Dear Student,

Congratulations on your decision to pursue a world respected Purdue University education at Purdue University Calumet!

We hope to provide you with opportunities, challenges, and positive outcomes. Purdue Calumet offers more than 80 baccalaureate and master’s degree programs on our Hammond campus. Our dedicated faculty and staff are an important resource for you in exploring new opportunities you will encounter as you learn, grown, and prepare yourself for professional success. With our many services, you can find support, help, and the richness of a comfortable campus environment.

Your Purdue Calumet education is designed to integrate theory and practice by providing experiential learning opportunities where you can apply what you learn in the classroom to real-world situations. It is our hope that your Purdue Calumet education will launch your career and be the foundation of your future success.

Please use this on-line catalog as a guide on your path to goal accomplishment and know that we are here to help and guide you. Our mission at Purdue Calumet is to provide you with affordable quality education and a campus experience that contributes to your professional and personal development. 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 was added to The University Village community providing space for a total of 745 residents and live-in residential staff members. The University Village community provides fully furnished apartment suite-style accommodation.

Each apartment suite features four private bedrooms, two bathrooms, a common living room and fully 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 (Apartment suite common areas and bedrooms)
- Computer labs
- Music Practice Rooms (Phase II)
- Satellite television
- Patio (Phase II)
- Close proximity to the Fitness and Recreation Center
- Quiet study areas, group meeting spaces, and conference rooms
- Gated parking lot

219/989-4150 OR 800/HI-PURDUE, ext. 4150

www.purduecal.edu/housing
Nondiscrimination Policy Statement

Purdue University is committed to maintaining a community that 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, marital status, parental status, sexual orientation, 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 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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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. Its more than 100 academic programs lead to associate, baccalaureate and 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 9,500 students and offering more than 100 associate, bachelor’s, and master’s degree programs. 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 small university computing 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 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 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 Statement 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 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, scheduling, and sites;
- emphasizing lifelong learning; and
- requiring experiential learning that integrates traditional classroom and textbook learning with authentic work experiences.

Purdue Calumet supports the educational process with a wide range of academic support services, including: advising, tutoring, supplemental instruction, recreation and athletics, counseling and clinical health care, and residential life. Purdue 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 Calumet supports the development of Northwest Indiana through participation in the Purdue Northwest Indiana Technology Center, the Hammond Innovation Center, the Entrepreneurship Center and sponsorship of the NWI Small Business Development Center. The university 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 and 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:

The Calumet campus of Purdue University is dedicated to the land grant tradition of which it is a part and is especially concerned with serving the people of Northwest Indiana.

At the present time, its primary mission is threefold:

- to provide its students with a liberal education which will prepare them for life or for the professions; to provide career-oriented curricula which lead to certificates, associate degrees, baccalaureate degrees and master’s degrees, and to provide programs that meet the professional, cultural and general education needs of this large urban-industrialized community.

The Purdue University Calumet campus owes its existence to the practical and useful contributions it has made to the daily life and needs of the people living in this large industrialized-urban complex.

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 is responsible for the academic programs, enrollment-related services, and the Center for Student Achievement.
- 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 Student Affairs oversees the many services and functions the university offers to advance student success and nurture student life and community on campus.
- 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 Schools

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

The School 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 School 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
- Department of Hospitality and Tourism Management
The **School 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 **School of Education** consists of the following departments:
- Department of Teacher Preparation
- Department of Graduate Studies in Education

The **School of Management** consists of the following departments:
- Department of Marketing, Human Resources & Management
- Department of Finance and Economics
- Department of Accounting
- Department of Information Systems

The **School 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.iacbe.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

**Academic Learning Center (MERRILLVILLE)**

In addition to our Hammond campus, classes are offered in south Lake County at the Academic Learning Center — at the Merrillville-Crown Point border off Broadway Avenue about 2-1/2 miles south of US Highway 30.

At the Academic Learning Center:

- Convenient class times are scheduled for the busy, working adult.
- A large selection of freshman/sophomore level classes scheduled throughout the day and evening.
- Fall term classes begin in late August; Spring term classes start in mid-January; and Summer session classes start in mid-June at the Academic Learning Center.
- Plenty of convenient parking is available.
- The start of an internationally respected Purdue education is available.

For additional information about south Lake County classes, access the Purdue Calumet Web site at www.purduecal.edu and click on Academic Learning Center or call (219) 756-7252.

**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...**

- 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) 989-3213
Toll-free: 1-800-HI-PURDUE,* ext. 2213

* Toll-free in northwest Indiana and Chicagoland area:
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 WES (World Education Service) or ECE (Educational Credential Evaluators) course by course evaluations.)
3. Standardized Test Scores (Sat or ACT), including writing component (for recent high school graduates)
   - Applicants whose high school graduation date was at least one year prior to their intended semester of enrollment, appropriate placement test results from Testing Services Center will substitute for SAT or ACT scores.

Please visit the undergraduate admission website for updates at http://webs.purduecal.edu/admissions/students/.
Application deadlines are established for each academic semester. See www.purduecal.edu/admissions for dates.

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, trends in achievement, 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 Admissions will evaluate applications and make one of the following determinations:

1. Regular admission. The applicant has met all conditions for admission to the school, 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 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.

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 Schools of Management, Technology, Liberal Arts and Sciences, Engineering, Math and Science) or the Center for Student Achievement.

* 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 that credits 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 $25 application fee is required.)
- Completed Transfer Credit Documentation Sheet
- Official high school transcript and/or, GED scores*
- Official college transcripts from each institution of higher education attended. All previous college coursework must be disclosed and submitted to the Office of 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 WES (World Education Service) or ECE (Educational Credential Evaluators) course by course evaluations of their courses.

* 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 semesters 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 Students Admission.

Transfer credit is established through these procedures:
1. Applicants who have attended another college or university must complete a Transfer Credit Documentation Sheet. Students who have non-Purdue course-work must submit an official transcript(s) and pay a non-refundable $30.00 Transcript Credit Evaluation Fee.
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 TransferIndiana 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 filing 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 admissions or an undergraduate application for admissions.

*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 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-seeking and may be admitted in the following circumstances: Note: Most non-degree seeking students are not eligible for consideration for financial aid, although students seeking a Certificate Program may be eligible 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 a 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.
Advanced Credit and Advanced Placement

Advanced credit means that the university grants credit based on 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/School Credit by Exam.** An individual school/department may establish an examination procedure to establish advanced credit. Students should consult with the school/department head or academic advisor for details.

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

3. **Departmental/School Credit in Mathematics, Computer Science, and Statistics.** Students may submit an application to the school/department for credit in basic mathematics courses numbered 135 or above. Students should consult with the school/department head or academic advisor for details.

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 Admissions. (General examinations credit is not accepted.)

### 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 200</td>
<td>45+</td>
<td>3 credit</td>
</tr>
<tr>
<td>Principles of Management</td>
<td>MGMT 101</td>
<td>45+</td>
<td>3 credit</td>
</tr>
<tr>
<td>Biology</td>
<td>BIOL 101 &amp; BIOL 102</td>
<td>48+</td>
<td>8 credit</td>
</tr>
<tr>
<td>Chemistry</td>
<td>CHM 111</td>
<td>50+</td>
<td>3 credit</td>
</tr>
<tr>
<td></td>
<td>CHM 111 &amp; CHM 112</td>
<td>65+</td>
<td>6 credit</td>
</tr>
<tr>
<td></td>
<td>CHM 115</td>
<td>55+</td>
<td>4 credit</td>
</tr>
<tr>
<td></td>
<td>CHM 115 &amp; CHM 116</td>
<td>70+</td>
<td>8 credit</td>
</tr>
<tr>
<td>Calculus</td>
<td>MA 163 &amp; MA 164</td>
<td>55+</td>
<td>10 credit</td>
</tr>
<tr>
<td>Pre-Calculus</td>
<td>MA 159</td>
<td>57+</td>
<td>5 credit</td>
</tr>
<tr>
<td>College Composition with Essay</td>
<td>ENGL 104</td>
<td>49+</td>
<td>3 credit</td>
</tr>
<tr>
<td>Human Growth &amp; Development</td>
<td>CDFS UND</td>
<td>45+</td>
<td>3 credit</td>
</tr>
<tr>
<td>Introductory Psychology</td>
<td>PSY 120</td>
<td>45+</td>
<td>3 credit</td>
</tr>
</tbody>
</table>

### Advanced Placement and Advanced Credit

<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 1XXX</td>
<td>3</td>
</tr>
<tr>
<td>Calculus AB*</td>
<td>3</td>
<td>MA 1XXX</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 1XXX</td>
<td>3</td>
</tr>
<tr>
<td>Calculus BC – AB subscore*</td>
<td>3,4,5</td>
<td>MA 1XXX</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 1XXX</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 1XXX</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 1XXX</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Science*</td>
<td>3,4,5</td>
<td>SCI 1XXX</td>
<td>3</td>
</tr>
<tr>
<td>European History*</td>
<td>3</td>
<td>HIST 1XXX</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>
</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>Human Geography*</td>
<td>3,4,5</td>
<td>EAS 1XXX</td>
<td>3</td>
</tr>
<tr>
<td>Italian Language and Culture*</td>
<td>3</td>
<td>ITAL 1XXX, 1XXX</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>ITAL 1XXX, 1XXX, 1XXX</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>ITAL 1XXX, 1XXX, 1XXX, XXX</td>
<td>12</td>
</tr>
</tbody>
</table>
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://banweb.purduecal.edu/pls/proddad/bwskalog_P_DisplLoginNon

- **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

- **Apply by e-mail** using the application found at: http://webs.purduecal.edu/intl/files/Undergraduate-International-Student-Application-Form.pdf

  Email to iadmissions@purduecal.edu

Note: A non-refundable undergraduate application fee will be assessed in 2012. Please see www.purduecal.edu/admissions for an update on the fee start date.

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.) or 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 104.

- Transferable credit from an accredited U.S. institution of higher education equivalent to Purdue University Calumet’s ENGL 104, English Composition course.

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

Note: If you did not take or have low English test scores, for entry into a degree-seeking program, you may still be eligible for admission to the Purdue Calumet English Language Program. Visit this website for more information and application materials: http://webs.purduecal.edu/fis/applying/elp-admissions

E. Transfer Credit and Documentation Sheet:

If you have attended any other college or university, submit a $30.00 (US) 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

For information on admission requirements for International Graduate Students and the English Language Program, please visit: http://webs.purduecal.edu/fis/ Additional information and resources related to international studies please contact The International Programs Office (www.purduecal.edu/intl).

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 2012-2013

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 2012-2013 academic year.

Tuition 2012-2013

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Fee Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Undergraduate fee per credit hour</td>
<td>$209.05</td>
</tr>
<tr>
<td>Nonresident Undergraduate fee per credit hour</td>
<td>$501.10</td>
</tr>
<tr>
<td>Resident Graduate fee per credit hour</td>
<td>$265.35</td>
</tr>
<tr>
<td>Nonresident Graduate fee per credit hour</td>
<td>$584.50</td>
</tr>
<tr>
<td>Laboratory fee per lab hour</td>
<td>$62.10</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>$8.45</td>
</tr>
</tbody>
</table>

Regular Fees

- **Application Fee for Undergraduate Programs**: $25.00
  (The non-refundable fee is required for applications submitted after August 4, 2012.)
- **Application Fee for Graduate School**: $60.00
- **Undergraduate Student Service Fee**: $5.70 per credit hour
- **Undergraduate Parking Fee**: $5.30 per credit hour
- **Graduate Parking Fee**: $5.30 per credit hour

Late Registration Fees:

For students who register after classes begin, an additional nonrefundable fee of $8.50 per credit hour will be assessed.

Transcript Evaluation Fee:

Fee charged for evaluation of transfer credit. The fee is non-refundable and will not be credited to tuition and fees associated with course enrollment.

Readmission Fee:

Those students dropped by the university for academic reasons are assessed a fee before application for readmission will be processed.

Breakage Fees:

Usually included in course fees for the cost of normal breakage and wear and tear on equipment. An additional charge will be levied against individuals for excessive waste, loss or breakage, to be paid before course credit will be given.

Replacement of Student Service Fee Card:

Free

Encumbrance Fee:

If a student fails to fulfill any financial obligation to any university department, the student’s records will be encumbered and the fee assessed to the student. Students will be notified in writing of the outstanding obligation and will be given a specified time to settle the account prior to assessing the fee.

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
  2200 169th Street
  Hammond, IN 46323-2094

  - **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 select 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:

<table>
<thead>
<tr>
<th>% Refund</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>Prior to the semester starting</td>
</tr>
<tr>
<td>80%</td>
<td>During the first week of classes</td>
</tr>
<tr>
<td>60%</td>
<td>During the second week of classes</td>
</tr>
<tr>
<td>40%</td>
<td>During the third week of classes</td>
</tr>
<tr>
<td>20%</td>
<td>During the fourth week of classes</td>
</tr>
<tr>
<td>0%</td>
<td>After the fourth week of classes</td>
</tr>
</tbody>
</table>

Our policy during the summer semester is as follows:

<table>
<thead>
<tr>
<th>% Refund</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>Prior to session starting</td>
</tr>
<tr>
<td>80%</td>
<td>During the first week of classes</td>
</tr>
<tr>
<td>40%</td>
<td>During the second week of classes</td>
</tr>
<tr>
<td>0%</td>
<td>After the second week of classes</td>
</tr>
</tbody>
</table>

Students must complete the withdrawal procedure by submitting a signed add/drop card to the Office of the Registrar (Enrollment Services Center — Lawshe Hall 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 26, 2012 for the fall 2012 semester, or March 29, 2013 for the spring 2013 semester, or withdraw prior to the completion of over 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 STAR at www.purduecal.edu
   PC STAR 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, 2012 for 2012–2013). 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 (i.e. Feb. 15, 2012 for 2012–2013; February 15, 2013 for 2013–2014). Applications RECEIVED BY Feb. 15th by the Federal Processor will receive priority consideration for all funds — federal, state and institutional. Applications RECEIVED AFTER March 10 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 (-) EXPECTED FAMILY CONTRIBUTION (EFC)</th>
<th>EQUALS (=) FINANCIAL NEED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></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 Supplemental (NGS) Grant, Minority Teacher and Special Education Services 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 for both in-state and out-of-state students attending full and part-time during the academic year.

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

Undergraduate Financial Aid Budget — 2012-2013 Academic Year

<table>
<thead>
<tr>
<th>EXPENSES</th>
<th>INDIANA RESIDENT</th>
<th>OUT-OF-STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-time</td>
<td>Part-time</td>
</tr>
<tr>
<td></td>
<td>(14 cr. hrs. per sem.)</td>
<td>(7 cr. hrs. per sem.)</td>
</tr>
<tr>
<td>DEPENDENT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition/Fees</td>
<td>6,991</td>
<td>3,496</td>
</tr>
<tr>
<td>Books/Supplies</td>
<td>1,544</td>
<td>772</td>
</tr>
<tr>
<td>Maintenance*</td>
<td>8,919</td>
<td>7,267</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17,454</td>
<td>11,535</td>
</tr>
<tr>
<td>INDEPENDENT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition/Fees</td>
<td>6,991</td>
<td>3,496</td>
</tr>
<tr>
<td>Books/Supplies</td>
<td>1,544</td>
<td>772</td>
</tr>
<tr>
<td>Maintenance*</td>
<td>13,582</td>
<td>11,930</td>
</tr>
<tr>
<td>TOTAL</td>
<td>22,117</td>
<td>16,198</td>
</tr>
</tbody>
</table>

LIVING ON CAMPUS

- Tuition/Fees: $6,991 in-state, $3,496 out-of-state
- Books/Supplies: $1,544 in-state, $772 out-of-state
- Maintenance: $12,744 in-state, $11,322 out-of-state
- TOTAL: $21,279 in-state, $15,590 out-of-state

The undergraduate financial aid budget chart shown here estimates the costs for both in-state and out-of-state students attending full and part-time.

*Maintenance is an estimate of transportation, personal and living expenses, and average estimated loan fees. Personal tastes and living standard will affect the actual costs.

What might a Financial Aid Package look like to a First-Year Student?

- Cost of Education: $17,454
- Expected Family Contribution (EFC): -$1,000
- Financial Need: $16,454

SAMPLE AWARD PACKAGE

- Pell Grant: $4,600
- Higher Education Award: $2,522
- Federal Stafford Loan (Subsidized): $3,500
- Federal Stafford Loan (Unsubsidized): $2,000

Sample Award Package Total: $16,422
Unmet Need: $10,100

Important Dates

January

FAFSA forms available. Parents and students should file their 2012 Tax forms this month. Complete the FAFSA online at www.fafsa.gov. This Web site may be accessed also to obtain a PIN.

February

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 over thirty Indiana locations. Special programs are offered at the Purdue University Calumet main campus in Hammond and at our Academic Learning Center in Merrillville.

March

Students whose FAFSA has been received by the Federal Processor by February 15th 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.

April/May

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 2012-2013 FAFSA, if provided. Accept your award online via PC STAR within 14 days of receipt of your award notification e-mail. Awarding occurs on a weekly basis as files become complete.
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 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.
- If your Authorized Aid is greater than your bill, your classes will be held, and you will need to contact the Office of the Registrar should you choose not to attend. Note: Changes in enrollment may result in a revised Financial Aid award. You must notify the Office of Financial Aid and Student Accounts should you change your enrollment, stop attending, or drop below a half-time status.
- Access PC STAR (Purdue Calumet Student Access to Records) at www.purduecal.edu to view your financial aid and account status.

Purdue University Calumet Scholarship Awards
The Purdue University Calumet Scholarship Awards program offers numerous scholarships ranging from $100 to $19,000 per academic year. Awards are based on academic merit and/or financial need. All students meeting scholarship criteria are automatically considered for Purdue University Calumet scholarships based on academic merit. A FAFSA must be submitted in order to be considered for need-based 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 Attempted Credit Hours
2. Timeframe – Maximum Total Attempted Credit Hours (150%)
   a. Undergraduate: 192 overall attempted credit hour 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-, D+, D+</td>
<td>RE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>I, SI, PI, U, N, 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>No</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, DD, D1, D4, D6, D8</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>W</td>
<td>WA, WR, DD, D2</td>
<td></td>
<td>Yes</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 study 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: Graduates students may receive financial aid based on length of program.

<table>
<thead>
<tr>
<th>Degree Program</th>
<th>Maximum Credit Hours (Timeframe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate's (71 hour program)</td>
<td>107</td>
</tr>
<tr>
<td>Bachelor's (128 hour program)</td>
<td>192</td>
</tr>
<tr>
<td>Master's</td>
<td>Graduate programs are calculated by program. (Hours required to complete the program)</td>
</tr>
</tbody>
</table>

Qualitative Measurement
3. GPA
Minimum overall cumulative GPA requirement based on semesters of attendance. Students must maintain the following cumulative grade point average (GPA) dependent on their semesters of attendance to maintain financial aid eligibility.

<table>
<thead>
<tr>
<th>Semesters of Attendance</th>
<th>Cumulative GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td>1.7</td>
</tr>
<tr>
<td>Semester 2</td>
<td>1.8</td>
</tr>
<tr>
<td>Semester 3</td>
<td>1.9</td>
</tr>
<tr>
<td>Semester 4</td>
<td>2.0</td>
</tr>
<tr>
<td>Semester 5</td>
<td>2.0</td>
</tr>
<tr>
<td>Semester 6</td>
<td>2.0</td>
</tr>
<tr>
<td>Semester 7</td>
<td>2.0</td>
</tr>
<tr>
<td>Semester 8</td>
<td>2.0</td>
</tr>
<tr>
<td>Graduate/Professional</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Changing Majors — Students who change majors or degree programs during the academic year are strongly encouraged not to withdraw from any classes as doing so could impact their ability to meet the 67% PACE completion rate requirement and also put them at risk of exceeding the 150% maximum timeframe. Students who decide to change majors or degree programs should do so early in their academic career so as not to jeopardize their eligibility for student financial aid. Students who change majors or degree programs must appeal if additional time is needed to complete their program.

Repeat Courses — All Courses that are retaken to improve a grade are counted in attempted hours but only one passing grade is counted towards the PACE completion rate.

Incomplete Courses — Student should notify Financial Aid and Student Accounts when a final grade is received.

Undergraduate Transfer Students — Undergraduate transfer students are subject to the 67% Pace Completion Rate and the 150% Total Attempted Hours Percentage requirements. All hours attempted while enrolled at Purdue Calumet and all transfer hours accepted by Purdue Calumet are included in the Satisfactory Academic Progress determination. In addition, all courses counted as part of an approved Financial Aid Consortium Agreement will be included in the 67% and 150% calculations.

Mandatory Non-Degree Credit Hour Courses or Zero Credit Hour Courses — Students required to enroll in a non-degree or zero credit hour course may be eligible for an extension to the 150% timeframe. Appeal required.

Independent Study — If grades for an independent study course are not entered prior to the end of the semester the student must contact the Office of Financial Aid and Student Accounts when their grades are entered for re-evaluation.

Excessive Elective Courses — Students taking an excessive number of elective courses may have their financial aid revoked as these courses do not contribute to making satisfactory academic progress toward earning a degree.

Study Abroad and Consortium Courses — Hours enrolled in Study Abroad or Consortium courses are included in determining a student’s Satisfactory Academic Progress status. Students may be required to provide the Office of Financial Aid and Student Accounts with a copy of their grade report or academic transcript as these courses are included in the 67% and 150% calculations.

Additional Bachelor’s Degree — Students pursuing an additional Bachelor’s degree who have not earned an advanced degree (Masters) may be eligible for a maximum of 90 additional semester hours of aid eligibility. The 67% completion standard still applies. Please contact the Office of Financial Aid.

Students Seeking Dual Bachelor’s Degrees — Students enrolled in two Bachelor’s degree programs at the same time must still meet the 150% standard for completing their degrees and are not eligible for additional hours of aid eligibility. The 150% is calculated from the degree requiring the most hours. Appeal required.

Additional Master’s Degree — Students pursuing an additional Master’s degree may be eligible for a maximum of 40 additional semester hours of aid eligibility. Contact the Office of Financial Aid.

Otherwise Eligible Non-Degree Students — Otherwise eligible non-degree students must meet undergraduate Satisfactory Academic Progress requirements.

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

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. Students who fail to achieve the Quantitative and/or Qualitative component(s) of the Satisfactory Academic Progress Policy during their Warning period lose their eligibility for financial aid. A student shall be removed from the Financial Aid Warning status at the end of the semester if he/she achieves the required Satisfactory Academic Progress Qualitative and Quantitative standards.

Notification — The Office of Financial Aid and Student Accounts will notify students of their Satisfactory Academic Progress status at the completion of each semester, including the summer term, via the student’s Purdue Calumet e-mail address and/or their personal e-mail address, if available. Students may also monitor their Satisfactory Academic Progress via PCSTAR (Purdue Calumet Student Access to Records).

Satisfactory Academic Progress Appeal Process — Student financial aid recipients failing to maintain the Quantitative and/or Qualitative component(s) of the Satisfactory Academic Progress Policy due to an extenuating circumstance beyond their control such as serious injury or illness involving the student, or death of an immediate family member, may submit an appeal to the Office of Financial Aid and Student Accounts explaining their circumstances. Students must submit supporting documentation with the appeal which confirms this circumstance. This appeal must be filed within three weeks of the notification of your SAP status. A student whose appeal is approved is placed on a Financial Aid PROBATION status for the following semester/term AND is required to work with his/her academic advisor to complete an Academic Advisor Assessment that moves the student toward meeting the Satisfactory Academic Progress Qualitative and Quantitative standards. The appeal must be filed within two weeks of notification of your SAP status.

- Students on a Financial Aid PROBATION status are required to meet the following conditions to be eligible to receive financial aid for the subsequent semester:
  - Semester GPA must be equal to the cumulative GPA standard
  - Semester PACE completion rate requirement of 67%
  - Other conditions as outlined in the student’s ACADEMIC ASSESSMENT FORM

- Students who meet the objectives outlined in their academic assessment and the GPA and PACE completion rate requirements during their Financial Aid PROBATION period remain eligible to receive financial aid. Students remain on the academic assessment form until they once again meet all Satisfactory Academic Progress standards.
Students who fail to meet the objectives outlined in their academic Advisor Assessment or the GPA or PACE completion rate requirements during their Financial Aid PROBATION period become ineligible to receive student financial aid and can only regain their eligibility by once again fully meeting all Satisfactory Academic Progress Quantitative and Qualitative standards.

A student is only eligible to submit one Satisfactory Academic Progress appeal as an undergraduate student and one as a graduate student. The appeal form can be found at http://webs.purduecal.edu/ofasa/files/SAPPEAL.pdf

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 219/989-2307.
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/mail 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 Amts</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 $602.00</td>
<td>Annual minimum and maximum vary</td>
<td>Undergraduate students without 1st baccalaureate or professional degrees</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$976 minimum for 2012-2013</td>
<td>Based on need</td>
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<td>$5,550 maximum for 2012-2013</td>
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<td>Award adjusted based on actual enrollment each term</td>
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<td></td>
<td>Receive for a maximum of 18 semesters</td>
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<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</td>
<td>No</td>
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<tr>
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<td></td>
<td>First priority given to Federal Pell Grant recipients with &quot;exceptional financial need&quot; (defined by law)</td>
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</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</td>
<td>Undergraduate and graduate students</td>
<td>No</td>
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<td></td>
<td>Award amount dictated by school policy</td>
<td>Based on need</td>
<td></td>
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<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</td>
<td>Yes; begins 9 mos. after cessation for at least half-time enrollment, deferment and cancellation provisions available</td>
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<td></td>
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<td></td>
<td>First priority given to students with exceptional need (defined by school)</td>
<td>Must first have determination for eligibility/inelegibility for Federal Pell Grant</td>
<td></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</td>
<td>Undergraduate and graduate students enrolled at least half-time</td>
<td>Yes; begins 6 mos. after cessation for at least half-time enrollment, deferment possible, no interest subsidy on unsubsidized loan</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>$4,500 2nd year undergraduates</td>
<td>Must first have determination of eligibility/inelegibility for Federal Pell Grant</td>
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<td></td>
<td>$5,500 each remaining undergraduate year</td>
<td>Must determine eligibility for subsidized Stafford Loan before determining eligibility for unsubsidized Stafford Loan</td>
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<tr>
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<td></td>
<td>Undergraduate annual limits prorated for programs and remaining periods of enrollment less than an academic year</td>
<td>Interest subsidy based on need</td>
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<td></td>
<td>$5,500/yr for teacher certification if already have baccalaureate</td>
<td>Unsubsidized funds may be used to replace EFC subsidy on unsubsidized loan</td>
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<tr>
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<td></td>
<td>$20,500 unsub/grad year for graduate and professional students</td>
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</tr>
</tbody>
</table>
### Federal Direct Student Loan — Additional Unsubsidized Stafford Loan
- Same as subsidized Stafford Loan
- FAFSA required annually; MPN obtained from Direct Loan servicer

### Federal Direct PLUS
- Direct Loan funds from federal government; 7.9% fixed interest rate for Direct PLUS loan
- Purdue Calumet requires the student to submit a FAFSA, PLUS MPN from Direct Loan Servicer
- 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

### Federal Direct Student Scholars Program
- Designed to help those undergraduates who are taking at least 2 but less than 12 credit hours per term at an eligible institution.
- FAFSA received by the federal processor after Jan 1, 2012 but on or before March 10, 2012 for 2012-2013. (must be an error-free FAFSA by the May 15th receipt date deadline of the filing year.
- 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.
- Award adjusted based on student’s enrollment at the end of the Purdue Calumet refund period (4th week of classes). Applied only after all other tuition-specific aid is applied.
- Be a resident of Indiana (determined by residency of parent/legal guardian)
- U.S. Citizen
- Meet program income guidelines
- Attend a school recognized by the Department of Education full-time
- Make a commitment to fulfill the Scholars Program
- File FAFSA so received by March 10 of the academic year preceding the academic year the applicant plans to enroll

### Federal Pell Grant
- Must be a U.S. citizen or eligible noncitizen
- May be used to replace EFC

### Federal Stafford Loan
- Ineligibility for Federal Pell Grant
- Must not be in default on a federal loan
- Must be a U.S. citizen or eligible noncitizen
- May be used to replace EFC

### Stafford Loan
- Required

### Parent PLUS Loan
- Parent PLUS Loan before determining eligibility for additional unsubsidized Stafford Loan
- May be used to replace EFC

### Grad PLUS Loan
- Must have demonstration of eligibility/ineligibility for Federal Pell Grant
- Must determine eligibility for subsidized Stafford Loan before determining eligibility for additional unsubsidized Stafford Loan
- Yes, same as subsidized Stafford Loan

