCTURAL ACOUSTICS**
(Class 3, Cr. 3)
Prerequisite: ME 51300 and ME 56300
Waves in fluids and structures, dispersion relations, sound radiation from structures, radiation efficiency, radiation from concentrated forces, effect of fluid loading on wave propagation, transmission of sound through barriers, effect of panel lining, enclosures, acoustically induced vibration of structures and numerical calculation of fluid-structure interaction. Offered in alternate years. The distance offering of this course originates from the West Lafayette campus, is offered through streaming video via ProEd, and may be made available at the Calumet campus.

**ME 69800 M.S. THESIS**
(Class 1 to 18, Lab. 0 to 54, Cr. 1 to 18)

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**Mechanical Engineering Technology**

**MET 10000 PRODUCTION DRAWING AND COMPUTER-AIDED DESIGN**
(Class 2, Lab. 2, Cr. 3) General Education
This course is an introduction to technical graphics and computer-aided design. The course includes sketching, production drawing, and a significant amount of hands-on experience on a CAD system. The production drawing portion covers topics like multi-view drawings, section views, auxiliary views and dimensioning.

**MET 10200 PRODUCTION DESIGN AND SPECIFICATIONS**
(Class 1, Lab. 5, Cr. 3)
Prerequisite: MET 10000 and MET 16200
The design, evaluation and documentation of engineering specifications required of manufacturability and assembly are introduced. Emphasis is on CAD based details, assemblies, design layouts, equipment installations and related industrial practices.

**MET 11100 APPLIED STATICS**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: MET 16200
Co-requisite: MA 14800
Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied.

**MET 11800 APPLIED MECHANICS: STATICS**
(Class 3, Cr. 3)
Prerequisite: MA 14800 or MA 15900
A study of force systems, resultants and equilibrium, centroids of areas and centers of gravity of bodies, trusses, frames, beams, friction and moments of inertia of areas and bodies.

**MET 12000 BLUEPRINT READING AND SKETCHING**
(Lab 2, Cr. 1)
This introductory course will incorporate blueprint reading, freehand sketching, understanding orthographic projections, dimensioning and tolerancing and the use of symbols in industrial drawings.

**MET 14100 MATERIALS I**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: MA 14700 or MA 15900
An overview of structures, properties, and applications of metals, polymers, ceramics, and composites commonly used in industry is presented. Problem-solving skills are developed in the areas of materials selection, evaluation, measurement and testing.

**MET 14200 MANUFACTURING PROCESSES I**
(Class 2, Lab. 1, Cr. 3)
Prerequisite: MET 14100
Basic casting, forming, and joining processes are surveyed. The course emphasizes the selection and application of various processes.

**MET 16100 INTRODUCTION TO ENGINEERING TECHNOLOGY**
(Lab 3, Cr. 1) General Education
This course will introduce engineering technology students to resources and skills that will help them to be successful in their careers. This course will help students explore engineering technology by introducing campus, regional and national resources such as professional societies in their chosen fields. It will also help students improve in areas important to becoming better students. These areas may include topics such as planning academic careers, mentoring, improving study skills, goal setting and utilization of library resources. In addition the course will focus on specific introductory concepts important to engineering technology students such as using campus computer resources and the TAC of ABET outcomes.

**MET 16200 COMPUTATIONAL ANALYSIS TOOLS IN MET**
(Lab 3, Cr. 1)
Credit will not be granted for both MET 16200 and MET 16000. Instruction is given in analytical and computational problem-solving techniques. The electronic calculator the factor-label method of unit conversions, and engineering graphs are used to solve technical problems in Mechanical Engineering Technology.

**MET 21100 APPLIED STRENGTH OF MATERIALS**
(Class 3, Lab. 2, Cr. 4)
Prerequisite: MET 11100 or MET 11800
Co-requisite: MA 21900
The principles of strength, stiffness, and stability are introduced and applied primarily to mechanical components. Not open to students with credit in CET 26000.

**MET 21300 DYNAMICS**
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)
Prerequisite: MET 11800
Co-requisite: MA 21900

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Kinematics and kinetics principles of rigid-body dynamics are introduced. Emphasis is on the analysis of bodies in plane motion.

**MET 21400 MACHINE ELEMENTS**  
(Class 3, Cr. 3)  
Prerequisite: MET 21100 and MET 21300  
The methods developed in statics, dynamics, and strength of materials are applied to the selection of basic machine components. The fundamental principles required for the selection of individual elements that compose a machine are developed. Selected course topics are included as computer exercises.

**MET 23000 FLUID POWER**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: PHYS 22000  
Co-requisite: ECET 21400  
This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions and controls.

**MET 24200 MANUFACTURING PROCESSES II**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: MET 10000  
This course surveys the manufacturing processes and tools commonly used to convert cast, forged, molded, and wrought materials into finished products. It includes the basic mechanisms of material removal, measurement, quality control, assembly processes, safety, process planning, and automated manufacturing.

**MET 29900 MECHANICAL ENGINEERING TECHNOLOGY**  
(Class 0 to 99, Lab. 0 to 99, Cr. 1 to 3)  
Hours and subject matter to be arranged by staff. Primarily for third or fourth semester students with special aptitudes.

**MET 30300 AUTOMOTIVE SPORTS**  
(Class 1, Cr. 1)  
Prerequisite: MET 10200  
This is a one credit hour per semester course to be taken up three semesters. This course is designed to allow students to apply skills and knowledge learned along with concurrent course material, to a defined project. The project can be chosen by the student or assignment by the instructor. The student will work on this project to develop and apply solutions to the project challenges or design and implement a new resolution. This course will allow students to explore new technologies that may not be covered in the MET program content.

**MET 30500 COMPUTER-AIDED DESIGN WITH APPLICATIONS**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: MET 10000  
This course provides an advanced study of computer-aided drafting and design utilizing current industrial computer-aided design systems. The course covers the use of these systems in three dimensional and parametric modeling applications.

**MET 31300 APPLIED FLUID MECHANICS**  
(Class 3, Cr. 3)  
Prerequisite: MET 23000 and 23500, MA 22200 or consent of instructor. The fundamental principles of fluid mechanics are developed, including properties of fluid, pressure hydrostatics, dynamics of fluid flow, friction losses, and sizing of pipes. Emphasis is on problem solving.

**MET 31500 APPLIED MECHANISM KINEMATICS**  
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)  
Prerequisite: MET 21300 and MET 21400 and MA 21900  
Application of the principles of kinematics to mechanisms. Graphical and semi-graphical methods are used to determine displacements, velocities, and accelerations in common mechanisms. Practical coverage of slider-crank mechanism, scotch yoke, four bar linkage, Witworth mechanism, universal joints, Geneva wheel, and cams. Will include the use of computers and software to perform simulation of some generation, and four bar analysis.

**MET 32500 APPLIED THERMODYNAMICS I**  
(Class 3, Cr. 3)  
Prerequisite: MA 21900 and PHYS 22000  
Applications of perfect gas laws, steam tables, principles of conservation of mass and energy, and heat transfer as they apply to power plants, engines, pumps, fans and refrigeration systems.

**MET 32900 APPLIED HEAT TRANSFER**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: PHYS 22000 and MA 21900  
An applied approach to the introduction of basic vocabulary and concepts related to the steady state transfer (i.e. conduction, convection, radiation) will be covered. Additional topics will include heat exchangers, boilers and solar energy.

**MET 34400 PROGRAM AUTO SYSTEMS**  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: MET 10200 and MET 24200  
Study of fundamental concepts in computer numerical control (CNC) technology. Cutter centerline programming, cutter diameter compensation, tool nose radius (TNR) compensation coordinate transformation, canned cycles, subprograms, user macros. The lab includes programming and operation of CNC turning and milling machines, CAD/CAM programming, and integration of design and manufacturing through computer network.

**MET 35500 AUTOMATION I**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ECET 35500  
An introduction to the design and application of programmable controller systems. Topics include programming techniques, input/output devices, personal computer interface, system design, safety and applications for automation.

**MET 38400 INSTRUMENTATION**  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: MA 14800 and ECET 21400  
Study of measurement theory and principles, including temperature, pressure, level, flow and similar measurement used to control manufacturing processes.

**MET 42000 MACHINE DESIGN**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: MET 21400 and ECET 26200 or MET 35500  
Design of moving machinery in complex electro-mechanical systems. Several projects will be completed that include mechanical design and control design to obtain the desired specifications.

**MET 42100 AIR CONDITIONING AND REFRIGERATION**  
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)  
Prerequisite: MET 32900  
Heat gains and losses, heat-producing equipment, cooling, and refrigeration equipment are studied. System design is presented, including controls and instrumentation for commercial, industrial, and residential systems.

**MET 42600 INTERNAL COMBUSTION ENGINES**  
(Class 2, Lab. 2, Cr. 3)  
Co-requisite: MET 32500  
A study of the spark ignition, compression ignition, and continuous burning internal combustion engines.

**MET 46000 DESIGN FOR X**  
(Class 2 to 3, Lab. 0 to 2, Cr. 3)  
Prerequisite: MET 21400 and MET 30500 or CGT 11600  
Application of methods and techniques used in engineering, combined with statistical methods to develop quality, customer driven product development. The course will include topics in Design for Six Sigma for Manufacture-ability. Design for Serviceability and product life cycles. The course will require students to work in teams. 3D solid modeling will be used to generate ideas and complete product development. Course project will be taken from industry recognized students design competitions.

**MET 46100 COMPUTER INTEGRATED DESIGN AND MANUFACTURING**  
(Class 2, Lab. 3, Cr. 3)  
Note: Designated sections MET 46100 will fulfill the Experiential Learning requirement.  
Prerequisite: MET 20500 or MET 10200 and MET 21100 and MET 24200  
A combination of lecture and laboratory projects demonstrating the integration of all phases of a product’s life cycle from conception through recycling. Laboratory
projects include designing parts, graphical finite element analysis, rapid photo typing, computer controlled manufacturing, and testing all using a common, three dimensional graphical database.

**MET 46500 ADVANCED TOPICS IN COMPUTER-AIDED DESIGN**  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MET 10000 and MET 20500 or MET 10200  
This covers solid modeling and animation. These topics are built upon a foundation in computer modeling or CAD to produce photo realistic images as used in technical presentations, video, or film.

**MET 49500 SENIOR PROJECT SURVEY**  
(Class 3, Cr. 3)  
Note: Designated sections MET 49500 will fulfill the Experiential Learning requirement.  
Prerequisite: OLS 33100 and IET 30800  
Students will select several design projects and give written or oral reports on their proposed solutions. They will be encouraged to select and finalize one project proposal in preparation for MET 49700.

**MET 49700 SENIOR PROJECT**  
(Class 2 to 3, Lab 0 to 2, Cr. 3)  
Note: Designated sections MET 49700 will fulfill the Experiential Learning requirement.  
Prerequisite: MET 49500  
Directed work on individual projects for senior mechanical engineering technology students.

**MET 49900 MECHANICAL ENGINEERING TECHNOLOGY**  
(Class 0 to 99, Lab 0 to 99, Cr. 1 to 6)  
Hours and subject matter to be arranged by staff. Course may be repeated for credit.

**MET 52700 TECHNOLOGY FROM A GLOBAL PERSPECTIVE**  
(Class 3, Cr. 3)  
Introduction to the challenges faced by the practicing technologist when working and interacting with international technical personnel, both here and abroad, including history, standards, education, and practice of technology outside the United States.

**MET 53300 NANOTECH AND APPLICATIONS**  
(Class 3, Cr. 3)  
This course provides an insight to the underlying principles and applications of the emerging field of Nanotechnology. Participants will be introduced to the scientific principles and theory of Nano scale dimension and discusses the current and future Nanotechnology applications and research in different fields. Graduate student or senior status with instructor approval.

### Management

**MGMT 50100 ADVANCED TAXATION**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 40400  
Advanced course in federal income taxation, with an in-depth study of corporations and partnerships. Additional topics will include professional responsibility, tax planning, and basic tax research.

**MGMT 50300 ADVANCED ACCOUNTING**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35100  
Advanced course in financial accounting. A range of contemporary issues in financial reporting such as business combinations, consolidations, price-level adjustments, multi-national, and partnership accounting are covered. Both technical proficiency and user applications are emphasized.

**MGMT 50400 TAX ACCOUNTING**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35000  
Basic tax course designed to provide an understanding of the various federal insurance contribution, self-employment and unemployment taxes.

**MGMT 50500 MANAGEMENT ACCOUNTING II**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000 and MGMT 35100  
The focus of the course is managerial decision making and the economic role of information. Topics covered include decentralized financial performance evaluation, cost analysis, and financial planning and control systems.

**MGMT 50600 AUDITING**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35100  
A study of the concepts and procedures of auditing, which is the systematic process of objectively obtaining and evaluating evidence regarding assertions and economic actions and events. Primary emphasis is on audits conducted by independent certified public accountants, but topics covered apply to internal auditing as well.

**MGMT 50700 ADVANCED FEDERAL INCOME TAXES**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 50400  
Advanced course in federal income taxes, with a brief study of gift and estate taxes. Some issues covered in MGMT 50400 are studied in more depth, particularly taxation of corporations and partnerships. The course, which is taught in seminar format, gives the student considerable practice in doing tax research and reporting conclusions. It is especially appropriate for the student entering a career in a tax environment.

**MGMT 50800 ACCOUNTING FOR NONPROFIT ORGANIZATIONS**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35100  
A fund accounting course for non-profit organizations. Accounting for government entities, colleges and universities, hospitals and other non-profit organizations are included. In addition, analysis and interpretation of not-for-profit organization statements are covered.

**MGMT 50900 INTERNATIONAL ACCOUNTING**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35100  
Provides insight into and understanding of the many accounting problems and issues faced in an international business environment. The material is approached from two compatible and overlapping perspectives: the perspective of accounting or financial management in a U.S. multinational corporation and the perspective of an investor interested in understanding the international business environment.

**MGMT 51200 FINANCIAL INSTITUTIONS AND MARKETS**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000 or MGMT 61000 or MGMT 61100  
NOT open to students with credit in MGMT 41200. Analysis of management policy of financial institutions, including liquidity management, liability management, asset management, and capital management; description of the legal, economic, and regulatory environments and their implications for management. Emphasis on commercial bank management.

**MGMT 51500 FRAUD INVESTIGATION**  
(Class 3, Cr. 3)  
Prerequisite MGMT 60000 or equivalent accounting experience. Develops an understanding of how and why occupational fraud occurs. This course focuses upon how fraudulent conduct may be deterred and how allegations of fraud should be investigated.

**MGMT 51600 INVESTMENT MANAGEMENT**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000 or MGMT 61000 or MGMT 61100  
NOT open to students with credit in MGMT 44500. Treatment of problems of portfolio analysis, capital markets, and securities investment selection. Theoretical development and practical applications, at the level of the individual decision-maker.

**MGMT 51700 DATA ANALYSIS**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 60000 or equivalent accounting experience. Develops an understanding of various aspects of IT auditing and fraud data analysis. This course covers the IT audit process to identify sources of fraud and to identify risks associated with information technology assurance.

**MGMT 51800 CRIMINOLOGY AND LEGAL ISSUES**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 60000  
Focuses on the topics of psychological and sociological theories of behavior as they relate to white collar crime. Develops an understanding of techniques and
legal procedures associated with interviewing individuals associated with cases to support investigations.

**MGMT 52600 COMMERCIAL LAW**  
(Class 3, Cr. 3)  
Focuses primarily on the law of ownership, forms of business organizations, the uniform commercial code as it relates to sales, commercial paper and secured transactions, governmental regulation of business and accountant’s liability.

**MGMT 52700 ACCOUNTING THEORY**  
(Class 3, Cr. 3)  
Important accounting constructs (such as assets, liabilities, cost) are defined, and measurement issues are discussed. Generally accepted accounting principles, concepts, principles, and assumptions are examined. The value of information via an examination of various theories of information and decision making, including psychological theories and theories of ethical decision making are considered.

**MGMT 53400 ACCOUNTING PRACTICE**  
(Class 4, Cr. 4)  
Prerequisite: MGMT 35100 and MGMT 40400 and MGMT 40600 and MGMT 40700  
Presents a view of the various accounting, legal, and regulatory subjects expected to be tested on the uniform CPA exam. Topics covered include financial accounting and reporting, auditing, business environment and concepts and business regulation.

**MGMT 54400 DATABASE MANAGEMENT SYSTEMS**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 29000  
Covers the theory and practice of database design and usage. Students will learn the importance of data modeling concepts and how to use these effectively and how to plan and design a database, including issues such as a data security and control.

**MGMT 54600 DECISION SUPPORT AND EXPERT SYSTEMS**  
(Class 3, Cr. 3)  
Since a large percentage of societal and management problems can be characterized as relatively unstructured, this course explores how computers can be used to aid decision makers in dealing with unstructured, as well as structured problems. Appropriate materials from knowledge representation, artificial intelligence and language theory is considered. Applications selected from environmental management and strategic planning in large organizations are used to illustrate theoretical ideas. Since the key computer software tool is database management, a development of the CODASYL approach to database management is presented.

**MGMT 55100 UNIFIED MODELING LANGUAGE**  
(Class 3, Cr. 3)  
Prerequisite: Graduate standing and consent of instructor. An introduction to Unified Modeling Language (UML) modeling and major UML diagrams and how to apply them within object-oriented (OO) environments. Topics include UML basics, OO system analysis and design, development process, and UML diagrams.

**MGMT 55300 LABOR LAW**  
(Class 3, Cr. 3)  
A study of the common law and statutory law affecting union-management relations, with emphasis on current labor legislation including such areas as the National Labor Relations Act and amendments, the Railway Labor Act, wage and hour legislation, workmen’s compensation, unemployment compensation, Occupational Health and Safety Acts and social security laws.

**MGMT 58300 SMALL BUSINESS MANAGEMENT**  
(Class 3, Cr. 3)  
Open only to seniors and graduate students. Fundamentals of profit analysis, financial planning, and management control for small business. Topics covered include evaluation of product policies, marketing and pricing strategies, organization structure and control mechanisms. Included also are investment requirements of operating a business and alternative ways of financing, including bank loans, mortgage financing, venture capital and public stock offering. Sensitivity tests, simulation studies, and microcomputer applications also are included. Independent term paper included.

**MGMT 59000 DIRECTED READINGS IN MANAGEMENT**  
(Class 0 to 4, Cr. 1 to 4)  
Supervised reading and reports in various subjects. Open only to a limited number of seniors and graduate students.

**MGMT 60000 ACCOUNTING FOR MANAGERS**  
(Class 3, Cr. 3)  
For students in the management graduate program or by consent of school. Two-semester accounting sequence employs a user’s perspective on the firm’s database. First, the standard accounting model is developed into a working tool, as no prior study of accounting is assumed. Then illustrative business cases are discussed to show how external reports conform to financial contracts and public regulation. Public reports primarily directed to investors and creditors are analyzed to reconstruct the economic events and managerial decisions underlying generally accepted accounting standards.

**MGMT 60100 MANAGERIAL ACCOUNTING**  
(Class 2 to 4, Cr. 2 to 4)  
Prerequisite: MGMT 60000  
Oriented to managers, the course examines the firm’s internal systems for costing products or services and their interpretation. A variety of manufacturing and service industries are studied to demonstrate design of flexible cost systems to match the firm’s technological, competitive and/or other multinational environments. Applications to budgeting, variance analysis, pricing models, performance evaluation and incentives are demonstrated. Case discussion and analytical “what if” modes of instruction are used to enhance managerial skills of students. Design and use of accounting data are linked to other subjects in the program core and to ethical aspects of accounting policy issues.

**MGMT 61100 FINANCIAL MANAGEMENT II**  
(Class 2 to 4, Cr. 2 to 4)  
For students in the management graduate program or by consent of school.  
Long-term capital structure planning, capital budgeting, treatment of uncertainty in investment decisions, security underwriting, dividend policies, and mergers.

**MGMT 61200 FINANCIAL MANAGEMENT III**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 61100  
Further treatment of topics in the financial management of non-financial corporations, from the viewpoint of the internal financial officer. Emphasis on applications. Continuation of MGMT 61100, with additional depth and topic coverage.

**MGMT 61400 INVESTMENTS**  
(Class 2 to 4, Cr. 2 to 4)  
Examination of the process of asset valuation. Emphasis on portfolio analysis, security selection, risk-return relationships, and performance evaluation. Additional topics considered include security analysis, option pricing and analysis, futures contracts and security market operations.

**MGMT 61500 MANAGING THE MULTINATIONAL FIRM**  
(Class 3, Cr. 3)  
For students in the management graduate program or by consent of school.  
Integrative course dealing with the management of firms doing business internationally. Emphasis on decision making. Will draw upon, and adapt, managerial decision models developed for domestic operations, as well as cover appropriate international institutional material. Particular focus on finance and strategic management.

**MGMT 62000 MARKETING MANAGEMENT**  
(Class 2 to 4, Cr. 2 to 4)  
For students in the management graduate program or by consent of the school.  
An integrated analysis of major marketing decisions, including product, pricing, advertising distribution, and sales force policies.

**MGMT 62200 MARKETING STRATEGY**  
(Class 3, Cr. 3 or Class 4, Cr. 4)  
Prerequisite: MGMT 62000  
A managerial orientation to decision-making in organizations dealing directly with mass consumer markets is provided. Important insights from the behavioral sciences are considered in light of decision objectives to develop capability in creation and management of consumer-oriented marketing campaigns.

**MGMT 63000 LEGAL AND SOCIAL FOUNDATIONS OF MANAGEMENT**  
(Class 3, Cr. 3)  
For students in the management graduate program or by consent of school. An
examination of the nature of the legal environment from the viewpoint of the social and moral bases of law. Emphasis is given to the operation of our legal system and its significance in decision functions of management.

**MGMT 63700 MARKETING COMMUNICATIONS**  
(Class 2, Cr. 2 or Class 3, Cr. 3)  
Prerequisite: MGMT 62000 and MGMT 62200  
Familiarizes students with two critical means of marketing communications: advertising and sales promotion. Provides knowledge that will help students make effective marketing communications decisions, either as a brand/product manager, advertising agency executive, or sales manager.

**MGMT 65000 STRATEGIC MANAGEMENT**  
(Class 2 to 4, Cr. 2 to 4)  
Prerequisite: MGMT 61200 and MGMT 62200  
Concepts and methods that integrate previous training in functional areas of management. The perspective is that of the general manager charged with directing the total enterprise. Emphasis is given to formulation and implementation of strategy.

**MGMT 65500 COMPETITIVE STRATEGY**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 65000  
Examines how firms obtain and sustain superior returns through the development and implementation of a competitive strategy at the business-unit level. Focus is on strategies that develop and exploit two sources of superior returns: unique value-creating resources (e.g. patents, brand equity, operational capabilities) and powerful positions in markets and supply chains. Participants are expected to be familiar with basic competitive strategy concepts and tools such as five-forces analysis, the value chain and generic strategy, drawing from the game theory.

**MGMT 66000 INTRODUCTION TO OPERATIONS MANAGEMENT**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 61100 and MGMT 62000 and MGMT 67000  
As goods and services are produced and distributed, they move through a set of inter-related operations or processes in order to match supply and demand. The design of these operations for strategic advantage, investment in improving their efficiency and effectiveness, and controlling these operations to meet performance objectives is the domain of Operations Management. The primary objective of the course is to provide an overview of this important functional area of business.

**MGMT 67000 BUSINESS ANALYTICS**  
(Class 2 to 4, Cr. 2 to 4)  
For students in the management graduate program or by consent of school. Introduction to quantitative decision procedures under uncertainty. Application of probability models. Bayesian inference, queuing models, hypothesis testing, and regression analysis to management problems.

**MGMT 67100 QUANTITATIVE METHODS II**  
(Class 3, Cr. 3)  
Prerequisite: MGMT 67000  
A continuation of Quantitative Methods I. Introduction to quantitative decision procedures under certainty. Applications of linear algebra, linear programming, network models, and convex programming to management problems.

**MGMT 68000 INTRODUCTION TO INFORMATION TECHNOLOGY**  
(Class 3, Cr. 3)  
For students in the management graduate program or by consent of school. An introduction to the capabilities, limitations and applications of computers to the business environment. Addresses issues relating to computer hardware and software data management, problem analysis, and other management information systems (MIS) topics. Students use the computer as programmers, as users of existing software systems, and in the role of managers within business decision-making contexts.

**MGMT 68100 MANAGEMENT WITH ENTERPRISE INFORMATION SYSTEMS**  
(Class 3, Cr. 3)  
Prerequisites: Basic computer skills and exposure to core business functions, such as accounting and finance, marketing and human resources. This case-oriented course focuses on the managerial issues associated with human resource issues related to information systems, and a number of other topics important to an understanding of information systems in business.

**MGMT 68300 PRINCIPLES OF INFORMATION SYSTEMS**  
(Class 2, Cr. 2)  
The important technological issues of computing are presented. The emphasis is on the impact of technology on the organization. Topics include problem organization and complexity, database management, operating systems, data communications, and privacy. Research projects on an assigned topic provide greater depth of coverage of certain topics.

**MGMT 68500 ENTERPRISE INTEGRATION**  
(Class 2, Cr. 2 or Class 3, Cr. 3)  
Prerequisite: MGMT 68000 or MGMT 68300  
Investigates the issues and requirements of enterprise integration; specifically, the issues related to information delivery services to enable cross functional integration within a distributed computing environment.

**MGMT 69000 ADVANCED PROBLEMS IN MANAGEMENT**  
(Class 0 to 4, Cr. 1 to 4)  
Admission requires consent of the department. Advanced investigation in a specific management field at the graduate level.

**Marketing**

**MKG 22100 PRINCIPLES OF ADVERTISING**  
(Class 3, Cr. 3)  
An analysis of commercial persuasion from colonial times to the era of mass communication. The course examines the structure of advertising messages, how they are adapted to specific audiences, and the social settings in which they occur.

**MKG 22400 PRINCIPLES OF MARKETING**  
(Class 3, Cr. 3)  
An introduction to the principles and concepts underlying marketing decisions. The topics covered include distribution channels, pricing, promotion, product, consumer behavior, and environmental influences on marketing.

**MKG 32400 MARKETING MANAGEMENT**  
(Class 3, Cr. 3)  
Prerequisite: MKG 20000 or ACC 20000 or ECON 25100  
A managerial approach to the job of learning to make a decision on a product policy, distribution channels, pricing, personal selling, advertising, and marketing research.