### State Aid Programs administered by the State Student Assistance Commission of Indiana (SSACI)

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
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<th>Annual/Aggregate Amts</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Frank O’Bannon Grant (formerly the Indiana Higher Education Grant)</td>
<td>State aid administered by the State Student Assistance Commission of Indiana (SSACI); targeted to tuition and regularly assessed fees based on financial need</td>
<td>FAFSA received by the federal processor after Jan 1, 2012 but on or before March 10, 2012 for 2012-2013. (must be an error-free FAFSA by the May 15th receipt date deadline of the filing year.</td>
<td>Dollar value of state grants vary from year to year due to variations in appropriations, the number of filers and the “need” of the filer base.</td>
<td>Indiana resident U.S. citizen or eligible noncitizen</td>
<td>No</td>
</tr>
<tr>
<td>Twenty-First Century Scholars Program</td>
<td>Guarantees eligible students up to 4 years of undergraduate college tuition at any participating university in Indiana</td>
<td>FAFSA received by the federal processor after Jan 1, 2012 but on or before March 10, 2012 for 2012-2013. (must be an error-free FAFSA by the May 15th receipt date deadline of the filing year.</td>
<td>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. Award adjusted based on student’s enrollment at the end of the Purdue Calumet refund period (4th week of classes). Applied only after all other tuition-specific aid is applied.</td>
<td>Be a resident of Indiana (determined by residency of parent/legal guardian) U.S. Citizen Meet program income guidelines Attend a school recognized by the Department of Education full-time Make a commitment to fulfill the Scholars Program File FAFSA so received by March 10 of the academic year preceding the academic year the applicant plans to enroll</td>
<td>No</td>
</tr>
<tr>
<td>Part-time State Grant Program</td>
<td>Designed to help those undergraduates who are taking at least 2 but less than 12 credit hours per term at an eligible institution.</td>
<td>FAFSA received by the federal processor after Jan 1, 2012 but on or before March 10, 2012 for 2012-2013</td>
<td>Need-based award Minimum award is $50 per term Program eligibility determined at the institutional level subject to approval by SSACI First priority for the award is given to students meeting certain income guidelines Calculated and awarded on a term by term basis Institutions are allocated a fixed amount of money to award each year Applied only after all other tuition-specific aid is applied</td>
<td>Meet state residency requirements Filed a FAFSA Otherwise qualify for state aid</td>
<td>No</td>
</tr>
<tr>
<td>Program</td>
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<td>Annual/Aggregate Amts</td>
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<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 (file FAFSA each year at least 2 weeks before the start of classes).</td>
<td>Grant amounts based on 30 hours of enrollment per academic year, or 15 hours per semester.</td>
<td>Veteran must meet certain Indiana residency requirements. Child must be the biological child or legally adopted dependent child of the veteran. Covered student must be regularly admitted as an in-state student to an Indiana public college. Must maintain Satisfactory Academic Progress (as defined by the college). Other restrictions might apply.</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 must have an error-free FAFSA by the May 15th receipt date deadline of the filing year.</td>
<td>Maximum annual amount of $5,000.</td>
<td>Applicant must be certified by both SSACI and the Indiana National Guard (ING) Attend a state funded university. Can be used only in the fall and spring semesters. State residency requirements apply. High School graduate or have a GED. Student must be seeking first associate or bachelor degree (cannot be used for graduate school). Students can receive a total of 8 semesters of state aid in any combination. Must certify each term of enrollment meets National Guard eligibility.</td>
<td>No</td>
</tr>
<tr>
<td>Nursing Scholarship</td>
<td>Created to encourage and promote qualified individuals to pursue a nursing career in Indiana.</td>
<td>FAFSA required.</td>
<td>Maximum annual amount of $5,000.</td>
<td>Admitted to an approved institution as a full time or part time nursing student. Indiana resident and a US Citizen. Agree in writing to work as a nurse in Indiana for 2 years following graduation. Demonstrate financial need. Maintain 2.0 GPA. Not be in default on a student loan. Meet other criteria.</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.</td>
<td>Awards made by the colleges. Financial need may be considered but not a requirement. Award maximum: $1,000. 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. Indiana resident and a US Citizen. Admitted to eligible institution as a fulltime student. Pursuing a course of study that would enable the student upon graduation to teach in an accredited elementary or secondary school in Indiana. Not be in default on a student loan. Meet all minimum criteria. Maintain a 2.0 GPA.</td>
<td>No</td>
</tr>
<tr>
<td>Program</td>
<td>Description</td>
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<tr>
<td>Merit Scholarships</td>
<td>Scholarships awarded based on student’s academic strength and/or other criteria U.S. Not need-based.</td>
<td>No separate application required for a majority of the scholarships. A separate application is required for a few scholarships: <a href="http://webs.purduecal.edu/ofasa/scholarships-21">http://webs.purduecal.edu/ofasa/scholarships-21</a> View a complete listing of scholarships at: <a href="http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp">http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp</a></td>
<td>Award amount determined by Purdue University Calumet depending on fund availability</td>
<td>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: <a href="http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp">http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp</a></td>
<td>No</td>
</tr>
<tr>
<td>Need-based Scholarships</td>
<td>Scholarships awarded based on academic strength AND financial need</td>
<td>FASFA required</td>
<td>Award amount determined by Purdue University Calumet depending on fund availability</td>
<td>Eligibility criteria established by scholarship donor(s). View a complete listing of scholarships and selection criteria at: <a href="http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp">http://esc.purduecal.edu/finaid/scholarships/ScholarList.asp</a></td>
<td>No</td>
</tr>
<tr>
<td>Chancellor’s Scholars</td>
<td>Recognizes students who graduate as Valedictorian (#1) or Salutatorian (#2) of their high school class. No application required.</td>
<td>No application required. <a href="http://webs.purduecal.edu/admissions/scholarships/">http://webs.purduecal.edu/admissions/scholarships/</a> Recipients selected by Office of Undergraduate Admissions based on fund availability and the Office of Financial Aid runs a weekly report.</td>
<td>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</td>
<td>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 SAT score of 1100 (CR&amp;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</td>
<td>No</td>
</tr>
<tr>
<td>Academic Achievement Scholarship (formerly the Best and Brightest Scholarship)</td>
<td>Awarded to recent high school graduates for a maximum of four (4) consecutive years.</td>
<td>None</td>
<td>$2,000 per year (Indiana residents) - $8,000 over four years $4,000 per year (non-Indiana residents) - $16,000 over four years</td>
<td>Minimum SAT score of 1100 (CR&amp;M) or equivalent ACT exam Minimum overall high school GPA of 3.0/4.0 Direct admission into program of study at Purdue Calumet</td>
<td>No</td>
</tr>
<tr>
<td>Purdue Calumet Transfer Scholarship (formerly the Best and Brightest Scholarship)</td>
<td>Awarded to any transfer student with 60 transferable hours to Purdue Calumet for a maximum of two (2) consecutive years.</td>
<td>Yes - <a href="http://www.purduecal.edu/finaid/PUC_TRANS.pdf">http://www.purduecal.edu/finaid/PUC_TRANS.pdf</a></td>
<td>$2,000 per year (Indiana residents) - $4,000 over two years $4,000 per year (non-Indiana residents) - $8,000 over two years</td>
<td>Minimum cumulative GPA of 3.0/4.0 Direct admission into program of study at Purdue Calumet The Purdue Calumet Transfer Scholarship may not be used in conjunction with the enrollment incentive award.</td>
<td>No</td>
</tr>
<tr>
<td>Graduate Distinction Scholarship (formerly the Best and Brightest Scholarship)</td>
<td>Awarded to post-graduate students for a maximum of three (3) consecutive years.</td>
<td>Yes - <a href="http://www.purduecal.edu/finaid/GRAD_DIST.pdf">http://www.purduecal.edu/finaid/GRAD_DIST.pdf</a></td>
<td>$2,000 per year (Indiana residents) - $6,000 over three years $4,000 per year (non-Indiana residents) - $12,000 over three years</td>
<td>Minimum cumulative GPA of 3.0/4.0</td>
<td>No</td>
</tr>
<tr>
<td>Phi Theta Kappa</td>
<td>Awarded to any transfer student with 60 transferable hours to Purdue Calumet for a maximum of two consecutive semesters.</td>
<td>Yes - <a href="http://webs.purduecal.edu/ofasa/files/PTIC-1213.pdf">http://webs.purduecal.edu/ofasa/files/PTIC-1213.pdf</a></td>
<td>$4000 for Indiana residents: $8000 over 2 year period $6500/year for out-of-state residents $13,000 over 2 year period.</td>
<td>Proof of membership in Phi Theta Kappa Min. cum GPA of 3.5/4.0 Direct admission Maintain a min gpa of 3.0 out of 4.0</td>
<td>No</td>
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<tr>
<td>Program</td>
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</table>
| Honors Scholarship            | Awarded to those 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  
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 volunteer 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/  
| No                            | No.                                           |
| 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/students/transfer-student/etap/ | Covers the difference between the out-of-state tuition and the tuition for Indiana residents for 300 and/or 400 level courses.  
For an academic year the value of this program exceeds $1,700 per semester when enrolled in 9 credits at the 300 and/or 400 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 300 and/or 400 level per semester at Purdue Calumet for the award to apply to their tuition  
| No.                                           |

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 PCSTAR 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 competing 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. Only the advisor’s signature is required during the first week whereas 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.

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+/-A — highest passing grade
A-  B+  B
B-  C+  C
C-  D+  D
D-  — lowest passing grade, indicating achievement of the minimum objectives of the course
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.
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.

\[\text{PI} — \text{incomplete, no grade; same as I for student enrolled in pass/not pass option.} \]

\[\text{SI} — \text{incomplete, no grade; same as I for student enrolled in zero-credit course.} \]

**Other**

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

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

\[\text{IF} — \text{assigned by the Registrar. Failure to complete an I grade by the twelfth week of the second semester subsequent to enrollment in a credit course. Counted as F in the scholarship index.} \]

\[\text{IN} — \text{unremoved incomplete and failing; failing to complete a pass/not pass course in which the student received a PI by the twelfth week of the second semester subsequent to enrollment in a credit course. Does not affect scholarship index.} \]

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

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

### 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. 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 schools 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 school requirements for electives.
4. Exception: HTM 301 must be taken pass/not pass for students in the HTM programs.
5. Standard registration procedures must be followed, including regulations, such as add/drop procedures, withdrawal from courses, and so on.
6. Students must indicate upon registering which courses they wish to take using the pass/not pass option.
7. Students may elect courses given in other schools under the pass/not pass option.
8. 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** (except Agriculture), **Chemistry and Physics** (except Chemical Technology), **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.

**Agriculture:**

1. Semester classification of three and above.
2. Graduation index of 2.00 and above.
3. No more than 21 credits of elective courses taken under the pass/not pass option will be used toward graduation.

**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 School 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 school requirements.
4. Students may elect courses given in other schools 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 Student Achievement:**

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 school 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.

Substitution of Courses.

W ith 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>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.000</td>
</tr>
<tr>
<td>B</td>
<td>3.000</td>
</tr>
<tr>
<td>C</td>
<td>2.000</td>
</tr>
<tr>
<td>D</td>
<td>1.000</td>
</tr>
<tr>
<td>F</td>
<td>0.000</td>
</tr>
</tbody>
</table>

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

\[
\text{Semester GPA} = \frac{\text{Total Semester Grade Points}}{\text{Total Semester Credit Hours}}
\]

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

\[
\text{Cumulative GPA} = \frac{\text{Total Grade Points}}{\text{Total Credits Attempted}}
\]

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

Students who are academically dropped from the Purdue University system may not register or attend classes in any capacity, either for credit or on an audit basis, unless they are readmitted by the Office of the Dean of Students. Students who are academically dropped are eligible for readmission only after they have completed at least one full regular semester (summer session does not count) of non-attendance. Students who have been academically dropped more than once are required to complete at least one calendar year of non-attendance.

READMISSION FEE: Students must pay a $100 non-refundable readmission fee at 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 314.

For inquiries regarding the readmission process, please call the Office of the Dean of Students at (219) 989-4141; (toll-free from within northwestern 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 school 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 school 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 thirty-two 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 300 (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 school 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 school 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.
- b. Securing in advance the approval of the dean of the school administering the major to register at another approved college or university for more than ten 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 school 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 school 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 school 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 school 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. Each semester, the Dean’s List honors undergraduate students who have at least 12 credit hours in the graduation index with a graduation index of at least 3.5, and have at least six credit hours in the semester index with a graduation index of at least 3.0.

**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 school shall be no less than the 90th percentile of the graduation indexes of the graduates in each school, for the spring semester, provided that the index is at least 3.30. The minimum graduation index so determined in the spring for each school 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 schools 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.
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 School 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/](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/](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/](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/](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](http://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 schools offer thirteen 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

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

** the concentrations in Educational Administration, 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 (Mild Intervention and Intense Intervention)
  - Special Education Director

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

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

School 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 specializations in:
  - Marriage and Family Therapy
  - Human Development and Family Studies

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

School of Nursing
- Master of Science in Nursing
- Certificate in Critical Care Nurse Specialist
- Certificate in Adult Health Clinical Nurse Specialist
- Certificate in Family Nurse Practitioner
- Certificate in Nursing Executive

School of Technology
- Master of Science in Technology
- Master of Science in Modeling, Simulation and Visualization

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 school/department's requirements should be addressed to the head of the school/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 via 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 schools may set higher indexes).
3. Other requirements, as detailed by individual departments and schools, 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. Two official transcripts of all previous college and university course work completed. Electronic transcripts should be submitted to Margaret Greer at Margaret.Greer@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 school.
6. Other evidence of academic performance as required by the individual department or school.
7. Graduate Record Examination (GRE) if required by the particular department or school. Consult the individual department or school for additional information.
8. The Graduate Management Admission Test (GMAT) may be required by the School of Management. Consult the School of Management 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 school 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 specific degree objectives, 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.

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 school. 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 graduate status. For further information about licensure, please see the School of Education’s Graduate Study Web site at: www.purduecal.edu/education/grad/licensing.html

Academic Regulations

Grades
Success in graduate study requires 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 school 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 school or department. If the student fails to perform satisfactorily in the judgment of the department or school, 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.

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.

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.

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.

Graduation Deadlines
Graduating on time is very important to most students. Therefore, a student must be aware of the rules and 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

STUDENT AFFAIRS MISSION STATEMENT

Student Affairs, a primary partner for holistic learning and development at Purdue University Calumet, is committed to assisting students as well as faculty, staff, parents and other family members. Comprised of individuals who care deeply about students, staff in Student Affairs stand ready to offer guidance and support.

- **GOAL 1** – Encourage the overall well-being of students.
- **GOAL 2** – Enhance the educational experience through participation in holistic activities
- **GOAL 3** – Inspire students to pursue lifelong learning.
- **GOAL 4** – Promote an inclusive community that values productive communication and diverse ideas and that demonstrate collaboration and cooperation

STUDENTS WITH DISABILITIES

In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in courses are entitled to appropriate 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.

Office of Disability Resources

Student Union & Library Building, Room 341, (219) 989-2455; (219) 989-2454 Telecommunications Device for Deaf (TTY/Voice)

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 additional guidelines for disability documentation.

Center for Student Achievement Academic Advising

Lawshe Hall, Room 122, 219/989-2339

Each academic department and school and the Center for Student Achievement offer academic advising for specific programs of study. Students consult their academic advisors for information on program requirements and career options in their majors. Every student is assigned an academic advisor and should meet with that advisor three times per year.

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 individual, couples, or group formats and include assessment, brief counseling and psychotherapy, referral, consultation, and psychoeducational workshops. These services are provided by licensed mental health professionals and postgraduate 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 brief psychotherapy. 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.

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/](http://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 PULSÉ, the Web-based online catalog, 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, an electronic classroom 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 about 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 volumes and 400 current 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 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 departments 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.nwicgrid.org), Purdue Calumet is a partner in various national high-performance computing consortiums including Diagrid (HYPERLINK “http://www.diagrid.org” http://www.diagrid.org) and Teragrid (https://www.teragrid.org).

Networking on campus is facilitated by redundant 1 Gbps connections to the i-Light (http://www.ilight.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 — 8AM to 4:30PM
Wednesday — 8AM to 7PM
Breaks and Summer Hours — M-F 8AM to 4:30PM

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 SUL 349 and online at HYPERLINK “http://www.purduecal.edu/careerservices” HYPERLINK "http://www.purduecal.edu/careerservices" 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 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, Backups 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 (PUC). 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 admission 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/cct.
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. Intramural 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.

Educational Opportunity Programs

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

The historical opportunity and access at Purdue University Calumet began 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 (6) 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-collegiate 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 (FB B P) 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 are 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’ Services
Lawshe Hall, Room 130, 219/989-2334

The Office of Veterans’ Affairs is responsible for coordination of university services which impact 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

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. CLEP testing is also available in the Testing Services Center at the Academic Learning Center in Crown Point, IN.

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 any discipline 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 Student Affairs
Lawshe Hall, Room 352, 219/989-2367

The Office of Vice Chancellor for Student Affairs (VCFA) is responsible for coordinating services which are designed to provide a campus environment in which students are able to develop intellectually and personally. Student Affairs includes the following offices: 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; and Upward Bound; and Veterans and Student Service Members Academic Support Program (From Boots to Books).

The VCFA Division staff assists with student development through services and programs administered outside of and in conjunction with academic programs. The staff as a group of educators are committed to a team approach to meeting the varied needs of students. The overriding objective is to remove any barrier which would stand between the student and the student’s realization of a successful university experience.

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.

Charlotte R. Riley Child Center
219/989-2343

The Charlotte R. Riley child center operates as a lab school through the Department of Behavioral Sciences. 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. Unscheduled care for enrolled children is available on a limited basis. All childcare requires advanced enrollment.

University Police
University Police Building, 219/989-2911 - Emergency; 219/989-2220 - Business, Email – unpol@purduecal.edu
Business Lobby Hours — 7AM to 11PM
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 keys for offices and rooms.

Center for Student Achievement
Lawshe Hall, Room 122, 219/989-2339

The Center for Student Achievement 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 School of Nursing
Success will help the winners craft a business plan. Purdue University Calumet with the guidance of the Center for Entrepreneurship Innovation Center. They will also receive over $60,000 in cash and prizes including; from their table to select the ten finalists that will compete in the final round.

Unlikely 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.

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.

Unlike any other entrepreneurship contest, the first round of judging is solely in the hands of the general public.

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.

The top three winning ideas are incubated for one year at the Hammond Innovation Center. They will also receive over $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 showcases 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.

**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.

**Legal Business Structure Course**

This course helps to describe the various forms of business organizations (sole proprietor, corporations, LLC, etc.), the advantages and disadvantages of each structure and the various state and federal laws.

**Business Finance & Money Course**

This course helps to describe and identify sources of financing, business and project valuation, how to best finance your business, benefits and costs of utilizing debt vs. equity, leasing vs. buying, cash management, financial planning, and analyzing financial statements.

**Business Marketing Course**

This course helps to describe how to best reach your target audience and put your business on the map.

**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)

**Student Health Services Center**

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 physical, 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 World Wide Web

Our Purdue University Calumet Web site is located at www.purduecal.edu
School of Education
School of Education
219/989-2335, 800/HI-PURDUE, ext. 2335, Gyte Annex, Room 170C

Department of Teacher Preparation (Undergraduate programs)
219/989-2360, 800/HI-PURDUE, ext. 2360, Gyte Annex, Rooms 151 & 153

Department of Graduate Studies in Education
219/989-2326, 800/HI-PURDUE, ext. 2326, Gyte Annex, Room 122

Bachelor Degree Programs
- Elementary/Special Education (Gr. K-6)
- Secondary Education (Gr. 5-12);
- Majors in life science, chemistry, economics, English, French, government, historical perspectives, mathematics, physical science, physics, psychology, sociology and Spanish.

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 School 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, school 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 School 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 for and models of quality education and lifelong learning.

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.cccsbo.org/Resources/Publications.html. In addition, the INTASC standards have been aligned with the School'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 School of Education offers a variety of undergraduate and licensure programs
through its Department of Teacher Preparation Office located in the Gyte Annex,
Room 151 and 153, (219) 989-2360.
The following is a list of undergraduate degrees and licensing programs at
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: Admission to Teacher Preparation Program
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 Methods Courses
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:
   EDPS 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 grade index of 2.5 GPA 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 13800 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, EDKI 32900, EDKI 49000.
8. After completing any class in the Introductory Course Work (Gate 1), have
   withdrawn from four or 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 151) 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 ap-
proval 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 a first education course, have withdrawn from four
   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 follow-
ing minimum standards:
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.
4. Maintained appropriate GPA in secondary content.
5. Completed no more than two Education courses with a grade of C.
6. After completing any class in the Introductory Course Work (Gate 1), have
   withdrawn from four or repeated no more than two 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’s
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 151).
2. Submit the appeal to the Department of Teacher Preparation Office (Gyte Annex, Room 151) 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 grade index of 2.5 GPA 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 School 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 coursework, 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 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 School of Education programs (undergraduate and graduate) are accredited by the National Council for the Accreditation of Teacher Education (NCATE). The undergraduate 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 School 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**

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>Assessment Code #</th>
<th># Taking Assessment</th>
<th># Passing Assessment</th>
<th>Institution Pass Rate</th>
<th>Statewide Pass Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Skills</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>PPST Reading</td>
<td>710</td>
<td>53</td>
<td>53</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>PPST Writing</td>
<td>720</td>
<td>51</td>
<td>51</td>
<td>100%</td>
<td>100%</td>
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<tr>
<td>PPST Mathematics</td>
<td>730</td>
<td>51</td>
<td>51</td>
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<td>100%</td>
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<td>Academic Content Areas (math, English, biology, etc.)</td>
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</tr>
<tr>
<td>Elem Ed Curr Instruc Assessment</td>
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<td>Mathematics Content Knowledge</td>
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<tr>
<td>Biology Content Knowledge</td>
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<tr>
<td>Reading Specialist</td>
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<td>36</td>
<td>36</td>
<td>100%</td>
<td>100%</td>
</tr>
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<td>Other Content Areas (elementary education, career/technical education, health education, etc.)</td>
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<tr>
<td>Technology Education</td>
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<td>Family and Consumer Sciences</td>
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<td>Library Media Specialist</td>
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<tr>
<td>Health</td>
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<tr>
<td>Teaching Special Populations (special education, ESL etc.)</td>
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### Table C2: Aggregate and Summary Institution-Level Pass-rate  
**Data: Regular Teacher Preparation Program, 2010-2011**

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th># Taking Assessment</th>
<th># Passing Assessment</th>
<th>Institution Pass Rate</th>
<th>Statewide Pass Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate: Basic Skills*</td>
<td>56</td>
<td>55</td>
<td>98%</td>
<td>98%</td>
</tr>
<tr>
<td>Aggregate: Professional Knowledge*</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Aggregate: Academic Content Areas (math, English, biology etc.)*</td>
<td>48</td>
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<td>100%</td>
<td>99%</td>
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<tr>
<td>Aggregate: Other Content Areas (elementary education, career/technical education, health education, etc.)*</td>
<td>48</td>
<td>48</td>
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<td>100%</td>
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<tr>
<td>Aggregate: Teaching Special Populations (special education, ESL...)*</td>
<td>56</td>
<td>55</td>
<td>98%</td>
<td>100%</td>
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<tr>
<td>Performance Assessments*</td>
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<tr>
<td>Summary of Individual Assessments**</td>
<td>56</td>
<td>55</td>
<td>98%</td>
<td>98%</td>
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</table>

* 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 tests 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

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>Assessment Code #</th>
<th># Taking Assessment</th>
<th># Passing Assessment</th>
<th>Institution Pass Rate</th>
<th>Statewide Pass Rate</th>
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<tr>
<td>Basic Skills</td>
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<tr>
<td>PPST Reading</td>
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<td>67</td>
<td>67</td>
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<td>99%</td>
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<tr>
<td>PPST Writing</td>
<td>720</td>
<td>67</td>
<td>67</td>
<td>100%</td>
<td>100%</td>
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<tr>
<td>PPST Mathematics</td>
<td>730</td>
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<td>Academic Content Areas (math, English, biology, etc.)</td>
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<td>Elem Ed Curr Instruc Assessment</td>
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<tr>
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<td>Reading Specialist</td>
<td>300</td>
<td>42</td>
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<td>100%</td>
<td>100%</td>
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</tbody>
</table>

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 I PPST required for registration or SAT score of 1100 or ACT score of 24 if seeking to waive Praxis exam)
EDCI 35500(EL)  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(EL)  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(EL)  Supervised Teaching (K-6 classroom)
EDCI 49900  Student Teaching In Special Education

Courses designated as ELT 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 2000 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)
   EDCI 35500 (Ex L) Teaching and Learning in the K-12 Classroom
   EDCI 36600 Use of Assessment in the K-12 Classroom

   GATE 3: Methods
   EDPS 37000 (Ex L) Teaching Students w/Diverse Learning Needs in the K-12 Classroom
   EDCI 34X00 Strategies of Instruction in the content major (Methods course)
   EDCI 32300 Educational Technology for Teaching and Learning

   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.

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
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
The School 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:

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. Programs are subject to change, so it is the student’s responsibility to work with the appropriate advisor to keep updated on any new requirements.

**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 Literacy Problems: Evaluation and Remediation
EDCI 59100 Human Issues in Technology

**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 U.S. 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. Rita Brusca-Vega, Project Director (rvega@purdue.edu).

EDPS 59000 Individuals with Severe Disabilities: Historical Perspectives, Etiology, and Characteristics
EDPS 59000 Intervention Strategies and Research for Teaching Individuals with Severe Disabilities I
EDPS 59000 Intervention Strategies and Research for Teaching Individuals with Severe Disabilities II
EDPS 59000 Seminar in Special Education: Diversity, Families and Disability
EDPS 59000 Seminar in Special Education: Serving Students with Autism Spectrum Disorder
EDPS 59000 Internship I: Intense Intervention
EDPS 59100 Advanced Technological Applications in Special Education
### Director of Exceptional Needs License Program (Special Education Director's License)

**40 Semester Hours**

1. **Special Education/Foundations Block (12 hrs)**
   - ECET 58000: Multicultural Education
   - EDPS 53300: Introduction to Educational Research I: Methods
   - EDPS 66400: Sem: Special Education Law
   - EDFA 51100: Legal Aspects II
   - ECET 51900: School Counseling
   - EDFA 59100: School Administration
   - EDFA 69500: Internship in Special Education (4-Hour Course)

2. **Administration Block (28 hours):**
   - (Must be taken in sequence)
   - EDFA 51200: Foundations of Educational Administration
   - EDFA 51400: Legal Aspects of American Education
   - EDFA 61000: Supervision of Instruction and Instructional Personnel
   - EDFA 51600: School and Community Relations
   - EDFA 59100: Legal Aspects II
   - ECET 51900: School Counseling
   - EDFA 59100: School Administration
   - 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 are already in a special education licensure, experience and background. The goal 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 course work may be built into the program for those who need it. The first step is to contact Dr. Pam Frampton, the administration advisor: frampton@purduecal.edu

Revised: 06-07

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

The School 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 hollingsworth@purduecal.edu

### Indiana State License Program, Mental Health Counseling

**60 HOURS**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</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>
<td></td>
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<tr>
<td>EDPS 50500</td>
<td>Career Theory</td>
<td></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>
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<tr>
<td>EDPS 59100 with title</td>
<td>Research in Counseling</td>
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<tr>
<td>EDPS 59100 with title</td>
<td>Human Growth &amp; Life Span Development</td>
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<tr>
<td>EDPS 59100 with title</td>
<td>Counseling and Psychopathology</td>
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<tr>
<td>EDPS 60000</td>
<td>Counseling Theories and Techniques</td>
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<tr>
<td>EDPS 60100</td>
<td>Counseling Techniques Lab</td>
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<tr>
<td>EDPS 61000</td>
<td>Counseling Practicum</td>
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### Indiana State License Program, School Counseling

**61 HOURS**

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
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<td>EDPS 60000</td>
<td>Counseling Theories and Techniques</td>
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<tr>
<td>EDPS 60100</td>
<td>Counseling Techniques Lab</td>
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<tr>
<td>EDPS 61000</td>
<td>Counseling Practicum</td>
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### Master of Science in Education (Human Services Concentration)

**33 HOURS**

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<thead>
<tr>
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<tr>
<td>EDPS 59100 with title</td>
<td>Ethics in Mental Health Counseling</td>
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<tr>
<td>EDPS 59100 with title</td>
<td>Research in Counseling</td>
<td></td>
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<tr>
<td>EDPS 59100 with title</td>
<td>Counseling and Psychopathology</td>
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<tr>
<td>EDPS 62000</td>
<td>Counseling Seminar (Electives): Diverse Topics</td>
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<tr>
<td>EDPS 69500</td>
<td>Internship in Education (300 hours; 6 credit hrs)</td>
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</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 are approved by the state for CEUs.

The following courses must be completed with a grade of B or better. A grade of C in any course will be grounds for dismissal from the certification program in addiction counseling. Courses need NOT be taken sequentially. A limited criminal history check must be submitted by each student before his/her first class.
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 with title Instructional Technology Leadership

Foundation Courses (6 hours - can be completed at any time)
EDCI 53300 Introduction to Educational Research I
OR
EDCI 53100 Introduction to Measurement and Evaluation
AND
EDCI 59100 with title Human Issues in Technology

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

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

Certificate 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 with title Human Issues in Technology

Choose ONE of the following:
EDCI 55400 Production of Instructional Materials
EDCI 66300 Interactive Video
EDCI 59100 with title 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)**  
   *(Must be taken in sequence)*  
   - 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*
School of
ENGINEERING, MATHEMATICS and SCIENCE
The School 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 & 344

Associate Degree Program
- Biology
  —Emergency Medical Services/Paramedic

Bachelor's Degree Programs
- Biology
  —General Biology
  —Biotechnology
  —Cell Biology/Physiology
  —Ecology
  —Microbiology
  —Predentistry
  —Premedicine
  —Preoccupational Therapy
  —Preoptometry
  —Prephysical Therapy
  —Prepharmacy
  —Preveterinary Science and Medicine
  —Secondary Science Teaching - Biology
  —Medical Technology
  —Minor in Biotechnology
  —Minor in Environmental Science
- Chemistry/Physics
  —Chemistry
  —Premedical
  —Secondary Science Teaching - Chemistry
  —Minor
  —Secondary Science Teaching - Physics
  —Secondary Science Teaching - Physical Sciences
  —Physics
  —Computational Physics
  —Engineering Physics
  —Physics Minor
  —Astrophysics Minor
- Mathematics
  —Mathematics
  —Mathematics Education
  —Computer Science
  —Minor in Computer Science
  —Minor in Mathematics
- Minor in Mathematics for Preservice Elementary Education Majors
- Minor in Applied Mathematics
- Civil Engineering
- Computer Engineering
- Electrical Engineering
  —Mechatronics minor
  —Power and Energy Systems minor
- Interdisciplinary Engineering
- Mechanical Engineering
  —Mechatronics minor

Graduate Certificate
- Biotechnology
- Engineering Project Management

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

Master's Degree Programs
- Biology
- Biology Teaching
- Computer Science
- Engineering
- Mathematics

Transfer Programs
- Biology
  —Agriculture
  —Preforestry

Career Opportunities
Graduates of Purdue Calumet's School of Engineering, Mathematics and Science may work in business, industry, government or education as a computer engineer, operations research team member, environmental and pollution controls manager, actuary, laboratory technician, structural design engineer, automotive engineer, circuit design engineer, manufacturing engineer, plant engineer, quality control engineer, system design engineer, cryptographer, chemist, physicist, science editor, numerical analyst, biological photographer, genetic engineer, middle school mathematics teacher, medical/science writer, medical illustrator, biomedical technologist, nuclear physicist, astronomer, quality control manager, high school mathematics or science teacher, civil engineer, electrical engineer and more.
Department of Biological Sciences

W.-T. Evert Ting, Interim Head. Faculty: Y.D. Choi; J.C. Creighton; B. Mania-Farnell; R. Sarac; C.C. Tseng; F.-S. Wang; M.I. Zimmer
Emeritus Faculty: A.M. Chelich; T.J. Dougherty; R.L. Peloquin; J.R. Shoup; 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 will change the way we live our lives in the near future. To help students prepare for careers in this exciting field, we are committed to excellence in our teaching and research programs.

The Department of Biological Sciences at Purdue University Calumet offers a comprehensive education that provides students with both a solid background in the breadth of the biological sciences and the flexibility to meet their needs as individuals. At the undergraduate level, we offer Bachelor of Science (BS) degrees in Biology, Biotechnology, and Medical Technology and an Associate of Applied Science Degree in Medical Services/Paramedic. For our BS in Biology, students may choose one of the five options: General Biology, Biotechnology, Cell Biology, Physiology, Ecology, and Microbiology; or six four-year pre-professional programs: Premedicine, Predentistry, Preoptometry, Prephysical Therapy, Preoccupational Therapy, and Preveterinary Science and Medicine. In addition, we offer a two-year pre-pharmacy program and two-year transfer programs in cooperation with the School of Agriculture at Purdue University West Lafayette. At the graduate level, we offer Master of Science (MS) degrees in Biology and a Professional Certificate in Biotechnology, Teaching, and Biotechnology. For our B.S. in Biology, students may choose one of the five options (General Biology, Biotechnology, Cell Biology/Physiology, Ecology, and Microbiology) or six four-year pre-professional programs (Premedicine, Predentistry, Preoptometry, Prephysical Therapy, Preoccupational Therapy, and Preveterinary Science and Medicine).