**MKG 42000 DIGITAL MARKETING CAMPAIGNS**  
(Class 3, Cr. 3)  
Note: Designated sections MKG 42000 will fulfill the Experiential Learning requirement.  
Prerequisite: MKG 22400 or BA 22400 or MKG 32400 or MKG 3240  
Digital Marketing Campaigns focuses on the preparation of a measurable direct/interactive marketing campaign for a real-world corporate client. Students perform research, formulate strategic conclusions, develop a digital theme, design the creative, outline the media plans, and establish evaluation for the campaign. Finalized campaigns are then shared with the real-world client for review.

**MKG 42100 PROMOTIONS MANAGEMENT**  
(Class 3, Cr. 3)  
Prerequisite: MKG 32400 or MKG 32400 or MKG 22400 or MKG 22400 or BA 22400  
Promotions management integrates Advertising, Public Relations, and Publicity, Personal Selling and Sales Promotion as the overall promotional mix. Various communication methods and tools are treated as variables for use alone or in combination to communicate attributes of products and services to the customer.

**MKG 42200 INTERNATIONAL MARKETING**  
(Class 3, Cr. 3)  
Prerequisite: MKG 32400 or MKG 32400 or MKG 22400 or MKG 22400 or BA 22400  
This course explores the opportunities in global markets and examines the challenges of global marketing. Emphasis is placed on the strategic implications of competition in the various countries.

**MKG 42400 CONSUMER BEHAVIOR**  
(Class 3, Cr. 3)  
Prerequisite: MKG 32400 or MKG 32400 or MKG 22400 or MKG 22400 or BA 22400  
An analysis of the environmental, social and psychological factors which influence an individual’s buying decisions. The course covers how individual consumers...
Materials Engineering

**MSE 20000 MATERIALS SCIENCE**
(Class 3, Cr. 3)
Prerequisite: CHM 11500
An introductory course designed to provide a basic background in the broad field of materials science. Emphasis is placed on the chemical and physical principles underlying the utilization and behavior of metals, alloys, ceramics, composites, and aggregates in engineering.

**MSE 34400 MATERIALS IN ENGINEERING**
(Class 2, Lab. 3, Cr. 3)
Prerequisite: MSE 20000
Introduction to the structure and mechanical and physical properties of engineering materials: Selection of metals, alloys, plastics, ceramics, and composites for engineering applications. Strengthening methods and environmental effects. Analysis of the failure of materials under load. Laboratory experiments include mechanical testing, metallography, thermal treatment, and failure analysis.

**MSE 38500 NONDESTRUCTIVE TESTING**
(Class 3, Cr. 3)
Prerequisite: MSE 20000 and PHYS 26100
Basic principles and common application of nondestructive testing methods. The laws of physics are used to evaluate mechanical and physical properties of materials. The NDT methods cover magnetic, penetrants, eddy current, ultrasonic, radiography, and specialized methods.

**MSE 59700 SELECTED TOPICS IN MATERIAL ENGINEERING**
(Class 0 to 3, Lab. 0 to 6, Cr. 3)
Hours and credits to be arranged.

Military Science and Leadership

**Military Science**

**MSL UND MILITARY CREDIT**
(Class 0 to 15, Cr. 1 to 15)
Credit by ROTC or DD 21400.

**MSL 10100 FOUNDATIONS OF OFFICERSHIP**
(Class 1 to 2, Lab. 0 to 2, Cr. 1 to 2)
Examines the unique duties and responsibilities of officers. Discuss organization and role of the Army. Review basic life skills pertaining to fitness and communication. Analyze Army values and expected ethical behavior.

**MSL 10200 BASIC LEADERSHIP**
(Class 1 to 2, Lab. 0 to 2, Cr. 1 to 2)
Presents fundamental leadership concepts and doctrine. Practice basic skills that underlie effective problem solving. Apply active listening and feedback skills. Examine factors that influence leader and group effectiveness. Examine the officer experience.

**MSL 12000 READ MILITARY MAP SURVIVAL**
(Class 1, Cr. 1)
Fundamentals of reading and interpreting maps and aerial photographs, including marginal information, symbols, map orientation, military grid reference system, terrain analysis. Application by planning movement of small groups, emphasizing problem solving, and control.

**MSL 20100 INDIVIDUAL LEADERSHIP STUDIES**
(Class 1 to 2, Lab. 2, Cr. 2 to 4)
Develops knowledge of self, self-confidence, and individual leadership skills. Develop problem-solving and critical thinking skills. Apply communication, feedback and conflict resolution skills.

**MSL 20200 LEADERSHIP AND TEAMWORK**
(Class 1 to 2, Lab. 2, Cr. 2 to 3)
Focuses on self-development guided by knowledge of self and group processes. Challenges current beliefs, knowledge, and skills. Provides equivalent preparation for the ROTC Advanced Course and the Leader's Training Course.

**MSL 23100 LEADERSHIP AND MANAGEMENT OF THE COMBAT TEAM**
COURSE DESCRIPTIONS

MUS 36 300 MUSIC THEORY III
Course comprises instruction in melodic and harmonic processes and voice-leading practices in diatonic tonal music. Activities include analytic reading of musical scores, developing musical listening skills, and acquiring functional piano techniques.

MUS 36 200 MUSIC THEORY II
A variety of styles and forms of music serve to exemplify melodic and harmonic processes and voice-leading practices in diatonic tonal music. Activities include analytic reading of musical scores, developing musical listening skills, and acquiring functional piano techniques.

MUS 36 100 MUSIC THEORY I
Course comprises instruction in melodic and harmonic processes in tonal music; development of analytic, listening and piano techniques with musical equipment. No prerequisites; music reading ability is required, verified through placement exam.

MUS 25 000 MUSIC APPRECIATION
An introduction to the understanding of music. How to listen to its materials, A study of the media, forms, styles, and composers through recorded, live, and film media. Methods used in the structure of music as well as the aesthetic values present in music are also emphasized.

MUS 29 000 SPECIAL TOPICS IN MUSIC
Topics will vary.

MUS 39 000 SPECIAL TOPICS IN MUSIC
Topics will vary.

MUS 37 800 JAZZ MUSIC
This course is a historical and stylistic study of jazz.

MUS 39 000 SPECIAL TOPICS IN MUSIC
Topics will vary.

MUS 40 000 GUIDED READING IN MUSIC
The course is offered for students with specialized needs and interests in the field.

NUR 18 100 INTRODUCTION TO PROFESSIONAL NURSING
This is the Ethos I/Freshman Experience course. This is the first in a series of seminars designed to examine nursing within its professional context. In Ethos I, the heritage and tradition of professional nursing is explored as foundational to an understanding of contemporary nursing. Scholarly writing and research is introduced using APA format. Strategies are given to help students achieve academic success.

NUR 18 200 CONCEPTUAL AND THEORETICAL THINKING IN NURSING
Prerequisite: NUR 18 100
This course examines the concepts that form the philosophical and theoretical basis of nursing science and patient centered care. The content is leveled to provide undergraduate students with a foundational understanding of the discipline. The conceptual framework and philosophy of the College of Nursing will be studied. Special emphasis will be placed on the relationship between nursing philosophy, knowledge, research, and practice.

NUR 18 800 FOUNDATIONS OF PHYSICAL ASSESSMENT
Prerequisite: CHM 11 900 and NUR 18 200 and NUR 19 600
Foundational principles of physical assessment are examined in the context of patient centered care. A systematic approach to physical assessment of individuals across the life span is introduced. Health promotion, evidence based practice and critical thinking are presented as foundational to physical assessment.

NUR 19 200 FOUNDATIONS OF NURSING
This course introduces the concepts that form the philosophical and theoretical basis of nursing science and patient centered care. The content is leveled to provide undergraduate students with a foundational understanding of the discipline. The conceptual framework and philosophy of the College of Nursing will be studied. Special emphasis will be placed on the relationship between nursing philosophy, knowledge, research, and practice.

NUR 19 600 FOUNDATIONS OF PSYCHOSOCIAL NURSING
Prerequisite: PSY 12 000
Foundational principles of psychosocial nursing are taught in the context of patient centered care. Emphasis is placed on concepts of life span development, basic human needs, therapeutic relationships and therapeutic communication. The elemental components of evidence based nursing practice are introduced.

NUR 19 700 PRACTICUM I
Prerequisite: NUR 19 200 and NUR 19 600 and NUR 18 800
Co-requisite:
This course is the foundational clinical practicum incorporating principles of assessment, psychosocial nursing and nursing fundamentals to the clinical setting. Critical thinking skills are developed as students learn to apply the nursing process to provide patient centered care in order to meet the basic human needs of adult
NUR 26500 HEALTH ISSUES IN THE CLASSROOM
(Class 3, Cr. 3)
This course is designed for prospective elementary education teachers. Students will examine current health problems of school children, which they may encounter in the classroom. Concepts of first aid and emergency care will be taught. Interdisciplinary approaches to classroom health problems will be incorporated. Students will be expected to apply course concepts in field experiences.

NUR 27400 ESSENTIALS PHARMACOKINETICS FOR NURSING
(Class 2, Cr. 2)
Prerequisite: NUR 19200
The nursing process is utilized as a systematic approach to the safe and accurate administration of medications: dosage calculations, basic pharmacokinetics, safety implications, and use of critical thinking are emphasized.

NUR 27500 ALTERNATIVE THERAPIES FOR NURSING PRACTICE
(Class 2, Cr. 2) General Education
This course focuses on a range of options that complement Western biomedical health care. Ancient and contemporary practices throughout the world are explored in the context of culture, understanding that other cultures and countries have valid ways of preventing and curing diseases. Emphasis is placed on the integration and balance of body, mind and spirit. The evidence basis of complementary and alternative therapies is incorporated into the course.

NUR 28200 ADULT NURSING I
(Class 4, Cr. 4)
Prerequisite: NUR 19700 and BIOL 21400 and NUR 27400
Co-requisite: NUR 28300, NUR 29400
This course builds on the foundational nursing courses. Concepts of health promotion, maintenance, restoration and palliation will be utilized to focus on patient centered care in the adult population. Evidence based practice will guide the nursing process to address basic human needs.

NUR 28300 PRACTICUM II
(Class 6, Cr. 2)
Note: Designated sections NUR 28300 will fulfill the Experiential Learning requirement.
Prerequisite: NUR 19700 and NUR 28200
Note: NUR 28200 can be taken before OR during the same semester as NUR 28300.
Practicum II is the second clinical course in a series of three practice courses. Clinical lab experience emphasize application of the nursing processes in the direct care of adult individuals with an emphasis on health promotion, health maintenance, and palliation. Patient centered care related to basic human needs is implemented utilizing critical thinking and evidence based nursing practice.

NUR 28400 NURSING OF WOMEN AND CHILDREN
(Class 5, Cr. 5)
Prerequisite: NUR 28200 and NUR 28300 and CDFS 21000
Co-requisite: NUR 28500
Building on the foundational core, the nursing process is utilized as a systematic approach to promote adaptation of women and children to stimuli. Evidence based interventions, specific to each developmental stage of the evolving family are taught. Emphasis is placed on health promotion across the lifespan which supports the needs of women and children.

NUR 28500 MATERNAL CHILD NURSING PRACTICUM
(Class 6, Cr. 2)
Prerequisite: NUR 27400 and NUR 28400 and NUR 29400
Note: NUR 28400 can be taken before OR during the same semester as NUR 28500.
Clinical lab experience for the application of nursing process in the direct care of childbearing and childrearing families are provided in a structured setting. Therapeutic intervention aimed at supporting adaptation in physiological, self-concept, role function, and interdependence modes are practiced.

NUR 28600 MENTAL HEALTH NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 19600 and NUR 19700
Building on the foundations of psychosocial nursing, this course advocates for autonomy of clients in the least restrictive environment. A commitment to social justice for those who experience discrimination on the basis of their mental illness is emphasized. Evidence based nursing practice provides the structure for supporting clients’ and their families’ strengths and adaptation when faced with pathology and dysfunction. The focus is on interpersonal and communication skills critical to every area of nursing practice.

NUR 28700 MENTAL HEALTH PRACTICUM
(Class 3, Cr. 1)
Prerequisite: NUR 19700 and NUR 28600
Building on the theoretical knowledge of Mental Health Nursing. This course provides both structured and unstructured clinical experiences with individuals and families, experiencing mental disorders. The focus is on mental health promotion, mental health restoration, and mental health maintenance. Using current evidence, patient centered care is based on the analysis of individual clients’ psychodynamic and psych educational needs. Interpersonal and communication skills are utilized to help clients attain their personality defined quality of life.

NUR 28800 ESSENTIALS OF MANAGEMENT AND LEADERSHIP IN NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 28700 and NUR 28300 and NUR 29200 and NUR 28400 and NUR 28500
NUR 28400 and NUR 28500 can be taken before or during the same semester as NUR 28800. Selected management and leadership principles are introduced. Specific strategies for effective time management, priority setting, decision making, career planning, and delegation are introduced. Foundational ethical and legal principles are discussed as they relate to standards of care.

NUR 28900 ASSOCIATE DEGREE IN NURSING CAPSTONE COURSE
(Class 9, Cr. 3)
Prerequisite: NUR 28300 and NUR 28700 and NUR 28400 and NUR 28500
Co-requisite: NUR 28800, NUR 29200
NUR 28400 and NUR 28500 can be taken before or during the same semester as NUR 28900. This capstone course incorporates the application of the nursing process and critical thinking skills in direct patient care. Emphasis is on prioritization, delegation, and collaboration as students synthesize increasingly difficult concepts in a structured setting.

NUR 29200 ADULT NURSING II
(Class 3, Cr. 3)
Prerequisite: NUR 28300
Co-requisite: NUR 28900
Building on the foundational core, the nursing process is utilized as a systematic approach to therapeutic intervention with adult individuals adapting to stimuli. Concepts relative to physiological integrity are emphasized.

NUR 29400 ESSENTIAL PHARMACOTHERAPEUTICS FOR NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 27400 and NUR 19200 and NUR 19200
A systematic approach is used to examine the pharmacotherapeutics and the administration of common prescription and non-prescription medications across the lifespan. Emphasis is placed on nursing responsibilities related to ongoing assessment of drug effects, analysis of corresponding diagnostic data and evidence based interventions with individuals receiving drug therapy.

NUR 29900 SPECIAL TOPICS
(Class 0 to 6, Cr. 1 to 6)
Hours, credit, and subject matter to be arranged by staff. Course may be repeated for credit up to six hours.

NUR 31700 NURSING CARE OF WOMEN THROUGH THE LIFESPAN
(Class 3, Cr. 3)
Prerequisite: NUR 27400 and NUR 28200 and NUR 28300
Building on previous curricular concepts this course focuses on principles of health promotion, health maintenance, health restoration and palliation, specifically applied to the female patients. Students further develop critical thinking skills by planning developmentally appropriate patient and family centered care. Students utilize best available evidence when implementing the nursing process with female patients and their families.

NUR 31800 MATERNITY PRACTICUM
(Class 3, Cr. 1)
Note: Designated sections NUR 31800 will fulfill the Experiential Learning requirement.
Prerequisite: NUR 31700

Building on the theoretical knowledge of Nursing Care of Women Throughout the Lifespan, this course provides structured clinical experiences with women and their families during the childbearing experience. Evidence based nursing practice is utilized to assist families as they progress through the childbearing experience. The teaching learning process is used to assist childbearing families meet basic needs of the developing family.

NUR 32201 INTERNATIONAL NURSING: A CULTURAL IMMERSION
(Class 3, Cr. 3)
Note: Designated sections NUR 32201 will fulfill the Experiential Learning requirement.
Prerequisite: NUR 28300

Students will actively participate in an international cultural immersion experience providing nursing care, as well as studying the cultural and economic influences on healthcare. The students' focus is three-fold. The first is the role of service to a select international population through a variety of activities. Secondly, the students will incorporate prior nursing skills and knowledge learned in fundamental nursing courses in a variety of experiential nursing experiences. Finally, students will be expected to become immersed in the culture of the land through a multitude of activities, such as currency exchange, open market negotiations, meal preparation, and daily interactions with local peoples.

NUR 35200 NURSING CARE OF OLDER ADULTS
(Class 1, Cr. 1)
Co-requisite: NUR 39300

This course examines concepts related to basic human needs specific to older adults. Evidence based health care practices that exhibit patient centered care related to health promotion, maintenance, restoration and palliation are examined. Ethical and legal dilemmas impacting the lifestyle of older adults are presented. Emphasis is placed on promoting positive attitudes of the professional nurse in caring for older adults.

NUR 36100 PEDIATRIC NURSING
(Class 2, Cr. 2 or Class 3, Cr. 3)
Prerequisite: NUR 28200 and NUR 28300 and NUR 29400

Building on previous curricular concepts this course focuses on principles of health maintenance, health restoration and palliation specifically applied to the pediatric patient. Students further develop critical thinking skills by planning developmentally appropriate patient and family centered care. Students utilize best available evidence when implementing the nursing process with pediatric patients.

NUR 37200 PEDIATRIC NURSING PRACTICUM
(Lab 3, Cr. 1)
Prerequisite: NUR 36100 and NUR 29400

This clinical provides patient care experience that support the application of the nursing process in the provision of patient centered care to children and families. These experiences are provided in acute and chronic settings. Developmentally appropriate, evidence based nursing care is practiced.

NUR 38400 CONCEPTS OF ROLE DEVELOPMENT IN PROFESSIONAL NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 19700

This course examines professional nursing roles and professional nursing standards of practice within the context of structured and unstructured settings. Concepts and issues pertinent to the current environment of professional nursing practice are discussed. Personal and professional values that provide a focus for evolving professional socialization are explored.

NUR 38500 APPLICATION OF PRINCIPLES OF ECG MONITORING
(Class 2, Cr. 2 or Class 3, Cr. 3)
Prerequisite: NUR 28200

This course is designed to enable the nursing student to utilize electrocardiographic tracings in the management of adult patients with cardiac conduction abnormalities. Emphasis is placed on practical application of principles of cardiac monitoring, identification and interpretation of dysrhythmias, and related medical management and nursing intervention.

NUR 38800 NURSING OF FAMILIES AND GROUPS
(Class 3, Cr. 3)
Prerequisite: NUR 28600 and NUR 18200

Theoretical frameworks and the nursing process are utilized to support the basic needs, promote the health of families and groups, and facilitate the development of group leadership skills.

NUR 39000 NURSING RESEARCH
(Class 3, Cr. 3)
Prerequisite: BHS 20100

This course examines the research process and use of research based evidence as a foundation for nursing. A review of both quantitative and qualitative methodologies will be incorporated. Distinguishing among non-research based primary and meta-sources of evidence will be emphasized. Critical thinking skills will be used to read and evaluate published research.

NUR 39100 PROFESSIONAL ETHICS
(Class 2, Cr. 2)
Prerequisite: NUR 28300

Theoretical and practical application of ethical principles are applied to nursing and patient centered care. Particular attention is given to the ideas of advocacy, autonomy, and authority in beginning professional nursing practice.

NUR 39200 ADULT NURSING II
(Class 3, Cr. 3)
Prerequisite: NUR 28300
Co-requisite: NUR 39300

Continuing to build on the core concepts introduced in Adult Nursing I evidence based nursing practice is utilized as an approach to patient centered care with adult individuals seeking health. Concepts relative to basic human needs are emphasized.

NUR 39300 PRACTICUM III
(Lab 9, Cr. 3)
Note: Designated sections NUR 39300 will fulfill the Experiential Learning requirement.
Prerequisite: NUR 28300
Co-requisite: NUR 39200

Practicum III is the third clinical course in a series of three practice. Clinical lab experiences involve the provision of evidence based, patient centered, nursing care to individuals and small groups of adults with complex medical problems. Building on the complexity of the role of the nurse, the concepts of time management, prioritization delegation, and collaboration are introduced with practical application in the clinical setting.

NUR 39400 HEALTH PROMOTION AND EDUCATION
(Class 3, Cr. 3)
Note: Designated sections NUR 39400 will fulfill the Experiential Learning requirement.
Prerequisite: CIS 20400

The role of the nurse as a health educator is implemented. Nursing and non-nursing theories related to health promotion and teaching-learning processes are examined. Principles of health literacy related to patient education are emphasized. Evidence-based nursing projects related to health education within a community environment are implemented.

NUR 39700 NURSING CARE OF THE AGED, DISABLED AND CRONICLLY ILL
(Class 3, Cr. 3)
Prerequisite: NUR 28300 and CIS 20400

Basic human needs of the aged, person's living with chronic health problems and/ or disabilities are introduced. Principles of health promotion, health restoration and palliation are examined. Evidence based nursing practice is emphasized within the context of patient centered care.

NUR 39900 SPECIAL TOPICS
(Class 0 to 3, Lab 0 to 9, Cr. 1 to 3)
Hours, credit, and subject matter to be arranged by staff. Course may be repeated for credit up to nine hours.

NUR 41500 PATHOPHYSIOLOGY
(Class 3, Cr. 3)
Prerequisite: NUR 28200 and NUR 28300

The most common morbidity problems manifested throughout the lifespan are studied. Pathophysiologic concepts and physiologic responses are integrated with the nursing process. The application of evidence-based nursing practice modalities provides a basis to address basic human needs.
NUR 45100 NURSING INFORMATICS
(Class 3, Cr. 3)
This course provides a basic understanding of nursing, computer science, and information science to prepare students to effectively and efficiently use technology to identify, collect, process, and manage health care information. A focus on technology-based health applications which support clinical, administrative, research, and educational decision-making to enhance the efficiency of nursing is provided.

NUR 45200 QUALITY AND SAFETY IN PROFESSIONAL NURSING PRACTICE
(Class 3, Cr. 3)
Prerequisite: NUR 36100 and NUR 37200
Using a project-management focus, this course provides students the opportunity to synthesize previous knowledge related to patient-centered care, teamwork and collaboration, evidence-based practices, quality improvement, and safety in a professional leadership role.

NUR 48200 NURSING LEADERSHIP AND MANAGEMENT
(Class 2, Cr. 2)
Prerequisite: NUR 38400 and NUR 39000
Theories and evidence related to leadership, organization and management are examined. Specific strategies for effective time management, priority setting, decision making, career planning and delegation are introduced. Approaches to the quality nursing practice within a complex work environment are discussed.

NUR 48300 COMMUNITY AND PUBLIC HEALTH NURSING
(Class 4, Cr. 4)
Prerequisite: NUR 38800 and NUR 39400
This course is available to the RN only. Concepts of community and public health nursing are introduced. Community health nursing roles related to evidence-based practice, leadership collaboration, quality improvement and political activism are explored. Critical thinking skills are applied in the assessment of vulnerable populations existing within various communities. The reciprocal influence of the environment on the patient, family and community relative to human needs is emphasized.

NUR 48500 COMMUNITY HEALTH PRACTICUM
(Class 1, Lab 6, Cr. 3)
Note: Designated sections NUR 48500 will fulfill the Experiential Learning requirement.
Prerequisite: NUR 39300 and NUR 39700 and NUR 48600
The community health practicum emphasizes integration of professional nursing roles and community health concepts. The nursing process is utilized as a systematic approach to foster adaptation to stimuli within a dynamic environment. Evidence-based interventions that emphasize preventative strategies are applied to persons across a lifespan in unstructured settings.

NUR 48600 COMMUNITY HEALTH NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 38800 and NUR 39000 and NUR 39400
Concepts of community and community health nursing are introduced. Community health nursing roles related to evidence based practice, leadership collaboration, quality improvement and political activism are explored. Critical thinking skills are applied in the assessment of a community and its potential for meeting the basic human needs of its constituents.

NUR 48701 TRANSITIONS INTO PROFESSIONAL NURSING PRACTICE
(Class 2, Cr. 2)
Co-requisite: NUR 49800
This two credit course prepares senior nursing students with the knowledge, skills and attitude necessary to effectively prepare for transition from the role of student to entry level nurse. Specifically, test-taking strategies and practice, NCLEX preparation and licensure application will be addressed.

NUR 48800 CAPSTONE COURSE PREPARATION
(Class 1, Cr. 1)
Prerequisite: NUR 39300 and NUR 48500
Note: NUR 48700 and NUR 49700 can be taken before or during the same semester as NUR 48800. Under the guidance of faculty, the student develops a plan to synthesize the roles of professional nursing, specifying learning objectives, learning activities, and evaluation criteria for a practicum in an identified area of interest.

NUR 49800 CAPSTONE COURSE IN NURSING
(Class 3, Cr. 3)
Note: Designated sections NUR 49800 will fulfill the Experiential Learning requirement.
Prerequisite: NUR 39300 and NUR 48500 and NUR 48200 and NUR 48600
In collaboration with a nursing faculty and clinical liaison students will plan and implement an evidence-based project consistent with the professional leadership role. Students will use critical thinking skills and evidence based practice to promote patient-centered nursing in a health care environment of work complexities. This course will culminate with an evidence-based project that will be presented to peers and the academic community.

NUR 50000 THEORETICAL CONSTRUCTS IN NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 50100
This course examines the integration of theory/conceptual relationships in the development of nursing knowledge. Students explore ways in which nurses in advanced practice incorporate theoretical knowledge in the implementation of the advanced practice in nursing role. Students analyze the clinical relevance of mid-range and practice theories. Students examine the relationship of theoretical constructs to research and praxis through concept analysis, theory evaluation, and discussion of the application of theory to practice. This course examines ways in which theoretical thought is embedded in evidence-based nursing practice.

NUR 50100 FOUNDATIONS OF ADVANCED PRACTICE IN NURSING
(Class 2, Cr. 2)
This course builds on the knowledge and experiences that students possess when beginning their advanced practice in nursing education. Students explore their assumptions about advanced practice in nursing, its historical context and definitions of the various advanced practice roles, conceptual underpinnings and role competencies. Students develop an appreciation for how evidence-based practice influences advanced practice in nursing. They develop skills that include using information communication technologies, identifying problems, posing questions that lead to evidence sources, searching and differentiating among various sources and types of evidence.

NUR 50200 PHARMACOTHERAPEUTICS FOR ADVANCED PRACTICE NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 50700
Course includes pharmacodynamics, and pharmacotherapeutics of broad categories of pharmacologic agents. Students apply these principles and also consider the role of best available evidence and patient preferences as a basis for managing pharmacologic regimens. Students review regulations relevant to prescriptive authority for advanced practice nurses.

NUR 50300 ADVANCED HEALTH ASSESSMENT
(Class 2, Lab 3, Cr. 3)
Prerequisite: NUR 50100 and NUR 50200 and NUR 50500 and NUR 50700 and NUR 5100
Students develop advanced, evidence-based health assessment skills that build on their current knowledge and abilities. Major concepts of the course include comprehensive and focused history taking and advanced physical assessment. Students relate underlying physiologic mechanisms with normal and abnormal findings from the history and physical assessment. The course provides a basis for designing a culturally sensitive and evidence-based plan of care within the situational context of the individual.