Our department emphasizes an integrated approach to teaching modern biology, in that faculty research is directly incorporated as an important component of student coursework. We have an active and creative faculty who bring new knowledge 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. In these areas, students utilize cutting-edge laboratory facilities and equipment to acquire hands-on experience with modern investigational and laboratory techniques as they gain a firsthand knowledge of the biological sciences. Supervised research opportunities are available for both undergraduate and graduate students and graduate teaching and research assistantships are available to support students pursuing an MS degree.

Options and Programs

- Associate of Applied Science, Emergency Medical Services/Paramedic
- Bachelor of Science, Biology:
  - General Biology Option
  - Biotechnology Option
  - Cell Biology/Physiology Option
  - Ecology Option
  - Microbiology Option
- Bachelor of Science, Biological Science Teaching
- Bachelor of Science, Medical Technology
- Preprofessional programs in Predentistry, Premedicine, Preoccupational Therapy, Preoptometry, Prephysical Therapy, and Preveterinary Science and Medicine
- Transfer programs in Agriculture and Forestry
- Minor in Biotechnology
- Minor in Environmental Science
- Master of Science, Biology
- Master of Science, Biology Teaching
- Graduate Biotechnology Certificate
- Bachelor of Science – Biology
  (124 CREDITS)
  Options are offered in General Biology, Biotechnology, Cell Biology, Physiology, Ecology, and Microbiology; Programs are offered in Premedicine, Predentistry, Prephysical Therapy, Preoccupational Therapy, and Preveterinary Science and Medicine.

Associate of Applied Science, Emergency Medical Services/Paramedic
(70 CREDITS)

This associate degree program prepares students for careers in paramedicine. The program has two components and requires at least 3 years for completion. The academic phase of the program occurs on the Purdue University Calumet campus and includes coursework in the basic sciences and general studies. The clinical professional phase of the program is offered at an affiliated hospital (St. Anthony Medical Center, Crown Point, St. Mary’s Medical Center, Hobart or Methodist Hospitals, Inc., Gary, Indiana) approved to offer the paramedic curriculum.

Note: EMT (Emergency Medical Technician) training and certification must be completed prior to applying for the paramedic curriculum.

Predical Phase
(32 CREDITS)

First Semester (16 credits)
- BIOL 21300 Human Anatomy and Physiology I
- CHM 11900 General Chemistry
- ENGL 10400 English Composition I
- MA 14700 Algebra and Trigonometry for Technology I
- PSY 12000 Elementary Psychology
- ENGL 10400 English Composition I
- BIOL 21400 Human Anatomy and Physiology II
- MA 14700 Algebra and Trigonometry for Technology I
- ENGL 10500 English Composition II
- MA 14800 Calculus I
- ENGL 10600 English Composition II
- MA 14900 Calculus II
- PSY 12000 Elementary Psychology
- ENGL 10700 English Composition I
- MA 14700 Algebra and Trigonometry for Technology I
- ENGL 10500 English Composition I
- MA 14800 Calculus I
- ENGL 10600 English Composition I
- MA 14900 Calculus II

Preclinical Phase
(38 CREDITS)

Successful completion of the 18-month clinical portion includes lectures, conferences, a technical preceptorship, and field experience at an affiliated school of emergency medical services/paramedic.

Note: Students must register for “Candidate Only” status at Purdue Calumet at the beginning of the semester in which they expect to complete their degree.

Clinical Phase
(38 CREDITS)

Successful completion of an 18-month clinical portion includes lectures, conferences, a technical preceptorship, and field experience at an affiliated school of emergency medical services/paramedic.

Note: Students must register for “Candidate Only” status at Purdue Calumet at the beginning of the semester in which they expect to complete their degree.

Bachelor of Science – Biology
(124 CREDITS)

Options are offered in General Biology, Biotechnology, Cell Biology, Physiology, Ecology, and Microbiology; Programs are offered in Premedicine, Predentistry, Prephysical Therapy, Preoccupational Therapy, and Preveterinary Science and Medicine.
General Education Requirements for all Biology Degrees (33-36 credits):

**English Composition (3-6 credits)**
- ENGL 10400-10500 English Composition I & II
  OR
- ENGL 10800 Accelerated First-Year Composition

**Communication (3 credits)**
- COM 11400 Fundamentals of Speech Communication

**Humanities & Social Science (15 credits)**
- Must include:
  - Humanities (min. 3 credits)
  - Social Sciences (min. 3 credits)
  - Foreign Languages (0-6 credits)

**Mathematics (9 credits)**
- MA 22300/22400 Calculus I & II
- BIOC 33000 Biostatistics
  OR
- STAT 30100 Elementary Statistical Methods I

**Computer Science (3 credits)**
- CIS 20400, CS 34200, CE 20100 or any approved computer course

**Chemistry (19 credits)**
- CHM 115–116 General Chemistry I & II
  Students not prepared for CHM 11500 must take CHM 10000 first.
- CHM 255–25601 Organic Chemistry and laboratory I
- CHM 256–25601 Organic Chemistry and laboratory II
- CHM 333 Biochemistry

Ecology option students may take CHM 324 Environmental Chemistry in place of CHM 33300.

**Physics (8 credits)**
- PHYS 22000/22100 General Physics I & II

**BIOLOGY**

1. **Basic Core Courses (required by all biology majors) (18 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 Genetics
   - BIOL 24401 Genetics Lab
   - BIOL 42800 Senior Seminar (BIOL 42600 Senior Capstone may be substituted)

2. **Optional Core Courses**
   
   **A. General Biology Option — Choose 2 of the following (8 credits)**
   - BIOL 31600 Basic Microbiology
   - BIOL 33300 Ecology
   - BIOL 35700 Animal Physiology

   **B. Biotechnology Option (8 credits)**
   - BIOL 31600 Basic Microbiology
     OR
   - BIOL 50800 Recombinant DNA Technique
   
   * BIOL 31600 should be taken during the 2nd year if possible. It may be substituted for by BIOL 22100 Introduction to Microbiology.

   **C. Cell Biology/Physiology Option (8 credits)**
   - BIOL 35700 Animal Physiology (Required)
   - BIOL 31600 Basic Microbiology
     OR
   - BIOL 33300 Ecology

   **D. Ecology Option (8 credits)**
   - BIOL 33300 Ecology (Required)
   - BIOL 31600 Basic Microbiology
     OR
   - BIOL 35700 Animal Physiology

3. **Elective Courses**

   **A. General Biology Option (12 credits)**
   Additional 12 credit hours of biology electives at the 30000-level or above excluding BIOL 33000 and BIOL 33900. BIOL 31600 (Basic Microbiology), BIOL 33300 (Ecology), or BIOL 35700 (Animal Physiology) can be taken as an elective course if it was not taken as an optional core course.

   **B. Biotechnology Option (14 credits)**
   - BIOL 30700 Plant Physiology
   - BIOL 35700 Animal Physiology
   - BIOL 48800 Biological Sciences Internship (ExL)
     (Topics related to Biotechnology)
   - BIOL 48900 Biological Sciences Research (ExL)
     (Topics related to Biotechnology)
   - BIOL 48900 Independent Student Research
     (Topics related to Biotechnology)
   - BIOL 50700 Molecular Biology
   - BIOL 52500 Neurobiology
   - BIOL 53300 Medical Microbiology
   - BIOL 53400 Medical Microbiology Laboratory
   - BIOL 56100 Immunology
   - BIOL 56600 Developmental Biology
   - BIOL 49500/59500 Special Topic/Assignments*

   * Repeatability for credits. Topics may include but not limited to human cytogenetics technology, drugs and disease, medical genetics, bioinformatics, food microbiology, environmental microbiology, tissue culture, and special assignments (research) in genetics, molecular biology, and biotechnology. Consult your advisor.

   **C. Cell Biology/Physiology Option (12 credits)**
   - BIOL 30700 Plant Physiology
   - BIOL 34200 Biological Sciences Practicum (ExL)
     (Topics related to Cell Biology or Physiology)
   - BIOL 41800 Drugs and Diseases
   - BIOL 48800 Biological Sciences Internship (ExL)
   - BIOL 48900 Biological Sciences Research (ExL)
     (Topics related to Cell Biology or Physiology)
   - BIOL 48900 Independent Student Research
     (Topics related to Cell Biology or Physiology)
   - BIOL 52500 Neurobiology
   - BIOL 56600 Developmental Biology
   - BIOL 50700 Molecular Biology
   - BIOL 50800 Recombinant DNA Techniques
   - BIOL 53300 Medical Microbiology Laboratory
   - BIOL 53400 Medical Microbiology Laboratory
   - BIOL 56100 Immunology
   - BIOL 58000 Evolution
   - BIOL 49500/59500 Special Topic/Assignments*

   * Repeatability for credits. Topics may include but not limited to human cytogenetics technology, drugs and disease, medical genetics, bioinformatics, food microbiology, environmental microbiology, tissue culture, and special assignments (research) in genetics, molecular biology, and biotechnology. Consult your advisor.

   **D. Ecology Option (12 credits)**
   - BIOL 30700 Plant Physiology
   - BIOL 31600 Basic Microbiology (if not taken as an optional core course)
   - BIOL 35700 Animal Physiology (if not taken as an optional core course)
   - BIOL 40500 Conservation Biology
   - BIOL 47700 Phycology
   - BIOL 48800 Biological Sciences Internship (ExL) (Topics related to Ecology)
Bachelor of Science -
Biological Science Teaching
(124 credits)

Offered jointly with the School of Education; see advisor in School of Education for further information.

English Composition (3-6 credits)
- ENGL 10400/10500 English Composition I & II
  OR
  ENGL 10800 Accelerated First-Year Composition

Communication (3 credits)
- COM 11400 Fundamentals of Speech Communication

Humanities (3 credits)
- HIST 33400 Science And Technology in Western Civilization

Mathematics (minimum 6 credits)
- MA 22300/22400 Introductory Analysis I/II

Chemistry (16 credits)
- CHM 11500/11600 General Chemistry I & II

*Students not prepared for CHM 11500 must take CHM 10000 first.
- CHM 255-25501 Organic Chemistry and laboratory I
- CHM 256-25601 Organic Chemistry and laboratory II

Physics (8 credits)
- PHYS 22000/22100 General Physics I & II

Science (2 credits)
- SCI 22000 Health & Safety

BIOLOGY (32 credits)
- BIOL 10100 Introductory Biology I
- BIOL 10200 Introductory Biology II
- BIOL 10700 Biol Freshman Experience
- BIOL 24300 Introductory Cell Biology
- BIOL 24400 Genetics
- BIOL 24401 Genetics Lab

- BIOL 48900 Independent Student Research (Ex L) (Topics related to Ecology)
- BIOL 50700 Molecular Biology
- BIOL 50800 Recombinant DNA Techniques
- BIOL 58000 Evolution
- BIOL 58700 Biogeography
- BIOL 58800 Plant Ecology
- BIOL 58900 Plant Ecology Laboratory
- BIOL 59100 Field Ecology
- BIOL 59300 Ethology
- BIOL 49500/59500 Special Topic/Assignments*

* Repeatable for credit. Topics may include but not limited to aquatic ecology, environmental microbiology, ornithology, wetland ecology, restoration ecology, animal behavior, and special assignments (research) in ecology, evolution, and environmental science. Consult your advisor.

E. Microbiology Option (12 credits)
- BIOL 47700 Phycology
- BIOL 48800 Biological Sciences Internship (Ex L) (Topics related to Microbiology or Immunology)
- BIOL 48900 Independent Student Research (Ex L) (Topics related to Microbiology or Immunology)
- BIOL 50700 Molecular Biology
- BIOL 50800 Recombinant DNA Techniques
- BIOL 53300 Medical Microbiology
- BIOL 53400 Medical Microbiology Laboratory
- BIOL 56100 Immunology
- BIOL 49500/59500 Special Topic/Assignments*

* Repeatable for credit. Topics may include but not limited to bioinformatics, food microbiology, environmental microbiology, tissue culture, special assignments (topics related to microbiology or immunology).

Bachelor of Science - Medical Technology
(124 credits)

English Composition (3-6 credits)
- ENGL 10400/10500 English Composition I & II
  OR
  ENGL 10800 Accelerated First-Year Composition

Communication (3 credits)
- COM 11400 Fundamentals of Speech Communication

Humanities & Social Science (15 credits)

Must include:
- Humanities (min. 3 credits)
- Social Sciences (min. 3 credits)
- Foreign Languages (0-6 credits)

Mathematics (9 credits)
- MA 22300/22400 Calculus I & II
- BIOL 33300 Biostatistics
  OR
  STAT 30100 Elementary Statistical Methods I

Computer Science (3 credits)
- CS 20400, CS 34300, or any approved computer course

Chemistry (19 credits)
- CHM 11500/11600 General Chemistry I & II

*Students not prepared for CHM 11500 must take CHM 10000 first.
- CHM 25500/25501 Organic Chemistry and laboratory I
- CHM 25600/25601 Organic Chemistry and laboratory II
- CHM 33300 Biochemistry

Physics (8 credits)
- PHYS 22000/22100 General Physics I & II

BIOLOGY

Required courses (25 credits)
- BIOL 10100 Introductory Biology I

Bachelor of Science - Medical Technology
(124 credits)

English Composition (3-6 credits)
- ENGL 10400/10500 English Composition I & II
  OR
  ENGL 10800 Accelerated First-Year Composition

Communication (3 credits)
- COM 11400 Fundamentals of Speech Communication

Humanities & Social Science (15 credits)

Must include:
- Humanities (min. 3 credits)
- Social Sciences (min. 3 credits)
- Foreign Languages (0-6 credits)

Mathematics (9 credits)
- MA 22300/22400 Calculus I & II
- BIOL 33300 Biostatistics
  OR
  STAT 30100 Elementary Statistical Methods I

Computer Science (3 credits)
- CS 20400, CS 34300, or any approved computer course

Chemistry (19 credits)
- CHM 11500/11600 General Chemistry I & II

*Students not prepared for CHM 11500 must take CHM 10000 first.
- CHM 25500/25501 Organic Chemistry and laboratory I
- CHM 25600/25601 Organic Chemistry and laboratory II
- CHM 33300 Biochemistry

Physics (8 credits)
- PHYS 22000/22100 General Physics I & II

BIOLOGY

Required courses (25 credits)
- BIOL 10100 Introductory Biology I
BIOL 10200 Introductory Biology II
BIOL 10700 Biology Freshman Experience
BIOL 24300 Introduction to Cell Biology
BIOL 24400 Genetics
BIOL 24401 Genetics Laboratory
BIOL 31600 Basic Microbiology
BIOL 42600 Senior Capstone
BIOL 56100* Immunology

Electives (minimum 4 credits)
BIOL 35700 Introductory Animal Physiology
BIOL 53300* Medical Microbiology
BIOL 53400* Lab. in Medical Microbiology

*Required
Additional biology courses at 30000 level or above, excluding BIOL 33000 and 33900
Consult your advisor.

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; Parkview Hospital, Inc., Ft. Wayne, IN; or Hines VA Hospital, Hines, IL).
Note: Students must register for "Candidate Only" at Purdue Calumet at the beginning of the semester in which they expect to complete the B.S.

Predentistry Program
(90 CREDITS)
In order to enter dental school the student must fulfill appropriate prerequisite course requirements and have completed at least 90 semester hours. The vast majority of students who are accepted to dental school do have a Bachelor's degree. Purdue University Calumet communicates with Indiana University School of Dentistry to stay updated on this school's admission requirements. However, it is up to the individual student to make sure that his/her program satisfies the admission requirements for any dental school that he/she applies to. After completing the courses and 90 credit hours of undergraduate work, the student can apply to dental school. Currently, applications to IU-PU Dental School must be sent by Jan. 1st of the year the applicant plans to attend (www.iudental.edu). Deadline dates change from year to year. For more information on dental schools and the application process, go to www.iu.edu. 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.

Suggested Plan of Study
Pre-dentistry majors should take the same basic courses as those outlined for biology majors, with appropriate changes to complete all dental school prerequisites.

Purdue University Calumet Courses that meet dental school prerequisites:

BIOL 10100 Introduction to Biology I
BIOL 10200 Introduction to Biology II
CHM 11500 General Chemistry I
CHM 11600 General Chemistry II
CHM 25500 Organic Chemistry I
CHM 25501 Organic Chemistry Lab
CHM 25600 Organic Chemistry II
CHM 25601 Organic Chemistry Lab
PHYS 22000 General Physics I
PHYS 22100 General Physics II
ENGL 10400 English Composition I
ENGL 10500 English Composition II

Recommended Pre-dentistry Elective Courses

BIOL 21300 Human Anatomy and Physiology I
BIOL 21400 Human Anatomy and Physiology II
BIOL 35700 Animal Physiology
BIOL 34200 Biological Sciences Practicum (ExL)
BIOL 41800 Drugs and Disease
BIOL 48800 Biological Sciences Internship (ExL)
BIOL 48900 Independent Student Research (ExL)
BIOL 50700 Molecular Biology
BIOL52500 Neurobiology
BIOL 53300/53400 Medical Microbiology/Lab
BIOL 56100 Immunology
BIOL 59500 Medical Genetics
BIOL 56600 Developmental Biology
BIOL 59500 Medical Genetics

Directed Independent Research Project

Pre-occupational Therapy Program
(BACCALAUREATE DEGREE)

In order to enter I.U. medical school the student must fulfill appropriate prerequisite course requirements and have completed 90 credits, although most applicants will matriculate with a B.A. or B.S. degree accredited by a U.S. or Canadian Institution. Purdue University Calumet communicates with Indiana University School of Medicine to stay updated on this school's admission requirements. However, it is up to the individual student to make sure that his/her program satisfies the admission requirements for any medical school that he/she applies to. After completing the courses and 90 credit hours of undergraduate work, you can apply to medical school. Deadline dates change from year to year. For more information on medical schools and the application process, go to http://www.aacm.org or for colleges of osteopathy go to www.aacom.org. In order to apply to medical school students must take the Medical College Admission Test (MCAT). This test is given on specified dates during the year. Applicants must register online at www.aacm.org/MCAT.

Suggested Plan of Study
Premedical majors should take the same basic courses as those outlined for biology majors, with appropriate changes to complete all medical school prerequisites.

Purdue University Calumet Courses that meet medical school prerequisites:

BIOL 10100 Introduction to Biology I
BIOL 10200 Introduction to Biology II
CHM 11500 General Chemistry I
CHM 11600 General Chemistry II
CHM 25500 Organic Chemistry I
CHM 25501 Organic Chemistry Lab
CHM 25600 Organic Chemistry II
CHM 25601 Organic Chemistry Lab
PHYS 22000 General Physics I
PHYS 22100 General Physics II
ENGL 10400 English Composition I
ENGL 10500 English Composition II

Recommended Premedicine Elective Courses

BIOL 21300 Human Anatomy and Physiology I
BIOL 21400 Human Anatomy and Physiology II
BIOL 35700 Animal Physiology
BIOL 34200 Biological Sciences Practicum (ExL)
BIOL 41800 Drugs and Disease
BIOL 48800 Biological Sciences Internship (ExL)
BIOL 48900 Independent Student Research (ExL)
BIOL 50700 Molecular Biology
BIOL52500 Neurobiology
BIOL 53300/53400 Medical Microbiology/Lab
BIOL 56100 Immunology
BIOL 59500 Medical Genetics
BIOL 56600 Developmental Biology
BIOL 59500 Medical Genetics

Directed Independent Research Project

MOT Prerequisites
Basic or Introductory Statistics — 3 credits
English/Communication — 6 credits
Human Anatomy w/lab — minimum 4 credits
Human Physiology w/lab — minimum 4 credits
Abnormal Psychology — 3 credits
Lifespan Human Development — 3 to 9 credits
Humanities/Social Sciences — 3 credits in philosophy or sociology.
Medication Terminology — 1 to 3 credits, strongly recommended.

ALL prerequisite coursework must be completed with a grade of ‘C’ or higher.
ALL prerequisite coursework must be completed with a grade of ‘C’ or higher.

Criteria Used for Selection of Class:
Admission into the MOT program based on completed undergraduate degree, completed pre-
requisite courses, a minimum of twelve hours of observation and/or volunteer work in at least three (3) different occupational therapy settings (e.g. acute care hospital, outpatient, community
mental health, school system, etc.) with either an occupational therapist or an occupational
therapy assistant; a minimum cumulative grade point average (GPA) of 3.0 on a 4.0 scale; and
participation in a group interview. (from www.shs.iupui.edu/occupational_therapy/)

Preoptometry Program
(90 credits, including 20 credits at the 30000-40000 level)

Purdue University Calumet communicates with the Indiana University School of Optometry to stay updated on
this school’s admission requirements. However, it is up to the individual student to make sure that his/her program
satisfies the admission requirements for any school that he/she applies. After completing the required courses and
90 credit hours of undergraduate work, students can apply to optometry school. 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. Students are responsible for understanding these additional requirements and
making sure that individual programs cover the needed areas. The majority of applicants have an undergraduate
degree. Shadowing an optometrist is recommended. In addition, students must take the Optometry College Admis-
sion Test (OAT). For more information on prerequisites go to http://www.opt.indiana.edu/

Biology (13 credits)
- BIOL 10100 Introductory Biology I
- BIOL 31600 Basic Microbiology

Chemistry (12 credits)
- CHM 11500/11600 General Chemistry
  *Students not prepared for CHM 115 must take CHM 100 first.
- CHM 25500/25501 Organic Chemistry I/Organic Chemistry Laboratory

Physics (8 credits)
- PHYS 22000/22100 General Physics I/II

Mathematics (9 credits)
- MA 22300/22400 Intro. Analysis I/II
- BIOL 33000 Biostatistics
  * BIOL 33000 (Biostatistics) may be substituted for STAT 30100
- STAT 30100 Elementary Statistical Methods

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

Humanities and Social Science (15 credits)
- Two humanities courses (6 credits)
- Two social and historical studies electives (6 credits)
- Foreign Language (6 credits)
  May be exempt. Check with advisor. Strongly recommended
- PSY 12000 Intro. Psychology
- PHIL 11100 Ethics

Electives
- 24 credits, consult your advisor. Strongly recommended
- BIOL 21300/21400 Human Anatomy and Physiology I/II
- CHM 33300 Principles of Biochemistry

Recommended Biology Electives
- BIOL 24300 Introductory Cell Biology
- BIOL 24400 Genetics
- BIOL 24401 Genetics Laboratory

Prepharmacy Program
These are required courses for those who expect to apply for admission to and graduate from the Purdue
University College of Pharmacy Doctor of Pharmacy Pharm.D. program in West Lafayette, IN. Generally,
a student needs a GPA of >3.00, and even >3.25 to be competitive. It is not to your advantage to repeat
courses to improve your grade and GPA. Required Courses for fall 2012 admissions:

Biology (24 credits)
- BIOL 10100/10200 Introductory Biology I/II
- BIOL 10700 Biol Freshman Experience
- BIOL 21300/21400 Human Anatomy and Physiology I/II
- BIOL 22100 Introduction to Microbiology

Chemistry (19 credits)
- CHM 11500/11600 General Chemistry
  *Students not prepared for CHM 115 must take CHM 100 first.
- CHM 25500/25501 Organic Chemistry I/Organic Chemistry Laboratory
- CHM 25600/25601 Organic Chemistry II/Organic Chemistry Laboratory
- CHM 33000 Principles of Biochemistry

Physics (4 credits)
- PHYS 22000 General Physics I

Mathematics (9 credits)
- MA 22300/22400 Intro. Analysis I/II
- STAT 30100 Elem. Statistical Methods
  * BIOL 33000 (Biostatistics) may be substituted for STAT 30100

English (3-6 credits)
- ENGL 10400/10500 English Comp.I/II
  OR
- ENGL 10800 Adv. Freshman Comp.
  (for qualified students instead of 104/105)

Economics (3 credits)
- ECON 21000 Principles of Economics

Prephysical Therapy Program
Purdue University Calumet communicates with Indiana University School of Health and Rehabilitation Sciences to stay updated on this school’s admission requirements for the Doctor of Physical Therapy Program (DPT). However, it is up to the individual student to make sure that his/her program satisfies the admission requirements for any Physical Therapy (PT) school that he/she applies. Students must have an undergraduate degree to apply to PT school. Physical Therapy is a very competitive program (http://www.apta.org).

Suggested Plan of Study
Prephysical Therapy majors should take the same basic courses as those outlined for biology majors, with appropriate changes to complete all PT prerequisites.

PT Prerequisites
General College Chemistry* — 2 courses w/lab
General College Physics* — 2 courses w/lab
Human Anatomy w/lab — minimum 4 credits
*Level of course must be appropriate for science majors
Human Physiology w/lab — minimum 4 credits
Introductory Psychology — 3 credits
Basic or Introductory Statistics — 3 credits
Lifespan Human Development — 3 to 9 credits
Humanities/Social Sciences — 6 credits;
ALL prerequisite coursework must be completed with a grade of ‘C’ or higher.

Exposure to Physical Therapy
In addition to prerequisite course work students must complete observational, volunteer, or other work
experiences in both hospital inpatient and outpatient physical therapy settings (minimum equivalent
of one day, 8 hours) in order to appreciate the differences in physical therapists’ responsibilities in each
setting. Each experience must be of sufficient length of time to enable the supervising physical therapist
to adequately complete the IU DPT Program’s General Abilities Assessment Form included as part of the
Application Portfolio. (from www.shc.iupui.edu/physical_therapy)

Recommended Courses
Medical Terminology
Abnormal Psychology
Biomechanics/Kinesiology
Computer Literacy

Criteria Used for Selection of Class: Minimum GPA of 3.2 and prerequisite GPA of 3.2.

Preveterinary Science and Medicine Program
(MINIMUM 25 CREDITS)
The preveterinary science and medicine curriculum includes courses that are required for admission
 to the Doctor of Veterinary Medicine degree program offered by the Purdue University School of Veterinary
Medicine. This program of study is coordinated by the College of Agriculture Office of Academic Programs
in West Lafayette. The program emphasizes the biological and physical sciences that are foundations
for successful study of veterinary medicine. Also, the curriculum includes courses in communication
and the social sciences. Therefore, the course in this curriculum may meet the admission requirements
of other veterinary schools; however students need to consult with the admission requirement of the
 veterinary school, which they intend to apply.

English (3-6 credits)
ENGL 10400/10500 English Comp. I/II
OR
ENGL 10800 Adv. Freshman Comp.
(for qualified students instead of 10400/10500)

Communication (3 credits)
COM 11400 Fundamentals of Speech Communication

Humanities
(9 credits; 3 credits in each of foreign languages, cognitive science, and social science)

Mathematics (9 credits)
MA 22300/22400 Introduction Analysis I/II (calculus)*
Biol 33000 Biostatistics
OR
STAT 30100 Elementary Statistical Methods
*Students not prepared for MA 22300/22400 must take MA 15300/15400
(Algebra and Trigonometry I/II) first.

Physics (8 credits)
PHYS 22000/22100 General Physics I/II

Chemistry (19 credits)
CHM 11500/11600 General Chemistry I/II*
*Students not prepared for CHM 11500 must take CHM 10000 first.
CHM 25500/25501 Organic Chemistry/Laboratory I
CHM 25600/25601 Organic Chemistry/Laboratory II
CHM 33300 Biochemistry

Animal Science (3 credits)
ANSC 22100 Principles of Animal Nutrition

Biology (21 credits)
BIOL 10100/10200 Introductory Biology I/II
BIOL 10700 Freshmen Experience in Biological Sciences
BIOL 24300 Introduction to Cell Biology
BIOL 24400/24401 Genetics/Laboratory
BIOL 31600 Basic Microbiology
OR
BIOL 22100 Introduction to Microbiology

Recommended Electives (0-24 credits)
BIOL 30700 Plant Physiology
BIOL 33000 Ecology
BIOL 35700 Animal Physiology
BIOL 38300 Conservation Biology
BIOL 34200 Biological Sciences Practicum (ExL)
BIOL 48800 Biological Sciences Internship (ExL)
BIOL 48900 Independent Student Research (ExL)
BIOL 50700 Molecular Biology
BIOL 50800 DNA Recombinant Technique
BIOL 52400 Microbiology
BIOL 52500 Neurobiology
BIOL 53300/53400 Medical Microbiology & Laboratory
BIOL 56100 Immunology
BIOL 56600 Developmental Biology
BIOL 58000 Evolution
BIOL 59300 Ethology
BIOL 49500/59500 Special Assignments*
ENGL 22000 Technical Report Writing
ENGL 42000 Business Writing
PHIL 32400 Ethics for the Professions
* Repeatable for credit. Topics may include, but are not limited to endocrinology, food microbiology,
medical genetics, medical physiology, anthropometry, and special assignments. Consult your advisor.

General Agriculture 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 Composition (3-6 credits)
ENGL 10400/10500 English Composition I & II
OR
ENGL 10800 Accelerated First-Year Composition

Mathematics (9 credits)
MA 22300/22400 Calculus I & II
Biol 33000 Biostatistics
OR
STAT 30100 Elementary Statistical Methods I

Chemistry (8 credits)
CHM 11500/11600 General Chemistry I & II
*Students not prepared for CHM 11500 must take CHM 10000 first.

BIOL 10100 Introductory Biology I
BIOL 10200 Introductory Biology II
BIOL 10700 Biol Freshman Experience
BIOL 33300 Ecology

Electives (25 credits)
Consult your advisor.
Preforestry Transfer Program

(60 CREDITS)

Students may qualify for admission to the Department of Forestry and Natural Resources, School of Agriculture, at Purdue University West Lafayette by completing two years of courses offered through the Department of Biological Sciences at Purdue University Calumet.

English Composition (3-6 credits)
ENGL 10400/10500 English Composition I & II
or
ENGL 10800 Accelerated First-Year Composition

Communication (3 credits)
COM 11400 Fundamentals of Speech Communication

Mathematics (9 credits)
MA 22300/22400 Calculus I & II
BIOI 33000 Biostatistics
Or
STAT 30100 Elementary Statistical Methods I

Chemistry (8 credits)
CHM 11500/11600 General Chemistry I & II
*Students not prepared for CHM 11500 must take CHM 10000 first.

Biology (13 credits)
BIOI 10100 Introductory Biology I
BIOI 10200 Introductory Biology II
BIOI 10700 Biol Freshman Experience
BIOI 33300 Ecology

Electives (17-20 credits)
Consult your advisor

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 affects us; how we affect our environment, and how to deal with the environmental challenges we face. Although the Program is housed in the School 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 49300 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 the student’s major)
BIOI 21000 Field Biology
BIOI 33300 Ecology
BIOI 38300 Conservation Biology*
BIOI 58700 Biogeography*
BIOI 58000 Evolution
BIOI 58800 Plant Ecology*
BIOI 58900 Laboratory in Plan Ecology*
BIOI 59100 Field Ecology*
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)

Master of Science in Biology Teaching

(30 CREDITS)

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 be 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, chemistry, and physics. 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 will 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), two of three biology elective core courses (8 credits), biology electives (a minimum of 12 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 course work and a grade of B or higher in all biology 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 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 154 hours. The combined program allows an overlap of 9 credit hours, thereby reducing the number of required hours to 145 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 CREDIT HOURS)
The Graduate Certificate in Biotechnology is offered to students with a bachelor’s degree who wish to obtain advanced training in areas of biology that pertain to biotechnology. The certificate program is open to new students as well as students currently enrolled in a Master of Science degree program. Students who enter this program may have a variety of interests, including biochemistry, bioengineering, microbiology, molecular biology, cell biology, developmental biology, or molecular evolution. Students who are enrolled in the M.S. degree program are also eligible for receiving the Certificate upon request and completion of the course work.

Since biotechnology is a very broad field covering a wide variety of major growth sectors, such as medicine (therapeutics and diagnostics), agriculture (crop and livestock improvement), food (processing and specialty chemicals), and bioremediation (waste and contaminants disposal), students who complete the Certificate program will have opportunities to pursue their career in any of the subfields. Regardless of the students’ eventual career goals, the expected outcomes of this program are to prepare all students with the fundamental knowledge of molecular biology and its techniques that are essential for employment or advanced studies related to biotechnology. Therefore the requirements of Molecular Biology and Recombinant DNA Techniques are necessary.

Students completing the required courses will then be able to pursue additional training in their areas of interests. For example, those who are interested in molecular biology may take courses in Bioinformatics and Research in Molecular Biology. Those who are interested in clinical genetics may take Medical Genetics and Human Cytogenetics Technology, and those who are interested in microbiology may take Food Microbiology, Medical Microbiology, and Environmental Microbiology.

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 59500 Environmental Microbiology (3)
- BIOL 59500 Medical Genetics (3)
- BIOL 59500 Human Cytogenetics Technology (4)
- BIOL 56600 Developmental Biology (4)
- BIOL 52500 Neurobiology (4)
- BIOL 56100 Immunology (3)
- BIOL 59500 Bioinformatics (3)
- BIOL 53300/53400 Medical Microbiology (5)
- BIOL 59500 Food Microbiology (4)
- BIOL 59500 Research (variable credits)
The Department of Chemistry and Physics offers degree programs in Chemistry and in Physics. All of these programs include courses with a significant experiential component.

Bachelor of Science in Chemistry degree — American Chemical Society (ACS) accredited and Premedical degree tracks. 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. The Premedical Option is appropriate for those who plan to pursue professional study in health-related areas like medicine or pharmacy.

Bachelor of Science degree, Chemistry Teaching, Physics Teaching, or Physical Science Teaching. These programs are offered in cooperation with the School of Education, intended for those wishing certification to teach the physical sciences at the secondary level in Indiana. These programs provide students with a good background in chemistry and physics as well as those education courses which meet the standards mandated by the Indiana Professional Standards Board.

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 a minor in Electrical Engineering; the Computational Physics option provides students with a minor in Computer Science in addition to their physics education.

Research Opportunities in Chemistry

In addition to the internships described below, students may get experience in laboratory procedures and scientific research 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.

Programs

- Bachelor of Science in Chemistry, Chemistry Option (124 credits)
- Bachelor of Science in Chemistry, Premedical Option (124 credits)
- Bachelor of Science, Physics Teaching Option (128 credits)
- Bachelor of Science, Chemistry Teaching Option (128 credits)
- Bachelor of Science in Physics (127 credits)
- Bachelor of Science in Physics, Engineering Physics Option (128 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: ACS-accredited Option

(124 CREDITS)

General Requirements for all Chemistry degrees:

1. English and Communication
   - ENGL 10400 English Comp. I (Grade of A) AND English elective
   OR
   - ENGL 10400 / 10500
   - COM 11400 Fundamentals of Speech Communication

2. Science and Mathematics
   - A. Science (Chemistry: 44 credits; Physics: 9 credits)
   - CHM 11500 General Chemistry I

   - CHM 11600 General Chemistry II
   - CHM 19400 Freshman Chemistry Orientation
   - CHM 24100 Introductory Inorganic Chemistry
   - CHM 25501 Organic Chem. Lab. I
   - CHM 25601 Organic Chem. Lab. II
   - CHM 26100 Organic Chemistry I
   - CHM 26200 Organic Chemistry II
   - CHM 26600 Organic Chem. Laboratory
   - CHM 29400 Sophomore Chem. Seminar
   - CHM 32100 Analytical Chem. I
   - CHM 33300 Biochemistry
   - CHM 37300 Physical Chem. I
   - CHM 37400 Physical Chem. II

EMERITUS FACULTY:

CHM 37600 Physical Chem. Lab.
CHM 42400 Analytical Chem. II
CHM 49400 Junior-Senior Chemistry Seminar
PHYS 15200 Mechanics
PHYS 25100 Heat, Electricity, and Optics

B. Math (14 credits)
MA 16300 Integrated Calculus and Geom. I
MA 16400 Integrated Calculus and Geom. II
MA 26100 Multivariate Calculus

3. 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 or B:
A. Literature, History, Philosophy, Foreign Languages, Art, Music, Theater
B. Anthropology, Psychology, Sociology, Political Science, Economics

4. Free Electives (30 credits)
Students are encouraged to include as many chemistry electives, especially special assignments (research), as possible:
CHM 31800 Biomolecular NMR Spectroscopy/Magnetic Resonance Imaging
CHM 32400 Environmental Chemistry
CHM 34200 Inorganic Chemistry
CHM 34300 Inorganic Chemistry Lab.
CHM 49900 Special Assignments/Research
CHM 51300 Chemical Literature
CHM 53300 Introductory Biochemistry I
CHM 53400 Introductory Biochemistry II
CHM 53500 Introductory Biochem. Lab.
CHM 56200 Industrial Organic Chemistry
CHM 56300 Organic Chemistry
CHM 56400 Introduction to Polymer Chemistry
CHM 59900 Special Assignments

Bachelor of Science in Chemistry: Premedical Option
(124 CREDITS)
1. English and Communication
ENGL 10400 English Comp. I (Grade of A) AND English elective
OR
ENGL 10400 English Comp. I/II
/10500
COM 11400 Fundamentals of Speech Communication
2. Science and Mathematics
A. Science (Chemistry: 36 credits; Physics: 8 or 9 credits; Biology: 16 or more)
CHM 11500 General Chemistry I
CHM 11600 General Chemistry II
CHM 19400 Freshman Chemistry Orientation
CHM 24100 Introductory Inorganic Chemistry
CHM 25501 Organic Chem. Lab. I
CHM 25601 Organic Chem. Lab. II
CHM 26100 Organic Chemistry I
CHM 26200 Organic Chemistry II
CHM 27300 Introductory Physical Chemistry
CHM 29400 Sophomore Chem. Seminar
CHM 32100 Analytical Chem. I
CHM 33300 Biochemistry
CHM 49400 Junior-Senior Chemistry Seminar
CHM 49900 Special Assignments
BIOL 10100/10200 Introductory Biology
(Choose at least 16 credits of Biology)
BIOL 21300/21400 Human Anatomy and Physiology I and II
BIOL 31600 Microbiology
BIOL 32000 Cell Biology
BIOL 32100 Cell Biology Lab.
BIOL 42900 Genetics Lab.
BIOL 43000 Genetics
PHYS 15200 Mechanics
OR
PHYS 25100 Heat, Electricity, and Optics

4. Free Electives (22-27 credits)
See list of suggested courses above.

Bachelor of Science: Physical Science Teaching Option
(128 CREDITS)
Chemistry (19 or 20 credits)
CHM 11500 General Chemistry I
CHM 11600 General Chemistry II
CHM 25501 Organic Chemistry Laboratory I
CHM 25601 Organic Chemistry Laboratory II
CHM 26100 Organic Chemistry
CHM 26200 Organic Chemistry
CHM 32100 Analytical Chemistry I
OR
CHM 32400 Environmental Chemistry

Physics (13 credits)
PHYS 15200 Mechanics
PHYS 25100 Heat, Electricity, and Optics
PHYS 34200 Modern Physics
PHYS 34300 Modern Physics Lab.

Science (2 credits)
SCI 22000 Health and Safety in the Physical Science Laboratory

Miscellaneous Science Courses (13 credits)
CHM 19400 OR Freshman Orientation
PHYS 19400
ASTR 26300, 26400, (choose two)
26500, 36300, 36400
BIOL 10100 Introductory Biology
EAS 11000 OR 22000 Geology or Physical Geography

Mathematics (17 credits)
MA 16300 Integrated Calculus and Analytic Geometry I
MA 16400 Integrated Calculus and Analytic Geometry II
MA 26100 Multivariate Calculus
MA 26400 Differential Equations
### Social Sciences (3 credits)
- PSY 36200 Human Development II: Adolescence

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

### Communications (3 credits)
- COM 11400 Fundamentals of Speech Communication

### Humanities (6 credits)
- HIST 33400 Science and Technology in Western Civilization II
- POL 30400 Technology and Society

### Education (42 credits)
- EDCI 20500 Exploring Teaching as a Career
- EDCI 26000 Introduction to Computers in Education
- EDPS 22000 Psychology of Learning
- EDPS 26000 Introduction to Special Education
- EDCI 28500 Multiculturalism and Education
- EDCI 30900 Reading in the Middle and Secondary School
- EDCI 32000 Principles of Practice in Elementary & Secondary Schools
- EDCI 34600 Strategies of Science Instruction in the Senior High School
- EDCI 35500 Teaching and Learning in the K-12 Classroom
- EDCI 48900/49700 Student Teaching

### Electives (as needed, 9 minimum)

### Bachelor of Science: Chemistry Teaching Option
(128 CREDITS)

#### Chemistry (27-29 credits)
- CHM 11500 General Chemistry I
- CHM 11600 General Chemistry II
- CHM 19400 Freshman Chemistry Orientation
- CHM 25501 Organic Chemistry Laboratory I
- CHM 25601 Organic Chemistry Laboratory II
- CHM 26100 Organic Chemistry
- CHM 26200 Organic Chemistry
- CHM 27300 Physical Chemistry
- CHM 32100 Analytical Chemistry I
- CHM 32400 Environmental Chemistry
- CHM 42400 Analytical Chemistry II

#### Physics (13 credits)
- PHYS 15200 Mechanics
- PHYS 26100 Heat, Electricity, and Optics
- PHYS 34200 Modern Physics

#### Miscellaneous Science Courses (12 credits)
- ASTR 26300, 26400, (choose one)
- BIOL 1000
- EAS 11000 OR 22000
- SCI 22000

#### Mathematics (10 credits)
- MA 16300 Integrated Calculus and Analytic Geometry I and II

#### Social Sciences (3 credits)
- PSY 36200 Human Development II: Adolescence

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

### Communications (3 credits)
- COM 11400 Fundamentals of Speech Communication

### Humanities (6 credits)
- HIST 33400 Science and Technology in Western Civilization II
- POL 30400 Technology and Society

### Education (42 credits) (See page 41 for more info)
- EDCI 20600 Introduction to Teaching
- EDCI 26000 Introduction to Computers in Education
- EDPS 22000 Psychology of Learning
- EDPS 26000 Introduction to Special Education
- EDCI 28500 Multiculturalism and Education
- EDCI 30900 Reading in the Middle and Secondary School
- EDCI 32000 Principles of Practice in Elementary & Secondary Schools
- EDCI 34600 Strategies of Science Instruction in the Senior High School
- EDCI 35500 Teaching and Learning in the K-12 Classroom
- EDCI 48900/49700 Student Teaching

### Electives (as needed, 9 minimum)

### Bachelor of Science: Physics Teaching Option
(128 CREDITS)

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

#### Physics (28 credits)
- PHYS 15200 Mechanics
- PHYS 19400 Freshman Physics Orientation
- PHYS 25100 Heat, Electricity, and Optics
- PHYS 31000 Intermediate Mechanics
- PHYS 31100 Quantum Physics
- PHYS 32200 Intermediate Optics
- PHYS 33000 Intermediate Electricity and Magnetism
- PHYS 34200 Modern Physics
- PHYS 34300 Modern Physics Lab

#### Miscellaneous Science Courses (10 credits)
- ASTR 26300, 26400, (choose one)
- BIOL 1000
- EAS 11000 OR 22000
- SCI 22000

#### Mathematics (20 credits)
- MA 16300 Integrated Calculus and Analytic Geometry I
- MA 16400 Integrated Calculus and Analytic Geometry II
- MA 26100 Multivariate Calculus
- MA 26400 Differential Equations
- MA 26500 Linear Algebra

#### Communication & English Composition (9 credits)
- COM 11400 Fundamentals of Speech Communication

### Plus one of the following three options:
- ENGL 10400/10500 English Comp. I/II
- ENGL 10300 OR 10800 A dv. Freshman Comp. AND a writing-intensive course approved by the student’s academic advisor
- ENGL 10400 (with a grade of A) AND a writing-intensive course approved by the student’s academic advisor
Communications (3 credits)
  COM 11400  Fundamentals of Speech Communication

Humanities (6 credits)
  HIST 33400  Science and Technology in Western Civilization II
  POL 30400  Technology and Society

Education (36 credits)
  EDFA 20000  History & Philosophy of Education
  EDPS 22000  Psychology of Learning
  EDPS 26000  Introduction to Special Education
  EDPS 36600  Use of Assessment in the Classroom
  EDCI 32300  Education Technology for Teaching & Learning
  EDCI 34600  Strategies of Science Instruction in the Senior High School
  EDCI 35500  Teaching and Learning in the K Classroom
  EDPS 37000  Teaching Students w/Diverse Needs in the K-12 Classroom
  EDCI 48900/49700  Student Teaching

Electives (as needed)

Chemistry Minor Option
(24 CREDITS)

1. Chemistry Core:
   CHM 11500 AND General Chemistry I & II
   CHM 11600

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 49990 (undergraduate research) may also be used to fulfill this requirement Bachelor of Science.

Bachelor of Science in Physics
(128 CREDITS)

1. Communication & English Composition (9 credits)
   COM 11400  Fundamentals of Speech Communication
   Plus one of the following three options:
   ENGL 10400/10500  English Comp I/II
   OR
   ENGL 10400/22000  English Comp I/Technical Report Writing
   OR

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

Math Electives (6 credits)
   Choose from (substitutions with advisor approval)
   MA 31200  Probability
   MA 31500  Introductory Abstract Mathematics
   MA 34800  Discrete Mathematics
   MA 47200  Introductory Applied Mathematics

Computer Science/Programming (6 credits)
   Choose from (substitutions with advisor approval)
   CS 12300 AND CS12400 Programming I:Java AND Programming II:C++
   OR
   ENGR 15100 AND ENGR 15200 Software Tools (MATLAB) AND Programming (C)
   OR
   CIS 16600 AND (CIS 26300 or CIS 26600) Intro to Programming AND (Java or C++)

4. Physics (40 credits)
   PHYS 15200  Mechanics
   PHYS 19400  Freshman Physics Orientation
   PHYS 20100  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

5. Chemistry (8 credits)
   CHM 11500  General Chemistry I
   CHM 11600  General Chemistry II

6. Electives (12-14 credits)
   Choose from (substitutions with advisor approval; at least 9 credits must be
   in the form of 3- or lecture courses)
   ASTR 36300  Solar System
   ASTR 36400  Stars & Galaxies
   PHYS 30500  Intermediate Math Physics
   PHYS 30800  Scientific Computation I
   PHYS 30900  Scientific Computation II
   PHYS 41200  Quantum Physics II
   PHYS 46900  Research in Physics (w/ instructor permission)
   PHYS 47000  Special Topics (w/ instructor permission)

7. Additional Science (6-8 credits)
   A two-course sequence in biology or geosciences; substitutions with advisor approval

Bachelor of Science in Physics: Computational Physics Option
(128 CREDITS)

1. Communication and English Composition (9 credits)
   COM 11400  Fundamentals of Speech Communication
   Plus one of the following three options:
   ENGL 10400/10500  English Comp I/II
   OR
   ENGL 10400/22000  English Comp I/Technical Report Writing
   OR

2. Humanities and Social Sciences (15 credits)
   A two-course sequence from group A or group B, two courses from the other group,
   and one other course 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

Math Electives (6 credits)
Choose from (substitutions with advisor approval)
   - MA 31200  Probability
   - MA 31500  Introductory Abstract Mathematics
   - MA 34800  Discrete Mathematics
   - MA 47200  Introductory Applied Mathematics

4. Computer Science (18 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

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

6. Electives (6 credits)
Choose from:
   - ASTR 36300  Solar System
   - ASTR 36400  Stars & Galaxies
   - PHYS 30500  Intermediate Math Physics
   - PHYS 41200  Quantum Physics II
   - PHYS 46900  Research in Physics (w/ instructor permission)
   - PHYS 47000  Special Topics (w/ instructor approval)

7. Chemistry (8 credits)
Choose from:
   - ASTR 36300  Solar System
   - ASTR 36400  Stars & Galaxies

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**Physics Minor**
(18 CREDITS)

Required:
- PHYS 15200  Mechanics
- PHYS 25100  Heat, Electricity, and Optics
  (or PHYS 26100 and one credit hour of supplemental laboratory work in PHYS 27000)
- 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)

Required:
- 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**
(128 CREDITS)

1. **Communication & English Composition (9 credits)**
   - COM 11400  Fundamentals of Speech Communication
   - Plus one of the following three options:
     - ENGL 10400/10500  English Comp I/II
     - ENGL 10400/22000  English Comp I/Technical Report Writing

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

Math Electives (6 credits)
Choose from (substitutions with advisor approval)
   - MA 31200  Probability
   - MA 31500  Introductory Abstract Mathematics
   - MA 34800  Discrete Mathematics
   - MA 47200  Introductory Applied Mathematics

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)
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; P. Naseradinmousavi (Visiting)

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 team work with other professionals. Graduates from the bachelor's or masters 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 Mechatronics or Power and Energy Systems. 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.

The Purdue Calumet graduate engineering curriculum leads to a Master of Science in Engineering degree with specialization in electrical and computer engineering, 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 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 and 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 publicized 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 2011 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 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
- Master of Science in Engineering with ECE Specialization
- 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.

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 Mechatronics, and in Power and Energy Systems.

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 3xxx Engineering Ethics (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 Elementary Engineering Design
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 Microprocessors 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

Bachelor of Science in Computer Engineering

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.*

Bachelor of Science in Electrical Engineering

Requirements common for Bachelor of Science in Computer 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.*

Bachelor of Science in Computer Engineering with a minor in Mechatronics

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
ECE 38000 Computers in Engineering Analysis
ECE 42600 Electric Drives

Bachelor of Science in Engineering, Interdisciplinary Engineering Option

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 graduate education in law, management, medicine, pharmacy, etc. For the course list see the Department of Electrical and Computer Engineering (Potter 121) or on http://webs.purdue.edu/ece/undergraduate-programs/ece-program-description/
Master of Science in Engineering
(30 CREDITS)

Purdue University Calumet offers a graduate curriculum leading to the Master of Science in Engineering degree with specialization in Electrical and Computer Engineering, Mechanical Engineering, and Interdisciplinary Engineering. 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 credits in the engineering field of their choice for the Master’s degree with a GPA of 3.0/4.0 or better before being considered for full admission.
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 as a post-baccalaureate student.

Degree Requirements
1. Non-thesis Option: 30 semester credits, with at least 18 credits of primary graduate-level engineering courses.
2. Thesis Option: 30 semester credits, with 9 credits for the thesis research and at least 18 credits of graduate-level engineering courses.
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, undergraduate 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.
Department of Mathematics, Computer Science, and Statistics

Catherine M. Murphy, Department Head. Faculty: G. Aryal; R.D. Bechtel (Emeritus); Y.C. Chen (Emeritus); T.S. Chihara (Emeritus); J.J. Coffey; A. Elmendorf; J. Gregg; H. Hosek (Emeritus); B.L. Jahn-Schaffrath (Emeritus); N.L. Johnson; R.L. Kraft; W.C. Lordan (Emeritus); J.P. McLaughlin (Emeritus); R.R. Merkovsky; G. Millsaps; E. Freshman Seminar -- MA 10000 (1 credit)

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.

Bachelor of Science, Core Mathematics

(124 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. General Education Requirements (52-56 credits)
   A. English Composition (6 credits)
      ENGL 10400 and ENGL 10500
   B. Communications (3 credits)
      COM 11400
   C. Science (12-16 credits)
      Four approved lab science courses of which at least two must have a lab component
   D. Humanities and Social Sciences (30 credits)
      Six approved credits from each of four of the following areas, with the other six approved credits distributed in the humanities and social sciences courses by the student.
      i) Literature, Philosophy, Aesthetics
         (MUS 25000, THTR 21000, PHIL 10600, A&D 25500 only)
      ii) History, Political Science
      iii) Economics (Econ 25100 or Econ 25200)
      iv) Sociology, Psychology
      v) Foreign Language
   E. Freshman Seminar — MA 10000 (1 credit)

2. Required Mathematics, Computer Science, and Statistics Courses (47 credits)
   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 31200 Probability
   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

3. Minor Area
   18 credits including at least three courses beyond the introductory level

Bachelor of Science, Mathematics Education

(126-129 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 program is open only to those who fulfill all the academic requirements for licensure to teach mathematics in Indiana schools.

1. General Education Requirements (43-46 credits)
   A. English Composition (6 credits)
      ENGL 10400 and ENGL 10500
   B. Communications (3 credits)
      COM 11400
C. Science (9–12 credits)
Three approved lab science courses including one life science and one physical science. At least two of the science courses must have a lab component.

D. Humanities and Social Sciences (24 credits)
Three approved credits must be chosen from the humanities: literature, history, philosophy, foreign languages, art, music, theater.
Three approved credits must be chosen from social sciences: anthropology, psychology, sociology, political science, economics.
Six approved credits must be chosen from each of the following five areas. The remaining credit hours (if any) in this area may be distributed in humanities and social sciences courses by the student.

i) Literature, Philosophy, Aesthetics
(MUS 25000, THTR 20100, PHIL 10600, A&D 25500 only)

ii) History, Political Science

iii) Economics (ECON 25100 or ECON 25200)

iv) Sociology, Psychology

v) Foreign Language

E. Freshman Seminar — MA 10000 (1 credit)

2. Required Mathematics, Computer Science, and Statistics Courses (47 credits)

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 31200 Probability
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 Applied Mathematics
CS 20600 Computer Algebra and Programming
STAT 34500 Statistics

3. Professional Education Courses (36 credits)

EDJA 20000 History and Philosophy of Education
EDPS 22000 Psychology of Learning
EDPS 26000 Introduction to Special Education
EDCI 35500 Teaching and Learning in the K–12 Classroom
EDCI 36600 Use of Assessment in K–12 Classroom
EDPS 37000 Teaching Students with Diverse Learning Needs
EDCI 34400 Mathematics Teaching in Middle School, Jr. High, High School
EDCI 32300 Educational Technology for Teaching and Learning
EDCI 49702 Professional Semester (12 credits)

Bachelor of Science, Computer Science

(124 CREDITS)

Computer Science is a young and rapidly developing field. As a result, the curriculum must be revised 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. General Education Requirements (46–49 credits)

   A. English Composition (6 credits)
   ENGL 10400 and ENGL 10500

   B. Communications (3 credits)
   CDM 11400

   C. Science (9–12 credits)
   Three approved lab science courses of which at least two must have a lab component.

D. Humanities and Social Sciences (27 credits)
Six approved credits from each of four of the following five areas, with the other three approved credits in a humanities and social sciences course chosen by the student.

i) Literature, Philosophy, Aesthetics
(MUS 25000, THTR 20100, PHIL 10600, A&D 25500 only)

ii) History, Political Science

iii) Economics

iv) Sociology, Psychology

v) Foreign Language

E. Freshman Seminar — MA 10000 (1 credit)

2. Required Mathematics 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
   MA 31200 Probability

   NOTE: MA 26400, Differential Equations, is strongly recommended for those who plan to attend graduate school or pursue careers in scientific computer science.

3. Required Computer Science Courses (42 credits)

   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 32200 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

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 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.
3. 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)

- 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
- One of the following:
  - CS 31600 Programming Languages
  - CS 35200 Algorithms
  - OR
  - One 40000-level CS course.

NOTE: MA 15900 is a prerequisite for CS 27500.

Minor in Mathematics
(23 CREDITS)

- MA 16300 (5 credits) Integrated Calculus and Analytic Geometry I
- MA 16400 (5 credits) Integrated Calculus and Analytic Geometry II
- MA 26100 (4 credits) Multivariate Calculus
- MA 26500 Linear Algebra
- MA 31500 Introduction to Abstract Mathematics
- One of the following:
  - MA 45300 Elements of Algebra
  - MA 44600 Real Analysis

Minor in Applied Mathematics
(23 CREDITS)

- MA 16300 (5 credits) Integrated Calculus and Analytic Geometry I
- MA 16400 (5 credits) Integrated Calculus and Analytic Geometry II
- MA 26100 (4 credits) Multivariate Calculus
- MA 26400 Differential Equations
- MA 26500 Linear Algebra
- One of MA 47200

Minor in Mathematics for Preservice Elementary Education Majors
(18 CREDITS)

- MA 13700 Mathematics for Elementary Teachers I
- MA 13800 Mathematics for Elementary Teachers II
- Mathematics 13900 Mathematics for Elementary Teachers III

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)

Special Admission Requirements
Strong undergraduate program in mathematics, including linear algebra, abstract algebra, advanced analysis, and differential equations.

Special Program Requirements
1. No more than six credits of coursework with grade of “C-.”
   “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 grade of “C-.”
   “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
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Graduate Advisor M.S. in Mathematics: Anthony Elmendorf
e-mail: aelmendorf@purduecal.edu

Graduate Advisor M.S. in Computer Science: Hairong Zhao
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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.

The Purdue Calumet engineering graduate curriculum leads 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. Courses are provided both days and evenings on a publicized 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 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 2011 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, nanofluids 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
- Master of Science in Engineering with ME Specialization
- 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 has to be an in an area of science other than PHYS or CHM, and consistent 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/engr/electives.pdf*

3. **Humanities and Social Sciences (9 credits)**
   - PHIL 3xxx Engineering Ethics (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.*

### 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. **Science Elective**
   - 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

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
   - CE 2xxx Mechanics of Materials Lab
   - CE 27500 Basic Mechanics II: Dynamics
   - CE 31200 Fluid Mechanics
   - CE 3xxx Construction Engineering Management
   - 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/engr/electives.pdf**

*CE 20400 Civil Engineering Materials

**CE 11500 Engineering Draw ing I**

**ENGR 19000 Elementary Engineering Design**

**ENGR 18600 Engineering Freshman Seminar**

**ENGR 15100 Software Tools for Engineers**

**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**

**CE 31200 Fluid Mechanics**

**CE 3xxx Construction Engineering Management**

**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**

**ME 30500 General Thermodynamics I**

**CE 20400 Civil Engineering Materials**

**CE 11500 Engineering Draw ing I**

**ENGR 19000 Elementary Engineering Design**

**ENGR 18600 Engineering Freshman Seminar**

**ENGR 15100 Software Tools for Engineers**

**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**

**CE 31200 Fluid Mechanics**

**CE 3xxx Construction Engineering Management**

**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**

**ME 30500 General Thermodynamics I**

**CE 20400 Civil Engineering Materials**

**CE 11500 Engineering Draw ing I**

**ENGR 19000 Elementary Engineering Design**

**ENGR 18600 Engineering Freshman Seminar**

**ENGR 15100 Software Tools for Engineers**

**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**

**CE 31200 Fluid Mechanics**

**CE 3xxx Construction Engineering Management**

**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**

**ME 30500 General Thermodynamics I**

**CE 20400 Civil Engineering Materials**
Bachelor of Science in Engineering, Interdisciplinary Engineering Option

(128 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 a list, see the Department of Mechanical Engineering (Powers 211) or www.purdue.edu/me/BS_IDE_option.pdf.

Master of Science in Engineering

(30 CREDITS)

Purdue University Calumet offers a graduate curriculum leading to the Master of Science in Engineering degree with specialization in Electrical and Computer Engineering, Mechanical Engineering, and Interdisciplinary Engineering. 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 credits in the engineering field of their choice for the Master’s degree with a GPA of 3.0/4.0 or better before being considered for full admission.

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 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, with at least 18 credits of primary graduate-level engineering courses.

2. Thesis Option: 30 semester credits, with 9 credits for the thesis research and at least 18 credits of graduate-level engineering courses. 21 semester credits plus thesis.

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, undergraduate 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.

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.purdue.edu/me/electives.pdf

3. Humanities and Social Sciences (9 credits)
PHIL 3xxx Engineering Ethics (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, BOTC, 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
ME 11500 Engineering Drawing I
ME 11600 Engineering Drawing II
ME 31100 Engineering Economics and Project Management
ME 42900 Senior Engineering Design I
ME 43900 Senior Engineering Design II

5. Electrical and Computer Engineering
ECE 20100 Linear Circuit Analysis I
ECE 20700 Electronic Measurement Techniques

6. Mechanical Engineering
ME 27100 Basic Mechanics I: Statics
ME 27500 Basic Mechanics II: Dynamics
ME 30500 General Thermodynamics I
ME 31200 Fluid Mechanics
ME 31300 Fluid Mechanics Laboratory
ME 32000 Kinematic Analysis and Design
ME 32500 Dynamics of Mechanical Systems
ME 34500 Mechanical Engineering Experimentation
ME 41600 Heat Transmission
ME 41700 Heat Transmission Laboratory
ME 46100 Machine Design I

7. Civil Engineering
CE 27300 Mechanics of Materials

8. Materials Science
MSE 20000 Materials Science

9. Mechanical Engineering Electives
Four courses from a list approved by the Engineering Undergraduate Committee.*

10. Engineering Elective
One Engineering (any) course 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/electives.pdf

DEPARTMENTS / SCHOOLS
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.
School of
LIBERAL ARTS and SOCIAL SCIENCES
The School of Liberal Arts and Social Sciences (LASS) houses the following departments:

- **Behavioral Sciences** (Thomas Pavkov, interim head; 219/989-2384, Porter Hall, Room 213)
- **Communication and Creative Arts** (Yahya Kamalipour, 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, Classroom Office Bldg., Rm. 313)
- **History and Political Science** (Richard Rupp, head; 219/989-2347, Classroom Office Bldg., Room 215)
- **Hospitality and Tourism Management** (Michael Flannery, head; 219/989-2340, Hospitality Tourism Management Building, Room 195)

### 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
- Hospitality and Tourism Management
- Hospitality and Tourism Management- Fitness Management
- Human Development and Family Studies
  - Child and Family Services
  - Early Childhood Development
  - Gerontology
  - Disability Studies
- 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 School 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

Thomas Pavkov, Interim Head. Faculty: G. M. Casanova; R. L. Cherry; V. B. Damusis (Emeritus); B. J. Davis (Emerita); P. T. Do; L. L. Hecker; J. B. Hill (Emerita); E. V. James; D. R. Kirkpatrick (Emeritus); L. S. Mura (Emerita); D. Nalbone; T. Pavkov; D. L. Pick; K. A. Pierce; J. E. Prebis (Emerita); D. Raden; P. Rodda; S. M. Singer; 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: S. Ison; P. Riddinger

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; child care; 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.