NUR 50400 HOLISTIC HEALTH PROMOTION
(Class 3, Cr. 3)
Cultural considerations as well as the physical, psychosocial, and spiritual behavior patterns are examined to assess their impact upon health promotion practices. The roles of nutrition, stress management and communication are analyzed for their influence on both clients and health care providers.

NUR 50500 SOCIOCULTURAL INFLUENCES ON HEALTH
(Class 3, Cr. 3)
This course examines the influences of cultural and sub-cultural variables on health and health care delivery. Students analyze and apply appropriate theoretical perspectives and current research to design evidence-based strategies that ground clinical decision making in advanced practice nursing. Students use the National Standards on Culturally and Linguistically Appropriate Services (CLAS) as the basis for providing culturally competent care. As students apply principles of culturally
competent communication they are encouraged to develop insight and an attitude of resistance to stereotyping. Students gain an understanding of the context of vulnerable and marginalized populations through the analysis of social, cultural and economic influences that impact health and illness.

**NUR 50600 PATHOPHYSIOLOGY**  
(Class 3, Cr. 3)  
Requirement: Graduate student status or instructor consent. This course is designed to examine common clinical concepts of disease processes of adult clients. Based on current research, pathophysiological processes are explored, compensatory mechanisms investigated and rationale for interventions appraised.

**NUR 50700 PSYCHOSOCIAL CONCEPTS FOR ADVANCED PRACTICE NURSING**  
(Class 3, Lab. 3, Cr. 4)  
Prerequisite: NUR 50100  
Students examine the principles of physiologic function at all levels of organization from cells to organ systems as they affect human function. The course uses homeostasis as a model to account for regulatory and compensatory functions in health. Students develop the necessary theoretical and empirical foundation for subsequent understanding of the diagnosis and management of human responses to disease and no disease-based etiologies.

**NUR 50800 THE FAMILY AS A UNIT OF HEALTH CARE**  
(Class 3, Cr. 3)  
Prerequisite: NUR 50000 and NUR 50400  
Current theories that view families as a unit of care are used to assess strengths, deficits and coping strategies across the life cycle. Appropriate interventions and referrals are planned based on assessment of social and based on assessment of social and environmental factors that affect families. Increased competency in family interviewing skills enable students to apply appropriate health promotion and illness prevention strategies.

**NUR 50900 FAMILY HEALTH PROMOTION PRACTICUM**  
(Class 1, Lab. 5, Cr. 3)  
Prerequisite: NUR 50000 and NUR 50300 and NUR 50400 and NUR 50600 and NUR 50800 and NUR 51000  
The roles of the family nurse practitioner in promoting health and preventing illness are implemented. The health status of individuals across the lifespan and families across the life cycle is assessed. Primary and secondary prevention strategies are used to promote individual and family health. Health education, counseling and screening are used to promote individual and family health. Health education, counseling and screening are emphasized. Current theory and research related to health promotion are applied.

**NUR 51000 RESEARCH AND EVIDENCE BASED NURSING PRACTICE**  
(Class 3, Cr. 3)  
Prerequisite: PSY 50000 and NUR 50100  
This course focuses on both the generation of evidence through an in-depth examination of the research process and its critical use in evidence based practice. Students systematically search, appraise and interpret the best available evidence that informs advanced practice nursing and health related disciplines.

**NUR 51100 HEALTH PROMOTION FOR ADVANCED PRACTICE IN NURSING**  
(Class 2, Cr. 2 or Class 2, Lab. 3, Cr. 3)  
Prerequisite: NUR 50300 and NUR 51000  
Students analyze health promotion/disease prevention, and health education frameworks combined with best available evidence as a foundation for advanced practice in nursing. Students promote the health of diverse client populations by incorporating the Healthy People goals, clinical practice guidelines, risk assessment, epidemiological data and evidence based screening tools into nursing practice. In collaboration with selected clients and/or families, students implement health coaching/teaching through the integration of family health promotion and health literacy theories.

**NUR 51800 ADULT HEALTH NURSING I**  
(Class 3, Cr. 3)  
Prerequisite: NUR 50000 and NUR 50400 and NUR 50600 and NUR 51000  
Holistic health concepts, current theories and research related to acute adult health disorders are examined. Appropriate theories are utilized in developing holistic approaches to nursing care of clients experiencing or having the potential for experiencing psychophysiological maladaptation's resulting from adult health disorders. Philosophical perspectives and role of the adult health clinical specialist are integrated throughout the course.

**NUR 52000 ADULT HEALTH NURSING PRACTICUM I**  
(Lab 9, Cr. 3)  
Co-requisite: NUR 51800  
Correlation of major maladaptive processes with changes that occur in adult clients with common, acute health care problems is stressed. The application of nursing process to assess and manage episodic health care problems, and promote the client's self-care agency is emphasized. Health assessment and management modalities are evaluated.

**NUR 52700 ETHICS FOR NURSES IN ADVANCED PRACTICE**  
(Class 3, Cr. 3)  
The focus of this course is on moral dilemmas and ethical implications occurring in a variety of contexts. Students explore both theoretical and pragmatic viewpoints of dilemmas as they relate to the role of nurses in advance practice. Content includes the historical, theoretical, contextual, and practical aspects of ethical nursing practice, as well as the application of ethical frameworks, concepts, and principles.

**NUR 53000 CRITICAL CARE NURSING I**  
(Class 3, Cr. 3)  
Prerequisite: NUR 50000 and NUR 50400 and NUR 50600 and NUR 51000  
Holistic health concepts and current research related to the care of critically ill clients and families are examined. Specific topics addressed include clinical decision-making, crisis management, quality of life, client education and pain. Nursing theories are utilized in developing holistic approaches to critical care nursing practice. Roles of the critical care clinical specialist are integrated throughout the course.

**NUR 53500 CRITICAL CARE NURSING PRACTICUM I**  
(Lab 9, Cr. 3)  
Co-requisite: NUR 53000  
In this course students apply advanced knowledge of nursing theory, research and the nursing process to clients and families experiencing real or potential life-threatening health problems in critical care settings. The multifaceted role of the critical care clinical specialist is implemented.

**NUR 55500 HEALTH DISPARITIES: CARE OF VULNERABLE POPULATIONS**  
(Class 3, Cr. 3)  
Prepares the advanced practice nurse to address and find solutions for vulnerable populations and individuals in the health care system. Students investigate and analyze current issues and health-care policies, focusing on health disparities that impact vulnerable people. The advanced practice nurse examines the legal and ethical aspects of managing the health care of disparate individuals, families, and groups.

**NUR 59900 SPECIAL TOPICS IN NURSING**  
(Class 0 to 6, Lab. 0 to 6, Cr. 1 to 6)  
Requirement: Graduate standing or consent of instructor. Special topics in nursing are critically examined. Hours, credit and subject matter are determined by staff.

**NUR 60000 ADULT HEALTH CLINICAL NURSE SPECIALIST I**  
(Class 3, Cr. 3)  
Prerequisite: NUR 50000 and NUR 51100  
Co-requisite: NUR 60100  
Students analyze theory and research related to the patient/client sphere of influence in order to design care for patients with adult health disorders. Students use problem solving and evidence-based practice methodologies to diagnose, plan and evaluate interventions for select disease and no disease-based phenomena. The focus is on understanding etiologies of symptoms and functional problems, the need for intervention, and associated outcomes of practice.

**NUR 60100 ADULT HEALTH CLINICAL NURSE SPECIALIST PRACTICUM I**  
(Cr. 2)  
Prerequisite: NUR 50000 and NUR 51100 and NUR 6000  
Students apply advanced knowledge of theory and research to care for patients/clients with adult health disorders who require the care of a clinical nurse specialist. Students use problem-solving methodologies based on synthesis of theoretical and empirical evidence to advance nursing care of patients/clients. Students participate in direct and indirect care activities that impact nurse-sensitive patient client outcomes.

**NUR 60200 CRITICAL CARE CLINICAL NURSE SPECIALIST I**
Students analyze theory and research related to the patient–client sphere of influence in order to design care for patients with critical illness. Students use problem-solving and evidence-based practice methodologies to diagnose, plan, and evaluate interventions for select disease and no disease based phenomena. The focus is on understanding etiologies of symptoms and functional problems, the need for intervention and associated outcomes of practice.

**NUR 60300 CRITICAL CARE CLINICAL NURSE SPECIALIST PRACTICUM I**  
(Class 3, Cr. 2)  
Prerequisite: NUR 50000 and NUR 51100 and NUR 60200  
Students apply advanced knowledge of theory and research to care for patients/clients with critical illness who require the care of a clinical nurse specialist. Students use problem-solving methodologies based on synthesis of theoretical and empirical evidence to advance nursing care of patients/clients. Students participate in direct and indirect care activities that impact nurse-sensitive patient client outcomes.

**NUR 61100 PRIMARY CARE OF THE YOUNG FAMILY**  
(Class 3, Cr. 3)  
Prerequisite: NUR 50000 and NUR 51100  
Co-requisite: NUR 61300  
Prepares family nurse practitioner students to assume responsibility for the coordination and delivery of culturally appropriate health services to childbearing and childrearing families. Students apply theory and research to the management of pregnancy, well-child care, stable chronic conditions and acute episodic illnesses commonly encountered in primary care settings. The course emphasizes a sound conceptual basis for practice and an appreciation for evidence-based care. Students continue to integrate health promotion and health maintenance into the primary care of young families.

**NUR 61300 PRIMARY CARE OF THE YOUNG FAMILY PRACTICUM**  
(Class 3)  
Prerequisite: NUR 50000 and NUR 51100 and NUR 61100  
Students progress in their ability to master the competencies of the family nurse practitioner, using critical thinking and diagnostic reasoning skills. Students apply knowledge of clinical research, pharmacology, physiology, and conceptual frameworks to the primary care of childbearing and childrearing clients and families.

**NUR 61800 ADULT HEALTH NURSING II**  
(Class 3, Cr. 3)  
Prerequisite: NUR 60000  
Co-requisite: NUR 62000  
Students analyze theories and research related to adult health nursing personnel and organizational spheres of influence. Clinical nurse specialist competencies focused toward nursing personnel and other healthcare providers and organizations are addressed. The emphasis is on using problem-solving and evaluation methodologies that address nursing care and organizational issues.

**NUR 62000 ADULT HEALTH NURSING PRACTICUM II**  
(Class 2)  
Prerequisite: NUR 60100  
Co-requisite: NUR 61800  
Students apply theories and research related to adult health nursing personnel and organizational spheres of influence. Students begin to develop professional role competencies related to nursing personnel and the healthcare organization. Students use systematic assessment and evaluation methodologies to identify problems and evaluate outcomes.

**NUR 62200 PRIMARY CARE OF THE AGING FAMILY**  
(Class 3, Cr. 3)  
Prerequisite: NUR 61100 and NUR 61300  
Co-requisite: NUR 62300  
This course prepares family nurse practitioner students to assume responsibility for the coordination and delivery of culturally appropriate health services to middle-aged and older families. Students learn to manage stable chronic conditions and acute episodic illnesses commonly encountered in primary care settings. The course emphasizes the conceptual basis for practice and an appreciation for evidence-based care. Students continue to integrate health promotion and health maintenance into the primary care of older clients and their families.

**NUR 62300 PRIMARY CARE OF THE AGING FAMILY PRACTICUM**  
(Class 3)  
Prerequisite: NUR 61300  
Co-requisite: NUR 62200  
Students progress in their ability to master the competencies of the family nurse practitioner, using critical thinking and diagnostic reasoning skills. Students apply knowledge of clinical research, pharmacology, physiology and conceptual frameworks to the primary care of middle aged and older clients and families.

**NUR 63000 CRITICAL CARE NURSING II**  
(Class 3, Cr. 3)  
Prerequisite: NUR 60200  
Students analyze theories and research related to critical care nursing personnel and organizational spheres of influence. Clinical nurse specialist competencies focused toward nursing personnel and other healthcare providers and organizations are addressed. The emphasis is on using problem-solving and evaluation methodologies that address nursing care and organizational issues.

**NUR 63500 CRITICAL CARE NURSING PRACTICUM II**  
(Class 2)  
Prerequisite: NUR 60300  
Students apply theories and research related to critical care nursing personnel and organizational spheres of influence. Students begin to develop professional role competencies related to nursing personnel and the healthcare organization. Students use systematic assessment and evaluation methodologies to identify problems and evaluate outcomes.

**NUR 65500 ADVANCED PRACTICE IN NURSING SEMINAR**  
(Class 1, Cr. 1)  
Prerequisite: NUR 60100 and NUR 60300 and NUR 61300 or NUR 62300  
Students analyze movements and trends that influence advanced practice in nursing. Students dialogue with peers on issues related to advance practice nursing as a profession and discipline, healthcare and other related topics of interest.

**NUR 65600 HEALTH CARE ORGANIZATION, POLICY AND ECONOMICS**  
(Class 3, Cr. 3)  
Prerequisite: NUR 50100  
Students use theories to understand the various models that influence health care policy and organize health care delivery. Students investigate the processes of analyzing and forming health policy. The reciprocal relationship between evidence-based practice and health care policy is explored. Students examine health care economics from a micro and macro perspective and their impact on health care delivery systems. Students also explore issues such as access to health care, health care quality, and cost.

**NUR 65700 FNP PRACTICUM: CLINICAL SYNTHESIS**  
(Class 2)  
Prerequisite: NUR 62200 and NUR 62300 and NUR 65600  
Co-requisite: NUR 65500  
This is the final clinical capstone course in a sequence of clinical courses designed to prepare graduate nursing students for FNP practice. Students synthesize and apply theoretical and empirical knowledge in primary care settings with culturally diverse clients and families. Emphasis is given to the clinical management of a wider spectrum of clients and to the more complex, co-morbid conditions seen in family practice.

**NUR 65800 ADULT HEALTH CLINICAL NURSE SPECIALIST PRACTICUM III**  
(Class 2)  
Prerequisite: NUR 62200 and NUR 65600  
Co-requisite: NUR 65500  
Students further develop skill in applying theories and research related to managing the care of adult health patients and influencing adult health nursing personnel and organizations. Students continue to expand professional role competencies related to all of the spheres of influence. Students identify problems and evaluate the outcomes of care with respect to patients, nursing personnel, and organizations using systematic assessment and evaluation methodologies.
NUR 65900 CRITICAL CARE CLINICAL NURSE SPECIALIST PRACTICUM III
(Class 2, Cr. 2)
Prerequisite: NUR 63500 and NUR 65500 and NUR 65600
Students further develop skill in applying theories and research related to managing the care of critical care patients and influencing critical care nursing personnel and organizations. Students continue to expand professional role competencies related to all of the spheres of influence. Students identify problems and evaluate the outcomes of care with respect to patients, nursing personnel, and organizations using systematic assessment and evaluation methodologies.

NUR 66000 CURRICULUM DEVELOPMENT IN NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 50000
Theories of curriculum development, instructional design, and evaluation of educational programs are applied to the adult learner in nursing. Educational needs are analyzed, and objectives and content are designed.

NUR 66200 TEACHING STRATEGIES FOR NURSING
(Class 2, Lab 6, Cr. 4)
Prerequisite: NUR 66000
Theories of learning, testing and measurement are analyzed. Theory-based teaching strategies are applied in a preceptor clinical practice field or academic setting. The effectiveness of teaching activities and instructional materials are evaluated.

NUR 66400 PRINCIPLES OF CLINICAL LEADERSHIP
(Class 2, Cr. 2)
Prerequisite: NUR 52000 and NUR 53500 and NUR 61300 and NUR 62300
Theoretical approaches to understanding the rationale for designing interventions and analyzing the results of health care are evaluated. Emphasis is placed on utilization of principles and theories as a frame of reference for clinical leadership.

NUR 66600 PRINCIPLES OF ADMINISTRATION FOR A HEALTH CARE UNIT
(Class 3, Cr. 3)
Managerial functions and responsibilities are analyzed. Emphasis is placed on planning, organizing, implementing and controlling health care services. Interdisciplinary concerns are discussed and service outcomes evaluated.

NUR 66800 PRACTICUM IN ADMINISTRATION OF A HEALTH CARE UNIT
(Lab 9, Cr. 3)
Prerequisite: NUR 66600
Theories of administration are applied to analyzing a health service in a select clinical setting with the guidance of a faculty member and an administrative preceptor. Organizational problems are identified and plans are developed to improve the functional organization of the service.

NUR 67000 PRACTICUM IN NURSING RESEARCH
(Class 1 to 6, Cr. 1 to 6)
Prerequisite: NUR 51000
Variable credit 1–6. Amount of credit to be determined by nature and extent of the assignment. Students participate in nursing research projects under the guidance of the faculty. This plan of individualized instruction may be used in any area of nursing specialization, education, or administration.

NUR 67100 NURSING EXECUTIVE PRACTICUM I
(Lab 0 to 6, Cr. 2)
Prerequisite: NUR 65200 and NUR 65100 and NUR 65300
This first practicum experience is designed to integrate theory and knowledge learned in the program in the actual practice of the nursing executive role. The practicum provides an opportunity for the student to experience the nurse executive role while receiving ongoing feedback, guidance and support. In this first practicum for the student, the focus is on the professional and operational activities of the nurse executive, such as interviewing, hiring, quality improvement, relationship building, collaboration, and the budgeting process. The student will assess the role and responsibilities of the nurse executive in leading others in the provision of healthcare. In collaboration with the preceptor and the faculty, the student will design a project that will improve safety, quality care, or work environment for nurses.

NUR 67200 NURSE EXECUTIVE PRACTICUM II
(Lab 0 to 6, Cr. 2)
Prerequisite: NUR 67100
The second practicum experience is designed to integrate theory and knowledge learned in the program in the actual practice of the nurse executive role. The practicum provides an opportunity for the student to experience the nurse executive role while receiving ongoing feedback, guidance and support. In this second practicum, the focus continues to be on the professional and operational activities of the nurse executive in leading others in the provision of healthcare for the community. In collaboration with the preceptor and the faculty, the student will design a project that will improve access to care, safety and quality of care for the community, or the work environment of the nursing community.

NUR 69800 RESEARCH: MASTER’S THESIS
(Class 0 to 99, Lab 0 to 99, Cr. 1 to 6)
Prerequisite: NUR 51000
Variable credit 1–6. Open to students who elect an optional functional track in research. The student enrolls with the faculty member directing the thesis.

Organizational Behavior

OBHR 22100 PRINCIPLES OF MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: MGMT 10100 or BUSM 10100
The fundamentals of organizing a business to succeed. The planning, organizing, directing and controlling of business activities in the organizational plan to combine and allocate resources to meet expressed goals is the focus of this course.

OBHR 23100 SURVEY HUMAN RESOURCES
(Class 3, Cr. 3)
Prerequisite: MGMT 10100 or BUSM 10100
Exposure to a wide variety of human resource activities in the business enterprise. Topics include staffing, development, compensation and labor relations. This course is not open to Management majors.

OBHR 33000 INTRODUCTION TO ORGANIZATIONAL BEHAVIOR
(Class 3, Cr. 3)
Junior standing desirable. An integrated social science approach to administrative problems and administrative behavior. Behavior in organizations is examined in the context of psychological and sociological principles with attention given to such problems as motivation, influence, communication, leadership, small group processes, and organizational change. Emphasis is placed on the development of theoretical and empirical skills in diagnosing and responding to interpersonal problems as well as experience-based learning.

OBHR 42300 NEGOTIATIONS
(Class 3, Cr. 3)
This course provides both the theoretical foundation and practical methods for performing effective negotiations, persuading, and managing conflict in real life situations. Participants will be able to increase their own knowledge of the field and will be able to improve the outcomes of their own negotiation for themselves and others. The participants will also be able to use their knowledge of conflict management to more effectively resolve interpersonal and inter-group conflicts, both from the perspective of a participant and a third-party.

OBHR 42600 TRAINING AND MANAGERIAL DEVELOPMENT
(Class 3, Cr. 3)
Prerequisite: OBHR 43100 or BA 23100
This course focuses on training from a line managerial perspective and on management development, addressed through a consideration of critical personal, interpersonal and team-related skills.

OBHR 42700 OCCUPATIONAL SAFETY AND HEALTH
(Class 3, Cr. 3)
An examination of the economic, legal and social factors of occupational safety and health issues within an organization. Consideration will be given to the compliance with federal and state laws, safety training programs, safety recognition and incentive programs, health education programs and joint labor/management safety committees.

OBHR 43000 LABOR RELATIONS
(Class 3, Cr. 3)
A basic course in economic theory or consent of the department required. The course focuses on employee-employer relations under collective bargaining. Attention is also given to topics in trade union development and structure, wage analysis, the problem of economic insecurity, the role of government in labor
relations, and employment aspects of the civil rights movement.

**OBHR 43100 HUMAN RESOURCE MANAGEMENT**  
(Class 3, Cr. 3)  
A study of the human resource management function in the business firm. Traditional line and staff relationships are discussed. Motivation, job design, and aspects of the legal environment of human resource management are analyzed.

**OBHR 43300 STAFFING ORGANIZATIONS**  
(Class 3, Cr. 3)  
Prerequisite: OBHR 43100 or BA 23100  
An examination of the theory and practice of human resource planning, selection, and placement. The course will link human resource planning to organization-wide strategic planning. Selection devices as well as validation and reliability strategies are discussed. The implications of legal requirements for hiring practices are investigated.

**OBHR 43400 BENEFITS ADMINISTRATION**  
(Class 3, Cr. 3)  
Prerequisite: OBHR 43100 or BA 23100  
A study of the historical, financial, motivational, and substantive aspects of employee benefits. Emphasis will be placed on practical administration. Consideration will be given to issues of productivity, union involvement, and future trends in benefit management.

**OBHR 43500 COMPENSATION MANAGEMENT**  
(Class 3, Cr. 3)  
Prerequisite: OBHR 43100 or BA 23100  
A study of the theory and practice of employee compensation systems considering monetary topics, performance appraisal maintenance, audits of compensation decisions, internal equity, and individual equity will be discussed.

**OBHR 43600 COLLECTIVE BARGAINING**  
(Class 3, Cr. 3)  
Note: Designated sections OBHR 43600 will fulfill the Experiential Learning requirement.  
Prerequisite: OBHR 43100 or BA 23100  
Considers current developments in the areas of collective bargaining, negotiations, and third party mediation and arbitration practices. Consideration will be given to the environments, structure, and processes of collective bargaining. Emphasis is on the practical aspects of labor-management negotiation and proceedings.

**OBHR 43700 MANAGING CAREER DEVELOPMENT**  
(Class 3, Cr. 3)  
Prerequisite: OBHR 43100 or BA 23100  
A consideration of individual and organization-centered approaches to career development. The seminal theories of career management will be discussed in terms of practical applications. Topics in career and life stage development will be explored. Career path, dual career families, and careers in emerging fields will be discussed. Methods for diagnosing and planning services for employees from diverse backgrounds and at various occupational levels are considered.

**OBHR 43800 GENDER AND DIVERSITY IN MANAGEMENT**  
(Class 3, Cr. 3)  
This course will focus on the challenges of managing a work force. Consideration will be placed on identifying and resolving workplace problems attributed to the presence of demographic differences such as gender, race, ethnicity, age and able-bodiness background among employees within a given work environment. Emphasis is on developing and conducting diversity training programs and reinforcing principles of valuing diversity.

**OBHR 43900 EMPLOYMENT LAW**  
(Class 3, Cr. 3)  
This course presents and examines the principles of employee-employer relations law. Students will be exposed to various federal and state laws pertaining to employment discrimination based upon demographic differences, such as gender, race, age, ethnicity, and able-bodiness. In addition, this course will address issues such as negligent hiring, employment-at-will, wrongful discharge, drug and alcohol testing, and privacy in the workplace.

**OBHR 44300 CONTEMPORARY LEGAL AND SOCIAL ISSUES IN HUMAN RESOURCE MGMT**  
(Class 3, Cr. 3)  
Prerequisite: OBHR 43100 or BA 23100  
This course involves the comprehensive study of contemporary legal and social issues facing managers, with heavy emphasis on human resource management (HRM). Legal and ethical issues relevant to HRM are discussed at a level where students will develop policies, and practices to assist firms avoid legal action and costly litigation. Defenses to human resource related lawsuits are also discussed. Theories regarding discrimination, harassment and social workplace issues are analyzed enabling students to apply their knowledge to novel concrete situations. The course assists current and future HR practitioners to effectively manage an organization’s legal posture to be congruent with its strategic objective.

**OBHR 44400 LEADERSHIP**  
(Class 3, Cr. 3)  
Note: Designated sections OBHR 44400 will fulfill the Experiential Learning requirement.  
Prerequisite: OBHR 33000 or BA 23000  
This course is designed to introduce students to leadership theory and practice. Students will learn theories of leadership, practice methods of evaluating effective leadership, and develop a personal leadership action plan. Particular emphasis is placed on developing ethical leadership and trust.

**OBHR 44500 TEAM DYNAMICS**  
(Class 3, Cr. 3)  
Prerequisite: OBHR 33000 or BA 23000  
Examines team dynamics from both managerial and member perspectives. Basic concepts of interpersonal behavior, facilitation of effective teamwork, team design, and processes are discussed. Additional topics include virtual, high performance, and cross-cultural teams. Concepts will be applied in team projects and exercises.

**OBHR 49000 PROBLEMS IN ADMINISTRATIVE SCIENCES**  
(Class 0 to 4, Cr. 1 to 4)  
Supervised readings and reports in various subjects. Arrange with instructor before enrolling.

**OBHR 59000 PROBLEMS IN ADMINISTRATIVE SCIENCES**  
(Class 0 to 4, Cr. 1 to 4)  
Supervised readings and reports in various subjects. Arrange with instructor before enrolling.

**OBHR 63200 COLLECTIVE BARGAINING**  
(Class 3, Cr. 3)  
For students in the management graduate program or by consent of College. An in-depth examination of human resource management in the context of union-management relations. The following subject matter is examined: history of unions, labor law and its application, worker incentives to unionize, organizing campaigns and election outcomes, structure of collective bargaining, contract negotiations, contract content, grievance procedures and arbitration, mediation, union-management cooperation, and the impact of union cooperation, and the impact of unions on wages, fringe benefits, turnover, absenteeism, etc.

**OBHR 63300 HUMAN RESOURCE MANAGEMENT**  
(Class 3, Cr. 3)  
Introduction to human resource management for general managers. Emphasis is on the impact of human resource components (e.g. staffing, rewards, labor relations) on the performance of the firm. Case analyses and computerized databases are used to illustrate major components of human resource decision making.

**OBHR 66300 SEMINAR IN ORGANIZATION THEORY**  
(Class 3, Cr. 3)  
For students in the management graduate program or by consent of College. The analysis and design of complex organizations. Emphasis is placed on current research in organizational theory and design. Topics include major theoretical perspectives, design parameters, structural configurations, culture, technology, the environment, and organizational effectiveness.