Internships are offered in the graduate program in marriage and family therapy in an on-campus clinic, our research center the Institute for Social and Policy Research and the Gerontology 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 which allows students to engage in simulated experiments and analysis of data from classroom experimental projects. The Institute for Social and Policy Research is 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, Disability Studies, 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
- Post-Baccalaureate Certificate in Disability Studies
- Minors in Disability Studies, Early Childhood, Gerontology, Human Services, Psychology, Service Learning, Sociology

Child Development Associate (CDA) Preparation & Advising Program
(NON-DEGREE) (12 CREDITS)

CDA 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 (May substitute PSY 36100)
- CDFS 23500 CDA Portfolio and Experience

Elective: Choose one appropriate additional course according to your area of focus:
- CDFS 30800 Language and Literacy in Early Childhood (Appropriate for any of the CDA certificates)
- CDFS 22800 Developmental Infant & Toddler Care (Appropriate only for Infant/Toddler CDA)

Certificate - Infant/Toddler Certificate
(18 CREDITS)

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
Bachelor of Arts, Psychology  
(126 CREDITS)

1. Communication (18-21 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 (CS 20400) Lab Science – SF 10500, 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 (FBN 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 31000:
   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 (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.

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 careers, 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
(126 CREDITS)

Requirements for all Sociology degrees:

1. Communication
   - 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
   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 (CS 20400). The remaining three hours may be filled with any Science, Mathematics, Logic (PHIL 15000), or non-lab science (FBN 30300) course.

3. Humanities and Social Sciences
   - 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  
(126 CREDITS)

Requirements for Sociology degree plus: (35 credits)

- BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
- SOC 22000 Social Problems
- SOC 24500 Field of Sociology
- SOC 34000/PSY 33900 General Social Psychology
- SOC 38200 Intro to Methods of Social Research I
  *(BHS 20100 or PSY 50000 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*

**Prewrite to major - SOC 10000.

18 credits chosen from any of the following courses:

- COM 36500 Communication and Aging
- COM 37100 Communication and Health
- F&N 36000 Nutrition and Aging
- PSY 36300 Human Development III: Adulthood

Bachelor of Arts, Sociology-Gerontology Option  
(126 CREDITS)

Requirements for Sociology degree plus: (41 credits)

- BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
- SOC 22000 Social Problems
- SOC 24500 Field of Sociology (1 cr.)
- SOC 36100 The Institution of Social Welfare
- SOC 38200 Intro to Methods of Social Research I
  *(BHS 20100 or PSY 50000 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. Gerontology
- PSY 36300 Human Development 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 36500 Communication and Aging
- COM 37100 Health Com.
- F&N 36000 Nutrition and Aging
- PSY 43300 Issues in Dev. Psy

*Pwrite to SOC 40200: 12 hours of Sociology and a 2.25 GPA in all Sociology courses.

Electives or Minor (24-31 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-Criminal Justice  
(126 CREDITS)

Requirements for Sociology degree plus: (35 credits)

- BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
- SOC 22000 Social Problems
- SOC 24500 Field of Sociology (1 cr.)
- SOC 42200 Criminality
- 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 or PSY 50000 accepted)*
- SOC 38300 Intro to Methods of Social Research II
- SOC 40200 Principles of Sociology**

*Pwrite to SOC 40200: 12 hours of Sociology and a 2.25 GPA in all Sociology courses.

Electives or Minor (24-31 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  
(126 CREDITS)

Requirements for Sociology degree plus: (41 credits)

- BHS 10300 Freshman Experience in Behavioral Sciences (1 cr.)
- SOC 22000 Social Problems
- SOC 34000/PSY 33900 General Social Psychology
- SOC 38200 Intro to Methods of Social Research I
  *(BHS 20100 or PSY 50000 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. Gerontology
- PSY 36300 Human Development 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 36500 Communication and Aging
- COM 37100 Health Com.
- F&N 36000 Nutrition and Aging
- PSY 43300 Issues in Dev. Psy

*Pwrite to SOC 40200: 12 hours of Sociology and a 2.25 GPA in all Sociology courses.

Electives or Minor (24-31 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  
(126 CREDITS)

Requirements for all Specializations:

1. General Education Requirements (18-21 credits)
    Communication
    - 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

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 Dev.
   - SOC 35000 Social Psychology of Marriage
   - PSY 36100 Human Development I: Infancy and Early Childhood
   - SOC 30800 Language & Literacy in Early Childhood
   - SOC 30501 Art, Music & Movement in Early Childhood
   - SOC 30600 Language & Literacy in Early Childhood
   - SOC 31001 Math, Science & Social Studies in Early Childhood
   - SOC 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 Ex L
   - PSY 36100 Human Development I: Infancy and Childhood

5. Child and Family Services Specialization (18 credits)
   - SOC 22000 Social Problems
   - SOC 26100 Basic Helping Skills/Human Services
   - SOC 30600 Methods in Human Services
   - SOC 36400 Child and Family Welfare
   - PSY 36100 Human Development I: Infancy & Early Childhood
   - PSY 36200 Human Development II: Adolescence
   - PSY 36300 Human Development III: Adulthood

6. Electives (6 credits)
   Restricted, Two of:
   - SOC 36100 The Institution of Social Welfare
   - Sociology of Health & Illness
   - WOST 12100 Intro to Women’s Studies
   - COM 31000 Family Communications
   - PSY 33500 Child Abuse and Neglect
   - PSY 43500 Intro to Marriage & Family Therapy
   - PSY 53200 Psychological Disorders of Childhood
   - PSY 55000 Introduction to Clinical Psychology

7. Electives (Open) (16-23 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.

Early Childhood 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 (Fall Only)
   - CDFS 21000 Intro to Human Development
   - SOC 35000 Social Psychology of Marriage
   - CDFS 35400 Practicum I Ex L
   - CDFS 45501 Practicum II Ex L
   - PSY 36100 Human Development I: Infancy and Childhood

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 Ex L
   - 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 Intro 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 and 45501: CDFS 30800, 30501, and 31001
   *Prerequisite to CDFS 21700: CDFS 21600 or equivalent
   *Prerequisite to CDFS 30800: Pre or Coreq: CDFS 21600
   *Prerequisite to CDFS 31001: CDFS 21600, CDFS 30800, PSY 36100 & 1 lab science.
   *Prerequisite to CDFS 42100: PSY 36100
   *Prerequisite to CDFS 43101: PSY 36100

6. Electives or Minor (4-11 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.

   Note: This degree does not lead to State of Indiana Teaching Licensure
Gerontology 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
   SOC 46000  Practicum (6 credit hours)
   PSY 43300  Theories in Human Development

5. Gerontology Specialization (18 credits)
   PSY 36100  Human Development I: Infancy & Early Childhood
   OR
   PSY 36200  Human Development II: Adolescence
   Required:
   PSY 36300  Human Development III: Adulthood
   SOC 43100  Services for the Aged
   SOC 43000  Sociology of Aging
   F&N 36000  Nutrition and Aging
   PSY 53500  Psychology of Death and Dying

6. Electives (6 credits)
   Required: Two of:
   WOST 12100  Introduction to Women's Studies
   SOC 26100  Basic Helping Skills/Human Services
   SOC 30600  Methods in Human Services
   SOC 41100  Social Stratification
   SOC 44000  Sociology of Health and Illness
   COM 36500  Communication and Aging

7. Electives (Open) (16-23 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.

Disability Studies Specialization

4. Human Development and Family Studies Core (25 hours)
   Freshman Experience (for incoming freshman only) (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
   BHS 38200  Disability and the Family Life Cycle
   BHS 38400  Disability and Society
   BHS 48400  Genetic and Physiological Factors Underlying Developmental Disabilities

5. Disability Studies Specialization (24 hours)
   Required (18 hours):
   SOC 26100  Basic Helping Skills/Human Serv
   SOC 30600  Methods in Human Services
   SOC 36400  Child and Family Welfare
   BHS 38000  Disability and the Family Life Cycle
   BHS 38200  Disability and Society
   BHS 48400  Genetic and Physiological Factors Underlying Developmental Disabilities

   Choose 2 of 3 (6 hours)
   PSY 36100  Human Dev. I: Infancy & Early Childhood
   PSY 36300  Human Dev. III: Adulthood
   PSY 36200  Human Dev. II: Adolescence

6. Electives (9 hours)
   Restricted, Choose 3
   SOC 36100  The Institution of Social Welfare
   PSY 35500  Child Abuse and Neglect
   SOC 44000  Sociology of Health and Illness
   PSY 43500  Intro to Marriage & Family Therapy
   CDFS 34000  Teaching Very Young Children with Special Needs
   BHS 48600  Honors Seminar in Human Development and Disability Ex L
   (or PSY 48600)
   SOC 43000  Sociology of Aging
   SOC 37500  Physical Aging, Health, and Behavior

7. Electives (Open) (7-14 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.

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 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  Introduction to Early Childhood or elective (CDFS 30501 or CDFS 22800 or CDFS 43101)
   CDFS 21700  Issues in Early Childhood or Elective (CDFS 42100 or CDFS 22800)
   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 or CDFS 22800)
   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  Observation 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.
Post Baccalaureate Certificate — Disability Studies
(24 CREDITS)
A Post-Baccalaureate Certificate in Disability Studies will prepare students to act as a multi-disciplinary practitioner when assisting individuals with disabilities and their families to respond to events that require intervention. The generic competencies of the disabilities studies professional will reflect the continuum of skills necessary to work with persons whose needs arise from problems associated with the occurrence of a wide array of disabilities. These areas include advocacy, occupational therapy, sheltered employment, case management for individuals with disabilities, abuse of those with disabilities, and housing for those with disabilities.

Disabilities Studies Certificate Program Requirements:
To be admitted into the Post-Baccalaureate Certificate in Disability Studies program, students must have completed a bachelor’s degree. Upon completing the Disability Studies Certificate Program, students must have a Grade Point Average of 2.0 or better to earn their certificate.

Requirements:
Total Hour requirement 24 Credit Hours
18 credits to include the following courses:
SOC 26100 Introduction to Social Work
SOC 30600 Case Management in the Human Services
SOC 30700 Practicum in the Human Services
BHS 38200 Disability and Society
BHS 38000 Disability and the Family Life Cycle
BHS 48400 Genetic and Physiological Factors Underlying Developmental Disabilities

6 credits chosen from any one of the following courses:
PSY 35500 Child Abuse and Neglect
BHS 48600 Honors Seminar in Human Development and Disability ExL (or PSY 48600)
SOC 44000 Sociology of Health and Illness
CDFS 34000 Teaching Very Young Children with Special Needs
SOC 43000 Sociology of Aging
SOC 37500 Physical Aging, Health, and Behavior

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 Studies 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 Classrooms
CDFS 30501 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

Minor in Disability Studies
(21 CREDITS)
A minor in Disability Studies will prepare students to act as a multi-disciplinary practitioner when assisting individuals with disabilities and their families to respond to events that require intervention. The generic competencies of the disabilities studies professional will reflect the continuum of skills necessary to work with persons whose needs arise from problems associated with the occurrence of a wide array of disabilities. These areas include advocacy, sheltered employment, case management for individuals with disabilities, and housing for those with disabilities. The minor will also serve the needs of individuals who are pursuing pre-professional degree programs in both pre-occupational therapy and pre-physical therapy.

18 credits to include the following courses:
SOC 26100 Introduction to Social Work
SOC 30600 Case Management in the Human Services
SOC 30700 Practicum in the Human Services
BHS 38200 Disability and Society
BHS 38000 Disability and the Family Life Cycle
BHS 48400 Genetic and Physiological Factors Underlying Developmental Disabilities
Minor in Service Learning
(15 CREDITS)
Requires 15 credit hours of coursework as follows:

Service Learning Core (10 Credits)
- SERV 10100, 1 credit, Required
- SERV 20100, 2 credits, Required
- SERV 30100, 3 credits, Required
- SERV 40100, 4 credits, Required
Any combination of the following that equals 5 or more credits:

Service Learning Electives (5 Credits)
- SERV 10200, 2 credits
- SERV 10300, 3 credits
- SERV 20100, 2 or 4 credits
Discipline-Based Service Learning Course(s), 1-5 credits

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

2. Select one of the following Tracks:
   A. Human Service Professions Track
      - CDFS 49000/59000 Administration of Social Service Not-for-Profit Agencies
      - CDFS 68000 Professional Issues for Child and Family Specialists
      - CDFS 59000/698006-hours of Directed Research or M.S. Thesis
   B. Human Development Studies Track
      - SOC 59100 Qualitative Analysis
      - CDFS 61600 Theory in Child and Family Studies
      - CDFS 59000/69800 6-hours of Directed Research or M.S. Thesis

3. 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 Pract. 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

Yahya R. Kamalipour, Head. Faculty: L. Arzt; C. Blohm (RTV Production Coordinator/Studio Supervisor); Ken Bronowski; T. M. Carilli; C. Channing; M. Dakich (Emeritus); D. M. Dunn; C. M. Gillotti; L. J. Goodnight; P. Hales; N. A. Nemeth; M. B. O’Connor; T. J. Roach; W. L. Robinson; L. R. Willer; 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.

Programs
- Bachelor of Arts in Communication, with options in General Communication, Organizational Communication, Advertising, Broadcasting, Journalism, Public Relations, and Visual Communication Design
- Minors in Advertising, Broadcasting, General Communication, Health Communication, Journalism, Media and Culture, Organizational Communication, Political Communication, Public Relations, Theater, and Visual Communication Design
- Master of Arts, Communication Studies

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)

B.A. IN COMMUNICATION (MEDIA STUDIES)

Advertising
126 CREDIT HOURS REQUIRED FOR GRADUATION

A. General Education Requirements (54-57 credits) Plus:

B. Department Core (7-9 credits)

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tr>
<td>COM 10300</td>
<td>Freshman Seminar in Communication</td>
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<td>(or other Freshman Seminar Course 1-3 cr. hrs.)</td>
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<td>COM 20100</td>
<td>Intro to Media Studies</td>
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<td>COM 22800</td>
<td>Intro to Communication Studies</td>
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C. Advertising Core (33 credits)

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<td>COM 25300</td>
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<td>COM 25600</td>
<td>Intro to Advertising</td>
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<td>COM 30900</td>
<td>Visual Communication</td>
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<td>COM 33100</td>
<td>Audio Production</td>
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<td>COM 33200</td>
<td>Television Production</td>
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D. Choose 6 of the Following Courses (18 credits)

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<td>A&amp;D 22200</td>
<td>Intro to Photography</td>
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<td>COM 25500</td>
<td>Intro to News Reporting and Writing</td>
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<td>COM 30000</td>
<td>Intro to Communication Research Methods</td>
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<td>COM 31800</td>
<td>Principles of Persuasion</td>
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<td>COM 32500</td>
<td>Interviewing: Principles and Practice</td>
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<td>COM 32700</td>
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<td>COM 40300</td>
<td>Communication Ethics</td>
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COM 42900/MGMT 42900 Advertising Campaigns (Exl)
COM 43900 Focus Group Research (Exl)
COM 44300 Advertising Media
COM 44600/MGMT 42800 Advertising Management (Exl)
COM 44800 Applied Mass Media Research
BA 22400 Principles of Marketing
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/ENGL 45100 Magazine Journalism (Exl)

E. Electives (20-29 credits)

B.A. IN COMMUNICATION (MEDIA 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 Communication
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 31000 Family Communication
*COM 31400 Advanced Public Speaking
*COM 31900 The Rhetorical Tradition
COM 32200 Communication and Leadership
*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

E. Electives (14-23 credits)

B.A. IN COMMUNICATION (COMMUNICATION 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
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 (17-26 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 25500 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
- 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)

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

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

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):
- COM 20100 Introduction to Media Studies

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 Advertising Management (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
- COM 44800 Applied Mass Media Research
- COM 30900 Visual Communication
- COM 44300 Advertising Media
- MGMT 42100 Promotion Management
- MGMT 42400 Consumer Behavior

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 Journal for Electronic Media
- COM 35200 Mass Communication Law
- COM 40300 Communication Ethics
- COM/ENGL 45 100 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
- 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
- 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):
- COM 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)

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**Master of Arts in Communication**

36 CREDITS

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 or 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 of 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.

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**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.
   - Students may take graduate level courses outside the department in consultation with their advisors. Please note that no more than 9 hours may be taken outside the department.
   - Students are permitted two independent studies/directed readings in the course of their studies, which will be listed as a COM 59000 course.
   - Student may take no more than 6 credit hours at the 40000 level in consultation with their advisors.

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**Advisor Selection/Examination Committee**

1. Upon completion of 9 credit hours, student must select a graduate faculty mentor/advisor (examination committee chair).
2. The student and the advisor will plan a course of study for the remaining 27 credit hours.
3. Prior to the completion of the 24th credit hour, students must select two remaining committee members for their advisory committees.
4. The student and the committee will discuss and determine an appropriate graduation examination format. Usual options include:
   - Comprehensive Exams
   - Conference Quality Paper
   - Performance/Creative Project
   - Thesis

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**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.

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**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.

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**Master of Arts in Communication**

**Required Courses:**

- COM 58200 Descriptive/Exp. Research
- OR
- 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 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 Department of English and Philosophy offers students from all majors in the university coursework in literature, writing, and philosophy. The mission of the department is to help students learn to think critically and in-depth about the important issues involved in interpersonal relationships and to communicate their thinking in writing.

In freshman reading and writing courses, students are introduced to the demands of college reading and writing so that they will be prepared for the rest of their academic careers and for their lives beyond college. English literature and teaching majors take a variety of literature courses to prepare for careers in teaching or the professions, or to prepare for further, graduate-level study of literature. Writing majors learn the practical aspects of communicating on the job, in business or in industry, to prepare for careers in publishing, editing, writing, and technical communication.

Philosophy majors develop excellent critical and analytical abilities by studying traditional questions that we as humans have long considered, including questions about our place in the universe, the meaning of a good life, and the nature and value of knowledge. Both English and Philosophy majors are prepared for careers in business, industry, and the professions with excellent communication skills, fine research methods, and backgrounds in the best thinking and writing that humans have been capable of throughout history.

The program for the master’s degree in English allows students to study such areas as English and American literature, language arts teaching, linguistics, literary theory, and rhetoric and composition.

**Programs**

- Bachelor of Arts, English, options in Literature, Writing, Teaching
- English as a Second Language (ESL) Program
- Certificate in Writing – Interactive Media
- Minor in English
- Bachelor of Arts, Philosophy
- Minor in Philosophy
- Master of Arts, English

**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 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>
<td>6 hours / week</td>
</tr>
<tr>
<td>Elective</td>
<td>3 hours / week</td>
<td>6 hours / week</td>
<td>N / A</td>
</tr>
<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.

**Students**

All of our students are full-time, studying on F-1 visas, and wishing to start undergraduate and graduate programs in the United States. Upon successful completion of the ELP, undergraduate students are automatically matriculated into degree programs. Graduate students, however, must also pass the TOEFL with a minimum score of 18 writing, 18 speaking, 14 listening, 19 reading, and a total score of 77.

**ELP Placement and Exit Criteria**

**PLACEMENT INTO ENGLISH LANGUAGE PROGRAM (ELP)**

New students who join ELP are assessed and placed into pre-academic courses designed to help them bring their English proficiency skills to a level at which they can enroll in regular academic courses.

Placement into one of the three levels of proficiency in the English Language Program is based on a placement test conducted at the beginning of each semester. ETS’s SLEP test (which consists of a listening and a reading / grammar sections), is used for placement. This test is complemented by a writing assignment and an interview. Students will be placed in one of three proficiency levels: 1) Level 1 (Low-intermediate); 2) Level 2 (Intermediate); 3) Level 3 (Advanced). A student placed in level 2, for example, can expect to spend two semesters of English language study in ELP.

**Exiting ELP**

There are two ways to exit ELP and matriculate into regular degree programs:

- A minimum iBT score of 79 (or 6.5 in IELTS) and passing all ELP classes.
- Successful completion of the advanced level of ELP.

TOEFL and IELTS are not required of undergraduate ELP students; however, these tests still remain in place as requirements for admission into degree programs at Purdue University Calumet.
Hybrid Program
Upon the recommendation of every teacher, a student who does exceptionally well in every high-intermediate (Level 2) class might be allowed to become a part of the hybrid program, a course schedule that is offered only at the advanced level. Hybrid students take three ELP courses and one non-ELP, 3-credit course. This program is also extended to Level 3 students who are repeating individual ELP courses. These courses may not be substituted for English 10400 or English 10500 nor be counted toward degree requirements. Once students have successfully completed all their ELP courses, they will enroll in English 10000.

<table>
<thead>
<tr>
<th>Bachelor of Arts, English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements for all Bachelor’s degrees:</td>
</tr>
<tr>
<td>1. Communication*</td>
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<tr>
<td>ENGL 10800 Adv. Freshman Comp.</td>
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<tr>
<td>OR</td>
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<tr>
<td>ENGL 10000 AND/OR English Comp. I and II</td>
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<tr>
<td>ENGL 10400 and 10500</td>
</tr>
<tr>
<td>COM 11400 Fundamentals Speech Comm</td>
</tr>
<tr>
<td>*State teacher licensing requires nine credits of oral and written expression. Take ENGL 40500 to complete the nine credit hours.</td>
</tr>
<tr>
<td>Foreign Language: 10100, 10200, 20100, 20200</td>
</tr>
<tr>
<td>2. Science and Mathematics</td>
</tr>
<tr>
<td>Twelve credits in science and mathematics with a minimum of three credits in each. No sequence required. Computer Science or Logic acceptable for mathematics.</td>
</tr>
<tr>
<td>3. Humanities and Social Sciences</td>
</tr>
<tr>
<td>Twenty-four credits. One course each from:</td>
</tr>
<tr>
<td>Literature (ENGL 20100 for lit. and teaching options)</td>
</tr>
<tr>
<td>Philosophy (not Logic) (may not take PHIL 10600, 10700, 15100 to satisfy this requirement)</td>
</tr>
<tr>
<td>History</td>
</tr>
<tr>
<td>Aesthetics (A&amp;D 25500, MUS 25000, ENGL 40500, ENGL 28600, COM 34300, THTR 20100)</td>
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<tr>
<td>Economics 21000</td>
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<tr>
<td>Psychology 12000</td>
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<tr>
<td>Political Science</td>
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<tr>
<td>Sociology 10000 or Anthropology</td>
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<tr>
<td>4. Freshman Experience Requirement</td>
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<tr>
<td>Philosophy 10700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bachelor of Arts, English, Literature Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>(129 CREDITS)</td>
</tr>
<tr>
<td>Requirements for Bachelor’s degree plus:</td>
</tr>
<tr>
<td>English Requirements (42 credits)</td>
</tr>
<tr>
<td>Core (24 credits)</td>
</tr>
<tr>
<td>Surveys.</td>
</tr>
<tr>
<td>Choose four, with at least one covering pre-1700 Literature (ENGL 24000 or 26000), and at three covering English and American literature:</td>
</tr>
<tr>
<td>ENGL 24000 Survey English Literature I (Early)</td>
</tr>
<tr>
<td>ENGL 24100 Survey English Literature II (Late)</td>
</tr>
<tr>
<td>ENGL 35000 Survey American Literature I (Early)</td>
</tr>
<tr>
<td>ENGL 35100 Survey American Literature II (Late)</td>
</tr>
<tr>
<td>ENGL 26000 Survey of World Lit I (Early)</td>
</tr>
<tr>
<td>ENGL 26100 Survey of World Lit II (Late)</td>
</tr>
<tr>
<td>Shakespeare and Literary Theory</td>
</tr>
<tr>
<td>ENGL 40300 Literary Theory</td>
</tr>
<tr>
<td>ENGL 44200 Shakespeare</td>
</tr>
<tr>
<td>Junior/Senior Seminar</td>
</tr>
<tr>
<td>Choose one:</td>
</tr>
<tr>
<td>ENGL 41100 Studies in Major Authors</td>
</tr>
<tr>
<td>ENGL 41200 Studies in Genre</td>
</tr>
<tr>
<td>ENGL 41300 Studies in History and Lit.</td>
</tr>
<tr>
<td>ENGL 41400 Studies in Lit. and Culture</td>
</tr>
</tbody>
</table>

**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 38400 Modern Poetry
- ENGL 38500 Modern Drama
- ENGL 31300 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

Bachelor of Arts, English Teaching Option
(123-139 CREDITS)

Requirements for Bachelor’s degree plus:
Students will fulfill their humanities literature requirement 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 Lingistics
   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
      EDCI 26000 Special Education
      EDCI 34100 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 School 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 40700 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)

1. 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

   Repeated with a different topic for a total of 6 credit hours

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

A. Introductory Philosophy
- PHIL 10100 History of Philosophy
- PHIL 11000 Introduction to Philosophy

Acceptable IU N course

B. Ethics. Two of:
- PHIL 11100 Ethics
- PHIL 32400 Ethics for the Professions

Acceptable PHIL 29300, 49000 or IU N course

C. Logic. One of:
- PHIL 12000 Critical Thinking
- PHIL 15000 Intro Logic

Acceptable PHIL 29300, 49000 or IU N 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 IU N course

- History of Philosophy
  - PHIL 301 Ancient Philosophy
  - PHIL 303 Modern Philosophy

Acceptable PHIL 29300, 49000 or IU N course

E. Philosophy Electives

Any 2 additional Philosophy courses not used to fulfill the above requirements; may include PHIL 29300, 49000 or IU N 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).
Department of Foreign Languages and Literatures

Maria Luisa Garcia-Verdugo, Head.  Faculty: G.R. Barrow; J. Castro-Urioste; E. Flannery; M. Garcia-Verdugo; C. House; U. Jannausch (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); 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.*

Introductory, two semester sequences are offered in Arabic, Chinese, Hebrew, Italian, Lithuanian, Modern Greek, Portuguese, Serbian-Croatian, Swahili and Urdu and Polish if there is enough demand.

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.

* Minimum grade of C required in Levels I, II, III

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.

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.

Courses in Study Abroad programs may fulfill Experiential Learning requirements.

Foreign Language Experiential Learning courses 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.

Programs

- Bachelor of Arts in French or Spanish
- Bachelor of Arts in French International Studies
- Bachelor of Arts in Spanish International Studies - Heritage
- Bachelor of Arts in Spanish International Studies - Non-Heritage
- Bachelor of Arts in French or Spanish Teaching
- Bachelor of Arts in Spanish Teaching - Heritage
- Bachelor of Arts in 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/PHIL 15000/F&N 30300
- Literature
- Philosophy (not Logic)
- History
- Aesthetics (A&D 25500, ENGL 40500, MUS 25000, or THTR 20100)
- Economics 21000
- 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
(127 CREDITS)

School 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

Bachelor of Arts, French International Studies
(127 CREDITS)

School 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

Bachelor of Arts, Spanish International Studies
Heritage

School 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

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

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.

E. Career Emphasis
   Advisor-approved from fields such as sociology, communication, English, supervision, computer information, management, political science, history, hospitality and tourism management, foreign languages other than the major or a combination of foreign languages/FLL courses (10100 without 10200 is not acceptable).

Electives
Open Electives

Bachelor of Arts, Spanish International Studies
Non-Heritage

School 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
   SPAN 48100 SPAN 48200 SPAN 49000

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.
Bachelor of Arts, French Teaching
(124–130 CREDITS)
School 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
   (Highly recommended as an Elective is FLL 46400, Comparative Study of Modern Languages.)
   (A student may choose one approved course, in addition to FLL 46400, carrying the major foreign
   language or FLL prefix, but taught in English.)

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
   EDPS 26000 Special Education
   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.

Bachelor of Arts, 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
   SPAN 48100 Spanish Culture
   SPAN 48200 Latin American Civilization
   SPAN 51100 Advanced Conversation
   SPAN 51500 Advanced Composition
   SPAN 40500 Intro to Spanish Literature I
   SPAN 40600 Intro to Spanish Literature II
   SPAN 43500 Spanish American Literature to Modernism
   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
   SPAN 48100 Spanish Culture
   SPAN 48200 Latin American Civilization
   SPAN 51100 Advanced Conversation
   SPAN 51500 Advanced Composition
   SPAN 40500 Intro to Spanish Literature I
   SPAN 40600 Intro to Spanish Literature II
   SPAN 43500 Spanish American Literature to Modernism
   SPAN 43600 Spanish American Literature from Modernism to Present
   SPAN 42700 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
   EDPS 26000 Special Education
   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 20200, 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

Richard Rupp, Head. Faculty: J. Bigott; F. Colucci; E.G. De Felice; 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; A. Clark; T. Stabler; L. Rademacher; M. Rincker; 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 School 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 30000 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

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 30000 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

General Education Requirements
   HIST 10600  Freshman Experience

Bachelor of Arts, 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 School Requirements
   HIST 10600  Freshman Experience
   ENGL 10800  Adv. Freshmen Comp.
   OR
   ENGL 10000/10400 & 10500  English Comp. I and II
   COM 11400  Fund. Speech Comp.
   Foreign Language 10100-10200-20100-20200
   (French, German, Spanish or Japanese)

2. Social 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 intensive 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 Intensive 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
ECON 35100  Intermediate Microeconomics
ECON 35200  Intermediate Macroeconomics
ECON 37500/37400  U.S. Economic History
ECON 38000  Money and Banking
ECON 41900  Managerial Economics
ECON 43400  International Trade
ECON 46500  Economic Forecasting Techniques
MA 225 00  Calc For Bus & Econ I
AND/OR
MGMT 225 00  Fund Managerial Stat

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 courses in Political Science.

**Psychology:**
- PSY 12000  Elem. Psychology
- PSY 36100/36200  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 300 level or above.

**Sociology:**
- SOC 10000  Intro. Sociology
- SOC 22000  Social Problems

Plus three courses in Sociology at the 300 level or above, excluding SOC 36100, 462, 562, AND 312

**Education Requirements:**  (See page 90 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
- EDPS 37000**  Teaching Students w/Diverse Needs in the K-12 Classroom
- EDIC 34700**  Strategies of Instruction in the Senior High School
- EDIC 32300**  Educational Technology for Teaching and Learning
- EDIC 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.


**Transfer of Credit**

No more than two courses from another accredited institution.

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**GPA Requirements in Social Studies Teaching:**
- 3.00 GPA required for admission to professional semester (student teaching), if admitted to the University beginning Spring, 2004.
- No grades of “D” in Education or major area courses.
- No more than two repeats permitted, once the student has been coded to teaching major.
- No more than two grades of “C” in Education courses.
Department of Hospitality and Tourism Management

Michael J. Flannery, Head. Faculty: N. A. Faiola; G. A. Farley; R. A. Fields; J. L. Hack; J. M. Pluckebaum (Emerita); W. N. Stocks; D. L. Vorwald; M. B. West (Emerita)
Academic Advisor: C. Browder
Office Manager: J. Rhyne

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

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

Certificate in School Nutrition and Food Services

(25 CREDITS)

Required courses

- HTM 21200 Organization and Management in the Hospitality Industry
- HTM 23100 Hospitality and Tourism Marketing
- HTM 24100 Managerial Accounting & Financial Management in Hospitality Operations
- HTM 25100 Computers in the Hospitality Industry
- HTM 30100 Hospitality and Tourism Industry Practicum
- HTM 31100 Procurement Management for Food Service
- HTM 31200 Human Resources Management for the Service Industries
- HTM 32200 Hospitality Facilities Management
- HTM 36100 Managed Services for the Food Service Industry
### Bachelor of Science, Hospitality and Tourism 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
   - 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 ANTH, 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
   - MGMT 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
   - HTM/F&N Electives courses (12 credits)

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

**Bachelor of Science, Hospitality and Tourism Management, Fitness Management Option (129 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 to Computer-based Systems
   - B IOL 21300 Anatomy and Physiology I
   - B IOL 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 Elective A&D, ENGL Lit., FLL, HIST, 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 32200 Community Nutrition & Health Promotion Entrepreneurship
   - F&N 36000 Nutrition for Aging
   - HTM 10000 Intro. Hospitality and Tourism Industry
   - HTM 10100 Hospitality and Tourism Student Seminar
   - HTM 14100 Financial Accounting for the Service Industries
   - MGMT 20000 Introductory Accounting
   - HTM 21200 Organization & Management in Hospitality and Tourism Industry
   - 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
   - FM 10000s Individualized Wellness Strategies — five areas
   - FM 21900 Issues and Problems in Health
   - FM 26800 Physiology of Exercise
   - FM 30000 Practicum: Health, Fitness and Nutrition
   - FM 30100 Recreation Leadership
   - FM 30200 Anatomy and Kinesiology
   - FM 30500 Practicum in Fitness Management
   - FM 31300 Beginning Concepts of Personal Training
   - FM 31400 Beginning Concepts of Group Exercise
   - FM 41000 Evaluation, Testing and Assessment of Exercise
   - FM 47400 Physiology of Exercise II

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
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; John Rowan; 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
School of

MANAGEMENT
School of Management

Jane Mutchler, Dean
www.purduecal.edu/management

- Department of Accounting: E. Furticella, Acting Administrative Department Head
- Department of Finance and Economics: P. McGrath, Department Head
- Department of Information Systems: K. Chen, Department Head
- Department of Marketing, Human Resources, and Management: L. Feldman, Department Head

Anderson Building, Third Floor
219/989-2595
1-800-HI-PURDUE, ext. 2595

Bachelor’s Degree Programs

- Accounting
- Business with a major in:
  - Entrepreneurship
  - Equine Business Management
  - Human Resources
  - Retailing
- Management with a major in:
  - Accounting
  - Business Economics
  - Computer Information Systems
  - Human Resource Management
  - Marketing
  - Management Information Systems

Master’s Degree Programs

- Business Administration
  - Accounting Concentration
  - MIS Concentration
- Business Administration for Executives
- Accountancy

The School of Management is accredited by the International Assembly for Collegiate Business Education (IACBE) and the North Central Association (NCA).

Career Opportunities

Graduates of Purdue Calumet’s School of Management 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.
School of Management

J. Mutchler, Dean.

Department of Accounting: E. Furticella, Acting Administrative Department Head.

Faculty: C. Anderson (Emeritus); A. Ball; A. Crossin; P. Empey (Emeritus); E. Engle (Emeritus); G. Hooper King; A. Linskog (Emeritus); S. Mo; K. Pogach; R. Pollock; D. Rinke; E. Wagles.

Department of Finance and Economics: P. McGrath, Department Head.

Faculty: R. Abuizam; J. Furdek; P. Miranda; A. Mitra; P. Obi; S. Sil; D. Tsoukalas

Department of Information Systems: K. Chen, Department Head.

Faculty: K. Chu; R. Foreman; L. Green; M. Mick; C. Ye; L. Zhao

Department of Marketing, Human Resources, and Management: L. Feldman, Department Head.

Faculty: A. Angiawan; C. Barczyk; S. Conners; C. Costiu; G. Falk; K. Finjek; M. Hanson; J. Husain; J. Kerr; J. Lucas; D. Nikolovski; C. Ranick; D. Ruth; R. Smith; G. Silver (Emeritus); H. Zhang

School of Management Staff

M. Darwish; K. Nikolovski; J. Osborne

School of Management Advisors

E. Brickman; D. Thinnes

Mission Statement

The School of Management 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 School of Management 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 School'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 School, 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 School of Management.

Vision Statement

The Purdue University Calumet School of Management 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 school 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 school of choice for a quality management degree grounded in academic rigor and social responsibility.

Programs

The programs in Management, 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 certification (CPA).

**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, equine business management, 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.

**Post-Baccalaureate Certificates**

**Certificate**
- Equine Management

**Graduate Certificate**
- Forensic Accounting & Fraud Investigation

**Minors**
- Minor in Business
- Minor in Entrepreneurship
- Minor in Equine Management
- Minor in Human Resource Management
- Minor in Information Systems
- Minor in International Business
- Minor in Marketing
- Minor in Non-profit Management

**Grading Scale Note and Clarification**
Purdue University Calumet uses a 4.0 grading scale. Students pursuing a Bachelor of Arts in Business, Bachelor of Science in Accounting or a Bachelor of Science in Management must successfully complete the Pre-Business or Pre-Management core by earning a grade designated by a 2.0 or higher in each course. The Pre-Business or Pre-Management Core courses must be taken in the first three semesters. Each course must be successfully completed before the student takes any of the courses in their major. The six courses that fulfill the student’s major must be successfully completed by earning a grade designated by a 2.0 or higher in each course.

**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. Students should check [http://webs.purduecal.edu/management/majors-minors-and-certificates/experiential-learning-courses/](http://webs.purduecal.edu/management/majors-minors-and-certificates/experiential-learning-courses/) for updates to this list.

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<td>BA 39100</td>
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**SOM Policies for Students**
The following policies are in effect for all undergraduate students in the School of Management. 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.

**Admission standards for new freshmen:**
*Effective Spring 2011*

**Direct Acceptance to the Program of Study:**
- Test Scores (SAT CR+M): 900 (1350)
- 5 subject area GPA 2.50

**Preparatory Admissions (DMG):**
- Test Scores (SAT CR+M): 850-899
- 5 subject area GPA of at least 2.20

**Center for Student Achievement:**
- Test Scores (SAT CR+M): 800-849
- 5 subject area GPA of at least 2.00

**GPA Requirement to transfer, re-enter, re-admission, and CODO to the School of Management**
*Updated - effective for spring 2011*

Transfer students (including inter-campus transfers), Change of Degree Objective (CODO) students, Re-Entry students (former SOM student, stopped out for more than 2 years) and Re-Admits (former SOM student academically dismissed):

Direct acceptance into the Program of Study:
- 15 college transferring credits
- Cumulative college GPA of at least 2.20
- English 10400 (or equivalent) with 2.0 minimum
- Math 15300 (or equivalent) for BS degree or BA 10500 (or equivalent) for BA degree with 2.0 minimum
Change in BA Program – new pre-business requirements and grade requirements for major classes (effective for students starting Fall 2008 and later)

The BA program now has a pre-business core consisting of the following courses: ENGL 10400, COM 11400, Lab Science; PSY 12000 or SOC 10000, MGMT 10100, ENGL 10500, ENTR 10000, BA 10500, MGMT 10200, ECON 21000, BA 12000, and one course in the FR, Lang, Com or PSY sequence. Students must complete these courses with a grade of C or better and must complete these courses before declaring an option and moving on to more advanced classes.

Also students must earn a grade of C or better in the six courses for their major.

Policy on Dual Degrees/Dual Majors (effective 07.23.07)

A student enrolled at SOM may pursue two majors concurrently by working to satisfy all degree requirements for the two majors. 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 SOM may pursue a major 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.

A student enrolled at SOM may not pursue both the BS in Accountancy and the BS in Management with a major in Accounting; the two degrees present too much overlap. A student enrolled in either of the degrees above who wishes to round up his/her education should be encouraged to pursue a second major with a different thrust than accounting, or a minor in a secondary field. IS, MIS and Finance are often the chosen complements to Accounting.

If a student who has graduated with a Bachelor’s degree from the School of Management 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 05.15.06)

Undergraduate students may repeat required courses in the School of Management Curriculum no more than two times within a five year period. This means that a student may enroll in a required course no more than three times because s/he failed, withdrew or was dropped out the course previously. Required courses in the School of Management curricula include pre-business, pre-management, core and major courses, as well as remedial mathematics and English courses for those who need them. Core courses include MGMT 31000, MGMT 32400, and OBHR 33000 for the BS degrees. Core courses include BA 21000, BA 22400 and BA 23000 for the BA degrees.

Case of transfer students facing a changed SOM curriculum as of Fall 2009 (effective Fall 2009)

All transfer students must automatically enroll into the new SOM curriculum dated Fall 2009.

Case of returning students facing a changed SOM curriculum as of Fall 2009 (effective Fall 2009)

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 SOM. 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.

Case of re-admitted students facing a changed curriculum as of Fall 2009 (effective Fall 2009)

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.

Clarification of “C or better” policy for pre-business, pre-management, and major courses (effective Fall 2009)

Students are presently required to earn a C or better in their pre-business or pre-management core, major courses, and for Mgmt 45000 (BS students). With the introduction of the plus/minus grading scale by the University, the School of Management is clarifying this requirement for students in the School of Management. The “C or better” requirement will be interpreted as meaning a grade designated by a 2.0 grade index or higher in each designated course. Therefore, grades of C- minus or below do not satisfy the “C or better” requirement and students earning a C-minus or below in the designated courses will be required to repeat the course until a satisfactory grade is earned.
Bachelor of Arts Pre-Business

Pre-Business Requirements

(36 CREDITS)
The 12 courses in the pre-business core must be completed with a grade index of 2.0 or better in each course. These pre-business courses must be completed before the student takes any of the courses in their major. The six courses in the student’s major must also be completed with a grade index of 2.0 or better.

1. Communicative Skills
COM 11400 Fundamentals of Speech
ENGL 10400 English Composition I
ENGL 10500 English Composition II

2. Science and Mathematics
Science. One course from:
Biology, Chemistry, Earth and Atmospheric Science, Physics, or Science.
BA 10500 Quantitative Methods for Business

3. Behavioral Science
PSY 12000 Elementary Psychology
SOC 10000 Introduction to Sociology

4. Management and Economics
MGMT 10000 Management Lectures
MGMT 10100 Introduction to Business
MGMT 10200 Computer Utilization for Management
ENTR 10000 Introduction to Entrepreneurship
BA 12000 Principles of Accounting I
ECON 21000 Principles of Economics

5. First course in Foreign Language, Psychology, Communication or Business Minor Sequence
This is the first in a series of courses in one of the following areas – Foreign Languages or Communication or Psychology or a minor offered by the School of Management (excluding the Minor in Business). Choose one track. Note: The remaining three courses (9 credits) will be completed in the degree program described below. (Not required for the Equine Management program.)

6. One free elective (3 credits)

7. Business Core
BA 12100 Principles of accounting I
BA 21000 Principles of Finance
BA 22400 Principles of marketing
BA 23000 Principles of management
BA 23100 Principles of human resources
BA 36100 Business Operations
MGMT 30100 Management Career Lectures
MGMT 35400 Legal Foundations of Business I
MGMT 38000 International Business

8. Major Courses
CHOOSE A, B, C, or D

A. Entrepreneurship Major
Required:
ENTR 30000 Growing the Firm
ENTR 42000 Business Plan Development
Choose four (4) courses from the following, at least two (2) from Entrepreneurship (ENTR designator):
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
MGMT 31800 E-Business Strategy
MGMT 38000 International Business
OLS 35000 Applied Creativity for Business and Industry
OLS 35100 Innovation and Entrepreneurship
BA 39100 Business Internship
MGMT 48600 Project Management
MGMT 48700 Knowledge & Decision Management
OBHR 42300 Negotiations
O or other 30000 or 40000 level course approved by the advisor.

B. Retailing Major
Required:
MGMT 42400 Consumer Behavior
MGMT 42600 Retailing
MGMT 43300 Personal Selling
MGMT 43400 E-Marketing
Bachelor of Science Pre-Management

Pre-Management Requirements

(36 CREDITS)

Students pursuing a Bachelor of Science degree program in Management must successfully complete the Pre-Management curriculum (with a grade index of 2.0 or better in each of the courses) before taking upper-level courses (30000 level or higher) in Management, Economics, or Organizational Behavior.

1. Communicative Skills
   - ENGL 10400 English Comp. I
   - ENGL 10500 English Comp. II
   - COM 11400 Fundamentals of Speech

2. Science and Mathematics
   - Science. One lab science course from:
     Biology, Chemistry, Earth and Atmospheric Science, Physics, or Science.
   - Math. One sequence of:
     MA 15300 Algebra and Trig. I
     MA 22500 Calculus for Business and Econ I
     OR
     Equiv. math courses approved by a Management advisor.

3. Behavioral Science
   - PSY 12000 Elementary Psychology
   - OR
   - SOC 10000 Introduction to Sociology

4. Management and Economics
   - MGMT 10000 Management Lectures
   - MGMT 10100 Intro. to Business
   - MGMT 20000 Intro. Accounting
   - ECON 25100 Microeconomics

5. Elective (one course)
   - One other school-approved general education course.

Bachelor of Science, Accounting

(122 CREDITS)

Pre-Management courses plus:

1. Required Management and Economics Courses
   - ECON 25200 Macroeconomics
   - MGMT 20100 Management Accounting
   - MGMT 22500 Fund. Management Stats.
   - MGMT 30100 Management Career Lectures
   - MGMT 31000 Financial Management
   - MGMT 21100 Management Information Systems
   - MGMT 32400 Marketing Management
   - MGMT 35400 Legal Found. of Business
   - MGMT 36000 Production/Operations Mgmt.
   - MGMT 38000 International Business
   - MGMT 45000 Corporate Strategy: Capstone
   - OBHR 33000 Intro. to Organizational Behavior

2. Humanities
   - ENGL 42000 Business Writing
   - PHIL 32400 Ethics for Professions

3. Electives
   - Two business electives from upper division courses in management, economics, entrepreneurship, or OBHR; five approved General Education electives.

4. Major Courses (seven)
   - MGMT 30900 Accounting and Information Systems
   - MGMT 35000 Intermediate Accounting I
   - MGMT 35100 Intermediate Accounting II
   - MGMT 40400 Tax Accounting
   - MGMT 40600 Auditing
   - MGMT 40700 Advanced Managerial Accounting
   - One additional upper level accounting course approved by an academic advisor.

Bachelor of Science, Management

(122 CREDITS)

Pre-Management courses plus:

1. Required Management and Economics Courses
   - ECON 25200 Macroeconomics
   - MGMT 20100 Management Accounting
   - MGMT 22500 Fund. Management Stats.
   - MGMT 30100 Management Career Lectures
   - MGMT 31000 Financial Management

DEPARTMENTS / SCHOOLS
### 2. Humanities
- ENGL 42000  Business Writing
- PHIL 32400  Ethics for Professions

### 3. Electives
Four business electives from upper division courses in management (MGMT), economics (ECON), Entrepreneurship (ENTR) and Organizational Behavior (OBHR), and six approved General Education electives.

### 4. Major Courses (six courses).
Choose A, B, C, D, E, or F.

#### A. Accounting Major
- MGMT 35000  Intermediate Accounting I
- MGMT 35100  Intermediate Accounting II
- MGMT 40400  Tax Accounting
- MGMT 40600  Auditing

Two additional accounting courses approved by the accounting academic advisor.

#### B. Business Economics Major
- ECON 35100  Intermediate Microeconomics
- ECON 41900  Managerial Economics
- ECON 35200  Intermediate Macroeconomics
- ECON 38000  Money and Banking
- ECON 36000  Econometrics
- ECON 46500  Economic Forecasting Techniques

The student would then complete three additional ECON courses, 3000-level or above, as approved by the academic advisor.

#### C. Finance Major
- MGMT 34000  Corporate Financial Problems
- MGMT 35000  Intermediate Accounting
- MGMT 41200  Money and Capital Markets
- MGMT 44300  Fundamentals of Investments

Two additional finance courses approved by the finance academic advisor.

#### D. Human Resource Management Major
**Required:**
- OBHR 43100  Human Resource Mgmt.
- OBHR 43300  Staffing Organizations
- OBHR 43400  Benefits Administration
- OBHR 43900  Employment Law

Select TWO (2) from:
- OBHR 42300  Negotiations
- OBHR 42600  Training and Managerial Development
- OBHR 42700  Occupational Safety and Health
- OBHR 43500  Compensation Management
- OBHR 43600  Collective Bargaining and Negotiations
- OBHR 43700  Managing Career Development
- OBHR 43800  Gender and Diversity in Management
- OBHR 44300  Legal/Social Issues in HRM
- MGMT 33300  Total Quantity Management

Or other courses as approved by the academic advisor.

#### E. Marketing Major
- MGMT 42100  Promotions Management
- MGMT 42400  Consumer Behavior

### Bachelor of Science, Computer Information Systems
(121 CREDIT HOURS)

**Communications**
- COM 11400  Fundamentals of Speech Communication
- ENGL 10400  English Composition I
- ENGL 10500  English Composition II
- COM 32500  Interviewing: Principles & Practice
- ENGL 42000  Business Writing

**Mathematics/Science**
- MA 15300  Algebra and Trig I
- MA 22500  Calc for Business & Economic I
- STAT 30100  Elementary Statistical Methods

**Humanities & Social Science**
- PHIL 12000  Critical Thinking

**General Education**
- Gen.Ed. Elective

**Management Core**
- MGMT 10000  Management Lectures I
- MGMT 10100  Introduction to Business
- MGMT 21100  Principles of Information Systems
- MGMT 31800  E-Business Applications
- MGMT 35400  Legal Found. Of Business I
- MGMT xxxxx  Business Elective (Finance or Marketing)
CIS/MIS Elective is defined as an elective from the CIS or MIS course offerings Astronomy, Geology, Biology, Physics or Chemistry.

Lab Science Elective is defined as one of the following: Science 11200, Communications, Humanities or Social Science.

Social Science Elective is defined as one of the following: Anthropology, and Creative Arts as approved by the department head.

Communications or English Elective is defined as an elective from the prerequisite math class.

Students not prepared to take MA 21400 will be required to take a necessary prerequisite math class.

Communications or English Elective is defined as an elective from the Department of English and Philosophy or the Department of Communications and Creative Arts as approved by the department head.

Social Science Elective is defined as one of the following: Anthropology, Communications, Economics, Political Science, Psychology or Sociology.

General Education Elective is defined as one of the following: English, Math, Communications, Humanities or Social Science.

Lab Science Elective is defined as one of the following: Science 11200, Astronomy, Geology, Biology, Physics or Chemistry.

CIS/MIS Elective is defined as an elective from the CIS or MIS course offerings as approved by the department head.

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.

Required Courses:

- MGMT 21100 Management Information Systems
- MGMT 31800 E-Business Strategy
- MGMT 32000 E-Business Applications
- CIS 20000 Information Systems Policies
- CIS 40000 Information Systems Strategic Planning
- CIS 1800 Introduction to Project Management
- CIS 25200/ MGMT 30700 Systems Analysis and Design
- MGMT 30800 Database Analysis and Design
- MGMT 41300 Information Systems Auditing & Assurance
- MGMT 41600 Information Systems Control and Audit
- CIS 41400 Information Systems Prof. & Ethics
- MGMT 48600 Project Management

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.

Required Courses:

- MGMT 21100 Management Information Systems
- MGMT 31800 E-Business Strategy
- MGMT 32000 E-Business Applications
- CIS 20000 Information Systems Policies
- CIS 25200/ MGMT 30700 Systems Analysis and Design
- MGMT 30800 Database Analysis and Design
- MGMT 41300 Information Systems Auditing & Assurance
- MGMT 41600 Information Systems Control and Audit
- MGMT 48600 Project Management
- CIS 41400 Information Systems Prof. & Ethics
- MGMT 48600 Project Management

Program Notes:

1. The program requirements are determined by the date a student officially becomes an IS major.
2. A grade of a "C" or better is required in each CIS major course. CIS 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.
3. Only two CIS courses may be repeated because of an unsatisfactory (D or F) grade. These courses may be repeated one time.
4. No student shall choose the pass/not pass option for a CIS course. Advisor agreement is required for any other course.
5. Students may test out of up to two CIS courses and must receive credit from 6 courses in list of IS courses.
6. Students not prepared to take MA 21400 will be required to take a necessary prerequisite math class.
7. Communications or English Elective is defined as an elective from the Department of English and Philosophy or the Department of Communications and Creative Arts as approved by the department head.
8. Social Science Elective is defined as one of the following: Anthropology, Communications, Economics, Political Science, Psychology or Sociology.
9. General Education Elective is defined as one of the following: English, Math, Communications, Humanities or Social Science.
10. Lab Science Elective is defined as one of the following: Science 11200, Astronomy, Geology, Biology, Physics or Chemistry.
11. CIS/MIS Elective is defined as an elective from the CIS or MIS course offerings as approved by the department head.
Certificate in Equine Management
(18 CREDITS)

Required Courses
EQU 10000 Introduction to Equine Management
EQU 34000 Equine Event Operations
EQU 37000 Equine Services Marketing
EQU 37200 Equine Evaluation
EQU 44000 Equine Stable Management.

Minor in Business
(24 CREDITS)

Minimum "C" required in each of the following:
MGMT 20000 Introductory Accounting
MGMT 20100 Managerial Accounting
ECON 25100 Microeconomics
MGMT 22500 Fundamental Business Statistics
MGMT 31000 Financial Management
OBHR 33000 Introduction to Organizational Behavior
OBHR 43100 Human Resource Management
MGMT 22400 Principles of Marketing
OBHR 43300 Staffing

Select TWO (2) from:
MGMT 33300 Total Quality Management
OBHR 42300 Negotiations
OBHR 42600 Training and Managerial Development
OBHR 42700 Occupational Safety and Health
OBHR 43000 Labor Relations
OBHR 43400 Benefits Administration
OBHR 43500 Compensation Management
OBHR 43600 Collective Bargaining and Negotiations
OBHR 43700 Managing Career Development
OBHR 43800 Gender and Diversity in Management
OBHR 43900 Employment Law

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
MGMT 31800 E-Business Strategy
MGMT 38000 International Business
OLS 35000 Applied Creativity for Business and Industry
OLS 35100 Innovation and Entrepreneurship
BA 39100 Business Internship
MGMT 48600 Project Management
MGMT 48700 Knowledge & Decision Management
OBHR 42300 Negotiations

or other 30000 or 40000 level course approved by the advisor

Minor in Equine Business Management
(15 CREDITS)

Minimum "C" (2.0) required in each of the following:
EQU 10000 Introduction to Equine Management
EQU 22000 Global Perspective of Equine Industry
EQU 34000 Equine Ethical Issues
ELECTIVE: Choose 2 courses from list
EQU 20000 Software for Equine Operations
EQU 32000 Equine Taxation

Minor in Marketing
(15 CREDITS)

Minimum "C" (2.0) required in each of the following:
MGMT 22400 Principles of Marketing
OR
MGMT 32400 Marketing Management
AND
MGMT 42100 Promotions Management
MGMT 42400 Consumer Behavior

Select TWO (2) from:
MGMT 42200 International Marketing
MGMT 42500 Marketing Research
MGMT 42600 Retailing

Minor in Human Resource Management
(15 CREDITS)

Minimum "C" (2.0) required in each of the following:
MGMT 10100 Intro. to Business
OR
OBHR 33000 Intro. to Organizational Behavior
AND
OBHR 43100 Human Resource Management
OBHR 43300 Staffing

Minor in Information Systems
(18 CREDITS)

Minimum "C" (2.0) required in each of the following:
CIS 20400 or MGMT 10200 required as the first course.
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:
MGMT 38000 International Business
Three from:
MGMT 42200 International Marketing
MGMT 44900 International Financial Management
MGMT 48900 International Management
ECON 43400 International Trade

And one additional course approved by the School of Management which may include one of the above

Minor in Marketing
(15 CREDITS)

Minimum "C" (2.0) required in each of the following:
MGMT 22400 Principles of Marketing
OR
MGMT 32400 Marketing Management
AND
MGMT 42100 Promotions Management
MGMT 42400 Consumer Behavior

Select TWO (2) from:
MGMT 42200 International Marketing
MGMT 42500 Marketing Research
MGMT 42600 Retailing
MINOR IN NON-PROFIT MANAGEMENT

(15 CREDITS)

Minimum "C" (2.0) required in each of the following:
- CIS 22200 Information Systems for Non-Pros
- ENTR 30300 Entrepreneurial Finance
- MGMT 33000 Non-Profit Organizational Structure
- MGMT 40000 Non-Profit Management
- MGMT 41400 Non-Profit Grant Writing and Fund Raising

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
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.
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. There are seven required courses (21 credit hours) in this curriculum and a minimum of three electives (9 credit hours). 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 Commercial Law
- MGMT 52700 Accounting Theory
- MGMT 53400 Accounting Practice
- MGMT 68000 Introduction to Information Technology

Elective Courses (9 credit hours):

- MGMT 50300 Advanced Accounting
- MGMT 59000 Governmental Accounting
- MGMT 59000 Financial Statement Analysis
- MGMT 59000 Corporate Governance
- MGMT 59000 Auditing II

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.
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 Nursing Accrediting Commission (NLNAC).

Career Opportunities
Graduates of the School 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 School 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 RNB S, 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 National League for Nursing Accrediting Commission (NLNAC).

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 School of Nursing. Special requirements for admission and progression are available through the School.

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 School of Nursing. Application forms for admission to the University must be obtained from the Office of Admissions, Lakeshore 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 reapplication to the University Admissions Office.

Applications are accepted year round. Admission is competitive. Applicants are considered on the basis of their 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

EACH APPLICANT IS RESPONSIBLE FOR SUBMITTING THE ABOVE ADMISSION CRITERIA. CONSIDERATION FOR ADMISSION WILL NOT BE GIVEN UNLESS ALL RECORDS ARE RECEIVED IN THIS DEPARTMENT BY THE DEADLINE DATE.

**1. BEGINNING STUDENTS**

- (students who have not attended any college/university)
  - SAT/ACT composite scores 1000 or higher in Critical Reading and Math, (or equivalent English/Mathematics Placement Test Scores).

**B. Meets following high-school subject matter:**

- English 8 sem.
- Algebra 4 sem.
- Geometry 2 sem.
- Chemistry 2 sem.
- Biology 2 sem.
- Add’l. Lab Science 2 sem.

(Biology, Physics, Anatomy and Physiology recommended)

Note: Applicants who do not meet the Nursing admission requirements but do meet general university requirements will be admitted to Center for Student Achievement.
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 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 have been completed within five (5) years of an application to the School 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 School of Nursing will be required to submit a record of a comprehensive physical examination completed within the last 6 months, a complete immunization record and/or lab titres, 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. Enrolment is limited.

### Baccalaureate Degree in Nursing (Professional Option)
(123 CREDITS)

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</table>

### Admission Requirements for the ACCELERATED SECOND DEGREE IN NURSING OPTION
Purdue University Calumet School 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 BS 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 6 credit hours
Behavioral Sciences 6 credit hours
Humanities 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  Foundations of Health Assessment and Health Promotion</td>
<td>2</td>
<td>3</td>
<td>3</td>
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<tr>
<td>NUR 19200  Foundations of Nursing</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>NUR 19600  Foundations of Psychosocial Nursing (First 8 weeks)</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>NUR 19700  Practicum I (Second 8 weeks)</td>
<td>2</td>
<td>0</td>
<td>2</td>
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<tr>
<td>NUR 18200  Conceptual and Theoretical Thinking in Nursing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NUR 29400  Essential Pharmacotherapeutics for Nursing</td>
<td>3</td>
<td>0</td>
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<table>
<thead>
<tr>
<th>Semester 2</th>
<th>LEC</th>
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<tbody>
<tr>
<td>NUR 28200  Adult Nursing I</td>
<td>4</td>
<td>0</td>
<td>4</td>
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<tr>
<td>NUR 28300  Practicum II</td>
<td>0</td>
<td>6</td>
<td>2</td>
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<tr>
<td>NUR 28600  Mental Health Nursing (First 8 weeks)</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NUR 41500  Pathophysiology</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NUR 39000  Nursing Research</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NUR 39100  Professional Ethics</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>LEC</th>
<th>LAB</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 31700  Nursing Care of Women Through the Lifespan</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>NUR 31800  Maternity Practicum</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>NUR 36100  Pediatric Nursing</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>NUR 36200  Pediatric Nursing Practicum</td>
<td>0</td>
<td>3</td>
<td>1</td>
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<tr>
<td>NUR 35200  Gerontological Nursing</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>NUR 45200  Quality and Safety in Professional Nursing Leadership</td>
<td>3</td>
<td>0</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
<th>LEC</th>
<th>LAB</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 39200  Adult Nursing II</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NUR 39300  Practicum III</td>
<td>0</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>NUR 48700  Transitions Into Professional Nursing Practice</td>
<td>2</td>
<td>0</td>
<td>2</td>
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<tr>
<td>NUR 48500  Community Health Nursing Practice</td>
<td>1</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>NUR 48600  Community Health Nursing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NUR 49800  Capstone Course in Nursing</td>
<td>1</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note: Sciences (Anatomy and Physiology, Microbiology and Computer/Information Technology) may not be older than 5 years.

Breakdown of Credit Hours
26-28 cr. Previous Degree
34-36 cr. Prerequisite requirements (some of which might come from previous degree)
61 cr. Nursing Major
121-123 cr. hours

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 UNDERGRADUATE CURRICULUM COMMITTEE 01/13/2012

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.
a. Applicant must be officially accepted by the University before his or her application can be considered by admission to the School of Nursing.
2. Minimum GPA of 2.5/4.0.
3. Successfully completed an associate’s degree or diploma program in Nursing.
4. Licensure as a Registered Nurse.
5. 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></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

<table>
<thead>
<tr>
<th>Core Nursing Courses</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 18200 — Conceptual and Theoretical Thinking in Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NUR 38400 — Concepts of Development in Professional Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NUR 39000 — Nursing Research</td>
<td>3</td>
</tr>
<tr>
<td>NUR 38800 — Nursing of Families and Groups</td>
<td>3</td>
</tr>
<tr>
<td>NUR 39100 — Professional Ethics*</td>
<td>2</td>
</tr>
<tr>
<td>NUR 39400 — Health Promotion and Education</td>
<td>3</td>
</tr>
<tr>
<td>NUR 39700 — Nursing Care of the Aged, Disabled &amp; Chronically Ill</td>
<td>3</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 Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NUR 48200 — Nursing Leadership and Management*</td>
<td>2</td>
</tr>
<tr>
<td>NUR 49800 — Capstone Course in Nursing***</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 34

<table>
<thead>
<tr>
<th>Non-Nursing Required Courses</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>Elective</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>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 24

* 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.