**OBHR 68100 MANAGING BEHAVIOR IN ORGANIZATIONS**  
(Class 2 to 4, Cr. 2 to 4)  
Individual and group behaviors are the central components of the study of behavior in organizations. Focus is on the managerial application of knowledge to issues such as motivation, group process, leadership, organizational design structure, and others. The course employs cases, exercises, discussions, and lectures.

**OBHR 69000 ADVANCED PROBLEMS IN ORGANIZATIONAL BEHAVIOR AND HR MANAGEMENT**
Organizational Leadership and Supervision

**OLS 1020 FRESHMAN EXPERIENCE**

**Class (1, Cr. 1)**

This course provides entering first-year students with less than 60 credits an opportunity to become familiar with available departmental and university resources, such as the advising process, the course management system, engage in goal setting, align academic and life goals, explore available career options and develop a plan for success.

**OLS 13100 INTRODUCTION TO SAFETY AND HEALTH MANAGEMENT**

**Class (3, Cr. 3)**

General Education

Course emphasizes developing an understanding of various topics related to environmental health and safety which owners, managers, supervisors, and employees need to be aware of in the working environment.

**OLS 16300 FUNDAMENTALS OF SELF-LEADERSHIP**

**Class (3, Cr. 3)**

This course provides students with an introduction to the Organizational Leadership and Supervision program, and prepares them for the program curriculum. It serves both as the Freshman Experience course, and the fundamental introduction to leadership. It covers utilization of campus resources, goal setting, values and role exploration, relationship of academic planning and life goals, discipline specific career exploration, and critical thinking.

**OLS 25200 HUMAN RELATIONS IN ORGANIZATIONS**

**Class (3, Cr. 3)**

A survey of the concepts that provide a foundation for the understanding of individual and group behavior in organizations. Special emphasis on typical interpersonal and leadership relationships.

**OLS 27200 JOB EVALUATION**

**Class (2, Cr. 2 or Class 3, Cr. 3)**

A survey of the basic principles and significance of job evaluation. An analysis of current practices and techniques used in job analysis, job descriptions and job evaluation.

**OLS 27400 APPLIED LEADERSHIP**

**Class (2 to 3, Lab. 0 to 2, Cr. 3)**

An introduction to applied leadership in the context of organizational functions, structures and operations.

**OLS 30300 SUBSTANCE ABUSE IN THE WORKPLACE**

**Class (3, Cr. 3)**

Overviews alcohol and drug problems affecting job performance in the workplace. Topics covered include current concepts of alcoholism and addictions, supervisor’s role and responsibilities, work behavior of alcohol and drug abusers. Constructive confrontation and intervention, employee assistance programming, and referral.

**OLS 33100 OCCUPATIONAL SAFETY AND HEALTH**

**Class (3, Cr. 3)**

A presentation of those aspects of occupational safety and health which are most essential to the first line supervisor. Emphasis is placed on developing an understanding of the economic, legal, and social factors related to providing a safe and healthful working environment.

**OLS 33200 FUNDAMENTALS OF INDUSTRIAL HYGIENE**

**Class (3, Cr. 3)**

Prerequisite: MA 14800 and CHM 11900

An examination of the industrial hygiene factors instrumental in maintaining a safe and healthful workplace. Special emphasis is given to the recognition, evaluation, and control of occupational health hazards.

**OLS 33300 ENVIRONMENTAL HEALTH AND SAFETY LEGISLATION AND STANDARDS**

**Class (3, Cr. 3)**

Prerequisite: OLS 33100

A study of the laws, codes, and standards which affect the occupational safety and health. Emphasis is placed on an overview of various environmental, health and safety related laws, codes and standards such as: OSHA, DOT, FRA, MSHA, EPM, NFPA, ANSI, NIOSH, ISO, etc.

**OLS 33400 FIRE PROTECTION**

**Class (3, Cr. 3)**

Explores the principles involved in the protection of people and property from fire and explosion. Basic fire safety terminology, fire chemistry and extinguishment, fire safety references and standards, and fire safety management are presented. Also discussed are control measures for common fire and explosion hazards and the design of buildings in terms of life safety and fire suppressive systems.

**OLS 33600 FUNDAMENTALS OF RISK ASSESSMENT AND MANAGEMENT**

**Class (3, Cr. 3)**

Prerequisite: OLS 33100 and OLS 33300

Explore techniques for assessment and methods for managing the risk associated with occupational injuries, illnesses, deaths and property damage in the workplace. The principle methods include: 1) identifying the exposure to loss; 2) evaluating alternative techniques for treating the exposure; 3) selecting the appropriate techniques; 4) implementing the chosen technique; and 5) monitoring and improving the risk management system.

**OLS 33700 INTRODUCTION TO EMERGENCY MANAGEMENT**

**Class (3, Cr. 3)**

Prerequisite:

Explore the principles of emergency management in preparing for disruptive events. Students explore the requirements and value of emergency management in preparation for a variety of emergency events likely to occur in either industrial or municipal environments. Students will study the concepts of emergency management including prevention of, mitigation of, preparedness for, response to, and recovery from disruptive emergency events.

**OLS 34000 FUNDAMENTALS OF CONSTRUCTION SAFETY**

**Class (3, Cr. 3)**

Overview of construction safety and health regulations. Throughout the course students will participate in discussions pertaining to construction safety issues and will be provided information to evaluate the primary OSHA targeted hazards in the construction industry. OSHA 30 Hr. card. Students will learn to recognize key hazards, be explosives to control technologies and corrective actions for the prevention of an injury, illness, and fatality that commonly occurs at construction sites.

**OLS 34100 FUNDAMENTALS OF ENVIRONMENTAL HEALTH**

**Class (3, Cr. 3)**

Prerequisite: OLS 33600

This class will be presented as an overview of current issues in community and working environments. Those issues which are most essential to the supervisor/manager will be emphasized. Students will develop an understanding of key Environmental Protection Agency (EPA) regulations such as CERCLA, Clean Air Act and its Amendments, Clean Water Act, and RCRA and typical means to ensure compliance.

**OLS 34300 HAZARDOUS MATERIALS**

**Class (3, Cr. 3)**

Explore the practical, safe approach to handling hazardous materials. Topics include: basic chemistry of hazardous materials, hazard classes and toxicology, evaluating risk, selecting correct protective equipment, specific competencies required of persons responding to a hazardous materials emergency, managing an incident, and addressing tactical and strategic issues while minimizing down-time and reducing risk to other workers.

**OLS 35000 APPLIED CREATIVITY FOR BUSINESS AND INDUSTRY**

**Class (3, Cr. 3)**

A study of the ways an individual can become more creative and how they can develop an environment which encourages creativity from employees.

**OLS 35100 INNOVATION AND ENTREPRENEURSHIP**

**Class (3, Cr. 3)**

Prerequisite: OLS 35000

An in-depth study of innovation in existing organizations, as well as entrepreneurship in start-up businesses, franchises, family-owned firms, and other business formats.

**OLS 35500 ACCIDENT INVESTIGATION**

**Class (3, Cr. 3)**
Prerequisite: OLS 33100
Explore various approaches for conducting an incident/accident investigation, methods to determine the causes of incident/accidents, analyses of data gathered as part of the process and proper documentation. Through a series of case studies and examples, students will have the opportunity to identify the corrective action steps for preventing future occurrences and presenting those recommendations to management for implementation.

OLS 36300 FUNDAMENTALS OF SELF-MANAGEMENT
(Class 3, Cr. 3)
This course compares and contrasts several frameworks for self-management, and provides students with the opportunity to study these frameworks to achieve success in life, school and career.

OLS 36400 PROFESSIONAL DEVELOPMENT PROGRAM
(Class 3, Cr. 3)
A survey course covering many professional facets relative to entering the work force upon graduation. Major areas addressed include resume preparation, interview techniques, development of job search plans, social skills, and analysis of career fields and opportunities.

OLS 37400 SUPERVISION MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: OLS 25200
Introduction to and overview of the fundamental concepts of supervision. Emphasis is placed on the supervisor’s major functions and essential areas of knowledge, his or her relations with others, and his or her personal development.

OLS 37500 TRAINING METHODS
(Class 3, Cr. 3)
Prerequisite: OLS 25200
Principles, practices, and methods of employee training. Introduction to systematic training program design, development, and evaluation. Emphasis is on the supervisor as a trainer.

OLS 37600 HUMAN RESOURCE ISSUES
(Class 3, Cr. 3)
Prerequisite: OLS 25200
Analysis and discussion of case problems concerning typical leadership and personnel situations that impact upon the supervisor/manager. Emphasis directed toward development to attitude, philosophy, analytical ability, and problem-solving skills within the working environment.

OLS 37800 LABOR/MANAGEMENT RELATIONS
(Class 3, Cr. 3)
Prerequisite: OLS 25200
An introduction to and overview of the fundamental concepts of labor relations, collective bargaining, and dispute resolution procedures. A comparative analysis is used to assess some of the legal economic, and political structures of labor relations.

OLS 38400 LEADERSHIP PROCESS
(Class 3, Cr. 3)
Prerequisite: OLS 16300 and OLS 25200
An in-depth study of a sequence of manager actions that influence employees to achieve desired performance results. How these manager actions are transformed by employees into desired performance also is covered.

OLS 38700 EMERGENCY PLANNING AND EXERCISES
(Class 3, Cr. 3)
Prerequisite: OLS 33100 and OLS 33700
Explore the development of emergency plans and exercises for organizations. Students will learn requirements imposed by the Occupational Safety and Health Administration (OSHA) for emergency plans. Students will study the linkage between emergency plans through emergency preparedness exercises. Students will develop an onsite emergency plan, for an actual organization, and an emergency exercise to test the plan.

OLS 38900 EMERGENCY MANAGEMENT PROGRAM
(Class 3, Cr. 3)
Prerequisite: OLS 38700
Explore hazard analysis and develop a mitigation plan for an actual organization.

The class will examine current plans and practices developed for site, community or countrywide use. Last course in the Emergency Management Certificate.

OLS 39900 SUPERVISION TOPICS
(Class 3, Cr. 7 to 6)
(May be repeated for credit)
Hours and subject matter to be arranged by staff.

OLS 41500 INTRODUCTION TO ENVIRONMENTAL MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: OLS 34100
This class will provide an introduction to current issues and concepts in environmental management including an overview of environmental policy, necessary measures to control and mitigate environmental impacts and key Environmental Protection Agency (EPA) regulations such as CERCLA, Clean Air Act and its Amendments, Clean Water Act, and typical means to ensure compliance.

OLS 42100 PSYCHOLOGY AND SOCIOLOGY OF SAFETY
(Class 3, Cr. 3)
Prerequisite: OLS 33100
Explore contemporary approaches used to influence employees’ safety related behaviors using the principles of psychology and sociology. Case studies of behavior and operations that resulted in both human and material loss will be studied.

OLS 43000 ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: OLS 33100 and OLS 33600 and OLS 35500
Designing and developing a management system to ensure safety and health for employees and environment where they work. Survey of designing a management system to ensure safety and health for employees operating processes and equipment, through the use of control measures that includes hazard identification, risk assessment, and job safety analysis. The students will design a safety, health and environmental system that include the techniques for management of the designed system.

OLS 43300 ANALYSIS AND DESIGN OF SAFETY SYSTEMS
(Class 3, Cr. 3)
-To enroll in this course you must have had six credit hours in safety-related courses or consent of instructor.
A comprehensive survey of the analysis and design of safety system techniques for processes, equipment and machinery through the use of such control measures as hazard identification, risk assessment, and job safety analysis.

OLS 45400 GENDER AND DIVERSITY IN MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: OLS 25200
This course will provide supervisors with the skills required for managing a diverse work force. The course will focus on helping supervisors identify and solve workplace problems arising from cultural, racial, gender, and language differences.

OLS 46800 PERSONNEL LAW
(Class 3, Cr. 3)
Prerequisite: OLS 25200
A study of employment laws specially affecting employer-employee relationships. The purpose of the course is to provide the supervisor with a summary of current employee relations laws and a practical approach to dealing with daily employer-employee legal concerns. Topics include laws related to discrimination based on sex, race, age, disability, hiring and discharge of workers, drug and alcohol testing, privacy in the workplace, wages, ERISA, and other issues on employee rights and employer responsibilities.

OLS 47200 SEMINAR IN SAFETY
(Class 3, Cr. 3)
(Students will need nine hours of safety-related course prior to taking this class.) An examination of various topics which are relevant to the safety field. Case studies of unique and/or special safety problems, current events relating to safety, and ethics in safety are emphasized.

OLS 47400 CONFERENCE LEADERSHIP TRAINING
(Class 3, Cr. 3)
Note: Designated sections OLS 47400 will fulfill the Experiential Learning requirement.
Prerequisite: COM 11400
Understanding the role of the conference in the work world, with practical applications of the various techniques of conference leadership, and an understanding of group problem-solving in the conference situation.
OLS 47700 CONFLICT MANAGEMENT  
(Class 3, Cr. 3)  
(This course requires Junior standing or consent of the instructor.) A study of the alternative means of settling political and personal disputes between parties by methods generally outside the traditional court systems. Students will investigate the theoretical and practical aspects of communication, negotiation, mediation, arbitration, and other third-party strategies to reach agreements.

OLS 47900 STAFFING ORGANIZATIONS  
(Class 3, Cr. 3)  
Prerequisite: OLS 37600  
An applications-oriented study of key concepts in staffing organizations, including principle and issues in conduction job analysis; preparing job descriptions/ specifications and screening/selecting employees. Special emphasis on the design, validation and operation of high-volume staffing systems.

OLS 48200 LABOR ARBITRATION  
(Class 3, Cr. 3)  
Prerequisite: OLS 37800  
Permission of instructor if prerequisite has not been met. Student will learn how to analyze disciplines and discharge cases in light of the just cause requirements. They will also be able to evaluate contract language against basic standards and legal principles. In addition, they will be able to write an arbitrator’s opinion and award.

OLS 48300 THE COMMON LAW OF THE WORKPLACE  
(Class 3, Cr. 3)  
Prerequisite: OLS 37800  
Note: Permission of the instructor if prerequisite has not been met. Statutory and individual rights are expanding significantly, and supervisors must have the expertise to deal with these new workplace issues. The intent of this course will be to present cases reflecting how supervisors deal with current workplace issues.

OLS 48500 LEADERSHIP TEAM DEVELOPMENT  
(Class 3, Cr. 3)  
Prerequisite: OLS 25200 and OLS 38400  
An in-depth study of self-directed work teams and team processes in the work setting with a view to understanding team functions under varying task conditions. Especially emphasized will be the leadership of teams for effective performance and maximum member satisfaction. This course deals extensively with maintenance and task behaviors of team members.

OLS 48600 MANAGEMENT OF CHANGE  
(Class 3, Cr. 3)  
Prerequisite: OLS 25200 and OLS 38400  
A survey of the concepts that provide a foundation for the understanding of leadership and its relationship to the management of organizational change, with special emphasis on managing the human side of quality improvements.

OLS 49100 INTERNSHIP PROGRAM  
(Class 1 to 3; Repeatable for credit. This course may be repeated up to a total of 6 credits).  
Note: Designated sections OLS 49100 will fulfill the Experiential Learning requirement.  
A practicum designed to combine University study with work experience directly related to the student’s plan of study. To receive credit for the internship, student must incorporate the concepts taught in the Organizational Leadership courses. Department approval required for Registration.

OLS 49700 SENIOR PROJECT  
(Class 3, Cr. 3)  
Note: Designated sections OLS 49700 will fulfill the Experiential Learning requirement.  
This course allows students to integrate their learning by solving a real world issue, concern, project, or problem in an organization of their choice. Students will submit a proposal, choose a methodology, and resolve the issue, concern, or problem by using the material from previous course material.

OLS 55000 MANAGING DIVERSITY  
(Class 3, Cr. 3)  
This course is a senior undergraduate and graduate course designed to provide students with the comprehensive study of contemporary diversity issues facing supervisors and human resource professionals. Issues relevant to supervisors and human resource professionals are discussed at a level where students will be able to manage a diverse workforce and develop policies and practices to assist organizations to avoid problems and litigation.

OLS 57400 MANAGERIAL TRAINING AND DEVELOPMENT  
(Class 3, Cr. 3)  
(Student required to have Senior standing or consent of instructor.) Review of current managerial education and development theories and practices; discussion of fundamental social, economic, and political changes affecting business and the work of managing; implications of these changes for individual manager development and continued growth.

OLS 57600 ADVANCED TOPICS IN HUMAN RESOURCE MANAGEMENT  
(Class 3, Cr. 3)  
Current topics and issues in the legal, behavioral and technical environment of human resource management. Topics may include employment practices, labor management relations, wage and salary administration, treatment of employees on the job, productivity-improvement programs. Employs seminar format with emphasis on applications research. Masters students or senior status with instructor approval.

OLS 58000 INTERPERSONAL SKILLS FOR LEADERS  
(Class 3, Cr. 3)  
Development and improvement of interpersonal and group dynamic skills for effective leadership in organizations. Emphasis on action learning and real-world application of skills. Open to all graduate students with special consideration given to Seniors with a 3.0 GPA and College of Technology graduate students. Course may be offered as traditional, distance or blended format.

OLS 58100 WORKSHOP IN ORGANIZATIONAL LEADERSHIP AND SUPERVISION  
(Class 1 to 8, Cr. 1 to 8)  
Advanced study of technical and professional topics. Emphasis is on new developments relating to technical, operational, and training aspects of industry and technology education. Course may be offered in a traditional, distance or blended format. Course format may vary depending upon the topic of the course.

OLS 58300 COACHING AND MENTORING IN ORGANIZATIONS  
(Class 3, Cr. 3)  
This course explores issues and practices in technologically-driven organizations pertaining to the roles and functions that coaching and mentoring play in employee development. A ‘best practices’ approach, utilizing the case methods, is emphasized. Presented from the point of view of a human resource manager/leader, the focus of the course is on identifying coaching opportunities, enhancing communication skills, developing and implementing coaching and mentoring strategies, and evaluating the outcomes of these strategies. Attention is directed to facilitating personal coaching mentoring skills. Course may be offered in traditional, distance or blended format. Graduate student status or senior status with consent of instructor.

OLS 58800 STRATEGIC PLANNING AND MARKETING FOR TECHNOLOGY  
(Class 3, Cr. 3)  
This course examines concepts, models, and methods useful for developing strategic initiatives in industrial/technical business environments. Focuses on planning concepts including industry structure, strategic mission, organizational structures, competitor and analysis, and related areas. Graduate status or senior standing with consent of instructor. Graduate students without an OLS background may be required to take leveling courses.

OLS 58900 LEADERSHIP AND ETHICS  
(Class 3, Cr. 3)  
An examination of ethical, legal and policy issues facing business and technology leaders. Topics include ethical decision making, corporate social responsibility, codes of ethics, public policies and government regulations, international business practices, technology innovation, risk management in a global environment, and specific areas of law - employment, health and safety, environmental, contract, warranties and liabilities, intellectual property technology law and international laws and regulations. Graduate student standing or senior status with instructor consent. Graduate students without OLS background may be required to take some leveling courses.

OLS 59000 INDIVIDUAL RESEARCH PROBLEMS IN SUPERVISION AND PERSONNEL  
(Class 0 to 6, Cr. 1 to 6)  
Students required to have the consent of the instructor. Opportunity to study specific problems in the field of supervision and personnel under the guidance of a qualified faculty member within the department. Does not include thesis work.
### Philosophy

**PHIL 10100 THE HISTORY OF PHILOSOPHY**  
(Class 3, Cr. 3)  
An introduction to the problems, methods, and main traditions of philosophy through readings in Greek, medieval, modern, and contemporary philosophy.

**PHIL 10600 HUMAN EXPERIENCE IN ART LITERATURE, MUSIC, AND PHILOSOPHY**  
(Class 3, Cr. 3) General Education  
An introduction to the problems, methods, and main traditions, experiences and ideas which lie at the heart of all humanities (e.g. love, death, justice, duty, nature, beauty, and deity) using as material specimens of the visual arts, music, literature, and philosophy.

**PHIL 10700 FRESHMAN EXPERIENCE - ENGLISH AND PHILOSOPHY**  
(Class 3, Cr. 3) General Education  
This course is required of all entering freshman and transfer students with less than 60 credits. This course will include utilization of campus resources, goal setting, values exploration, relationship of academic planning and life goals, discipline specific career exploration and critical thinking. The course also serves well as the departmental Freshman Experience since it introduces majors to the disciplines of art, music and philosophy.

**PHIL 11000 INTRODUCTION TO PHILOSOPHY**  
(Class 3, Cr. 3) General Education, Transfer IN  
The basic problems and types of philosophy, with special emphasis upon the problem of knowledge and nature of reality.

**PHIL 11100 ETHICS**  
(Class 3, Cr. 3) General Education, Transfer IN  
A study of the nature of moral value and obligation. Topics such as the following will be considered: different conceptions of the good life and right conduct; the relation of non-moral and moral goodness; determinism, free will, and the problem of moral responsibility; the political and social dimensions of ethics; the principles and methods of moral judgment.

**PHIL 12000 CRITICAL THINKING**  
(Class 3, Cr. 3) General Education  
Course designed to develop reasoning skills and analytic abilities, based on an understanding of the rules or forms as well as the content of good reasoning. The course will cover moral, legal, and scientific reasoning, in addition to ordinary problem solving.

**PHIL 15000 PRINCIPLES OF LOGIC**  
(Class 3, Cr. 3) General Education  
A first course in formal deductive logic, mechanical and other procedures for distinguishing good arguments from bad. Truth tables and proofs for sentential (Boolean) connectives, followed by quantificational logic and relations. Although metatheoretic topics are treated, the emphasis is on methods. -- NOTE: Students who wish may use PHIL 15000 as an alternative to a Mathematics requirement when their major allows it.

**PHIL 20600 PHILOSOPHY OF RELIGION**  
(Class 3, Cr. 3) Transfer IN  
The course encourages critical reflection on traditional and contemporary views about God and other religious ideas. Topics include arguments for God’s existence, the problem of evil, understanding the divine attributes, miracles, religious pluralism and life after death.

**PHIL 21900 INTRODUCTION TO EXISTENTIALISM**  
(Class 3, Cr. 3)  
A survey of both the philosophical and more literary writings of the existentialist movement. Readings will be chosen from among the following writers: Kierkegaard, Nietzsche, Dostoevsky, Kafka, Marcel, Heidegger, Camus, Sartre, Jaspers, de Beauvoir, Ortega, and Merleau-Ponty.

**PHIL 22100 PHILOSOPHY OF SCIENCE**  
(Class 3, Cr. 3)  
An introduction to the scope and methods of science and to theories of its historical development. Topics include scientific revolutions, theories of scientific methods, the nature of scientific discovery, explanation, science, and values.

**PHIL 29300 SELECTED TOPICS IN PHILOSOPHY**  
(Class 1 to 3, Cr. 1 to 3)  
The critical examination of some special topic or topics in philosophy.

**PHIL 30100 HISTORY OF ANCIENT PHILOSOPHY**  
(Class 3, Cr. 3)  
A survey of Greek philosophy from its beginning in the Milesian school through pre-Socrates to Plato and Aristotle.

**PHIL 30300 HISTORY OF MODERN PHILOSOPHY**  
(Class 3, Cr. 3)  
Concentrates on the major philosophical writers from the Renaissance to the beginning of the 19th century: Descartes, Hobbes, Spinoza, Locke, Leibnitz, Berkeley, Hume, Kant. Some in other areas, e.g. Galileo, Newton, Calvin, are also considered.

**PHIL 30400 NINETEENTH CENTURY PHILOSOPHY**  
(Class 3, Cr. 3)  
A study of the significant issues raised by such 19th century philosophers as Fichte, Hegel, Schopenhauer, Comte, Mill, Marx, Nietzsche, Kierkegaard, and James.

**PHIL 30600 TWENTIETH-CENTURY PHILOSOPHY**  
(Class 3, Cr. 3)  
A critical examination of the main currents of contemporary philosophical thought, such as pragmatism, analytic philosophy, phenomenology and existentialism, and other recent developments. This course will cover selected works of such philosophers as Russell, Wittgenstein, Peirce, Whitehead, Heidegger, and Sartre.

**PHIL 32400 ETHICS FOR THE PROFESSIONS**  
(Class 3, Cr. 3)  
A study of the ethical problems faced by professionals in engineering, management, and other professional fields. Topics include ethical theories, moral decision-making, social responsibility, employee rights and responsibilities, the environment, truth telling, affirmative action, privacy and confidentiality, whistle-blowing, and deception.

**PHIL 32500 ETHICS AND PUBLIC HEALTH**  
(Class 3, Cr. 3)  
A study of the ethical issues and problems of public health and health care. Within public health, such topics will be considered as ethical theories; laws, codes, values, and moral decision making; the health care system; issues of the health care professional; health care professionals and patients; the sanctity of life; biomedical research and human experimentation; health policy; and allocation of resources.

**PHIL 49000 ADVANCED TOPICS IN PHILOSOPHY**  
(Class 3, Cr. 3)  
An advanced study of a significant topic in philosophy.

**PHIL 59000 DIRECTED READING IN PHILOSOPHY**  
(Class 0 to 3, Cr. 1 to 3)  
May be repeated for credit. Admission by consent of instructor and must be preceded by six hours of philosophy, plus basic work in area to be investigated. A reading course directed by the instructor in whose particular field of specialization the content of the reading falls.

### Physics

**PHYS 10700 CONCEPTUAL PHYSICS FOR HUMANITIES**  
(Class 2, Lab. 2, Cr. 3) Transfer IN  
A descriptive, non-mathematical explanation of physical laws and theories, phenomena, and practical applications. Topics: mechanics, properties of matter, heat and waves.

**PHYS 10800 CONCEPTUAL PHYSICS FOR HUMANITIES**  
(Class 2, Lab. 2, Cr. 3)  
A descriptive, non-mathematical explanation of physical laws and theories, phenomena and practical applications. Topics: electricity, magnetism, light, and modern physics.

**PHYS 15200 MECHANICS**  
(Class 4, Lab. 2, Cr. 4) General Education, Transfer IN  
Prerequisite: MA 16300  
Statics, uniform and accelerated motion; Newton's laws; circular motion; energy, momentum, and conservation principles; dynamics of rotation; gravitation and planetary motion; hydrostatics and hydrodynamics; simple harmonic motion; wave motion and sound.

**PHYS 19400 FRESHMAN PHYSICS ORIENTATION**
Course Descriptions

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Designed to provide incoming physics majors with the academic, survival, and computational skills to make a successful transition from high school to college. Discussion of opportunities within the Department including degree options, co-op program, undergraduate research, careers in physics, use of spreadsheet software, graphing packages, and drawing programs. Attendance and performance on assigned projects are the basis of the pass/no pass requirement.

**PHYS 22000 GENERAL PHYSICS I**
(Class 3, Lab. 2, Cr. 4) General Education, Transfer IN
Prerequisite: MA 14800 or MA 15400
Mechanics, heat and sound, for science students not specializing in physics, chemistry, or engineering.

**PHYS 22100 GENERAL PHYSICS II**
(Class 3, Lab. 2, Cr. 4) General Education, Transfer IN
Prerequisite: PHYS 22000
Electricity, light, and modern physics, for science students not specializing in physics, chemistry, or engineering.

**PHYS 25100 HEAT, ELECTRICITY, AND OPTICS**
(Class 5, Lab. 2, Cr. 5) General Education, Transfer IN
Prerequisite: PHYS 15200 and MA 16400
Heat, kinetic theory, elementary thermodynamics, heat transfer. Electrostatics, AC/DC circuits, electromagnetism, magnetic properties of matter; geometrical and physical optics.

**PHYS 26100 ELECTRICITY OPTICS**
(Class 5, Cr. 4)
Prerequisite: PHYS 15200 and MA 16400
Heat, kinetic theory, elementary thermodynamics, heat transfer. Electrostatics, AC/DC circuits, electromagnetism, magnetic properties of matter; geometrical and physical optics.

**PHYS 27000 SPECIAL TOPICS IN PHYSICS**
(Class 0 to 5, Lab. 0 to 2, Cr. 1 to 5)
Admission by special permission. May be repeated for credit. Specialized topics in physics.

**PHYS 29400 SOPHOMORE PHYSICS SEMINAR**
(Class 1, Cr. 1)
Required of sophomores majoring in any physics curriculum. Discussion of undergraduate research opportunities, upper-division courses, career opportunities, laboratory safety, use of the library including physics journals and topics of current interest in physics.

**PHYS 30500 INTERMEDIATE MATHEMATICS PHYSICS**
(Class 3, Cr. 3)
Prerequisite: PHYS 25100 or PHYS 26100
An introduction and review of the mathematical techniques and procedures used in intermediate and advanced physics courses. Applications involving vector calculus, linear algebra, complex analysis, Fourier series and transforms, and second-order linear differential equations will be discussed. The course provides additional mathematical preparation for PHYS 31000, 31100, 32200, 33000, 34200, and 31500.

**PHYS 30800 SCIENTIFIC COMPUTATION**
(Class 3, Cr. 3)
Prerequisite: PHYS 15200
An introduction to scientific problem solving using a computer. Students will be introduced to numerical methods for evaluating integrals and for solving algebraic and differential problems in physics.

**PHYS 30900 SCIENTIFIC COMPUTATION II**
(Class 3, Cr. 3)
Prerequisite: PHYS 30800
A second semester course in using modern computational methods to solve physics problems numerically. PHYS 30900 uses the methods developed in PHYS 30800 to address problems in mechanics, electricity and magnetism and quantum physics.

**PHYS 31000 INTERMEDIATE MECHANICS**
(Class 4, Cr. 4)
Prerequisite: MA 26400 and PHYS 15200
Elements of vector algebra; statics of particles and rigid bodies; theory of couples; principle of virtual work; kinematics; dynamics of particles and rigid bodies; work, power, and energy; elements of hydromechanics and elasticity.

**PHYS 31100 QUANTUM PHYSICS I**
(Class 3, Cr. 3)
Prerequisite: MA 26400 and PHYS 34200
This course discusses the limits of classical physics and the development of quantum physics. Topics will include: Planck’s quantization hypothesis, the photoelectric effect, the wave theory of matter, the Uncertainty Principle, Bohr’s atomic model, the Schroedinger equation, wave functions, the Hydrogen atom, operator methods, and the quantized simple harmonics oscillator.

**PHYS 32000 COMPUTATIONAL PHYSICS: ELECTROMAGNETISM**
(Class 1, Cr. 1)
A companion course to PHYS 33000. Computational methods will be introduced and used to solve problems associated with electromagnetic phenomenon, mechanics, or statistical mechanics and quantum physics. Maxwell’s equations will be solved for various geometries, under various boundary conditions.

**PHYS 32200 INTERMEDIATE OPTICS**
(Class 3, Cr. 3)
Prerequisite: PHYS 25100 or PHYS 26100
Modes of vibration of a system; emission and absorption of waves; properties of sound, electromagnetic, and particle waves including phenomena of refraction, reflection, dispersion, diffraction, interference, polarization and double refraction.

**PHYS 32700 MODERN PHYSICS SURVEY**
(Class 3, Lab. 2, Cr. 4)
Prerequisite: PHYS 15200 and PHYS 25100 or PHYS 26100
A survey of modern physics topics, intended primarily for non-physics majors, organized in a mixture of lectures and activity-based laboratories. Topics will include: special relativity; pre-quantum phenomena; the Bohr atomic model; multi-electron atoms; cosmology and the Big Bang; radioactivity, fission, and fusion.

**PHYS 33000 INTERMEDIATE ELECTRICITY AND MAGNETISM**
(Class 3, Cr. 3)
Prerequisite: PHYS 25100 or PHYS 26100
Electrostatics; electric currents; magneto statics; electromagnetic induction; Maxwell's equations; electromagnetic waves.

**PHYS 34200 MODERN PHYSICS**
(Class 3, Cr. 3)
Prerequisite: PHYS 25100 or PHYS 26100
A survey of basic concepts and phenomena in atomic, nuclear, and solid state physics; special and general relativity.

**PHYS 34300 MODERN PHYSICS LABORATORY**
(Lab. 2, Cr. 1)
Co-requisite: PHYS 34200
Laboratory experiments to accompany PHYS 34200.

**PHYS 38000 ADVANCED PHYSICS LABORATORY**
(Class 2, Lab. 2, Cr. 3)
Prerequisite: PHYS 31000 and PHYS 33000 and PHYS 34200 and PHYS 34300
An introduction and survey of modern experimental topics in advanced physics, including areas such as: Interferometry Zeeman Effect, Compton Effect, Nuclear Magnetic Resonance Nuclear counting and half-life measurements. An introduction to data analysis will also be included.

**PHYS 40200 SENIOR RESEARCH I**
(Class 1, Lab. 2, Cr. 2)
Note: Designated sections PHYS 40200 will fulfill the Experiential Learning requirement. Experiential learning undergraduate research course in physics directed and mentored by physics faculty during student’s penultimate semester. Background preparation, specialization training, and initial work towards completion.

**PHYS 40300 SENIOR RESEARCH II**
(Class 2, Lab. 2, Cr. 3)
Note: Designated sections PHYS 40300 will fulfill the Experiential Learning requirement. Prerequisite: PHYS 40200
Experiential learning undergraduate research course in physics directed and
mentored by physics faculty during student’s final semester. Continuation and completion of work begun in Senior Research I; preparation and presentation of results in multiple formats.

**PHYS 41200 QUANTUM PHYSICS II**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 31100  
A continuation of the concepts introduced in PHYS 31100, including more advanced topics in modern quantum mechanics. Topics will include: addition of angular momenta, scattering theory, identical particles, time-independent and time dependent perturbation theory, and the WKB approximation.

**PHYS 46900 RESEARCH IN PHYSICS**  
*(Class 0 to 5, Lab. 0 to 12, Cr. 7 to 5)*  
Note: Designated sections PHYS 46900 will fulfill the Experiential Learning requirement. Undergraduate research which will qualify as an Experiential Learning experience. Admission by special permission. May be repeated for credit.

**PHYS 47000 SPECIAL TOPICS IN PHYSICS**  
*(Class 0 to 5, Lab. 0 to 6, Cr. 1 to 5)*  
Admission by special permission. May be repeated for credit.

**PHYS 49400 JUNIOR-SENIOR PHYSICS SEMINAR**  
*(Class 1, Cr. 1)*  
Major emphasis on developing skills in oral and written presentations by students. The subject matter can be library material and/or accomplishments in undergraduate or co-op research.

**PHYS 50000 FUNDAMENTAL PHYSICS I**  
*(Class 1, Lab. 2, Cr. 2)*  
A prior course in college physics or admission by consent of instructor required. A review of mechanics, wave motion, and kinetic theory, and the extension of the laws in these domains to relativity and current investigations and applications. The course is specifically designed for teachers of science for the elementary schools.

**PHYS 50100 PHYSICAL SCIENCE I**  
*(Class 3, Cr. 3)*  
A prior course in college Physics required. A survey of the physical sciences with emphasis on the overlap of astronomy, physics, chemistry, and geophysics. Consideration of appropriate methods of presentation and demonstration of experiments in physical science for the elementary school.

**PHYS 50200 PHYSICAL SCIENCE II**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 50100  
A continuation of PHYS 50100 with emphasis on electricity, optics, and modern physics.

**PHYS 50300 FUNDAMENTAL CONCEPTS OF PHYSICS**  
*(Class 3, Cr. 3)*  
A prior course in college physics and admission by consent of instructor required. An intensive review of the principles of physical sciences in high school. Special emphasis will be placed on mechanics, kinetic theory, electric and magnetic fields, and the propagation of electromagnetic radiation.

**PHYS 50400 PRINCIPLES OF PHYSICS I**  
*(Class 2, Cr. 2)*  
Prior college physics and mathematics through calculus required. A review of classical physics, with emphasis on the unifying principles operating in the various domains. Stress will be placed on the operational approach, the conservation principles, and the field theory law of gravitation and electromagnetism. Designed primarily for secondary school teachers.

**PHYS 50600 FUNDAMENTAL PHYSICS II**  
*(Class 1, Lab. 2, Cr. 2)*  
Prerequisite: PHYS 50000  
An intensive review of electricity, magnetism and light, and an introduction to quantum phenomena and atomic and nuclear structure. The course is specifically designed for teachers of science in the secondary schools.

**PHYS 51000 PHYSICAL MECHANICS**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 31000 and PHYS 33000 and MA 26200  
Mechanics of particles, rigid bodies, and vibrating systems; elasticity and hydrodynamics; theory of relativity.

**PHYS 51500 THERMODYNAMICS**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 31000 and MA 36200  
Fundamental concepts of heat; theory and practice of heat measurements; first and second laws of thermodynamics, with applications.

**PHYS 51700 STATISTICAL PHYSICS**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 34200 and PHYS 51000  
Kinetic theory of gases, third law of thermodynamics, and the principles of statistical mechanics, with applications to the quantum theory of radiation and the theory of specific heats.

**PHYS 53000 ELECTRICITY AND MAGNETISM**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 33000  
An introductory theoretical course. Vector analysis; electrostatic problems; theory of dielectrics; theory of conduction; thermoelastic behavior and photoelastic phenomena; electromagnetic effects due to steady and changing currents; magnetic properties of matter, Maxwell’s equations; radiation.

**PHYS 54200 SURVEY OF MODERN PHYSICS I**  
*(Class 3, Cr. 3)*  

**PHYS 54500 SOLID STATE PHYSICS**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 55000  
Crystal structure; lattice vibrations and electronic band structure of crystals; electrical, optical, and thermal properties of solids; transport and other nonequilibrium phenomena in uniform and non-uniform materials.

**PHYS 54900 SURVEY OF MODERN PHYSICS II**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 54200  
Solid state physics; nuclear particles and forces; natural and artificial radioactivity; particle accelerators; nuclear reactions, fission and fusion. Designed primarily for secondary school teachers.

**PHYS 55000 INTRODUCTION TO QUANTUM MECHANICS**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 31000 and PHYS 33000 and PHYS 34200 and MA 36200 or MA 51000  
Brief historical survey of the development of quantum mechanics; waves in classical physics, wave packets, uncertainty principle, wave functions, operators, expectation values of dynamical observables; Schrödinger equation with application to one-dimensional problems; the hydrogen atom; electron spin, periodic table; selected topics in perturbation theory, scattering theory and compounding angular momenta. Designed for students needing quantum mechanics background for specialty courses such as PHYS 54500, 55600, and 56400.

**PHYS 55600 INTRODUCTORY NUCLEAR PHYSICS**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 55000  
Theory of relativity, brief survey of systematics of nuclei and elementary particles, structure of stable nuclei, radioactivity, interaction of nuclear radiation with matter, nuclear reactions, particle accelerators, nuclear instruments, fission, nuclear reactors.

**PHYS 56400 INTRODUCTION TO ELEMENTS: PARTICLE PHYSICS**  
*(Class 3, Cr. 3)*  
Prerequisite: PHYS 36000 or PHYS 46000 and PHYS 46100 or PHYS 55000  
This course brings the student up to the current status of research in elementary particle physics. The focus of the course is the construction of the Standard Model with emphasis on the electroweak theory. The seminal experiments that confirmed the predictions of the Standard Model are presented. The solar neutrino problem, the search for non-zero neutrino masses, and the efforts to construct a theory which unifies all interactions including gravity is discussed.
**PHY 57100 SELECTED TOPICS IN PHYSICS**  
(Class 3, Cr. 3)  
Specialized topics in physics selected from time to time.

**PHY 59000 READINGS AND RESEARCH**  
(Class 1 to 3, Lab. 0 to 3, Cr. 1 to 3)  
Readings and research in Physics. Permission of instructor required.

**PHY 60000 METHODS OF THEORETICAL PHYSICS I**  
(Class 3, Cr. 3)  
Graduate student standing in physics or consent of instructor. Mathematical background for subsequent studies of advanced mechanics, electrodynamics, and quantum theory. Topics treated include functions of complex variable, ordinary and partial differential equations, Eigenvalue problems and orthogonal functions. Green's functions, matrix theory, and tensor analysis in three and four dimensions.

**PHY 60100 METHODS OF THEORETICAL PHYSICS II**  
(Class 3, Cr. 3)  
Prerequisite: PHYS 60000  
A continuation of PHYS 60000.

**Polish**

**PLSH 10100 POLISH LEVEL I**  
(Class 3, Lab. 1, Cr. 3)  
Introduction to Polish.

**PLSH 10200 POLISH LEVEL II**  
(Class 3, Lab. 1, Cr. 3)  
Prerequisite: PLSH 10100  
Continuation of PLSH 10100

**PLSH 20100 POLISH LEVEL III**  
(Class 3, Lab. 1, Cr. 3)  
Prerequisite: PLSH 10200  
Students develop communication competence in listening, speaking, reading and writing Polish. Completion of grammatical cases. Critical analysis of short stories, poems and selected newspaper articles. Continued emphasis on viewing and evaluating Polish Cinema.

**PLSH 20200 POLISH LEVEL II**  
(Class 3, Lab. 1, Cr. 3)  
Prerequisite: PLSH 20100  
Students develop communication competence in listening, speaking, reading and writing Polish. Completion of grammatical cases. Critical analysis of short stories, poems, and selected newspaper articles. Continued emphasis on viewing and evaluating Polish Cinema.

**Political Science**

**POL 10000 AMERICAN PUBLIC AFFAIRS**  
(Class 3, Cr. 3)  
A survey of current public affairs in America designed to help students become conscious of the societal issues of our times.

**POL 10100 AMERICAN GOVERNMENT AND POLITICS**  
(Class 3, Cr. 3) General Education, TransferN  
A study of the nature of democratic government, the U.S. Constitution, federalism, civil rights, political dynamics, the presidency, Congress, and the judiciary.

**POL 10200 AMERICAN GOVERNMENT IN PRACTICE**  
(Class 2, Cr. 3)  
Note: Designated sections POL 10200 will fulfill the Experiential Learning requirement. This course is intended to give students an opportunity to study the nature of democratic government, the U.S. Constitution, federalism, civil liberties and rights, political dynamics, the Presidency, Congress, and the Judiciary.

**POL 10400 POLITICAL PARTICIPATION**  
(Class 3, Cr. 3)  
An introduction to the major dimensions of citizen politics in America: voting behavior, political socialization of children and adults, political opinion and culture, leadership recruitment and partisan participation.

**POL 12000 INTRODUCTION TO PUBLIC POLICY AND PUBLIC ADMINISTRATION**  
(Class 3, Cr. 3)  
This course provides an introduction to the fields of public policy and public administration. Processes of policy formation and administration are examined. Different approaches to evaluating and improving public policies are discussed.

**POL 12200 INTRODUCTION TO POLITICAL SCIENCE**  
(Class 3, Cr. 3)  
This course provides a general introduction to the major concepts and perspectives of political science. It presents an introductory examination of principles, organization, processes, functions of government, and the interplay of political forces. Included will be consideration of the formation of political communities, political participation, policy making, compliance, legitimacy, political development and types of political systems. Both empirical and normative problems will be addressed.

**POL 13000 INTRODUCTION TO INTERNATIONAL RELATIONS**  
(Class 3, Cr. 3) General Education, TransferN  
An analysis of the fundamentals of international law, organization, and politics particularly as relevant to contemporary international relations.

**POL 14100 GOVERNMENTS OF THE WORLD**  
(Class 3, Cr. 3) General Education  
Introductory survey of major foreign governments, including the governments of a western democracy, a communist state, and a developing country, with special attention to the historical, cultural, and constitutional development, the organization and ideologies of political parties, and current political problems.

**POL 19000 THE POLITICS OF CHANGE**  
(Class 3, Cr. 3)  
An introductory survey of the political forces at play in the processes of social, economic, and political change. Among topics to be considered are the politics of: the post-industrial revolution, environmental control, civil rights, the role of women in society, international cooperation and conflict. Emphasis will be placed on the political forces and processes involved in change and the resultant public policies.

**POL 20000 INTRODUCTION TO THE STUDY OF POLITICAL SCIENCE**  
(Class 3, Cr. 3) General Education, TransferN  
Introduction to the basic concepts and methods of political science. Basic concepts include, among others, power, justice, authority, ideology, and democracy and a variety of quantitative and qualitative methods of analysis will be explored. This course is an introduction to what it means to think about and practice the discipline of political science: “What kinds of things do political scientists study and how do they study them?”

**POL 20200 INTRODUCTION TO POLITICAL THINKING**  
(Class 3, Cr. 3)  
An introductory study of political concepts and systems of political thought from classical to modern times.

**POL 22100 INTRODUCTION TO SCIENCE AND GOVERNMENT**  
(Class 3, Cr. 3) General Education, TransferN  
A survey of major policy issues associated with scientific and technological advances. Special attention is focused upon the organization of science and technology, the determination of science and policy and the role of government in support of research and development.

**POL 22300 INTRODUCTION TO ENVIRONMENTAL POLICY**  
(Class 3, Cr. 3)  
This course will study decision-making as modern societies attempt to cope with environmental and natural resources problems. The course focuses on the American political system, with some attention to international issues. Current policies and issues will be examined.

**POL 23100 INTRODUCTION TO UNITED STATES FOREIGN POLICY**  
(Class 3, Cr. 3)  
This course is designed to introduce students to the major themes and issues in contemporary United States foreign policy. Lectures, discussions and readings will examine such areas as United States relationships with the major powers, the Third World and international organizations. Students with credit in HIST 23100 - Introduction to United States Foreign Policy may not receive credit in this class.

**POL 30000 INTRODUCTION TO POLITICAL ANALYSIS**  
(Class 3, Cr. 3)
Prerequisite: POL 10100
An introduction to the study of politics, its basic concepts and major areas of concern; also review of important research techniques, including methods of data collection and analysis.

**POL 30500 TECHNOLOGY AND SOCIETY**  
(Class 3, Cr. 3)
An introduction to the interaction of technology and society, the impact of engineering and technological solutions, and the role of professionals. This class will focus on contemporary societal and global topics and theses such as: Environmental issues involving sustainable development, design for recycling, and other critical themes. Contemporary international issues, such as trade and trade barriers, multinational companies, and distribution of resources such as oil and minerals; and the importance of cultural, religious and socio-economic differences, values, international relations, living and working in another country, the impact of poverty and economic differences.

**POL 30600 THE UNITED STATES IN THE 1960’S**  
(Class 3, Cr. 3)  
Prerequisite: HIST 15100 or HIST 15200
Not open to students with credit in HIST 30600. A description and analysis of major domestic and foreign, social, political, military and diplomatic issues confronting the United States in the 1960’s and efforts and approaches to resolve these issues. The class will utilize the 1960’s as laboratory to provide students with both historical and political science skills and approaches to the issues and themes of a particular period. May be taken for history or political science credit.

**POL 30700 VICTIMOLOGY**  
(Class 3, Cr. 3)
Study and analysis of institutional and other problems and issues relating to victims including the relationship between the victim and the offender, the victim and the criminal justice system, and the victim and the various governmental and/or social institutions. The course will also explore how race, class and gender have impacted victims and often been a part of victimization.

**POL 30900 THE MIDDLE EAST**  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400
Not open to students with credit in HIST 30900. A survey beginning with the period of European involvement in the Ottoman Empire up to the present. The course includes the study of political Zionism and Arab nationalism, the role of the major powers between the two World Wars and that of the United States and the Soviet Union during the Cold War, and developments in the Middle East in the post-Cold War era.

**POL 31100 CONGRESS AND THE PRESIDENT**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
An analysis of policy formation which stresses the linkage between the Congress and the President, legal, behavioral, and normative approaches will be considered.

**POL 31200 AMERICAN POLITICAL THOUGHT**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
An analytical survey of the American contribution to Western political thought from the colonial period to the present day. The major themes and concepts of the American tradition are analyzed through studies of the writings of representative thinkers, with special attention to the ideas which have affected the development of American political institutions.

**POL 31400 THE PRESIDENT AND POLICY PROCESS**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
A study of presidential leadership as the embodiment of social forces and as reflective of the personality of the incumbent; the President as national leader reflecting national myths and ideologies; the growth of the presidency; issues and forces affecting the continuity of presidential leadership; degree of institutionalization of the presidency.

**POL 31500 PUBLIC OPINION AND ELECTIONS**  
(Class 3, Cr. 3)
**POL 32000 INTRODUCTION TO PUBLIC POLICY ANALYSIS**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
Contemporary public opinion, political socialization, and voting behavior in America.

**POL 32000 INTRODUCTION TO PUBLIC POLICY ANALYSIS**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
Contemporary public policy analysis models and approaches and current public policy questions. The course will emphasize application of analytical methods to the examination of contemporary policy issues in the United States.

**POL 33000 POLITICS OF LAKE COUNTY**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
The study of Lake County politics focusing upon the selection of political leaders; the relation of the county to municipalities, townships, the state and federal government and public policy. Party officials and government office holders will be a resource for the course.

**POL 33100 POLITICS AND RELIGION**  
(Class 3, Cr. 3)
Religion and Politics examines the relationship between religious faith and political life from philosophical, theological, and behavioral perspectives. The class will focus on perspectives from the intellectual heritage of the Western world. Therefore the work of thinkers, ancient and modern, will be examined. In addition empirical works on the consequences of religious beliefs on political behavior will also be reviewed. Topics will range from medieval scholastic philosophy to contemporary international relations. Religion will be viewed as one of the major driving forces of national and international politics in the 21st century.

**POL 33300 POLITICAL MOVEMENTS**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
A study of political change ranging from legal reform to peaceful protest to violent revolution. Emphasis on ideologies and strategies of change relevant to consideration of contemporary political change.

**POL 34100 CRIMINAL INVESTIGATION**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100 or POL 19000
This course is designed to develop an analytical understanding of the investigation process. It will merge theoretical and philosophical approaches to crime detection and solution. This course examines judicial efforts to define individual rights and to control enforcement conduct in the investigation and prevention of crime.

**POL 34300 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100 and SOC 10000
Not open to students with credit in SOC 34300. A study of the agencies and processes involved in the criminal justice system: legislatures, the courts, the police, the prosecutor, the public defender, and corrections. An analysis of the roles and problems of each component with an emphasis on their interrelationships.

**POL 34600 LAW AND SOCIETY**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100
Nature and development of law and legal institutions in historical, comparative, and contemporary perspective; interrelationship of law, morality, and custom; legal change and social change; and the legal profession.

**POL 34900 INTRO TO JEWISH STUDIES**  
(Class 3, Cr. 3)  
Prerequisite: POL 10100 or HIST 10400
An interdisciplinary seminar touching on many aspects of the Jewish experience, from biblical times to the present. The course introduces students to aspects of the rich and multi-faceted history, literature, theology, and culture of Jews and Judaism from antiquity to the present: from the ancient Near East to Europe, America and back to the modern Near East. The course begins with an examination of basic concepts of Judaism, such as God, Torah, People, Land, and Identity. It involves concepts from Jewish historical, theological, and literary roots from the formation of ancient Israel to contemporary Israel and Jewish-American Culture.
POL 35300 CURRENT POLITICAL IDEOLOGIES  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
Liberalism, conservatism, socialism, fascism, communism, and other political ideologies.

POL 35400 CIVIL LIBERTIES AND THE CONSTITUTION  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
A study of the politics of civil rights and liberties in the United States focusing upon the Constitution, legislation, court decisions, and executive implementation.

POL 35500 COMPUTER APPLICATIONS IN PUBLIC ADMINISTRATION  
(Class 3, Cr 3)  
Prerequisite: POL 30000  
A problem-solving introduction to microcomputer utilization in local, state, and federal government agencies. The course will address the role of computers in government decision-making. The history of the microcomputer’s emergence in the public administration environment will be presented. In addition, the student will be introduced to customization of popular software packages to address specific problems.

POL 35600 PERSONNEL MANAGEMENT IN GOVERNMENT  
(Class 3, Cr 3)  
Prerequisite: POL 12000  
A study of the working of personnel management systems in local, state and federal agencies emphasizing recruitment, classification, compensation, and employee services.

POL 35700 BUDGETING IN THE PUBLIC SECTOR  
(Class 3, Cr 3)  
Prerequisite: POL 12000  
Study of budgetary process in public agencies emphasizing the preparation and implementation of budgets by the public agencies. Political aspects of budgeting will be considered.

POL 35800 ADMINISTRATIVE LAW AND ETHICS  
(Class 3, Cr 3)  
Prerequisite: POL 12000  
Introduction to administrative law and ethics as they relate to the working of public agencies. Ethical codes developed by the professional organization of public administrators (e.g. ASPA) will be considered.

POL 35900 ADMINISTRATIVE BEHAVIOR IN PUBLIC AGENCIES  
(Class 3, Cr 3)  
Prerequisite: POL 12000  
Study of organizational and interpersonal behavior in government agencies. Applications of behavioral theories in relation to organizational effectiveness will be emphasized.

POL 36400 LAW, ETHICS, AND PUBLIC POLICY  
(Class 3, Cr 3)  
Prerequisite: POL 10100 or HIST 10400  
This course is divided into three sections. Justice as liberty examines the notion of a right to privacy. Justice as equality focuses on economic rights. Finally, justice as community addresses the notion of duties.