LPN to BS Option in Nursing

ADMISSION REQUIREMENTS FOR AN ACCELERATED CURRICULUM TRACK FOR THE LPN TO BS OPTION

PREFERRED 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 School 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:
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:

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.

PREREQUISITE COURSES FOR ADVANCED PLACEMENT

(27 Credit Hours)

<table>
<thead>
<tr>
<th>Science (15 Credits)</th>
<th>Humanities/Social Science (12 Credits)</th>
</tr>
</thead>
<tbody>
<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>
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<tr>
<td>BIOL 221 (4 Credits)</td>
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</tbody>
</table>

FIRST YEAR NURSING COURSES

(15 Credit Hours)

<table>
<thead>
<tr>
<th>Credit by Exam (12 Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational of Nursing (2 Credits)</td>
</tr>
<tr>
<td>Pharmacology HESI Exam (5 Credits)</td>
</tr>
<tr>
<td>NUR 192 Foundations of Nursing (2 Credits)</td>
</tr>
<tr>
<td>NUR 196 Foundations of Psychosocial Nursing (3 Credits)</td>
</tr>
<tr>
<td>NUR 197 Practicum I (2 Credits)</td>
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</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)

F. Upon completion of the prerequisite courses and CGPA and successful completion of the HESI exams for advanced placement (42 credits total), the student will be admitted on space available basis.
G. Clinical Requirements: Applicants who have been admitted to the School of Nursing will be required to meet all clinical requirements listed in the undergraduate student handbook at: http://webs.purduecal.edu/nursing/undergraduate/handbook/course-req/clinical-eligibility-documents/. Malpractice insurance purchased through the University is required upon enrollment in the first clinical nursing course.

Plan of Study for LPN to BS Option
(81 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>
<td></td>
</tr>
<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>
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<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>
<td>NUR 384</td>
<td>Concepts of Role Development in Professional Nursing</td>
<td>3 Credit Hrs.</td>
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<td>Semester Total:</td>
<td>14 Credits</td>
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<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>
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<tr>
<td>NUR 286</td>
<td>Mental Health Nursing Practicum</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 287</td>
<td>Mental Health Nursing Practicum</td>
<td>1 Credit Hr.</td>
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<tr>
<td>NUR 451</td>
<td>Nursing Informatics</td>
<td>3 Credit Hrs.</td>
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<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>
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<tr>
<td>NUR 318</td>
<td>Pediatric Nursing Practicum (2nd 8 weeks)</td>
<td>1 Credit Hr.</td>
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</tr>
<tr>
<td>NUR 394</td>
<td>Health Promotion and Education</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 397</td>
<td>Nursing Care of the Aged, Disabled and Chronically Ill</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 391</td>
<td>Professional Ethics</td>
<td>2 Credit Hrs.</td>
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<td>Semester Total:</td>
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<table>
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<tr>
<th>SEMESTER 6</th>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
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<tbody>
<tr>
<td>NUR 361</td>
<td>Pediatric Nursing (1st 8 weeks)</td>
<td>2 Credit Hrs.</td>
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<tr>
<td>NUR 372</td>
<td>Pediatric Nursing Practicum (2nd 8 weeks)</td>
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<tr>
<td>NUR 415</td>
<td>Pathophysiology</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 388</td>
<td>Nursing of Families and Groups</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 390</td>
<td>Nursing Research</td>
<td>3 Credit Hrs.</td>
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<td></td>
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<th>COURSE</th>
<th>COURSE TITLE</th>
<th>TOTAL CREDIT HOURS</th>
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<tbody>
<tr>
<td>NUR 392</td>
<td>Community Health Nursing II</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 393</td>
<td>Practicum III</td>
<td>3 Credit Hrs.</td>
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<tr>
<td>NUR 482</td>
<td>Nursing Leadership &amp; Management</td>
<td>2 Credit Hrs.</td>
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<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>
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</tr>
<tr>
<td>NUR 488</td>
<td>Capstone Course Preparation</td>
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<td></td>
</tr>
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<td>Semester Total:</td>
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<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>
<td></td>
</tr>
<tr>
<td>NUR 486</td>
<td>Community Health Nursing</td>
<td>3 Credit Hrs.</td>
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</tr>
<tr>
<td>NUR 498</td>
<td>Capstone Course in Nursing</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>ELECTIVE</td>
<td>Humanities</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td>ELECTIVE</td>
<td>Open</td>
<td>3 Credit Hrs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Semester Total:</td>
<td>15 Credits</td>
<td></td>
</tr>
</tbody>
</table>
Master of Science, Nursing
Students select 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 School 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 School 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
(Appplies 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 52000 Ethics for Nurses in Advanced Practice
- NUR 60000 Adult Health CNS I (3 credits)
- NUR 60100 Adult Health CNS Practicum I
- NUR 60200 Critical Care CNS I (3 credits)
- NUR 60300 Critical Care CNS Practicum I
- NUR 60400 Critical Care CNS Practicum II
- NUR 60500 Critical Care CNS Practicum III: Clinical Synthesis
- NUR 60600 Healthcare Organization, Policy and Economics
- NUR 60700 Physiologic Concepts for Advanced Practice Nursing

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 60400 Critical Care Clinical Nurse Specialist II
- NUR 60500 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
SPE A 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 School 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 School 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 School 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)
Academic programs offered by the School of Technology include state-of-the-art curricula to meet the ever-changing demands of business and industry for highly-trained technical professionals. The School 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, 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 Program
- Technology
- Modeling, Simulation and Visualization

### Career Opportunities
Those who graduate from Purdue University Calumet’s School of Technology 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, Application Developer, System Analyst and more.
Department of Computer Information Technology and Graphics

Charles Winer, Professor and 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: J. Curry, 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.

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.

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.

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.

The department supports four state-of-the-art and cutting-edge technology virtual classrooms/labs in Powers building allowing students to access our courses and labs from anywhere and at anytime. 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.
Bachelor of Science, Computer Information Technology
(121-122 CREDIT HOURS)

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 Graphics Technology (CGT)
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.

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
(121–123 CREDIT HOURS)

1. English and Communications
ENGL 10400 English Composition I
ENGL 22000 Technical Report Writing
COM 11400 Fundamentals of Public Speaking
OLS 47400 Conference Leadership

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

* ** If transferring to West Lafayette CGT BS degree program, you will need to include MA 22100, PHYS 22100 and a 4-credit Lab Science.

** Programming course C++ and/or JAVA. Electives: any course offered by Purdue University Calumet approved by the CGT advisor except general studies or any classes taken to remove high school deficiencies e.g., beginning and intermediate algebra and English

3. General Education
ECON 21000 Principles 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

7. Programming Courses (2 courses)
CGT 21500 Computer Graphics Programming I

SELECT ONE OF THE FOLLOWING AND/OR
ITS 24000 IT Programming Fundamentals
ITS 24500 Integrative Programming

* Computer Based Systems, Computer Hardware or programming fundamentals. Visual Programming or Approved, JAVA or C++ course; 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, School of Technology, A&D, CGT related And approved by the CGT advisor

9. Management/Supervision
OLS 25200 Human Relations in Organizations
MGMT 32400 Marketing Management

OR
OLS 37500 Training Methods
MGMT 42100 Promotion Management
OLS 47700 Conflict Management

OR
OLS 35100 Entrepreneurship Organizational Leadership
OLS 35000 Applied Creativity for Business and Industry
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; D.P. Korchek; 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: TBD – 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 offers areas of specialization in Leadership Development, Safety (Safety, Health, and Environmental Management), and in Supervision. 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 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 Accreditation Commission of ABET, http://www.abet.org

Bachelor of Science, Construction Management and 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.

This major industry includes a variety of large general construction firms, small specialized contractors, materials suppliers, equipment manufacturers, and the design services of architects and engineers. The wide choice of career opportunities includes estimator, field superintendent, construction scheduler, expediter, project manager, survey crew chief, materials technician, architectural/civil draftsperson, and cost engineer.

Each year architectural, construction, consulting engineering, industrial, laboratory testing, materials supplier, and surveying firms contact Purdue Calumet seeking baccalaureate degree graduates for work in the Calumet Region and in other parts of the country. This trend should continue since there are statistics that the present enrollment of technicians and technologists will not meet the needs of this country for many years.

Bachelor of Science, Construction Management & Engineering Technologies

(130 CREDITS MINIMUM)

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, certificates, options or minors.
This program does not lead to professional registration in architecture or engineering.

1. Communication

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<tbody>
<tr>
<td>ENGL 10400</td>
<td>English Comp. I</td>
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<td>ENGL 22000</td>
<td>Technical Report Writing</td>
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<td>ENGL 42000</td>
<td>Business Writing</td>
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<td>COM 11400</td>
<td>Fundamentals of Speech</td>
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<tr>
<td>COM 31500</td>
<td>Comm. of Technical Information</td>
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2. Science and Mathematics

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<tbody>
<tr>
<td>PHYS 22000</td>
<td>General Physics</td>
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<tr>
<td>PHYS 22100</td>
<td>General Physics</td>
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<tr>
<td>One Science elective: any lab science approved by CMET department</td>
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<tr>
<td>Math</td>
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<tr>
<td>MA 14700</td>
<td>Algebra and Trig. for Technology I</td>
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<tr>
<td>MA 14800</td>
<td>Algebra and Trig. for Technology II</td>
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<td>MA 21900</td>
<td>Calculus for Tech I</td>
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<td>STAT 30100</td>
<td>Elementary Statistical Methods I</td>
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3. General Education

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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 27600 Specifications and Contract Documents
- CET 10400 Elementary Surveying
- CET 16000 Statics
- CET 25300 Hydraulics & Drainage
- CET 26000 Strength of Materials
- CET 26600 Materials Testing
- CET 28000 Structural Calculations
- CET 30600 Construction Surveying
- CET 33100 Property and Behavior of Soils
- CMET 10300 Introduction to Construction Management
- CMET 28000 Structural Computations
- CMET 32500 Structural Applications
- CMET 34100 Construction Operations
- CMET 34400 Construction Inspection (ExL)
- CMET 44200 Construction Costs and Bidding
- CMET 44500 Construction Management
- CMET 45000 Construction Scheduling
- CMET 48900 Senior Project Survey
- CMET 49000 Senior Project (ExL)
- IET 30800 Project Management and Economics Analysis
- OLS 34000 Fund. of Const. Safety

5. Selectives
- **Architectural Engineering Technology Track**
  - ARET 25000 Architectural Construction I (ExL)
  - ARET 22200 Architectural Construction II
  - ARET 28300 Mech. & Elec. Equipment Bldg.
- **Civil Engineering Technology Track**
  - CET 20800 Route Surveying
  - CET 20900 Land Surveying and Subdiv.
  - CET 25300 Hydraulics and Drainage
  - ARET 25000 Architectural Construction I (ExL)
  - ARET 31200 History of Architecture
  - CET 21000 Surveying Computations
  - CET 30300 Land Survey Systems
  - CET 30400 Legal Descriptions
  - CET 32200 Astronomic and Geodetic Surveying
  - CET 40200 Surveying Law
  - CET 40400 Property Surveying

6. Construction Electives
   - Two construction electives to be selected with academic advisor.
   - Recommended courses are:
     - CET 20800 Route Surveying
     - CET 20900 Land Surveying and Subdiv.
     - CET 25300 Hydraulics & Drainage
     - ARET 25000 Architectural Construction I (ExL)
     - ARET 31200 History of Architecture
     - CET 21000 Surveying Computations
     - CET 30300 Land Survey Systems
     - CET 30400 Legal Descriptions
     - CET 32200 Astronomic and Geodetic Surveying
     - CET 40200 Surveying Law
     - CET 40400 Property Surveying

7. Humanities Elective
   (One general education elective from: Philosophy, History, Foreign Languages, Anthropology, Art History, English Literature or Music Appreciation)

8. Management
   - ECON 21000 Principles of Economics

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**Bachelor of Science, Construction Management & Engineering Technologies – Surveying Technology Option**

(130 CREDITS MINIMUM)

The Department of Construction Management & Engineering Technologies also offers a Surveying Technology Option. The option includes 10 courses in land surveying (totaling 30 credit hours), 4 courses in mathematics (totaling 15 credit hours), and 3 courses in science (totaling 11 credit hours). This option has been designated as an “Approved Program” by the State of Indiana Board of Registration for Land Surveyors. The option also has been approved by the Land Surveying Licensing Board of the Illinois Department of Professional Regulation as satisfying the statutory requirements of a baccalaureate degree in a related science which includes 24 semester hours of land surveying courses.

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, options or minors.

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**Bachelor of Science, Organizational Leadership and Supervision**

- **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.

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.

The primary objective of Organizational Leadership and Supervision Bachelor of Science degree 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.

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**Bachelor of Science, Organizational Leadership and Supervision**

(127–128 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**
   - COM 11400 Fund. of Speech Communication
   - ENGL 10400 English Composition I
   - ENGL 22000 Technical Report Writing
   - ENGL 42000 Business Writing

2. **Science and Mathematics**
   - CIS 20400 Intro. to Computer-Based Systems
   - MA 14700 Algebra & Trig. for Tech. I

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
4. Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 20000</td>
<td>Introductory Accounting</td>
</tr>
<tr>
<td>OLS 10200</td>
<td>Freshman Experience</td>
</tr>
<tr>
<td>OLS 13100</td>
<td>Intro. to Environ. Health, Safety, &amp; Risk Mgmt.</td>
</tr>
<tr>
<td>OLS 16300</td>
<td>Fundamentals of Self Leadership</td>
</tr>
<tr>
<td>OLS 25200</td>
<td>Human Relations in Org.</td>
</tr>
<tr>
<td>OLS 37500</td>
<td>Training Methods</td>
</tr>
<tr>
<td>OLS 47400</td>
<td>Conference Leadership (EXL)</td>
</tr>
<tr>
<td>OLS 49700</td>
<td>Senior Project (EXL)</td>
</tr>
</tbody>
</table>

5. Selectives

**CAREER SPECIALIZATION SELECTIVES**

<table>
<thead>
<tr>
<th>Leadership Development</th>
<th>Safety</th>
<th>Supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective 1: OLS 37400</td>
<td>OLS 33100</td>
<td>OLS 37400</td>
</tr>
<tr>
<td>Selective 2: OLS 27200</td>
<td>OLS 33300</td>
<td>OLS 38400</td>
</tr>
<tr>
<td>Selective 3: OLS 30300</td>
<td>OLS 33600</td>
<td>Career Specialization</td>
</tr>
<tr>
<td>Selective 4: OLS 35000</td>
<td>OLS 33400</td>
<td>OLS 35000</td>
</tr>
<tr>
<td>Selective 5: OLS 37600</td>
<td>OLS 33200</td>
<td>OLS 37600</td>
</tr>
<tr>
<td>Selective 6: Technical Elective</td>
<td>OLS 34300</td>
<td>Career Specialization</td>
</tr>
<tr>
<td>Selective 7: Technical Elective</td>
<td>OLS 34100</td>
<td>Career Specialization</td>
</tr>
<tr>
<td>Selective 8: Technical Elective</td>
<td>OLS 35500</td>
<td>Career Specialization</td>
</tr>
<tr>
<td>Selective 9: Technical Elective</td>
<td>OLS 33700</td>
<td>Career Specialization</td>
</tr>
<tr>
<td>Selective 10: Technical Elective</td>
<td>OLS 34000</td>
<td>OLS Elective</td>
</tr>
<tr>
<td>Selective 11: OLS 37800</td>
<td>OLS 41500</td>
<td>OLS 37800</td>
</tr>
<tr>
<td>Selective 12: OLS 45400</td>
<td>OLS 43000</td>
<td>OLS 48300</td>
</tr>
<tr>
<td>Selective 13: OLS 46800</td>
<td>OLS Elective</td>
<td>OLS 46800</td>
</tr>
<tr>
<td>Selective 14: OLS 47700</td>
<td>OLS 42100</td>
<td>Elective</td>
</tr>
<tr>
<td>Selective 15: OLS 38400</td>
<td>OLS Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>Math Selective: STAT 13000</td>
<td>MA 14800</td>
<td>STAT 13000</td>
</tr>
<tr>
<td>Lab Science Selective 1: Lab Science Elective</td>
<td>PHYS 22000</td>
<td>Lab Science Selective</td>
</tr>
<tr>
<td>Lab Science Selective 2: Lab Science Elective</td>
<td>CHEM Course</td>
<td>Lab Science Selective</td>
</tr>
<tr>
<td>IET Selective: IET 10400</td>
<td>IET 10600</td>
<td>IET 10400</td>
</tr>
</tbody>
</table>

**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 School of Technology program and approved by the OLS advisor.

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**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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLS 16300</td>
<td>Fundamentals of Self-Leadership</td>
</tr>
<tr>
<td>OLS 25200</td>
<td>Human Relations in Organizations</td>
</tr>
<tr>
<td>OLS 37400</td>
<td>Supervision Management</td>
</tr>
<tr>
<td>OLS 37600</td>
<td>Human Resource Issues</td>
</tr>
<tr>
<td>OLS 38400</td>
<td>Leadership Process</td>
</tr>
</tbody>
</table>

or any OLS 40000-level course, excluding safety courses.
Department of Engineering Technology

S. Scachitti, Department Head. Faculty: J.P. Agrawal; A. Ahmed; E. Bouktache; C. Engle; O. Farook; M. Fathizadeh; J. Higley; A. Hossain; L. Mapa; G. Neff; W.C. Robinson; C. Sekhar; S. Tickoo; M. Zahraee
Emeritus Faculty: M. Kays; G. Kvitik; D. Rose; N. Sorak
Academic Advisor: E. Perosky
Staff: C. Kerrick, Department Secretary; J. Najzer, Electronics Supervisor ECET/ECE 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 an 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 School 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 (EET)

The following are the Program Educational Objectives (PEOs) for the Baccalaureate Degree in Electrical Engineering Technology (EET):

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.

Given the sophistication dictated by the emerging technologies within the vast field of electrical & electronics engineering, the B.S. 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.

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

Career Opportunities:
- Computer Hardware/Software Technologists
- Industrial Process Control Instrumentation Technologists
- Power Electronics Technologists
- Telecommunication Technologists
- Computer Networking Specialists
- Electrical Power Technologist
- Biomedical Instrumentation Technologists

Bachelor of Science, Electrical Engineering Technology* (128 CREDITS MINIMUM)

1. Electrical Engineering Technology Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>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>
</tr>
<tr>
<td>ECET 21000</td>
<td>Struct C++ Program for Elec Sys</td>
</tr>
<tr>
<td>ECET 21200</td>
<td>Electrical Power and Machinery</td>
</tr>
<tr>
<td>ECET 21700</td>
<td>Introduction to Process Control</td>
</tr>
<tr>
<td>ECET 26500</td>
<td>Computer Networks</td>
</tr>
<tr>
<td>ECET 29600</td>
<td>Electronic System Fabrication</td>
</tr>
<tr>
<td>ECET 30300</td>
<td>Communications I</td>
</tr>
<tr>
<td>ECET 38400</td>
<td>Advanced Mathematical Methods in EET</td>
</tr>
<tr>
<td>ECET 39200</td>
<td>Digital Signal Processing</td>
</tr>
<tr>
<td>ECET 39700</td>
<td>Project Engineering</td>
</tr>
<tr>
<td>IET 30800</td>
<td>Project Management</td>
</tr>
<tr>
<td>ECET 45600</td>
<td>Computer Hardware Design</td>
</tr>
<tr>
<td>ECET 49000</td>
<td>Senior Design Project, Phase I</td>
</tr>
<tr>
<td>ECET 49100</td>
<td>Senior Design Project, Phase II</td>
</tr>
</tbody>
</table>

2. EET Electives

Five to seven courses from the following list of EET electives (see Plan of Study in the department office):

- ECET 26200 Programmable Logic Controllers
- ECET 31000 Biomedical Instrumentation
- ECET 31200 Power Electronics
- ECET 31500 Digital Design and Implementation using Programmable Logic
- ECET 33100 Generation & Transmission of Electrical Power
- ECET 36200 Process Control Instrumentation
- ECET 36700 Internetworking and TCP/IP
- ECET 41000 Physics of Radiologic Imaging
- ECET 41200 Power Electronics Design and Applications
- ECET 41300 Digital and Data Communications
- ECET 42300 Current Trends in Telecommunication Technology
- ECET 44500 New Technology in Computer Systems
- ECET 45500 C++ Object Oriented Programming
- ECET 46200 Application of Computers in Process Control
- ECET 46500 Advanced Topics in Computer Networks
- ECET 46700 IP Telephony

NOTE: Students can also substitute some of the above EET Electives with courses offered in the Master of Science in Technology Program.

3. Communication

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<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>
</tr>
</tbody>
</table>

And one course from the following COM Selectives: COM 30700, 31400, 31500, 32000, 32200, 32500, 32600, 42000.

4. Science and Mathematics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 10000</td>
<td>Introduction to Sociology</td>
</tr>
</tbody>
</table>

6. Other Electives

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), one Open Elective (3 credits)**, and one non-technical selective (3 credits) from the following: OBHR, and OLS.

*A Minor in Business is available.

**The Open Elective may be satisfied by Co-op credits, a course that satisfies a minor in Business, or non-Humanities/Social Science transfer credits.
Bachelor of Science, 
Industrial Engineering Technology (IET)

The following are the Program Educational Objectives for the Baccalaureate degree in Industrial Engineering Technology (IET):

**Program Educational Objective 1:**
The program will prepare graduates that are prepared 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.

Increased sophistication in technology and management systems is fueling the need for graduates with capabilities in both technology and business. 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.

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

**Career Opportunities:**

- Industrial Engineer
- Manufacturing Engineer
- Process Engineer
- Quality Engineer
- Quality Manager
- Plant Manager
- Business Unit Manager
- Quality Technician
- Quality Auditor
- Research & Development Technician
- Plant Scheduler
- Six Sigma Black Belt
- Lean Leader
- Healthcare Management Engineer

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Bachelor of Science, 
Industrial Engineering Technology

(126/127 CREDITS)

1. **Communication**
   - ENGL 10400 English Comp. I
   - ENGL 22000 Technical Report Writing
   - COM 11400 Fund. of Speech Comm.
   - ENGL 42000 Business Writing
   - OLS 47400 Conference Leadership

2. **Science and Mathematics**
   - **Math:**
     - MA 14700 Algebra and Trig. I
     - MA 14800 Algebra and Trig. II
     - MA 21900 Calculus for Technology I
     - STAT 30100 Elementary Statistics
   - **Science:**
     - CHM 11100 General Chemistry
     - OR
     - CHM 11500 General Chemistry
     - OR
     - B IOL 12500 Invitation to Human Biology
     - PHYS 22000 General Physics
     - PHYS 22100 General Physics II

3. **Major Requirements**
   - MET 10000 Production Drawing & CAD
   - MET 14100 Manufacturing Materials I
   - MET 16100 Introduction to Engineering Technology
   - MET 24200 Manufacturing Processes II
   - MET 32500 Thermodynamics
   - OR
   - MET 32900 Applied Heat Transfer
   - IET 10400 Industrial Organization Principles of Total Quality Management
   - IET 10600 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 31000 Plant Layout and Material Handling
   - OR
   - 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
   - OLS 25200 Human Relations in Organizations
   - OLS 33100 Occupational Safety and Health
   - OLS 35000 Applied Creativity for Business and Industry
   - POL 30500 Technology & Society

4. **Selectives**
   - IET — Selectives for General Plan of Study

Two IET courses from the following list:

- 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
Three Technical Electives
One 300-400 Level OLS course

IET — Quality Specialization
IET 27200 Job Evaluation
IET 31100 International Quality Standards
IET 41100 Applications of Lean Six Sigma Methodologies
TECH Two Technology course (6 credits)
OLS Organizational Leadership and Supervision course (3 credits)

5. General Education Electives (6 credits)

A. At least one general education elective must be from humanities: art & design, communication, English, foreign language, music, philosophy, or appropriate interdisciplinary humanities courses. This course must be one of the courses that the Faculty Senate has approved to meet the Critical Appreciation for the Arts and Works of Human Expression general education requirement. Electives not allowed are any instrument or vocal courses.

B. The other general education elective may be from humanities (listed in A above) or from social sciences: anthropology, economics, ethnic studies, geography, political science, psychology, sociology, women’s studies or appropriate interdisciplinary social science courses. This course must be one of the courses that the Faculty Senate has approved to meet the How People Function in Society general education requirement.

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.

Bachelor of Science, Mechatronics Engineering Technology

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.

Adapting to the growing need for trained engineering technologists within the high speed packaging industry is the emphasis of the bachelor’s degree program in Mechatronics Engineering Technology. The program combines mechanical design, manufacturing and electrical control within a foundational context of packaging machinery. The degree is also very valuable in other industrial areas as well, such as the automotive industry.

Students in this program benefit from internships offered by local packaging industries and are very mobile with career opportunities available nationwide.

Bachelor of Science Degree in Mechatronics Engineering Technology
provides knowledge in:

■ Computer Hardware & Electric Circuits
■ Manufacturing Processes
■ Strength of Materials
■ Electrical Power & Machinery
■ Process Control
■ Machine Elements, Machine Design
■ Programmable Logic Controllers
■ Industrial Programming & Networking
■ Dynamics, Mechanism Kinematics
■ Fluid Power & Fluid Mechanics
■ Power Electronics, Digital Applications

Career Opportunities:
■ Technical Services
■ Machine Designer
■ Packaging Engineer
■ Automation Specialist
■ Human/Machine Interface (HMI)
■ Programmer
■ Controls Specialist
■ Motion Control Programmer

Bachelor of Science, Mechatronics Engineering Technology
(128/130 CREDITS)

1. Communication
ENGL 10400 English Comp. I
ENGL 22000 Technical Report Writing
COMM 11400 Fund. of Speech Comm.

2. Science and Mathematics
Science:
PHYS 22000 General Physics I
Math:
MA 15900 Pre-Calculus
MA 21900 Calculus for Technology I
MA 22200 Calculus for Technology II

3. Major Requirements
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 31200 Power Electronics
ECET 33000 Industrial Programming & Networking
ECET 36200 Process Control
ECET 46200 Advanced Process Control
ET 10000 Freshman Experience
ET 15100 Internship
ET 25200 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 47400 Conference Leadership
3. Selectives (12 credits)
Selectives can be chosen from any of the following courses:
- MET 31500 Mechanism Kinematics
- MET 10200 Prod. Design & Spec's
- MET 46100 Comp. Integr. Design & Mfg.
- MET 30500 CAD with Applications
- MET 34700 Programming of Automation Systems
- 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 31300 Fluid Mechanics
- MET 32900 Heat Transfer
- MET 42100 HVAC
- MET 32500 Thermodynamics
- ECET 45600 Computer Hardware Design
- ECET 20900 Intro to Microcontrollers
- ECET 21000 Struct C++ for EMS Syst
- ECET 15900 Digital Applications

4. General Education Elective (9 credits)
A. At least one general education elective must be from humanities: art & design, communication, English, foreign language, music, philosophy, OLS 16300 or OLS 35000 or appropriate interdisciplinary humanities courses. This course must be approved by the Faculty Senate to meet the Critical Appreciation for the Arts and Works of Human Expression general education requirement. Electives not allowed are any instrument or vocal courses.
B. The other general education elective must be from the social sciences: anthropology, economics, ethnic studies, geography, political science, psychology, sociology, women's studies or appropriate interdisciplinary social science courses. This course must be approved by the Faculty Senate to meet the Relationships Between Technology and Society general education requirement.
C. Any social science or humanities elective.

Bachelor of Science, Mechanical Engineering Technology (MET)
The following are the Program Educational Objectives for the Baccalaureate degree in Mechanical Engineering Technology (MET):

Program Educational Objective 1:
The program will prepare graduates that are prepared 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.

Growing demand for modern and complex industrial machinery, machine tools, robotics, and computer controlled processes require highly qualified technologists for their development, manufacture, use, and support. MET students usually are interested in mechanical activities, and often enjoy working on vehicles and machines.

Bachelor of Science Degree in Mechanical Engineering Technology provides knowledge in:
- Materials
- Applied Mechanics: Statics
- Computations & Analysis

Bachelor of Science, Mechanical Engineering Technology (124 CREDITS)

1. Communication
- ENGL 10400 English Comp. I
- ENGL 22000 Technical Report Writing
- COM 11400 Fund. of Speech Comm.
- ENGL 42000 Business Writing

2. Science and Mathematics
Science:
- CHM 11100 General Chemistry
- CHM 11500 General Chemistry
- PHYS 22000 General Physics
- PHYS 22100 General Physics II
Math:
- MA 14700 Algebra and Trig. I
- MA 14800 Algebra and Trig. II
- MA 21900 Calculus for Technology I
- STAT 30100 Elementary Statistical Methods
- MA 22200 Calculus for Technology II

3. Major Requirements
- 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
### 4. Selectives (12 credits)

**MET — Selectives for General Plan of Study**

Two Mechanical Engineering Technology selectives from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 28500</td>
<td>Applied CNC</td>
</tr>
<tr>
<td>MET 30500</td>
<td>Computer Aided Design with Applications</td>
</tr>
<tr>
<td>MET 31500</td>
<td>Mechanism Kinematics</td>
</tr>
<tr>
<td>MET 35500</td>
<td>Automation I</td>
</tr>
<tr>
<td>MET 38400</td>
<td>Instrumentation</td>
</tr>
<tr>
<td>MET 42000</td>
<td>Machine Design</td>
</tr>
<tr>
<td>MET 42100</td>
<td>HVAC</td>
</tr>
<tr>
<td>MET 42600</td>
<td>Internal Combustion Engines</td>
</tr>
<tr>
<td>MET 46000</td>
<td>Design for &quot;X&quot;</td>
</tr>
<tr>
<td>MET 26500</td>
<td>Advanced Topics in Computer-Aided Design</td>
</tr>
<tr>
<td>MET 53000</td>
<td>Facilities Engineering Technology</td>
</tr>
</tbody>
</table>

Two Technical Electives

**MET — Quality Specialization**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IET 26400</td>
<td>Fundamentals of Lean Work Design</td>
</tr>
<tr>
<td>IET 27300</td>
<td>Principles of Quality and Process Improvement</td>
</tr>
<tr>
<td>IET 35500</td>
<td>Statistical Process Control I</td>
</tr>
<tr>
<td>IET 41100</td>
<td>Principles of Lean Thinking</td>
</tr>
</tbody>
</table>

### 5. Elective (3 credits)

Elective with advisor approval

### 6. General Education Elective (9 credits)

**A.** At least one general education elective must be from humanities: art & design, communication, English, foreign language, music, philosophy, OLS 16300 or OLS 35000 or appropriate interdisciplinary humanities courses. Electives not allowed are any instrument or vocal courses. This course must be approved by the Faculty Senate to meet the Critical Appreciation for the Arts and Works of Human Expression general education requirement.

**B.** The other general education elective must be from the social sciences: anthropology, economics, ethnic studies, geography, political science, psychology, sociology, women's studies or appropriate interdisciplinary social science courses. This course must be approved by the Faculty Senate to meet the How People Function in Society general education requirement.

**C.** Any social science or humanities elective.
Master of Science in Modeling, Simulation and Visualization
(Program begins Fall 2013, but classes may be available sooner).