POL 37000 INTRODUCTION TO COMPARATIVE STATE POLITICS  
(Class 3, Cr 3)  
Transferable  
Prerequisite: POL 10100  
An introduction to the structure and process of state government, including the legal and political relationships between the state and local units of government.

POL 37100 INTRODUCTION TO COMPARATIVE URBAN POLITICS  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
The politics of governing urban areas, including the selection of political leaders and citizen participation in the decision making of the central city. Special attention will be given to the integration of minorities into the political and social life of the city.

POL 37200 INDIANA GOVERNMENT AND POLITICS  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
An examination of the political and governmental organization of the State of Indiana. Includes the political and historical development of Indiana state government and comparison of policies and institutions with those of other states.

POL 38000 THE POLITICS OF BUREAUCRACY  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
An examination of bureaucratic organization in government. Organization theory and internal politics, foundations of bureaucratic power, and the relationship between bureaucracies and political culture, parties, pressure groups, and other structures of government.

POL 38800 THE WORLD OF IDEAS I  
(Class 3, Cr 3)  
Prerequisite: POL 10100 or HIST 10400  
Not open to students with credit in HIST 38800 or PHIL 38800. The first half of a two-semester chronological sequence based on reading and discussing source materials and documents drawn from Political Science, Economics, History, Sociology, Psychology, and Philosophy. This course is designed to familiarize students with the major ideas and ideals which have shaped world civilization. Major themes of this course are Liberty, Human Nature, and The Individual and Society.

POL 38900 THE WORLD OF IDEAS II  
(Class 3, Cr 3)  
Prerequisite: POL 10100 or HIST 10400  
Not open to students with credit in HIST 38900 or PHIL 38800. The second half of a two-semester chronological sequence based on reading and discussing primary source materials and documents drawn from Political Science, Economics, History, Sociology, Psychology, and Philosophy. This course is designed to familiarize students with the major ideas and ideals which have shaped world civilization. Major themes of this course are Liberty, Human Nature, and The Individual and Society.

POL 39000 TOPICS IN POLITICAL SCIENCE  
(Class 3, Cr 3)  
Prerequisite: POL 10000 or POL 13000  
May be repeated for credit. Must be senior standing, have taken a 100-level political science class, or have the consent of instructor.

POL 40000 PRINCIPLES OF EMPIRICAL POLITICAL ANALYSIS  
(Class 3, Cr 3)  
Prerequisite: POL 30000  
An intermediate critical treatment of the scientific approach to the study of political behavior. Focus on the advantages and problems of analyzing political phenomena in terms of the following elements of scientific methodology: classification, measurement, generalization, verification, reliability, validity, causal inference, and prediction. The importance of these elements for understanding politics will be illustrated by analyzing empirical studies drawn from various fields of political behavior.

POL 40100 PRACTICUM IN LOCAL GOVERNMENT  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
Observation and supervised participation on an official community committee or board, in a political campaign, or with professional governmental staffs. Readings and class meetings to integrate theory and experience. This course requires five hours per week of field experience.

POL 40400 DILEMMAS OF DEMOCRACY  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
A study of the logical, empirical and normative dilemmas in theories of democratic governance with analysis of contemporary democratic systems.

POL 40500 RESEARCH SEMINAR IN PUBLIC ADMINISTRATION AND POLICY  
(Class 3, Cr 3)  
Prerequisite: POL 10100  
Analysis of public administration policy. Students must be of senior standing in Political Science or have the consent of the instructor. A senior seminar to consider current research literature in public administration policy. Each class member will
prepare a major research paper for public presentation.

POL 40600 INTERNSHIP IN A PUBLIC AGENCY  
(Class 3, Cr. 3)  
This course requires a Senior standing in Political Science. Public agency work experience as an intern. Primarily designed for pre-service students interested in a public service career. The student will be supervised by the agency and an academic advisor. On-campus seminars for the interns will be organized.

POL 41000 POLITICAL PARTIES AND POLITICS  
(Class 3, Cr. 3)  
This course requires the student be preceded by Junior standing or above. An analysis of the nature and function of U.S. political parties in terms of social and economic forces that shape our political parties, pressure groups, and formal governmental structures are emphasized throughout. Special attention is devoted to political leadership, nominating processes, campaign management, voting behavior, and other important aspects of American politics.

POL 41100 CONGRESS: STRUCTURE AND FUNCTIONING  
(Class 3, Cr. 3)  
Prerequisite: Must have Junior standing or above for this course. A study of how Congress actually operates. Formal and informal power structures within both chambers and roles of the individual members of Congress are analyzed. Attention is directed to latent as well as manifest function of legislative, investigative, and other major activities of Congress. The problem of bringing expertise to bear on the legislative process is considered throughout.

POL 42800 POLITICS OF REGULATION  
(Class 3, Cr. 3)  
Prerequisite: POL 10100  
Politics and policies of federal and state regulatory agencies. Explanations of regulatory agency behavior, arguments for and against government regulation, and alternatives to government regulation.

POL 42900 CONTEMPORARY POLITICAL PROBLEMS  
(Class 3, Cr. 3)  
May be repeated for credit with a different title. Contemporary political problems in the United States affecting the interpretation of democracy, human rights and welfare, social pressures, and intergovernmental relations.

POL 43300 INTERNATIONAL ORGANIZATION  
(Class 3, Cr. 3)  
Note: Designated sections POL 43300 will fulfill the Experiential Learning requirement. Prerequisite: POL 13000 
A study of the structure and functions of the United Nations and associated agencies with an emphasis on the role of this system in contemporary international relations.

POL 43500 INTERNATIONAL LAW  
(Class 3, Cr. 3)  
Prerequisite: POL 13000  
A study of international legal theories, principles, and practices with an emphasis on the role and utility of law in contemporary international relations.

POL 43900 UNITED STATES FOREIGN POLICY MAKING  
(Class 3, Cr. 3)  
Prerequisite: POL 13000  
An analysis of the decision-making process in United States foreign policy.

POL 44200 GOVERNMENT AND POLITICS IN RUSSIA  
(Class 3, Cr. 3)  
Prerequisite: POL 14100  
Analysis of Russian political culture and the Russian political tradition. History, organization, and functioning of the governmental apparatus. The role of the social organizations, interest groups, and elites. Models of the Russian political system.

POL 44300 FIELD EXPERIENCE IN CRIMINAL JUSTICE  
(Class 3, Cr. 3)  
Prerequisite: POL 44300 or SOC 44300. Observation and supervised participation in the criminal justice system. Readings and class meetings to integrate theory and experience. Intended for students who plan to become employed in the criminal justice system upon receiving the bachelor's degree.

POL 45400 SELECTED PROBLEMS IN MATERIALIST POLITICAL THOUGHT  
(Class 3, Cr. 3)  
Prerequisite: POL 10100  
May be repeated for credit. Discussion and analysis of representative works and major schools of political theory which take a materialistic approach to the description and evaluation of political phenomena, e.g. the thoughts of Hobbes, or of Marx, or psychoanalytic theories of politics. Emphasizes textual analysis and logical structure of the works examined and considers their applicability to contemporary political life.

POL 46000 JUDICIAL POLITICS  
(Class 3, Cr. 3)  
Prerequisite: POL 10100  
A survey of judicial processes as they operate in America. Both trial courts and appellate courts will be examined in light of the procedures with which they operate. The external social, economic, and political pressures surrounding courts and the impact courts have on society will be considered.

POL 46100 CONSTITUTIONAL LAW  
(Class 3, Cr. 3)  
Prerequisite: POL 10100  
A survey of selected areas of constitutional law, considering the political and social influences as well as the doctrinal forces which have produced these policies and interpretations.

POL 49000 TOPICS IN POLITICAL SCIENCE  
(Class 3, Cr. 3)  
Prerequisite: POL 10100  
Sophomore standing required. May be repeated for credit.

POL 49100 POLITICAL SCIENCE SENIOR SEMINAR  
(Class 3, Cr. 3)  
Prerequisite: Senior major in Political Science or consent of instructor. This is a variable title seminar focusing on contemporary issues on political science at the senior level. It is part of the capstone experience for seniors in the major.

POL 52200 ENERGY, POLITICS AND PUBLIC POLICY  
(Class 3, Cr. 3)  
Examination of current public policy practices and political questions concerning energy, primarily in the United States. The course will examine the main issues, actors, and policy orientations in relation to such energy sources as petroleum, electricity, and nuclear power.

POL 52300 ENVIRONMENTAL POLITICS AND PUBLIC POLICY  
(Class 3, Cr. 3)  
An examination of the political problems of natural resource use and environmental problems in the United States. Particular consideration is given to the importance of resources for American society, to control the environment by the government, and to the legal aspects of public policy.

POL 56200 ADMINISTRATIVE LAW AND POLICY MAKING  
(Class 3, Cr. 3)  
Prerequisite: POL 10100  
An examination of policy making procedures in administrative agencies as established by statute, precedent, and political considerations. Administrative agencies will be studied by means of focusing on the political context in which they must operate. Emphasis will be placed on the political realities of administrative agency operation.

POL 59000 DIRECTED READING IN POLITICAL SCIENCE  
(Class 1 to 3, Lab 0 to 3, Cr. 1 to 3)  
May be repeated for credit. A reading course directed by the instructor in whose particular field of specialization the content of the reading falls. Approval of each reading project must be secured from the department.

Psychology

PSY 12000 ELEMENTARY PSYCHOLOGY  
(Class 3, Cr. 3) General Education, Transferable  
Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, attention, perception, learning, memory, and thinking.
PSY 20300 INTRODUCTION TO RESEARCH METHODS IN PSYCHOLOGY  
(Class 2, Lab 2, Cr 3)  
Note: Designated sections PSY 20300 will fulfill the Experiential Learning requirement.  
Prerequisite: BHS 20100 or PSY 50000 and MA 15300  
The use of scientific methods in psychology. Lecturing covers principles of  
collecting and interpreting data, using examples of research from many areas of  
psychology. In the laboratory portion the student uses many different techniques  
from various areas of psychology.  

PSY 20500 TESTING AND MEASUREMENT  
(Class 2, Lab 2, Cr 3)  
Prerequisite: BHS 20100 or PSY 50000 and MA 15300  
Not open to students with credit in PSY 50500. Fundamental concepts of test  
theory, introduction to applied psychological testing, the scale of data, and the  
interpretation of test results.  

PSY 30900 EDUCATIONAL AND PSYCHOLOGICAL ASSESSMENT  
(Class 3, Cr 3)  
Undergraduate Experiential Research Seminar. Theoretical foundations and applied  
experiential research opportunity. Requires presentation to key stakeholders and  
45 hours of individual or group experiential research during the semester.  

PSY 31000 SENSORY AND PERCEPTUAL PROCESSES  
(Class 3, Cr 3)  
Prerequisite: PSY 20300 and PSY 20500  
Theory, problems, and research in sensation and perception, including physiological  
bases and measurement techniques.  

PSY 31100 HUMAN LEARNING AND MEMORY  
(Class 3, Cr 3)  
Prerequisite: PSY 20300 and PSY 20500  
Theory and research in verbal learning, attention, discrimination learning, thinking,  
conceptual and organization processes, memory, and languages.  

PSY 31400 INTRODUCTION TO LEARNING  
(Class 3, Cr 3)  
Prerequisite: PSY 20300 and PSY 20500  
This course attempts to make clear the theoretical and practical implications of  
learning principles and findings. Various theories of learning examined and the  
implications of these theories, and the learning approach generally, for a variety of  
practical problems are emphasized.  

PSY 32200 NEUROSCIENCE OF MOTIVATED BEHAVIOR  
(Class 3, Cr 3)  
Prerequisite: PSY 20300 and PSY 20500  
Neuroanatomical analyses of behavioral functions. Topics include: movement;  
sexual behavior; maternal behavior; hunger, thirst; emotion; pain; addiction;  
biochemical rhythms; memory; evolution of the brain; language; hemispheric  
specialization; brain damage; brain remodeling during development and aging;  
correlates of cognitive processing.  

PSY 33900 ADVANCED SOCIAL PSYCHOLOGY  
(Class 3, Cr 3)  
Prerequisite: PSY 12000 and PSY 20300 or SOC 38300  
An in-depth survey of selected topics in social psychology such as aggression,  
attraction, social influence, social attribution, helping behavior, leadership,  
cooperation, competition, and attitudes and attitude change. (Not open to students  
with credit in SOC 34000.)  

PSY 34400 HUMAN SEXUALITY  
(Class 3, Cr 3)  General Education, Transferable  
Prerequisite: PSY 12000 or SOC 10000  
A nonjudgmental approach to the study of sexuality through attempts to bring to  
students' awareness their own sexual values. Topics include evaluation of research,  
biological aspects, varieties of expression, inadequacies, violence, love, erotica, gender  
identity, aging, and sex laws. (Not open to students with credit in WOST 34400.)  

PSY 34900 PSYCHOLOGY OF WOMEN  
(Class 3, Cr 3)  
Prerequisite: PSY 12000  
An examination of the history and sources of concepts which have defined the  
psychological functioning of women and a critical evaluation of current evidence  
regarding women and their behavior, examining the influences which affect them  
in contemporary society, as set within the context of the life cycle. (Not open to  
students with credit in WOST 34900.)  

PSY 35000 ABNORMAL PSYCHOLOGY  
(Class 3, Cr 3)  Transferable  
Prerequisite: PSY 12000  
Prerequisite of three hours of psychology completed. Various forms of mental  
disorder from the standpoint of their origin, treatment, prevention, social  
significance, and relation to problems of normal human adjustment.  

PSY 35500 CHILD ABUSE AND NEGLECT  
(Class 3, Cr 3)  
Prerequisite: PSY 12000  
A historical and conceptual overview of violence against children, from infancy  
through adolescence, is presented. Definitions and models of violence are  
evaluated with respect to existing research findings. Assessment techniques,  
treatment (intervention) approaches and legal issues are examined. The major  
forms of violence against children to be emphasized include: physical child abuse,  
sexual child abuse, emotional (psychological) child abuse, child neglect and  
failure-to-thrive infants.  

PSY 36100 HUMAN DEVELOPMENT I: INFANCY AND CHILDHOOD  
(Class 3, Cr 3)  
Prerequisite: PSY 12000  
A consideration of the formative years in human development with primary  
attention given to the processes of socialization, individualization, and adaptation,  
initiated by retrospective self-examination and furthered by an analysis of  
systematic life history data.  

PSY 36200 HUMAN DEVELOPMENT II: ADOLESCENCE  
(Class 3, Cr 3)  
Prerequisite: PSY 36100 or EDFS 22000  
A behavioristically-oriented analysis of social, personality, and cognitive  
development in adolescence and youth.  

PSY 36300 HUMAN DEVELOPMENT III: ADULTHOOD  
(Class 3, Cr 3)  
Prerequisite: PSY 36200  
An analysis of growth trends in adulthood as arising from the experiences of  
childhood and adolescence and as manifesting themselves in the performance  
of a variety of adult roles. The realization of maturity, as seen in self-assessment  
and examination of systematic life history data. The prospects for later adulthood:  
involvelement versus disengagement.  

PSY 37000 ENVIRONMENTAL PSYCHOLOGY  
(Class 3, Cr 3)  
The psychological influence of immediate environment on human, and, to a  
lesser extent, animal behavior. Environmental factors will be considered from  
the viewpoints of social psychology, applied experimental psychology, consumer  
psychology, community psychology, and ethnology.  

PSY 37300 PSYCHOLOGY IN INDUSTRY  
(Class 3, Cr 3)  
Prerequisite: PSY 12000  
Survey of applications of psychological principles and research methods to  
personnel selection, training, and appraisal; societal context of work including  
study of work motivation, satisfaction and alienation, small group dynamics, and  
leadership. (Not open to students with credit in PSY 57000.)  

PSY 37400 ORGANIZATION AND BEHAVIOR  
(Class 3, Cr 3)  
Prerequisite: PSY 12000  
Not open to students with credit for PSY 57200. Survey of basic behavioral science  
research and thought on organizational behavior as evidenced in individual group,  
terrogroup, and societal phenomena. The reciprocal relationship between individual  
work behavior and institutional factors are stressed and analytically reviewed.  

PSY 38600 CONSUMER BEHAVIOR  
(Class 3, Cr 3)  
Prerequisite: PSY 12000
Basic concepts and methods of psychology as used to understand consumer behavior. Course covers general concepts (e.g., personality, information-processing, social class, family decision-making) as well as their applications to specific examples of consumer behavior (e.g., information search, product choice, purchase).

**PSY 42000 INTRODUCTION TO PERSONALITY THEORY**  
(Cls 3, Cr. 3)  
Prerequisite: PSY 12000  
Prerequisite a prior three credit hour psychology course. Personality theories selected from the traditions of psychoanalysis, behaviorism, and phenomenology-existentialism are presented and contrasted in the fundamental assumptions made by each outlook. Theorists surveyed included Freud, Adler, Jung, Dollard and Miller, Skinner, Bandura, Rogers, Boss, Binswanger, and Kelly.

**PSY 42800 DRUGS AND BEHAVIOR**  
(Cls 3, Cr. 3)  
Prerequisite of six credits of psychology. Discussion on the variety of drugs which affect the nervous system and behavior. Emphasis will be upon a discussion of the physiological and pharmacological bases for the use and misuse of drugs in our society.

**PSY 43000 SYSTEMS AND THEORIES OF PSYCHOLOGY**  
(Cls 3, Cr. 3)  
Prerequisite: PSY 31000 and PSY 31400 or PSY 32200  
A review of major systems of thought and theories contributing to current developments in psychology. Special emphasis placed on broad approaches to building an understanding of man, both scientific and humanistic including behaviorism, psychoanalysis and humanistic-cognitive approaches.

**PSY 43300 THEORIES OF HUMAN DEVELOPMENT**  
(Cls 3, Cr. 3)  
Prerequisite: PSY 12000 and BHS 20500 and PSY 36100 or CDFS 21000 and BHS 20500  
Six credit hours of psychology required. (Not open to students with credit in PSY 34300.) A survey of current major issues of developmental psychology and relevant and evolving methodological approaches to these problems. The emphasis is on developmental processes and factors affecting these processes.

**PSY 43500 INTRODUCTION TO MARRIAGE AND FAMILY THERAPY**  
(Cls 3, Cr. 3)  
Prerequisite: PSY 12000  
This course provides the student with an introduction of general systems theory with a special emphasis on applications within marriage and family therapy. Course topics include the historical roots of family therapy, Descriptions of treatment modalities and clinical interventions used by marriage and family therapists. A variety of theoretical approaches to marriage and family therapy are explored.

**PSY 44300 AGGRESSION AND VIOLENCE**  
(Cls 3, Cr. 3)  
This course requires the consent of the instructor. An intensive examination of the nature of human aggression. Among the topics covered will be: (1) theoretical perspectives concerning such behavior; (2) social conditions that encourage its performance; and (3) means for its prevention and control.

**PSY 48000 FIELD EXPERIENCE IN PSYCHOLOGY**  
(Cls 1, Cr. 3)  
Note: Designated sections PSY 48000 will fulfill the Experiential Learning requirement. Prerequisite: The consent of the instructor and with consent may be repeated once for credit. Supervised volunteer field work experiences in a setting appropriate to students’ interest and goals. Intended as an opportunity to integrate theory and practice.

**PSY 48600 SEMINAR IN HUMAN DEVELOPMENT AND DISABILITY**  
(Cls 2, Cr. 3)  
Note: Designated sections PSY 48600 will fulfill the Experiential Learning requirement. The Seminar in Human Development and Disability will expose students to multiple perspectives related to the issues in human development and disability-related issues. The purpose of the course is to provide an interdisciplinary experience for students preparing for work in human services specifically with individuals with disability. Students will participate in a seminar originating at the Riley Child Development Center at the Indiana University School of Medicine. Students will participate in seminar presentations provided by pediatricians, psychologists, psychiatrists, social workers, special educators and occupational therapists. Students will also gain experience in critiquing disability related research in the context of guided class discussion.

**PSY 49100 TOPICS IN PSYCHOLOGY**  
(Cls 1 to 6, Cr. 1 to 6)  
Variable titles.

**PSY 49800 SENIOR RESEARCH**  
(Cls 3, Cr. 3)  
Senior standing and psychology major. Student conducts and writes a report on an individual research project under the guidance of a faculty member.

**PSY 50000 STATISTICAL METHODS APPLIED TO PSYCHOLOGY, EDUCATION AND SOCIOLOGY**  
(Cls 3, Cr. 3)  
(Not open to students with credit in BHS 20100) Descriptive statistics and an introduction to sampling statistics. Applied to psychological, sociological, and educational data.

**PSY 50500 MENTAL MEASUREMENT**  
(Cls 2, Lab. 2, Cr. 3 or Cls 3, Lab. 2, Cr. 3)  
A prerequisite of six hours of psychology including PSY 50000 or equivalent. Introduction to the general area of mental measurement. Theory and content of measuring devices in the field of intelligence, interests, personality, and special aptitudes.

**PSY 52300 INTRODUCTION TO THEORIES OF PSYCHOTHERAPY**  
(Cls 3, Cr. 3)  
Prerequisite of an introductory course in theory of personality advisable, especially for undergraduates. (e.g., PSY 42000) A survey of the major approaches to psychotherapy, including their theory of illness and cure. Three traditions are represented: psychoanalytical (e.g. Freud, Adler, Jung), behavioral (e.g. Miller and Dollard, Wolpe, Stempfli), and cognitive-phenomenological (e.g. Rogers, Kelly, Perls).

**PSY 53200 PSYCHOLOGICAL DISORDERS OF CHILDHOOD**  
(Cls 3, Cr. 3)  
A prerequisite of six credit hours of psychology. A review of the nature, causes and consequences of deviations from normal childhood development. Emphasis is placed on the two most common types of psychological problems in childhood: mental retardation and behavior disorders.

**PSY 53500 PSYCHOLOGY OF DEATH AND DYING**  
(Cls 3, Cr. 3)  
An examination of psychological research and theory related to death and the dying process. Topics include: (1) death concepts, attitudes and fears—historical and contemporary, (2) definitions and predictors of death (physical, psycho-social predictors of death), effects of death on survivors, psycho-social factors related to individual differences and normative dying behavior, stages of dying, effects of pain and drugs, managing the dying process.

**PSY 55000 INTRODUCTION TO CLINICAL PSYCHOLOGY**  
(Cls 3, Cr. 3)  
The case-study method, including a discussion of the importance of historical information, the contribution of clinical tests to diagnosis, and a general survey of prevention and treatment techniques.

**PSY 57000 INDUSTRIAL PSYCHOLOGY**  
(Cls 3, Cr. 3)  
Not open to students with credit in PSY 37300. Survey of the applications of psychological principles and of research methodology to the various human problems in industry, such as personnel selection and appraisal, the organizational and social context of human work, the job and work situation, human errors and accidents, and psychological aspects of consumer behavior.

**PSY 59000 INDIVIDUAL RESEARCH PROBLEM**  
(Cls 0 to 3, Lab. 0 to 7, Cr. 1 to 3)  
Prerequisite: Consent of the instructor. Opportunity for students to study particular problems in any field of psychology or initiate themselves into research techniques under the guidance of a member of the staff.

**PSY 60000 STATISTICAL INFERENCE**  
(Cls 3, Cr. 3)  
Prerequisite: PSY 5000. Emphasis is given to principles underlying both parametric and nonparametric inference.
This course introduces fundamental chemistry concepts and then covers the basic properties of water, protein, carbohydrates, lipids, minerals and vitamins and their roles in food systems. Additionally the course covers enzymes in food and food additives.

**PSY 60500 APPLIED MULTIVARIATE ANALYSIS**  
*Class 3, Cr. 3*
A survey of the most frequently employed multivariate research techniques, such as multivariate generalizations of univariate tests and analysis of variance, principal components, canonical analysis, and discriminant analysis. A central theme of the course is the general linear model, both univariate and multivariate. A multipurpose program for this model provides the student with practical experience in conducting multivariate research.

**PSY 67300 BEHAVIORAL DISORDERS**  
*Class 3, Cr. 3*
Advanced abnormal psychology. Consideration will be given to research and theory of psychopathology.

**Portuguese**

**PTGS 10100 PORTUGUESE LEVEL I**  
*Class 3, Lab. 1, Cr. 3*
This course stands for an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

**PTGS 10200 PORTUGUESE LEVEL II**  
*Class 3, Lab. 1, Cr. 3*
Prerequisite: PTGS 10100  This course stands for an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

**Russian**

**RUSS 10100 RUSSIAN LEVEL I**  
*Class 4, Cr. 4*
Introduction to basic skills in the language.

**RUSS 10200 RUSSIAN LEVEL II**  
*Class 4, Cr. 4*
Prerequisite: RUSS 10100  Continuation of Russian 10100. Prerequisite: Russian 10100

**Science**

**SCI 10300 SURVEY OF THE BIOLOGICAL WORLD**  
*Class 2, Lab. 2, Cr. 3*  General Education, TransferIN
This laboratory science course is designed for non-biology majors to satisfy the general education science requirement. Topics in this course include history of planet earth, evolution, and natural history of living organisms. This course cannot be used for biology elective credits by biology majors.

**SCI 10400 INTRODUCTION TO ENVIRONMENTAL BIOLOGY**  
*Class 2, Lab. 2, Cr. 3*  General Education
A survey of human impacts on natural environments. This course assumes very little prior knowledge in ecology, and thus serves for non-biology major students who wish to satisfy their lab science requirements. Topics include basic concepts of ecology, interactions between human and natural environment, human wellness in relation to environmental pollution, natural resource conservation and management, modern environment technology, and current environmental issues in our society. Lecture material is reinforced and expanded upon in laboratory exercises and field trips in ecology, environmental health, pollution and resource conservation. This course will not count toward a biology degree.

**SCI 10500 INVITATION TO HUMAN BIOLOGY**  
*Class 2, Lab. 2, Cr. 3*  General Education, TransferIN
This course assumes very little prior specific knowledge of biology, and thus serves for non-biology students who wish to satisfy their lab science requirements. Topics include basic structure and function of the structure of the human body, human genetics, human wellness issues, human evolution, and human impact on the environment. Lecture material is reinforced and expanded upon in laboratory exercises. This course will not count toward a biology degree.

**SCI 10601 FOOD CHEMISTRY**  
*Class 2, Lab. 2, Cr. 3*
This course introduces fundamental chemistry concepts and then covers the basic properties of water, protein, carbohydrates, lipids, minerals and vitamins and their roles in food systems. Additionally the course covers enzymes in food and food additives.

**SCI 11200 INTRODUCTION TO THE PHYSICAL SCIENCES I**  
*Class 2, Lab. 2, Cr. 3*
An introduction to science and the scientific method as evidenced by the physical and chemical aspects of nature. Physical and chemical concepts and processes will be studied in the context of everyday life. General topics will include: motion, energy, heat, electromagnetism, atoms and molecules.

**SCI 11300 INTRODUCTION TO THE PHYSICAL SCIENCES II**  
*Class 2, Lab. 2, Cr. 3*
An introduction to science and the scientific method as evidenced by the physical and geological aspects of nature. General topics will include: Planetary geology and chemical concepts of matter including classification, chemical reactions, bonding and energy.

**SCI 11400 INTRODUCTION TO LIFE SCIENCE**  
*Class 2, Lab. 2, Cr. 3*  General Education
An introduction to life science for non-biology majors. This inquiry-based course will take an investigative approach to various topics in biology that are related to everyday life. Topics include evolution and life history of animals and plants, cells, human health, biotechnology and ecology. Although offered primarily for elementary education majors, this course is open to all qualified students. This course cannot be counted as a biology elective credits for a biology degree.

**SCI 13100 SCIENCE AND ENVIRONMENTAL ISSUES**  
*Class 2, Lab. 2, Cr. 3*  General Education
An introduction to the application of chemical principles to the world around us (our environment). It may be used to satisfy the general education laboratory science requirement and serve as an introductory course for further study in the field of environmental science.

**SCI 14000 INTRODUCTION TO FORENSIC SCIENCE**  
*Class 2, Lab. 2, Cr. 3*
Introduction to the theories and practices of scientific techniques as applies to crime detection. Some focus areas will include crime scene processing, physical evidence, the examination and evaluation of evidence, and laboratory procedure.

**SCI 15000 BREWING SCIENCE**  
*Class 2, Lab. 2, Cr. 3*
Following the brewing process from ‘grain-to-glass’ this course uses the biological and chemical principles of brewing to teach science to the non-science major. While based solely on malted barley, water, hops and yeast, beer and the brewing process provide a wealth of examples of basic science. In addition to these basic ingredients, scientific discussions on malting, mashing, fermentation, and the making of different beer styles will also be included. In the laboratory, students will gain hands-on experience with important aspects of the brewing process. An emphasis on the responsibility we must take for our behavior when consuming beer will be stressed. Students must be 21 years of age before the start of the semester.

**SCI 19000 SPECIAL TOPICS IN SCIENCE**  
*Class 0 to 3, Lab. 0 to 2, Cr. 3*  
Prerequisite: MA 11500
A special topics course in physical science for non-science majors. Prerequisite: High School Algebra, MA 04100 or equivalent.

**SCI 20200 ENVIRONMENTAL SCIENCE**  
*Class 2, Lab. 2, Cr. 3*
In this course, students are expected to understand the processes of scientific methods for testing hypotheses about the natural world, able to apply mathematical skills to quantitative and analytical problem solving in environmental issues, and gain basic knowledge in science of human population dynamics, natural resources, renewable and nonrenewable energy and environmental pollution.

**SCI 22000 HEALTH AND SAFETY**  
*Class 2, Cr. 2*  
Prerequisite: CHM 11600 or equivalent
A course on laboratory safety, health related issues and laboratory stockroom management in the physical sciences for science education majors.
SCI 29000 SPECIAL TOPICS IN SCIENCE  
(Class 0 to 3, Lab 0 to 6, Cr. 3)  
Introductory, integrated science course for engineering and science students.  
Beginning lectures will cover the basic chemistry of life, the organization of cells.  
This will be followed by more advanced topics such as photosynthesis. Each topic  
will emphasize how understanding the biological system requires concepts and  
tools from other disciplines such as chemistry and physics.

SCI 31500 ENVIRONMENTAL SCIENCE FOR ELEMENTARY EDUCATION  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: SCI 11200 or SCI 11300 and SCI 11400  
This project-based course integrates knowledge and skills in physical and  
biological sciences to develop workable scientific solutions for environmental-  
related problems in everyday life. Topics may include, but are not limited to,  
pollution and control, natural resource conservation and management, human  
health and wellness. Although offered primarily for elementary education majors,  
this course is open to all qualified students. This course cannot be counted as  
biology elective credits for a biology degree.

SCI 32400 PHYSICAL SCIENCE AND SOCIETY  
(Class 3, Cr. 3)  
One year of organic chemistry and one year of college physics required. This course  
focuses on the chemicals, chemical and physical principles and phenomena of  
environmental consequence. Societal issues are incorporated largely in historical  
relevance. Topics include ozone depletion, greenhouse effect, air pollution, water  
pollution, acid rain, toxins, energy flow, and environmental technology.

SCI 49100 ENVIRONMENTAL SCIENCE INTERNSHIP  
(Class 1 to 3, Cr. 3)  
Prerequisite: NRES 20200  
Directed in-service training in government agencies or programs, industry, community  
organizations, or private–public joint organizations on environment subjects.

Service Learning  
SERV 10100 SERVICE LEARNING/CIVIC ENGAGEMENT - LEVEL I  
(Class 1, Cr. 1)  
Note: Designated sections SERV 10100 will fulfill the Experiential Learning requirement.  
Experience at the entry level in community service or civic organization(s) that  
builds student skills and knowledge and requires active engagement and critical  
reflection. Volunteerism of five hours per week (75 hours per semester) in an off-  
campus Community Service or Civic site in work related to the student’s major and  
organized around specific learning objectives. Emphasis on collaboration between  
the student, the University, and the Community.

SERV 10200 SERVICE LEARNING/CIVIC ENGAGEMENT - LEVEL II  
(Class 2, Cr. 2)  
Note: Designated sections SERV 10200 will fulfill the Experiential Learning requirement.  
Experience at the intermediate level in community service or civic organization(s)  
that builds student skills and knowledge and requires active engagement and  
critical reflection. Volunteerism of ten hours per week (150 hours per semester)  
in an off-campus Community Service or Civic site in work related to the student’s major and  
organized around specific learning objectives. Emphasis on collaboration between the student, the University, and the Community.

SERV 10300 SERVICE LEARNING/CIVIC ENGAGEMENT - LEVEL III  
(Class 3, Cr. 3)  
Note: Designated sections SERV 10300 will fulfill the Experiential Learning requirement.  
Experience at the advanced level in community service or civic organization(s) that  
builds student skills and knowledge and requires active engagement and critical  
reflection. Volunteerism of 15 hours per week (225 hours per semester) in an off-  
campus Community Service or Civic site in work related to the student’s major and  
organized around specific learning objectives. Emphasis on collaboration between the student, the University, and the Community.

SERV 20100 SERVICE LEARNING/CIVIC ENGAGEMENT II  
(Class 2, Cr. 2)  
Note: Designated sections SERV 20100 will fulfill the Experiential Learning requirement.  
Prerequisite: SERV 10100 or SERV 10200 or SERV 10300

Experience at the mid-level in community service or civic organization(s) that  
builds student skills and knowledge and requires active engagement and critical  
reflection. Volunteerism of 10 hours per week (150 hours per semester) in off-  
campus Community Service or Civic site in work related to the student's major and  
organized around specific learning objectives. Emphasis on collaboration between  
the student, the University, and the Community.

SERV 30100 SERVICE LEARNING/CIVIC ENGAGEMENT III  
(Class 3, Cr. 3)  
Note: Designated sections SERV 30100 will fulfill the Experiential Learning requirement.  
Prerequisite: SERV 20100  
Experience at the advanced level in community service or civic organization(s) that  
builds student skills and knowledge and requires active engagement and critical  
reflection. Volunteerism of 15 hours per week (225 hours per semester) in off-  
campus Community Service or Civic site in work related to the student’s major and  
organized around specific learning objectives. Emphasis on collaboration between  
the student, the University, and the community.

SERV 40100 SERVICE LEARNING/CIVIC LEARNING IV  
(Class 4, Cr. 4)  
Note: Designated sections SERV 40100 will fulfill the Experiential Learning requirement.  
Prerequisite: SERV 30100  
Experience at the mastery level in community service or civic organization(s) that  
builds student skills and knowledge and requires active engagement and critical  
reflection. Volunteerism of 20 hours per week (300 hours per semester) in off-  
campus Community Service or Civic site in work related to the student’s major and  
organized around specific learning objectives. Emphasis on collaboration between  
the student, the University and the community.

Sociology  
SOC 10000 INTRODUCTION TO SOCIOLOGY  
(Class 3, Cr. 3) General Education; Transferable  
A survey course designed to introduce the student to the science of human society.  
Fundamental concepts, description, and analysis of society, culture, the socialization  
process, social institutions, and social change. A first course for sociology majors  
and a possible terminal course for non-majors.

SOC 22000 SOCIAL PROBLEMS  
(Class 3, Cr. 3) Transferable  
Prerequisite: SOC 10000  
Contemporary problems at the community, society, and international levels,  
focusing on patterns of social organization and social change in American society,  
with concentration on such topics as technological militarism and war, poverty,  
racism, political protest, and cybernation.

SOC 24500 FIELD OF SOCIOLOGY  
(Class 1, Cr. 1)  
Prerequisite: SOC 10000  
Examination of educational and career opportunities in the field of Sociology.  
Major theoretical and research approaches are briefly presented to assist student  
preparation for subsequent courses and options in Sociology. The application  
process and experience of post-graduate education are reviewed.

SOC 26100 BASIC HELPING SKILLS FOR HUMAN SERVICES  
(Class 3, Cr. 3) Transferable  
Prerequisite: SOC 10000  
Not open to students with credit in SWRK 26100. Provides a basic overview of  
the profession of social work: its development as a profession, professional values  
and ethics, and the multiple settings in which social work is practiced. Instruction  
given in the types of social work: i.e., the generic complex which results in  
individual casework, group work, community practice, administration, and policy.  
Methods of social work are described, along with the current frameworks for social  
work practice, including systems and problem solving.

SOC 30100 SOCIOLOGY OF INTERNATIONAL CHANGE  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Analysis of recent international developments from the sociological perspective.
Topics include such issues as ethnic conflicts, trade wars, population growth, technological changes, environmental issues, famine, the collapse of the USSR, and the formation of new political/economic rivalries.

**SOC 30600 METHODS IN HUMAN SERVICES**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
The class will focus on case management techniques that will be used in format systems such as welfare programs, health care and mental health agencies, child care programs, agencies serving the elderly and the corrections industry. Emphasis will be placed on multidimensional assessment techniques, information and referral services and the skills necessary to act as a change agent, educator and facilitator. Other essential elements of the course include crisis intervention, the dynamics involved in family systems, health promotion, and the needs of special populations.

**SOC 30700 FIELD EXPERIENCE IN HUMAN SERVICES**  
(Class 1, Cr. 3)  
Note: Designated sections SOC 30700 will fulfill the Experiential Learning requirement. Prerequisite: SOC 26100  
The field experience component of the Human Services curriculum provides a supervised learning experience in a professional practice setting. The participants in the field practicum include the student, faculty and agency supervisor. This will give students the opportunity to integrate carefully selected and approved individualized experiences as they actively engage in professional tasks which complement and reinforce classroom learning. The seminar that accompanies the course will provide opportunities for student peer relationships and for the development of beginning competencies as students learn to use supervision and focus on specific practice areas. The course will place particular emphasis on the needs of each student.

**SOC 31400 RACE AND ETHNIC RELATIONS**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Not open to students with credit in SOC 51400. An examination of the social, psychological, political, economic, and cultural factors that influence society’s treatment of members of various racial and ethnic groups, and those factors that influence the ways those groups interact with each other.

**SOC 31800 SOCIOLOGY OF SPORT**  
(Class 3, Cr. 3)  
This course provides a sociological understanding of the institution of sports. It particularly investigates the role of politics, the economy, and the media in the creation of sports as an institution. The variables of race, class, and gender are emphasized, as are the links between sports and basic American values.

**SOC 32000 GENERAL SOCIAL ORGANIZATION**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
The study of selected areas of social organization. Institutions as special forms of organizations and bureaucracies. Theories and empirical studies of power and decision-making in organizations. Case studies of American organizations and institutions.

**SOC 32500 SOCIAL FORCES AND SOCIAL MOVEMENTS**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Examines the social, political, economic, and social psychological conditions that give rise to social movements, the ideological perspectives of major social movements, and the inter-relationships between social movement and social change.

**SOC 33000 CULTURE, ARTS, SOCIETY**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
The relations of the arts to society; the production, diffusion, institutionalization, democratization of the arts, with attention to the consequences of diverse media structures organization, marketing, and support structures. Emphasis will be placed on related emerging social roles, the connection between art and politics, elite versus mass arts, and the arts and cultural values.

**SOC 33400 URBAN SOCIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Development of the city and its functions; types of social behavior in cities; influences of city life on personality; city planning.

**SOC 34000 GENERAL SOCIAL PSYCHOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000 or PSY 12000 and SOC 38300 or PSY 20300  
Not open to students with credit in PSY 33900. Social influences on the individual and processes of social interaction. Individual attitudes and behavior as related to socialization, social norms, social roles, communication and propaganda, and other social influences. Among the interaction processes considered are interpersonal attraction, influence, leadership, cooperation, and conflict.

**SOC 34300 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM**  
(Class 3, Cr. 3)  
Prerequisite: PDL 10100 and SOC 10000  
Not open to students with credit in POL 34300. A study of the agencies and processes involved in the criminal justice system: legislature, the courts, the police, the prosecutor, the public defender; and corrections. An analysis of the roles and problems of each component with an emphasis on their inter-relationship.

**SOC 35000 SOCIAL PSYCHOLOGY OF MARRIAGE**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Not open to students who have had CDFS 35000 or WOST 35000. Designed to provide an understanding of contemporary courtship, marriage, and family interactions; cultural, social, and social-psychological phenomena. Consideration of the major sources of marital strain, and conflict within a heterogeneous, rapidly changing society.

**SOC 36100 THE INSTITUTION OF SOCIAL WELFARE**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Not open to students with credit in SWRK 36100. Basic concepts and activities of social service organizations. Field trips to selected institutions.

**SOC 36400 CHILD AND FAMILY WELFARE**  
(Class 3, Cr. 3)  
Prerequisite: SOC 26100 and PSY 36100 and PSY 36200  
Not open to students with credit in SWRK 36400. A review of the family as it is influenced by societal and personal forces. The impact of culture, society, and economics on the family is reviewed; additionally, the personal and interpersonal factors including family crises, breakdowns, unemployment, and alcoholism are considered.

**SOC 36700 RELIGION IN AMERICA**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Examines the social dimensions of religion in American life; religion in American culture, social profiles of America’s religious groups, trends in individual religious commitment; and religion’s impact on American life.

**SOC 38200 INTRODUCTION TO STATISTICS IN SOCIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Introduction to the basic techniques of statistical analysis applicable to sociological data. Elementary descriptive statistics and statistical inference. Introduction to multivariate analysis.

**SOC 38300 INTRODUCTION TO METHODS OF SOCIAL RESEARCH II**  
(Class 3, Cr. 3)  
Note: Designated sections SOC 38300 will fulfill the Experiential Learning requirement. Prerequisite: BHS 20100 or SOC 38200  
Introduction to the methods of data collection and to the use of the scientific method in social research. Formulation of hypotheses and research designs for their testing. Elementary principles for the conduct of experiments, observation, and interviewing, documentation; content analysis; and surveys. Relationship between social research and social theory.

**SOC 40200 PRINCIPLES OF SOCIOLOGY**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
12 hours of Sociology and 2.25 GPA in all Sociology courses. An advanced critical
treatment of the theories and concepts for undergraduate majors in sociology.

SOC 41100 SOCIAL STRATIFICATION  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Examination of systems of class and caste, with special attention to the United States; status, occupation, income, and other elements in stratification.

SOC 41200 SOCIAL CHANGE  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
The study of social change in pre-modern and modern societies. The following topics will be included: theories of social change, current patterns of social change in the developing and industrial worlds, changes in socialization patterns, interpersonal relations, social institutions, the impact of social change, the desirability of growth and development and the dilemmas of modernization.

SOC 41600 INDUSTRIAL SOCIOLOGY  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Provides an overview of the historical development of industrial organizations from craft production through the factory to multinational corporations. Examines changes in managerial practices and ideologies and worker reactions. Explores other institutions (including government, schools, mass media) affecting industrial development.

SOC 42100 JUVENILE DELINQUENCY  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
A study of social and psychological factors influencing individual delinquent behavior patterns. Emphasis on preventive and rehabilitative programs and the role of community agencies, such as social service agencies, juvenile courts, youth authorities. Visits to selected organizations and institutions.

SOC 42200 CRIMINOLOGY  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Nature and cause of crime; methods of dealing with adult and juvenile offenders; consideration of present programs for the social treatment of crime in the light of needed changes.

SOC 43000 SOCIOLOGY OF AGING  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Examination of the theories of aging, problems confronting older persons, and programs designed to assist the elderly. Consideration of social aspects of aging in the U.S. in the areas of retirement, employment, housing, income, health care, and the family relationships with cross-cultural and a historical comparisons.

SOC 43100 SERVICES FOR THE AGED  
(Class 3, Cr. 3)  
Prerequisite: SOC 43000 or PSY 36300  
This course describes current and alternative models for providing community and institutional-based services for the aged. Intervention theories and strategies for providing human services are discussed. Students are expected to apply course concepts when developing ideas for, and evaluating existing services for, older people.

SOC 44000 SOCIOLOGY OF HEALTH AND ILLNESS  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Examination of the social aspects of health beliefs, the definition of disease, and decisions regarding the seeking of medical care. Identification of major changes in patterns and frequencies of health, sickness, disease, and death in the 20th century and factors influencing these patterns. Analysis of characteristics of U.S. medical care systems with particular emphasis on the economics and ethics of health care delivery, the production and distribution of medical personnel, and comparisons with other systems.

SOC 44300 FIELD EXPERIENCE IN CRIMINAL JUSTICE  
(Class 3, Cr. 3)  
Note: Designated sections SOC 44300 will fulfill the Experiential Learning requirement.  
Prerequisite: GPA of 2.25 or higher; 9 credit hours in Criminal Justice.

Observation and supervised participation in the criminal justice system. Readings and class meetings to integrate theory and experience. Intended for students who plan to become employed in the criminal justice system upon receiving the bachelor’s degree.

SOC 45000 GENDER ROLES IN MODERN SOCIETY  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000 and 6 credit hours of Sociology  
This course is not open to students with credit in WOST 45000. A critical examination of the roles of men and women in many societies with particular attention to sex/gender differences and inequalities in the contemporary United States. Origins, goals and tactics of the recent women’s and men’s liberation movements. Sex differences and inequality in the area of sexuality, marriage, family, education, employment, and income. Social factors which maintain and those which may minimize sex and inequality.

SOC 45300 INTIMATE VIOLENCE  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
This course examines violence between intimates across the life span starting with child abuse and ending with abuse against the elderly. The perspectives used include social learning theory, gender role socialization and sociocultural values. Current research as well as emerging themes about the transmission of violence, learned behavior, and victimization will be used in this class. Assessment techniques are a major part of the class.

SOC 46000 FIELD EXPERIENCE IN GERONTOLOGY  
(Class 1, Cr. 3)  
Note: Designated sections SOC 46000 will fulfill the Experiential Learning requirement.  
Prerequisite: SOC 43000  
Supervised volunteer field experience in a gerontological setting. Intended as an opportunity for practical experience in an organization providing services to older adults, where theoretical concepts can be applied with skills and techniques for dealing with older adults can be developed.

SOC 49100 TOPICS IN SOCIOLOGY  
(Class 0 to 6, Cr. 1 to 6)  
Variable titles.

SOC 51400 RACIAL AND CULTURAL MINORITIES  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
America’s minority groups; immigration; interracial and intercultural conflicts; assimilation.

SOC 52500 SOCIAL MOVEMENTS  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Origins and developmental stages of revolutionary and reform movements and communitarian societies; relation between social structure and political attitudes; personality needs and affinity for social and political ideologies.

SOC 53000 POLITICAL SOCIOLOGY  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Analysis of the social and social psychological sources of routine political participation such as voting and interest group activity and non-routine political action such as protest movements and revolution; the organization of power at the community, national and international level; and political ideology.

SOC 53100 COMMUNITY ORGANIZATION  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Analysis of the local community in terms of its institutional structure, relationships among institutions, political and economic power relationships, and the role of voluntary organizations and interest groups.

SOC 55000 GENDER IDENTITY AND SEX ROLE DIFFERENTIATION  
(Class 3, Cr. 3)  
Prerequisite: SOC 35000 or SOC 45000  
Psychosexual differentiation, both prenatal and postnatal; normal and deviant
processes involved in establishing gender identity and in functioning within a sex role setting. Some attention to hermaphroditism, transsexuals, and homosexuality. The masculinity–femininity dimension of personality; sex role structures and sex role learning within a societal context. A companion course to SOC 45000.

**SOC 57000 SOCIOLOGY OF EDUCATION**  
(Class 3, Cr. 3)  
Prerequisite: SOC 10000  
Analysis of the American public school as a social organization. Includes: interrelations among community power structure, social stratification, and the school; the roles of superintendent, principal, and teacher in community and school; the classroom as a social system; student culture; and teaching as a profession.

**SOC 57800 DISABILITY AND SOCIETY**  
(Class 3, Cr. 3)  
This course analyzes the phenomenon of disability from a sociological frame of reference. The course focuses on the role of language and social roles, the effect of public policy upon individuals with disability; the portrayal of disability in popular culture; the role of technology on the lives of individuals with disability and the challenges confronting our society and its treatment of disability. Students will experience the impact of disability on individuals through an array of educational activities. The structure of the course is designed to facilitate direct contact by students with individuals with a disability. The course is also designed to enhance students learning through various readings, assignments, and videos. The students should have regular and consistent access to the internet and should have the basic skills to navigate the Blackboard site for the course, as well as Word processing software.

**Spanish**

**SPAN 10100 SPANISH LEVEL I**  
(Class 3, Lab. 1, Cr. 3) TransferIN  
Introduction to Spanish.

**SPAN 10200 SPANISH LEVEL II**  
(Class 3, Lab. 1, Cr. 3) TransferIN  
Prerequisite: SPAN 10100  
Continuation of SPAN 10100.

**SPAN 10600 SPANISH FOR BUSINESS I**  
(Class 3, Lab. 1, Cr. 3)  
A Spanish for Special Purposes course. Realistic situations and specialized vocabulary that business and finance professionals need to communicate in the course of daily work. Opportunities to apply grammatical structures in a variety of practical contexts. Highlights on Hispanic customs and practices relevant to business professionals in their interactions with Spanish speakers.

**SPAN 10700 SPANISH FOR BUSINESS II**  
(Class 3, Lab. 1, Cr. 3)  
Prerequisite: SPAN 10600  
A Spanish for Special Purposes course. A continuation of SPAN 10600. Realistic situations and additional specialized vocabulary that business and finance professionals need to communicate in the course of daily work. Further opportunities to apply grammatical structures in a variety of practical contexts. Highlight on more Hispanic customs and practices relevant to business professionals in their interactions with Spanish speakers.

**SPAN 11000 SPANISH FOR HEALTH CARE PROVIDERS**  
(Class 3, Cr. 3)  
A Spanish for Special Purposes course. Basic terminology for health care professionals. Practice in Spanish communication in assessment and intervention settings with patients/families. General medical history, and symptoms are covered as well as special individual topics. Practice in language skill development in health history interviews.

**SPAN 19000 SPECIAL TOPICS IN SPANISH**  
(Class 0 to 3, Lab 0 to 6, Cr. 1 to 3)  
Special topics related to Spanish and to Spanish-speaking cultures and literatures. Variable title. This course may be repeated for credit, providing the topics are different.

**SPAN 20100 SPANISH LEVEL III**  
(Class 3, Lab. 1, Cr. 3) TransferIN  
Note: Designated sections SPAN 20100 will fulfill the Experiential Learning requirement.  
Prerequisite: SPAN 10200  
A conversational approach to the cultures of Spain and South America with a review of Spanish language skills as needed.

**SPAN 20200 SPANISH LEVEL IV**  
(Class 3, Lab. 1, Cr. 3) TransferIN  
Note: Designated sections SPAN 20200 will fulfill the Experiential Learning requirement.  
Prerequisite: SPAN 20100  
Continuation of SPAN 20100 and the presentation of intellectual readings.

**SPAN 20600 PRACTICUM IN SPANISH**  
(Class 1 to 3, Cr. 1 to 3)  
Directed practice in Spanish in settings that offer contact with the Hispanic community.

**SPAN 23000 CONTEMPORARY SPANISH AMERICAN LITERATURE IN TRANSLATION**  
(Class 3, Cr. 3)  
Reading and discussion of selected masterpieces of 20th century Latin American prose, fiction and essays in translation. Emphasis on works written after World War II. Knowledge of Spanish not required.

**SPAN 26100 SPANISH COMPOSITION**  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200  
The essentials of Spanish grammar as applied in composition.

**SPAN 29000 SPECIAL TOPICS IN SPANISH**  
(Class 0 to 3, Lab 0 to 6, Cr. 1 to 3)  
Special topics related to Spanish and Spanish-speaking cultures and literatures. Variable title. This course may be repeated for credit, providing topics are different.

**SPAN 30400 READING FROM THE HISPANIC WORLD**  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20100  
This course will focus on the development of interpretive skills in Spanish by emphasizing reading, listening strategies, analytical skills and knowledge about the perspectives, practices, and products of the Hispanic world.

**SPAN 30600 SPANISH GRAMMAR**  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200  
This course integrates the four basic language skills (reading, writing, listening and speaking) into a review of the major points of Spanish grammar from SPAN 10100 through SPAN 20200 plus practice of additional grammar points. The objectives of this course are to increase the students accuracy in the four basic language skills through acquisition of vocabulary, application of grammar rules, and use of the coherent structures.

**SPAN 30700 COMMERCIAL SPANISH**  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200  
This course will provide students with the fundamentals of effective expression and communication as these apply to Spanish business situations in particular. It will concentrate on commercial vocabulary, reading, writing, and speaking as related to international business.

**SPAN 31300 SPANISH FOR SPANISH SPEAKERS I**  
(Class 3, Cr. 3)  
A prerequisite of a placement test to determine native speaking ability in
Spanish. Not open to students who have had SPAN 36500 and SPAN 26100. The presentation of the structure and phonology of Spanish in Spanish for those who come from native-speaking backgrounds but who require the formal training. Grammar, composition, and standard Spanish fluency.

SPAN 31400 SPANISH FOR SPANISH SPEAKERS II  
(Class 3, Cr. 3)  
Prerequisite: SPAN 31300  
A continuation of SPAN 31300 with the presentation of levels of Spanish speech, intellectual readings and compositions, grammar problems.

SPAN 36500 SPANISH CONVERSATION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200  

SPAN 37300 SPANISH TRANSLATION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 26100 or SPAN 31300  
An introduction to the principles of translation. Practice in translation from Spanish to English and vice versa. Selected, graded materials from simple to moderate difficulty, illustrating a variety of styles. Acquaintance with reference materials concerning Spanish and English and translations.

SPAN 39000 SPECIAL TOPICS IN SPANISH  
(Class 0 to 3, Lab. 0 to 3, Cr. 1 to 3)  
Special topics related to Spanish and to Spanish-speaking cultures and literatures. Variable title. This course may be repeated for credit; provided the topics are different.

SPAN 40500 INTRODUCTION TO SPANISH LITERATURE I  
(Class 3, Cr. 3)  
Introduction to the periods of Spanish literature from the beginning through the 18th century. Reading and discussion of representative works. The rudiments of literary criticism.

SPAN 40600 INTRODUCTION TO SPANISH LITERATURE II  
(Class 3, Cr. 3)  
Introduction to the periods of Spanish literature from the 18th century to the present. Reading and discussion of representative works. The rudiments of literary criticism.

SPAN 40800 LANGUAGE PRACTICUM IN BUSINESS  
(Class 3, Cr. 3)  
Note: Designated sections SPAN 40800 will fulfill the Experiential Learning requirement.  
Prerequisite: SPAN 26100 and SPAN 30700 and SPAN 36500  
The course requires classification of 5 or higher, GPA 2.5, and departmental approval. (May be repeated once for credit if experience is different.) The course will consist of actual on-the-job experience in international corporations, industry, commerce, government, or health and social agencies where Spanish is used. The course is designed to expose students to their chosen vocational field.

SPAN 41300 CULTURE OF SPANISH-SPEAKING AMERICANS  
(Class 3, Cr. 3)  
An introduction to the cultural heritage and customs of groups of Spanish-speaking Americans, such as Mexican-Americans, Puerto Rican Americans, Cuban Americans. The nature of the social processes, points of interference between cultures. Historical and geographical perspectives of Spanish-speaking Americans.

SPAN 41400 LITERATURE OF SPANISH SPEAKING AMERICANS  
(Class 3, Cr. 3)  
The study of the literature of Chicano and Puerto Rican authors. Poetry, plays, short stories and novels presented in survey form so as to cover fairly themes from each Spanish-speaking population segment in contemporary American life. Intermediate knowledge of Spanish is needed because of dialecticism in many of the contemporary works.

SPAN 42600 SPANISH LINGUISTICS  
(Class 3, Cr. 3)  
The course will serve as an introductory course to Spanish linguistics. Prerequisites: 12 credit hours beyond SPAN 20200.

SPAN 43500 SPANISH AMERICAN LITERATURE TO MODERNISM  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200  
The study of the development of Spanish American literature from the early chronicles to the end of the 19th century with consideration of the pre-Hispanic background.

SPAN 43600 SPANISH AMERICAN LITERATURE FROM MODERNISM TO PRESENT  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200  
A continuation of SPAN 43500. The study of the development of Spanish American literature beginning with the Modernist period to the present.

SPAN 45100 SPANISH CIVILIZATION  
(Class 3, Cr. 3)  
Note: Designated sections SPAN 45100 will fulfill the Experiential Learning requirement.  
The study of modern Spanish life with regard to the social institutions and customs. Lectures in the language.

SPAN 46100 INTERMEDIATE SPANISH COMPOSITION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 26100 or SPAN 31300  
The course requires classification of 5 or higher, GPA 2.5, and departmental approval. (May be repeated once for credit if experience is different.) The course will consist of actual on-the-job experience in international corporations, industry, commerce, government, or health and social agencies where Spanish is used. The course is designed to expose students to their chosen vocational field.

SPAN 46500 INTERMEDIATE SPANISH COMPOSITION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 26100 or SPAN 31300  
The course requires classification of 5 or higher, GPA 2.5, and departmental approval. (May be repeated once for credit if experience is different.) The course will consist of actual on-the-job experience in international corporations, industry, commerce, government, or health and social agencies where Spanish is used. The course is designed to expose students to their chosen vocational field.

SPAN 48100 SPANISH CIVILIZATION  
(Class 3, Cr. 3)  
Note: Designated sections SPAN 48100 will fulfill the Experiential Learning requirement.  
Prerequisite: SPAN 20200 or SPAN 31300  
The development of the cultural life of the Spanish people, as reflected in the geography, history, music, art, and architecture of Spain. Lectures in Spanish.

SPAN 48200 LATIN AMERICAN CIVILIZATION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200 or SPAN 31300  
An outline of Latin American history; the cultural heritage from Spain and from the pre-Spanish civilizations; the intellectual, social, and cultural progress of the Latin American countries. Lectures in the language.

SPAN 49000 TOPICS IN SPANISH  
(Class 3, Cr. 3)  
Prerequisite: SPAN 20200  
May be repeated for credit. Variable title.

SPAN 51100 ADVANCED SPANISH CONVERSATION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 46500  
Additional practice in speaking and understanding Spanish. Talks based on material given in class.

SPAN 51500 ADVANCED SPANISH COMPOSITION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 26100  
Additional training in writing Spanish.

SPAN 54100 SPANISH LITERATURE OF THE GOLDEN AGE  
(Class 3, Cr. 3)  
Prerequisite: SPAN 40500
A survey of Spanish literature from 1500 to 1681. Reading and discussion of representative prose, dramatic and poetic works. Lectures and supplemental readings on literary criticism and on various aspects of the period useful to an understanding of the literature it produced.

**SPN 54600 THE SPANISH NOVEL FROM REGIONALISM THROUGH THE GENERATION OF '98**
*(Class 3, Cr. 3)*
Prerequisite: SPN 40600
The study of the 19th-century novel from the Costumbristas to Galdos. The social and aesthetic preoccupations of the Generation of '98. Lectures and readings from representative authors.

**SPN 54700 CONTEMPORARY SPANISH NOVEL**
*(Class 3, Cr. 3)*
Prerequisite: SPN 40600
The contemporary novel as an insight into 20th century Spanish life and thought. Analysis of selected authors.

**SPN 55200 SPANISH AMERICAN LITERATURE FROM 1900-1970**
*(Class 3, Cr. 3)*
Prerequisite: SPN 43600
A survey of a number of representative works, as well as excerpts from several others.

**SPN 55300 SPANISH AMERICAN LITERATURE FROM 1970-PRESENT**
*(Class 3, Cr. 3)*
Prerequisite: SPN 43600
A survey of Spanish American literature from 1970 to the present. Readings and discussion of a number of representative works as well as excerpts from several others.

**SPN 55500 CHICANO AND PUERTO RICAN WRITERS**
*(Class 3, Cr. 3)*
Any 4000-level course in Hispanic literature must precede this class. A survey of the literature of Chicano and Puerto Rican writers written in Spanish and produced in the United States in light of their traditions and of contemporary interdisciplinary theories.

**SPN 56000 INTRODUCTION TO THE LINGUISTIC STUDY OF SPANISH**
*(Class 3, Cr. 3)*
Prerequisite: SPN 36500 and SPN 26100
Principles of phonetics, phonemics, and syntax as applied to Spanish. Brief introduction to general and historical linguistics.

**SPN 59000 DIRECTED READING IN SPANISH**
*(Class 1 to 4, Cr. 1 to 4)*
May be repeated for credit.

### Serbo-Croatian

**SRCT 10100 SERBO-CROATIAN LEVEL I**
*(Class 3, Lab. 1, Cr. 3)*
This course stands as an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

**SRCT 10200 SERBO-CROATIAN LEVEL II**
*(Class 3, Lab. 1, Cr. 3)*
Prerequisite: SRCT 10100
This course stands as an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

### Statistics

**STAT 13000 STATISTICS AND CONTEMPORARY LIFE**
*(Class 3, Cr. 3)* General Education
Introduction to statistical ideas and their impact on various aspects of modern life. Topics will include the organization, manipulation, and understanding of numerical data, the art of data presentation, interpretation of statistical information as presented in the media, the concept of randomness in gambling and lotteries, and some discussion of statistical fallacies.

**STAT 30100 ELEMENTARY STATISTICAL METHODS I**
*(Class 3, Cr. 3)*
Prerequisite: MA 14700 or MA 15300
A basic introductory statistics course with applications shown to various fields and emphasis placed on assumptions, applicability, and interpretations, or various statistical techniques. Subject matter includes frequency distributions, descriptive statistics, elementary probability, normal distribution applications, sampling distribution, estimation, hypothesis testing, and linear regression.

**STAT 31500 INTRODUCTION TO PROBABILITY AND STATISTICS**
*(Class 3, Cr. 3)*

**STAT 33000 BIOSTATISTICS**
*(Class 3, Cr. 3)*
Prerequisite: MA 15300 and BIOL 10100 and BIOL 10200 or BIOL 10800 and BIOL 10900
Not open to students with credit in BIOL 33000. This course will explore fundamental concepts of statistical methods and their application in biological research. The following topics will be included: experimental and sampling designs; descriptive statistics; basic probability and probability distribution; tests of hypothesis; one-way analysis of variance; linear regression. Emphasis will be placed on the collection, organization, analysis and interpretation of data from biological experiments and observations.

**STAT 34500 STATISTICS**
*(Class 3, Cr. 3)*
Prerequisite: MA 16400
Topics from exploratory data analysis and inferential statistics will be covered, along with a necessary introduction to probability. Statistical and probabilistic simulations will be used to enhance students' understanding of randomness and variation. Extensive use of a statistical computer package will be required.

**STAT 40001 STATISTICAL COMPUTING**
*(Class 3, Cr. 3)*
Note: Designated sections: STAT 40001 will fulfill the Experiential Learning requirement.
Prerequisite: STAT 30100 or STAT 34500
The purpose of this course is to teach fundamental computing skills required by practicing statisticians. Students will use statistical software for analysis and model building of real world data. Topics include descriptive statistics, inferential statistics, model building, designing and performing simulation experiments, writing codes to perform common statistical tasks.

**STAT 49000 TOPICS IN STATISTICS FOR UNDERGRADUATES**
*(Class 0 to 5, Cr. 1 to 5)*
Supervised reading and reports in various fields. Open only to students with the consent of the department.

**STAT 50100 EXPERIMENTAL STATISTICS I**
*(Class 3, Cr. 3)*
Prerequisite: MA 15300 or MA 15900
Primarily intended for students who have not had calculus. Not open to students in mathematics, statistics or computer science. Credit should not be allowed in more than one STAT 30100,50100,or STAT 51100 Fundamental concepts and methods of statistics for students interested in the analysis of experimental data. Subjects include descriptive statistics, basic probability theory, normal distribution, tests of hypotheses and confidence intervals for normal and Bernoulli populations, contingency tables, tests of goodness-of-fit, linear regression, and nonparametric test.

**STAT 50200 EXPERIMENTAL STATISTICS II**
*(Class 3, Cr. 3)*
Prerequisite: STAT 50100
Continuation of STAT 50100. Subject matter includes multiple regression and analysis of variance, with emphasis on statistical inference and applications to various fields.

**STAT 51100 STATISTICAL METHODS**
*(Class 3, Cr. 3)*
Prerequisite: MA 26100
Descriptive statistics; elementary probability; sampling distributions; inference,
testing hypotheses, and estimation; normal, binomial, Poisson, hyper geometric
distributions; one-way analysis of variance; contingency tables; regression.

STAT 51200 APPLIED REGRESSION ANALYSIS
(Class 3, Cr. 3)
Prerequisite: STAT 51100 or STAT 51700
Inference in simple and multiple linear regression, residual analysis, transformations,
polynomial regression, model building with real data, nonlinear regression. One-way
and two-way analysis of variance, multiple comparisons, fixed and random factors,
analysis of covariance. Use of existing statistical computer programs.

STAT 51300 STATISTICAL QUALITY CONTROL
(Class 3, Cr. 3)
Prerequisite: STAT 51600 or STAT 51100
A strong background in control charts including adaptations, acceptance
plans, sequential analysis, statistics of combinations, moments and probability
distributions, applications.

STAT 52200 ELEMENTS OF STOCHASTIC PROCESSES
(Class 3, Cr. 3)
Prerequisite: STAT 51900
A basic course in stochastic models, including discrete and continuous time
Markov Chains and Brownian motion, as well as an introduction to topics such as
Gaussian processes, renewal processes, replacement, and reliability problems.

Swahili

SWAH 10100 SWAHILI LEVEL I
(Class 3, Lab. 1, Cr. 3)
Introduction to Swahili.

SWAH 10200 SWAHILI LEVEL II
(Class 3, Lab. 1, Cr. 3)
Continuation of SWAH 10100

Technology

TECH 51000 INTERNSHIP IN TECHNOLOGY
(Class 0 to 3, Cr. 0 to 3)
Prerequisite: Graduate student standing, upper class.
Practical work experience in technology-related positions in business, government
and industrial organizations, designed to combine graduate study with work
experience directly related to student’s plan of study.

TECH 56500 HIGH PERFORMANCE COMPUTING
(Class 3, Cr. 3)
Prerequisite: Graduate student standing, upper class.
An introduction to High Performance Computing (HPC), with an emphasis on the
programming and analysis aspects of HPC for the practicing scientist, engineer
or technologist. This course will prepare students to analyze, design, implement
parallel algorithms and computer codes. This course will cover the motivation for
parallel programming, a description and analysis of Amdahl’s law, and parallel-
programming methodology. Shared-memory and distributed-memory concepts
will be compared, and current programming application programming interfaces
(APIs) will be covered.

TECH 56700 SIMULATION TECHNIQUES
(Class 3, Cr. 3)
An exploration of deterministic and stochastic simulation. Topics will include
determining range of validity, boundary issues, managing complexity, optimization
and parallelization of code, computational time management, adaptable meshes,
fuzzy logic, and fidelity of simulation. Random number generation will also be
covered for stochastic simulations. Examples and projects from a broad range of
fields will be used.

TECH 57500 SOFTWARE PROJECT MANAGEMENT
(Class 3, Cr. 3)
The factors influencing decision during the initiation, implementation, and
termination of software projects are examined. Students work in project
teams, using project management tools to develop implementation strategies,
characterize contemporary technology projects, understand system perspective
of projects, align projects with strategic objectives and learn advanced tools and
techniques used in projects. Examples and case studies from a wide range of fields
are utilized. Must have had an undergraduate course in project management.

TECH 57600 DESIGN AND ANALYSIS OF SIMULATION EXPERIMENTS
(Class 3, Cr. 3)
A review of currently accepted practices in design of simulation experiments,
with validation and outcome analysis, and new techniques for model evaluation.
Topics covered may include methods for uncertainty, quantification in
deterministic models, design of experiments to match field experiments, data
collection and sampling methods, data reduction methods, and imaging and
statistical visualization.

TECH 57700 VISUALIZATION TECHNIQUES
(Class 3, Cr. 3)
In this course graduate students in technology fields and related disciplines will
learn how to convey salient information about underlying data and processes for
work involving data visualization. Topics covered include various visualization
techniques, issues in visual analytics, perception and cognition, and application of
visualization techniques to problems in technical fields and related disciplines.

TECH 57900 SUSTAINABILITY ENGINEERING
(Class 3, Cr. 3)
The course will introduce the student to Sustainability Engineering and
technologies that are used in the managing of organizational operations. Graduate
student status or Senior student status with instructor approval. Leveling courses
may be required based on student undergraduate degree.

TECH 58100 WORKSHOPS IN TECHNOLOGY
(Class 0 to 8, Cr. 0 to 8)
Course topics will vary.

TECH 59800 DIRECTED MS PROJECT
(Class 1 to 3, Cr. 1 to 3)
A formal investigation of a particular problem under the guidance of the advisory
committee. Enrollment during at least two consecutive terms for a total of 3
credits is required.

TECH 64600 ANALYSIS OF RESEARCH IN INDUSTRY AND TECHNOLOGY
(Class 3, Cr. 3)
Analysis of research and evaluation of research reports. Emphasis on understanding the
application of fundamental statistical methods in design and interpretation of research
findings in industrial, technical and human resource development environments.

TECH 69500 GRADUATE PROFESSIONAL PRACTICE
Advanced professional experience in Technology. The experience is coordinated by
the major professor with cooperation of a participating employer. Students submit
a summary report and complete 120 hours per credit hour. Admissions by consent
of instructor. Special fees may apply.

Theater

THTR 13600 REHEARSAL AND PERFORMANCE I
(Lab 2, Cr. 3)
Requires consent of instructor. May not be taken concurrently with THTR 16800,
33600, or 36800. Repeatable once for credit. Study and practice of rehearsal
techniques of stage performance. Students will be assigned to acting or other
rehearsal activities during semester’s major production.

THTR 13800 ACTING I
(Class 3, Lab. 1, Cr. 3) TransferN
Student experientially learns basic acting skills through a structured series of
exercises. Emphasis is on developing and controlling concentration, creation of
basic realities, improvisation. May be repeated for credit with consent of instructor.

THTR 16800 THEATRE PRODUCTION I
(Lab 2, Cr. 3)
This course requires consent of instructor. May not be taken concurrently with
THTR 13600, 33600, or 36800. Repeatable once for credit. Study and application of
aspects of theatre production. Practice in various production skills. Students will be
assigned to positions in semester’s major production.

THTR 20100 THEATRE APPRECIATION
(Class 2, Lab. 2, Cr. 3) General Education, TransferN
Understanding and appreciation of the theatre’s role in the modern world,
including a survey of dramatic structure and analysis, and the functions of the actor, director, designer, and critic related to current stage production. Laboratory work includes attendance and discussion of the dramatic presentations on campus.

**WOST 23800 ACTING II**
*(Class 3, Lab. 1, Cr. 3)*
Introduction to the Stanislavski Method through scene work. The student will present four to eight scenes of increasing complexity, beginning with modern, realistic drama. Textual analysis, advanced game work, and improvisation. May be repeated for credit with instructor consent.

**THTR 29000 SPECIAL TOPICS IN THEATRE**
*(Class 1 to 3, Cr. 1 to 3)*
Topics will vary.

**THTR 33600 REHEARSAL AND PERFORMANCE II**
*(Lab 0 to 2, Lab. 0 to 4, Cr. 1)*
This course requires instructor consent. May not be taken concurrently with THTR 13600, 16800, or 36800. Repeatable once for credit. Advanced study and practice of rehearsal techniques of stage performance. Students will be assigned to acting or other rehearsal activities during semester’s major production.

**THTR 36800 THEATRE PRODUCTION II**
*(Lab 2, Cr. 1)*
This course requires instructor consent. May not be taken concurrently with THTR 13600, 16800, or 33600. Repeatable once for credit. Advanced study and application of aspects of theatre production. Practice in various productions skills. Students will be assigned headships in various divisions of duties during the semester’s major production.

**THTR 49000 SPECIAL TOPICS IN THEATRE**
*(Class 1 to 3, Cr. 1 to 3)*
Topics will vary.

**THTR 59000 DIRECTED STUDY OF SPECIAL THEATRE PROBLEMS**
*(Cr. 1 to 3)*
This course requires instructor consent. May not be taken concurrently with THTR 13600, 16800, or 36800. Repeatable once for credit. An individualized and intensive study of any aspect of theatre required by the student’s plan of study.

**Urdu**

**URDU 10100 URDU LEVEL I**
*(Class 3, Lab. 1, Cr. 3)*
The course stands as an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

**URDU 10200 URDU LEVEL II**
*(Class 3, Lab. 1, Cr. 3)*
Prerequisite: URDU 10100
This course stands as an elective for students in other University departments. The course is a contribution to intellectual growth and development as well as a service to the community.

**Women’s Studies**

**WOST 12100 INTRODUCTION TO WOMEN’S STUDIES**
*(Class 3, Cr. 3)*
Not open to students with credit in GS 12100. An introduction to a women’s studies perspective in various academic disciplines. Emphasis on the socialization process of women, the history and literature of women, the politics and theory of the women’s rights movement, and the changing role of women in society.

**WOST 20800 NUTRITION IN WOMEN’S HEALTH**
*(Class 3, Cr. 3)* General Education
Course does not meet nutrition competency requirements for Nursing, Early Childhood Education or Hospitality and Tourism Management majors. Not open to students with credit in F&N 20800. Exploration of women’s health issues with emphasis on nutrition. Review of current research in normal and preventative nutrition throughout the lifecycle. Focus on women as individuals and on those who counsel and educate women.

**WOST 23600 MOTHERS AND DAUGHTERS IN LITERATURE**
*(Class 3, Cr. 3)*
Prerequisite: ENGL 10400
Not open to students with credit in ENGL 23600. Course acquaints students with a new body of literature by women. Students explore mother-daughter relationships as presented in this literature to enhance their understanding of feminist approaches to life.

**WOST 32000 BY AND ABOUT WOMEN**
*(Class 3, Cr. 3)*
Prerequisite: ENGL 10400
Not open to students with credit in ENGL 32000. This literature course will emphasize significant texts by major women writers such as Atwood, the Brontes, Cather, Chopin, Dickinson, Eliot, Gaskell, Hurston, Jewett, Lessing, Mansfield, Morrison, Gates, Rich, and Woolf. Although the class will study mainly 19th and 20th century English and American writers, the readings will not be restricted to these. In addition, the readings will also include a variety of literary genres—novel, short fiction, poetry, and drama.

**WOST 32400 INTERNATIONAL WOMEN’S LITERATURE**
*(Class 3, Cr. 3)*
Not open to students with credit in ENGL 32400. Course presents an international perspective on women’s social, political, economic and imaginative lives. It focuses on the literary efforts of women to question, challenge, and examine the conditions affecting their lives. The major emphasis will be on global literatures from Africa, the Americas, Asia, and the Middle East. This course is cross-listed as ENGL 32400.

**WOST 34000 LITERATURE BY WOMEN OF COLOR**
*(Class 3, Cr. 3)*
Prerequisite: ENGL 10400
This course focuses on literature written in English by women of color living in the United States. Writers included are African-American, Native-American, Asian-American, and Latin/Hisp anic descent. The course introduces students to the emerging body of writing by women of color, heightening awareness and appreciation of these women’s literary contributions. ENGL/WOST 34000 examines some of the cultural differences among these groups, as reflected in the literature. This course also explores obstacles, particularly those related to race, gender, and class, that women of color share. Finally, the course enhances understanding of the experiences shared by women from all cultures. This course is cross-listed as ENGL 34000. Not open to students with credit in ENGL 3400.

**WOST 35000 SOCIAL PSYCHOLOGY OF MARRIAGE**
*(Class 3, Cr. 3)*
Prerequisite: SOC 10000 or SOC 31200
Not open to students who have had CDFS 35000 or SOC 35000. Designed to provide an understanding of contemporary courtship, marriage, and family interaction as cultural, social, and social-psychological phenomena. Consideration of the major sources of marital strain and conflict within a heterogeneous, rapidly changing society.

**WOST 45000 SEX ROLES IN MODERN SOCIETY**
*(Class 3, Cr. 3)*
Prerequisite: SOC 35000
Not open to students with credit in SOC 45000. A critical examination of the complementary roles of men and women with particular attention to problems of role adjustment in the contemporary United States. The neo-feminist movement and countermovement’s. Role conflicts and adjustments in such areas as family, education, employment, and the political arena.

**WOST 47000 WOMEN IN THE MEDIA**
*(Class 3, Cr. 3)*
Prerequisite: COM 11400 or COM 20100 or WOST 12100
Not open to students with credit in COM 47000. Focusing on the contributions made by women in newspaper, television, film, and performance, this course will explore how women are shaping societal and cultural values.

**WOST 49000 TOPICS IN WOMEN’S STUDIES**
*(Class 0 to 6, Lab. 0 to 6, Cr. 1 to 6)*
Variable credit, variable title. May be repeated for credit if topics vary.
Directions to Purdue University Calumet

Location and Mailing Address
Purdue University Calumet
2200 169th Street
Hammond, IN 46323-2094

From Northeast/Northwest/West
■ (From Northeast/Northwest) Take I-94 or Tollway 294 South to I-80/94
■ (From Northeast) Take I-80/94 West to Indianapolis Boulevard
■ (From Northwest/West) Take I-80/94 East to Indianapolis Boulevard
■ Take Indianapolis Boulevard North one-third mile to 173rd Street
■ Turn East/Right onto 173rd Street and proceed 3+ blocks to campus

From North (I-90)
■ Take I-90 (Chicago Skyway) South to Indianapolis Boulevard
■ Continue South on Indianapolis Boulevard some 8 miles to 169th Street
■ Turn East/Left onto 169th Street and proceed 3+ blocks to campus

From East
■ Take I-80/94 West to Indianapolis Boulevard
■ Take Indianapolis Boulevard North one-third mile to 173rd Street
■ Turn East/Right onto 173rd Street East and proceed 3+ blocks to campus

From Southwest/South/Southeast
■ (From Southwest) take US Route 30 east to Highway 41/Indianapolis Boulevard
■ (From Southeast) take I-65 North to I-80/94 and follow directions From East, or take US Route 30 west to Highway 41/Indianapolis Boulevard
■ (From South, Southwest & Southeast) Take Highway 41/Indianapolis Boulevard North 7 miles to 173rd Street
■ Turn East/Right onto 173rd Street and proceed 3+ blocks to campus
# Calendar 2013-2014

## Fall 2013
- **Mon. Aug. 19**: Fall classes begin
- **Mon. Sept. 2**: Labor Day (no classes)
- **Mon. Oct. 7 & Tues. Oct. 8**: October Break (no classes)
- **Wed. Nov. 27**: Fall Recess (no classes)
- **Mon. Dec. 2**: Classes resume
- **Sat. Dec. 7**: Classes end
- **Mon. Dec. 9**: Final exams begin
- **Sat. Dec. 14**: Final exams end
- **Tues. Dec. 17**: Commencement (2 PM at Hammond Civic Center)

## Spring 2014
- **Mon. Jan. 13**: Spring classes begin
- **Mon. Jan. 20**: Martin Luther King Day (no classes)
- **Mon. Mar. 10**: Spring recess begins
- **Mon. Mar. 17**: Classes resume
- **Sat. May 3**: Classes end
- **Mon. May 5**: Final exams begin
- **Sat. May 10**: Final exams end
- **TBD**: Commencement

## Summer 2014
- **Mon. May 19**: Summer session I begins
- **Mon. May 26**: Memorial Day (no classes)
- **Mon. June 16**: Summer session II begins
- **Fri. July 4**: Independence Day (no classes)
- **Mon. July 14**: Summer session III begins
- **Fri. Aug. 8**: Summer sessions end