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 School 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 requirement s and additional information, please go to the School 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 School of Technology programs in which we offer a Bachelor of Science degree, or an approved interdisciplinary area.

Purdue University Calumet School 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 School 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/#RL

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/
The Center for
STUDENT ACHIEVEMENT
Center for Student Achievement

The Center for Student Achievement (CSA) consists of several important university initiatives that are known for their role in student success. Academic Advising, Academic Recovery Program, and Academic Resource Center are just a few of the areas that play an important role in student success.

Academic Advising

One of the first and most important functions that CSA performs is academic advising. Academic advising is a proven activity that helps students become successful from matriculation through graduation. CSA advisors assist undeclared students in course selection as they guide these students in pursuit of a major. CSA advisors work with students who are not directly admitted into their chosen major as well as assist all temporarily admitted students. The advisors also provide an academic presence at various University functions and often pre-advise potential university students.

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 is only required for students 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 a special study skills course that addresses academic issues to encourage student success, working with an academic advisor to select appropriate courses for the upcoming semester, and develop strategies that help students meet goals and make progress toward their degree objective.

Learning Communities

Within the Center for Student Achievement, new students participate in learning communities through a predetermined block schedule of first-semester courses, a common reading program, 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.

Academic Resource Center (ARC)

The Academic Resource Center (ARC) 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 of our tutors are current Purdue Calumet students of high academic standing and are recommended by faculty members.

- Lisa Kovacs (2008). Manager of Retention. B.S. Purdue University, 1989. kovacs@purduecal.edu
- Lawrence J. Steffel (2000). Academic Advisor. B.S. Purdue University Calumet, 1969. M.S., 1971. steffel@purduecal.edu
Course Descriptions

Purdue University Calumet’s Course Descriptions are now available on-line 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

Course Title
Biol 48900 BIOLOGICAL SCIENCES RESEARCH
(Cr 1 to 12) Experimental Learning
Prerequisites: 12 credits in BIOL core Courses.

Description
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.

Course Abbreviation and Number
Biol 48900

Course Format
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

SUBJ. CODE DESCRIPTION
A&D Art & Design
ANSC Animal Science
ANTH Anthropology
ARAB Arabic
ARET Architectural Technology
ASTR Astronomy
BA Business Administration
BHS Behavioral Sciences
BIOL Biology
CE Civil Engineering
CS Computer Science
CDFS Child Development and Family Studies
CET Civil Engineering Technology
CGT Computer Graphics Technology
CHM Chemistry
CHNS Chinese
CIS Computer Information Systems
CMET Construction Management Engineering Technology
COM Communication
EAS Earth, Atmospheric Sciences
EECE 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

SUBJ. CODE DESCRIPTION
ENTR Entrepreneurship
EQU Equine Management
ET Engineering Technology
ETHN Ethnic Studies
F&N Foods and Nutrition
FLL Foreign Languages and Literatures
FM Fitness Management
FR French
GEOG Geography
GER German
GNS General Studies
GRAD Graduate Studies
GREK Greek
HEBR Hebrew
HIST History
HONR Honors
HORT Horticulture
HSCI Health Sciences
HTM Hospitality and Tourism Management
IDIS Interdisciplinary Studies
IE Industrial Engineering
IET Industrial Engineering Technology
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
MSE Materials Engineering
MILT Military Service
MSL Military Science and Leadership
MUS Music History and Theory
NRES Natural Resources and Environmental Sciences
NUR Nursing
OBHR Organizational Behavior
OLS Organizational Leadership and Supervision
PHIL Philosophy
PHYS Physics
PLSH Polish
POL Political Science
PSY Psychology
PTGS Portuguese
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 29, 2012. 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

A&D 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.

A&D 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.

A&D 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.

A&D 11300 BASIC DRAWING
(Lab 6, Cr. 3 Transfer)
An introduction to drawing and sketching as a means of communication of ideas.

A&D 11400 DRAWING II
(Lab 6, Cr. 3)
Prerequisite: A&D 11300
Continuation of A&D 11300; emphasis is given to the exploration of a variety of media and the structuring of pictorial space.

A&D 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.

A&D 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.

A&D 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.

A&D 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.

A&D 25500 ART APPRECIATION
(Class 3, Cr. 3 Transfer, General Education)
Understanding and appreciation of the origins and growth of art. A trip to a major museum is included in the course.

A&D 29000 SPECIAL TOPICS IN ART AND DESIGN
(Class 1 to 3, Cr. 1 to 3)
Topic will vary.

A&D 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.

A&D 32900 VISUAL COMMUNICATION DESIGN II
(Lab 6, Cr. 3)
Prerequisite: A&D 32800
A course designed to include continuation of translation of concept into form with emphasis on corporate visual identity system.

A&D 39200 SPECIAL TOPICS IN ART
(Class 1 to 3, Cr. 1 to 3)
Topics will vary.

A&D 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.

A&D 44800 VISUAL COMMUNICATION DESIGN III
(Lab 6, Cr. 3)
Prerequisite: A&D 32900
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.

A&D 44900 VISUAL COMMUNICATION DESIGN IV
(Lab 6, Cr. 3)
Prerequisite: A&D 44800
A course designed to introduce graphic problem solving in the commercial environment; advanced production techniques for the visual communication designer. Field trips may be required.

A&D 49100 SPECIAL TOPICS IN ART
(Class 1 to 3, Cr. 1 to 3)
Topics will vary.

A&D 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.

Animal Science

ANCS 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.

ANCS 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. Processes of invention, diffusion and acculturation; theoretical interpretations of the direction and process of cultural development.
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 nonwestern 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 Americans. 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
(Cr. 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
(Class 3, Lab. 1, Cr. 3)
Introduction to the basic skills in the language

ARAB 10200 ARABIC 102. LEVEL II
(Class 3, Lab. 1, Cr. 3)
Prerequisite: ARAB 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. Prerequisite: Arab 101

Architectural Technology

ARET 11700 CONSTRUCTION DRAFTING AND CAD
(Class 1, Lab. 5, Cr. 3) General Education
Introduction to drafting fundamentals with emphasis on architectural and civil engineering topics. Develop basic drafting skills, using orthographic projections, auxiliary views and perspectives. Students will be introduced to the fundamentals of CAD.

ARET 17000 MATERIALS & SYSTEMS OF CONSTRUCTION
(Class 3, Cr. 3)
An introduction to the nature of the construction industry and a survey of the most commonly used construction materials with special emphasis on their properties, characteristics, limitations, and applications into different construction elements and systems such as foundations columns, trusses, arches, frames, etc. Guest speakers will discuss the nature and opportunities within the construction industry.

ARET 22200 ARCHITECTURAL CONSTRUCTION II
(Lab 6, Cr. 3 or Lab 9, Cr. 3)
Prerequisite: ARET 25000
Preparation of preliminary and working drawings for an intermediate-sized commercial or institutional building.

ARET 25000 ARCHITECTURAL CONSTRUCTION I
(Class 1, Lab. 5, Cr. 3) Experiential Learning
Prerequisite: ARET 11700
A study of wood frame construction through a semester project requiring planning, preliminary and working drawings, and laboratory experience in wood framing. Field trips may be included.

ARET 27600 SPECIFICATIONS AND CONTRACT DOCUMENTS
(Class 3, Cr. 3)
Prerequisite: ARET 25000 or CET 20800
Analyze the content and organization of specifications and how they relate to working drawings during construction. A study of the various types of contract documents used for construction.

ARET 28300 MECHANICAL AND ELECTRICAL EQUIPMENT FOR BUILDINGS
(Class 3, Cr. 3)
A survey of basic environmental systems, including heating ventilating, air conditioning, plumbing, lighting and electrical equipment. A discussion of standard design parameters including an introduction to heat loss and heat gain calculations and circuit loads. Emphasis is placed on definitions, types of systems and the physical characteristics of equipment.

ARET 29900 ARCHITECTURAL ENGINEERING TECHNOLOGY
(Class 0 to 4, Cr. 1 to 4)
Hours and subject matter to be arranged with staff. Course may be repeated for credit up to nine hours.

ARET 31200 HISTORY OF ARCHITECTURE II
(Class 3, Cr. 3)
Not open to students with credit in HIST 31600. 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 caused the architectural expressions of this period.

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 363. 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)
Not available to students with credit in ASTR 364. A descriptive, nonmathematical course in astronomy intended for non-science majors. Topics include: properties of stars; stellar birth and death; the Hertzsprung-Russel diagram; main sequence stars; binary systems; stellar clusters; red giants and white dwarfs; nova and supernovae; neutron stars and black holes; galaxies and the cosmological red shift. Required observing sessions.

ASTR 26500 DESCRIPTIVE ASTRONOMY: ASTRONOMICAL ORIGINS
(Class 2, Lab. 2, Cr. 3)
ASTR 265 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 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 standalone 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 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 deduction, depreciation, descriptive statistics and graphical analysis.

BA 12100 PRINCIPLES OF ACCOUNTING I  
(Class 3, Cr. 3)  
A 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 Management Majors.

BA 121000 PRINCIPLES OF ACCOUNTING II  
(Class 3, Cr. 3)  
Prerequisite: BA 12000 and BA 10500  
A continuation of BA 12000. Emphasis is on reporting issues including financial and cash flow statements.

BA 21000 PRINCIPLES OF FINANCE  
(Class 3, Cr. 3)  
Prerequisite: BA 12100 and MGMT 10100  
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 general understanding of money and capital markets and monetary institutions.

BA 210000 PRINCIPLES OF MARKETING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 10100  
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 230000 PRINCIPLES OF MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 10100  
The fundamentals of organizing a business to succeed. The planning, organizing, directing and controlling of business activities and the organizational plan to combine and allocate resources to meet expressed goals is the focus of this course.

BA 23100 SURVEY OF HUMAN RESOURCES  
(Class 3, Cr. 3)  
Prerequisite: MGMT 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.

BA 36100 BUSINESS OPERATIONS  
(Class 3, Cr. 3)  
Prerequisite: BA 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.

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 39100 INTERNSHIP IN BUSINESS  
(Class 1 to 3, Cr. 1 to 3) Experiential Learning  
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.

BA 49000 PROBLEMS IN BUSINESS  
(Class 1 to 4, Cr. 1 to 4)  
Topics selected for enrichment and further study in special areas of 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 student 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 500 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  
Prerequisite: BHS 22000 and CDFS 21000  
Experiential Learning in Infant and Toddler classrooms.

BHS 20300 ADVANCED INFANT TODDLER CURRICULUM  
(Class 3, Cr. 3)  
Prerequisite: BHS 22000  
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, Lath 3, Cr. 3)  
Prerequisite: BHS 22000 and 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)  
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 disability.

BHS 48400 GENETIC AND PHYSIOLOGICAL FACTORS UNDERLYING DEVELOPMENTAL
(Class 3, Cr. 3)
Disabilities 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) Experimental Learning
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 Riely Child Development Center at the Indiana University School of Medicine. Students will participate in seminar prepartations 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 10010 PREPARATION FOR INTRODUCTORY BIOLOGY
(Class 2, Lab. 2, Cr. 3) General Education
An introduction to core concepts in biology and basic laboratory skills in biological sciences.

BIOL 10100 INTRODUCTORY BIOLOGY
(Class 3, Lab. 3, Cr. 4) General Education, Transfer/N
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, Transfer/N
Prerequisite: MA 15300

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 17500 FLORA OF CALUMET REGION
(Class 2, Lab. 2, Cr. 3)
Identification and recognition of the flora of the Calumet Region. The emphasis is on field that acquaints the student with the plant principle plant groups and species of the local flora. The course may not be used to fulfill the general science requirement.

BIOL 21000 FIELD BIOLOGY
(Class 2, Lab. 2, Cr. 3) General Education, Experiential Learning
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, BIOL 10100 or CHM 11900

BIOL 21400 HUMAN ANATOMY AND PHYSIOLOGY II
(Class 3, Lab. 3, Cr. 4) Prerequisite: BIOL 21300
A continuation of BIOL 213. 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. Course description: The isolation, growth structure, functioning, heredity, identification, classification, and ecology of microorganisms, their role in nature and significance to man.
BIOI 24300 INTRODUCTORY CELL BIOLOGY  
(Class 3, Lab: 3, Cr: 4)  
Prerequisite: BIOI 70100 and BIOI 70200 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.  

BIOI 24400 GENETICS  
(Class 3, Cr: 3)  
Prerequisite: BIOI 70100 and BIOI 70200 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.  

BIOI 24401 GENETICS LABORATORY  
(Lab: 3, Cr: 1)  
Prerequisite: BIOI 24400  
Experiments in microbial, plant, and animal (including human) genetics, emphasizing molecular approaches; exercises include molecular cloning and DNA manipulation.  

BIOI 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.  

BIOI 30700 PLANT PHYSIOLOGY  
(Class 3, Cr: 3)  
Prerequisite: BIOI 70100 and BIOI 70200  
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 metabolism, nutrient assimilation, plant growth, hormones, flowering & defense. Applications to agriculture, biotechnology, ecology, forestry, and other related areas will also be included.  

BIOI 31600 BASIC MICROBIOLOGY  
(Class 3, Lab: 3, Cr: 4)  
Prerequisite: BIOI 70100 and BIOI 70200 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.  

BIOI 33000 BIOSTATISTICS  
(Class 3, Cr: 3)  
Prerequisite: MA 15400  
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.  

BIOI 33300 ECOLOGY  
(Class 3, Lab: 3, Cr: 4)  
Prerequisite: BIOI 70100 and BIOI 70200  
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.  

BIOI 33900 SOCIAL ISSUES IN BIOLOGY  
(Class 3, Cr: 3)  
Prerequisite: BIOI 70100 and BIOI 70200  
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.  

BIOI 34000 HUMAN PHYSIOLOGY  
(Class 3, Lab: 4, Cr: 5)  
Prerequisite: BIOI 21300 and BIOI 21400 or BIOI 10100 and BIOI 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 intersystem interactions.  

BIOI 34200 BIOLOGICAL SCIENCE PRACTICUM  
(Class 0 to 3, Cr: 0 to 3) Experiential Learning  
Prerequisite: BIOI 70100 and BIOI 70200 and BIOI 24300 or BIOI 24400  
Students will do a practicum in an area related to their field of interest.  

BIOI 35700 INTRODUCTORY ANIMAL PHYSIOLOGY  
(Class 3, Lab: 3, Cr: 4)  
Prerequisite: BIOI 70100 and BIOI 70200  
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.  

BIOI 40500 CONSERVATION BIOLOGY  
(Class 3, Cr: 3)  
Prerequisite: BIOI 33300  

BIOI 41200 CLIMATE CHANGE AND THE ENVIRONMENT  
(Class 3, Cr: 3)  
Prerequisite: BIOI 70100 and BIOI 70200 and BIOI 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.  

BIOI 41300 AQUATIC ECOLOGY  
(Class 3, Cr: 3)  
Prerequisite: BIOI 70100 and BIOI 70200 and BIOI 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 ecology of the sediments and the biology of the various systems will be examined.  

BIOI 41400 INVASIVE SPECIES ECOLOGY  
(Class 3, Cr: 3)  
Prerequisite: BIOI 70100 and BIOI 70200 and BIOI 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 invasive. Part two will cover invasive species control and management. Course literature will be a mix of recent peer-reviewed articles, reports, and landmark papers.  

BIOI 41800 DRUGS AND DISEASE  
(Class 3, Cr: 3)  
Prerequisite: BIOI 24300  
This course provides students the opportunity to learn about common diseases in the United States and the current drugs utilized to treat various diseases states. The students will have learned about cells and targets to the design and targeting for specific drugs and the mechanism of action.  

BIOI 42600 SENIOR CAPSTONE  
(Lab: 2, Cr: 3)  
Prerequisite: BIOI 31600 or BIOI 33300 or BIOI 35700  
Students will meet two hours a week to discuss current issues in biology and give presentation. 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.  

BIOI 42800 BIOLOGY SEMINAR  
(Class 1, Cr: 1)  
Guest speakers, faculty and students will present current topics in biology. Prerequisites: 24 credit hours of biology courses.
BIOL 44000 HERPETOLOGY
(Class 2, Lab. 2, Cr. 3)
Prerequisite: BIOL 23500
The evolution, paleontology, taxonomy, morphology, physiology, ecology, and geographic distribution of amphibians and reptiles. Museum techniques, biostatistics, preservation, and caring for specimens are included. Field work emphasizes collection and identification of Indiana species.

BIOL 47700 PHYSIOLOGY
(Class 2, Lab. 3, Cr. 3)
Prerequisite: BIOL 70100 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) (Experiential Learning)
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) (Experiential Learning)
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 70100 or BIOL 10200 or Three semesters of biological sciences
Reading, discussions, written reports or laboratory work selected for enrichment in special areas of the biological sciences.

BIOL 50500 BIOLOGY OF INVERTEBRATE ANIMALS
(Class 2, Lab. 3, Cr. 3)
A survey of the invertebrate animals, their morphology, physiology, ecology and phylogeny.

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 32000 and BIOL 24400 or BIOL 42000 and BIOL 24401 or BIOL 42900
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 51000 MICROTECHNIQUE
(Class 2, Lab. 4, Cr. 4)
Theory and technique of light microscopy, preparation of biological material for anatomical and cytological study, including cytochemistry and photomicrography.

BIOL 52400 MICROBIOLOGY
(Class 3, Cr. 3 or Class 3, Lab. 1, Cr. 3)
Prerequisite: BIOL 22100
Emphasis on bacteria and viruses and intensive study of their isolation, composition, structure, reproduction, and death; identification, classification, ecology, role in nature, and significance to man.

BIOL 52500 PRINCIPLES OF NEUROBIOLOGY
(Class 3, Lab. 3, Cr. 4)
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 organizational and function of vertebrate nervous systems.

BIOL 52700 EUKARYOTIC MICORBIOLOGY
(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 53000 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)
Co-requisite: BIOL 53300
Properties of microorganism associated with infectious diseases.

BIOL 54100 MOLECULAR GENETICS OF BACTERIA
(Class 3, Cr. 3)
Prerequisite: BIOL 43800
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 55700 PHYSIOLOGY II
(Class 3, Cr. 3)
A study of the human cardiovascular, pulmonary, blood and gastrointestinal systems. Higher neuronal functions and intersystem interactions will be discussed.

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: CHM 33300
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 specialization, evolutionary mechanisms, and phylogenetic systems. Laboratory and field work pertaining to the principles and techniques of plant taxonomy.

BIOL 57500 SYSTEMATIC BIOLOGY
(Class 2, Cr. 2)
Principles of phylogenetic relationships and techniques used for their determination; classification, speciation theory, multi-method analyses. Evolutionary mechanisms and dynamics; hybridization, breeding systems, displacement phenomena, coevolutionary adaptations, rates of evolution. Offered in alternate years.

BIOL 57600 LABORATORY IN SYSTEMATIC BIOLOGY
(Lab. 4, Cr. 2)
Prerequisite: BIOL 57500
Comparative morphometric, cyto genetic, and biochemical analyses of natural variation within and among populations of single and related species; local and geographic differentiation, introgressive hybridization, and reproductive ecologies and isolation.

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 physico-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 59300 Ethology
(Class 3, Lab 3, Cr. 4)
Animal behavior is analyzed in natural and experimental situations. Emphasis is on the observation of wild and domesticated animals. The effect of early experience, motivation, physiological mechanisms, adaptiveness and the evolution of behavior are considered.

Biol 59500 Special Assignments
(Class 0 to 18, Lab 0 to 18, Cr. 7 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. 7 to 18)

Child Development and Family Study

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, Transferable
Prerequisite: Psy 1200
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 & theory of early childhood programs; program routines and organization for the healthy intellectual, social & 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. Experiences with music, movement, and art activities will enhance understanding of cognitive, social-emotional and physical development through expressive activities.

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 logical-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 manipulative, 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) Experiential Learning  
A guided practical experience for students interested in early childhood. 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) Experiential Learning  
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.

CDFS 42100 CHILDREN'S SOCIAL DEVELOPMENT  
(Class 3, Cr. 3)  
An advanced theoretical course focused on issues related to children's social development. The topics of attachment, autonomy, play and developmentally appropriate child guidance will be explored within the content of social development.

CDFS 43101 TECHNIQUES OF HUMAN ASSESSMENT  
(Class 3, Cr. 3)  
An advanced study of the young child in the classroom. Course will include an in-depth case study of an individual child with a focus on observing and documenting children's work. Developmental assessment instruments and basic measurement theory will be discussed as it relates to teachers' observational information.

CDFS 45501 PRACTICUM IN EARLY CHILDHOOD II  
(Class 2, Lab. 3, Cr. 3)  
Open only to Early Childhood Development Majors. Course will include all aspects of classroom planning, work with larger groups, documentation and observational assessment, & portfolio development.

CDFS 46101 PRACTICAL INFANTS & TODDLER  
(Class 2, Lab. 3, Cr. 3)  
Directed in service teaching for infant and toddler settings. Course will focus on all aspects of planning and guidance for infants and toddlers, addressing overall curriculum development and observational assessment.

CDFS 46001 GUIDED SELF STUDY FOR EXPERIENCED EARLY CHILDHOOD  
(Class 2, Lab. 3, Cr. 3)  
Development Teachers Status as the responsible teacher in an early childhood setting for at least 5 years, with recommendation from supervisory staff. This course will be an alternative to BHS 355, Practicum II. It is designed for students who have already substantial experience leading early childhood classrooms. Students will consider issues that a rise in their own classroom practice. They will propose and implement changes and reflect on the results.

CDFS 47000 SUPERVISED EXPERIENCE IN EARLY CHILDHOOD PROGRAMS  
(Class 3, Cr. 3)  
Opportunity for students who already have bachelor degrees to consolidate foundational knowledge of early childhood development, and to obtain a guided practical experience.

CDFS 53000 THEORY AND PRACTICE IN EARLY CHILDHOOD PROGRAMS  
(Class 3, Cr. 3)  
A total of 15 hours in education, psychology or child development. This course focuses on a critical examination of the relations between theory and practice in early childhood programs. Special attention is given to programs for children from diverse linguistic, cultural and economic backgrounds, and children with disabilities.

CDFS 55100 PARENTING INTERVENTIONS  
(Class 3, Cr. 3)  
A total of 15 hours in education, psychology or child development. Critical examination of the design, implementation and effect of programs aimed at promoting parents' child-rearing competencies. Attention to diverse types of interventions including programs focused on information dissemination, interpersonal relationships, and family support systems. Emphasis on the theoretical and empirical bases of program development decisions.

CDFS 58600 SEMINAR ON HUMAN DEVELOPMENT AND DISABILITY  
(Class 2, Cr. 3) Experiential Learning  
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. Each class has a variety of professionals present on a topic they have expertise in (ie. Autism, diagnostics, speech disabilities) and allow students to gain more in-depth knowledge about each topic and ask questions. There will be three scheduled field trips to allow students field experience in a human service agency including Riley Child Development Center in Indianapolis, IN, First Steps in Crown Point, IN and Opportunity Enterprises in Valparaiso, IN will be visited during the afternoon for two hours of the scheduled meeting days.

CDFS 59000 SPECIAL PROBLEMS  
(Class 0 to 5, Cr. 0 to 5)  
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 processes 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)  
An integrated 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 & 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 nonprofits. 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 include 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 & 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, Walzlawick, and Palazzoli.
CDFS 66400 BEHAVIORAL, EXPERIENTIAL, AND COMMUNICATIONAL FAMILY
(Class 3, Cr. 3)
Theories. 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 TRANSGENERATIONAL AND SPECIALIZED FAMILY THERAPIES
(Class 3, Cr. 3)
Investigation of theory, research and practice of transgenerational 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. 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
(Class 3, Cr. 3)
Therapy. 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 show, 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 is registered, will require 8-24 clinic hours and 3-9 experiential hours per week. 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 is registered, will require 8-24 clinic hours and 3-9 experiential hours per week.

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 M S THESIS
(Class 0 to 18, Cr. 1 to 18)

Civil Engineering

CE 11500 ENGINEERING DRAWING I
(Class 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
(Class 3, Cr. 1)
Prerequisite: CE 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 & G.I.S.
(Class 2, Lab. 3, Cr. 3)
Prerequisite: MA 16400 and PHYS 15200

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 common civil engineering construction materials such as steel, aluminum, aggregates, portland cement concrete, asphalt cement concrete, constituents of masonry, fiber reinforced plastics (FRPs) 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 an 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, stres-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 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 31200 FLUID MECHANICS
(Class 3, Cr. 3)
Prerequisite: MA 26400 and CE 27101 and CE 31300
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
(Class 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 - US 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 L
(Class 3, Cr. 3)
Prerequisite: CE 27300

CE 34200 ENGINEERING HYDROLOGY & HYDRAULICS
(Class 2, Lab. 3, Cr. 3) Experiential Learning
Prerequisite: ME 31200 and ME 31300

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)
Introduction to air and water pollution, noise, and hazardous and solid wastes; consideration of treatment and management issues.

CE 40400 FINITE ELEMENT ANALYSIS
(Class 3, Cr. 3)
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

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 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 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 principals. 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 structures; 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 33400

Analysis and design of beams, one-way slabs, and columns. Design of building frames using pattern loading and moments coefficients.

CE 47600 REINFORCED CONCRETE & 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 (RPRM), 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 & 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 studies.

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 superelavation 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, overload 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. 3 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 30200

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 27000
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 3, 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 3, Cr. 3)
Prerequisite: CET 40200

CET 40800 CONSTRUCTION OF HIGHWAYS
(Class 2, Lab. 3, Cr. 3)
Materials, design and methods used up 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.
CGT 14100 INTERNET FOUNDATIONS, TECHNOLOGIES, AND DEVELOPMENT
(Class 2, Lab 2, Cr. 3) Experiential Learning
Prerequisite: IC Literacy is required
This course explores the history, architecture, and development of the World Wide Web. Current tagging and scripting languages are covered in a tool independent environment. Topics also include authoring tools, design, graphic and multimedia formats, and commerce, implementation and security issues.

CGT 21100 RASTER IMAGING FOR COMPUTER GRAPHICS
(Class 2, Cr. 3 or Class 3, Lab 2, Cr. 3)
Digital images are produced using a variety of computer technologies. Advanced color theory, surface rendering, and light control are emphasized in relation to technical illustration, hardware characteristics, and software capabilities.

CGT 21500 COMPUTER GRAPHICS PROGRAMMING I
(Class 2, Cr. 3 or Class 3, Lab 2, Cr. 3)
This course focuses on scripting and programming fundamentals, logics and problem solving necessary for advancement into upper level CGT courses. A cross-section of languages and technologies will be introduced and demonstrated. The course will progress from basic knowledge through more advanced topics towards the end of the semester. Languages and technologies include but not limited to: Java (Processing) and Python.

CGT 21600 VECTOR IMAGING FOR COMPUTER GRAPHICS
(Class 2, Cr. 3 or Class 3, Lab 2, Cr. 3)
Full-color vector illustration for a variety of uses are produced using computer methods. Color theory, surface analysis, and rendering techniques are emphasized as they apply to vector based illustrations.

CGT 22600 INTRODUCTION TO CONSTRAINT-BASED MODEL
(Class 2, Lab 2, Cr. 3)
Prerequisite: CGT 21100
This course explores the techniques used in the construction and manipulation of constraint-based solid models and assemblies. Emphasizes extracting data from databases. Downstream applications of data and the impact on overall product design processes are explored.

CGT 24100 INTRODUCTION TO COMPUTER ANIMATION
(Class 2, Cr. 3 or Class 3, Lab 2, Cr. 3)
Prerequisite: CGT 21100 Co-requisite: CGT 21100
This course introduces the knowledge base on which digital animation and spatial graphics technology are founded and developed. Emphasis will be placed on developing a working knowledge of the mechanics of 3D geometric formats, spline based modeling with polygon mesh & NURBS, procedural mapping of raster images, simplified polygon modeling rendering methods, hierarchical linking, and kinematic fundamentals.

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. Emphasis on 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 & DESIGN
(Class 2 to 3, Lab 0 to 2, Cr. 3) Experiential Learning
Prerequisite: CGT 21100 and CGT 14100 and CGT 2600
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. Corequisite: CGT 21100 or consent of instructor

CGT 29000 COMPUTER GRAPHICS TECHNOLOGY
(Class 1 to 3, 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 manipulating 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 216 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, Desk Top Publishing, and image application. Emphasis will be on design and pre press production. Prerequisite: CGT 216 or permission of instructor.

CGT 30900 INTERNSHIP IN COMPUTER GRAPHICS TECHNOLOGY
(Class 2 to 3) Experiential Learning
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 11000
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, animate, 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 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 programming 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 & DATA INTEGRATION
(Class 2 to 3, Lab. 0 to 2, Cr. 3)
Prerequisite: CGT 25600 Co-requisite: CGT 21100
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)
Prerequisite: CGT 25600 and CGT 35600 and CGT 35100 and CGT 35300
Contemporary Problems in Applied Computer Graphics is a group based course that attempts to identify, design, qualify, manage, 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 communications skill 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)
Preparation for professional employment in 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. Prerequisite: Senior standing in Computer Graphics Technology.

CGT 41600 SENIOR DESIGN PROJECT
(Class 2 to 3, Lab. 0 to 1, Cr. 3)
Preparation for professional employment in 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. Prerequisite: Senior standing in Computer Graphics Technology.

CGT 44100 MOTION 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 & 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)
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 application that manipulate media asset. 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 & 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 2 to 6, Cr. 1 to 3)
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)
Prerequisite: 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 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 graphic 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. Open/GL introduction, modeling, texturing, transformations, lighting, and interactive application design. Students will develop various applications through the course focusing on different aspects of computer graphics 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 10000 PREPARATION FOR GENERAL CHEMISTRY
(Class 2, Lab. 3, Cr. 3)
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 11100 GENERAL CHEMISTRY
(Class 2, Lab. 3, Cr. 3)
Laws and principles of chemistry, with emphasis on conceptual models and applications and of 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 111.

CHM 11500 GENERAL CHEMISTRY
(Class 3, Lab. 3, Cr. 4) General Education, Transfer N
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 100. 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 N
Prerequisite: CHM 11500
A continuation of CHM 115.

CHM 11900 GENERAL CHEMISTRY
(Class 2, Lab. 3, Cr. 3 or Class 4, Lab. 3, Cr. 5) Transfer N
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. 2, Cr. 3)
A continuation of CHM 131 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 Humanities, Education and Social Science, 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 25100 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) 
Pre-requisite: CHM 25500 
Pre-req: CHM 25501 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) 
Pre-requisite: CHM 25500 
A continuation of CHM 255 with various functional groups such as the carboxyl, carbonyl, amino, etc., and including such polyfunctional natural products as carbohydrates and peptides.

CHM 25601 ORGANIC CHEMISTRY LAB  
(Lab. 3, Cr. 1) 
Pre-requisite: CHM 25600 
A continuation of CHM 25501, but emphasizing methods for identifying organic compounds, including simple “unknowns.”

CHM 26100 ORGANIC CHEMISTRY  
(Class 3, Cr. 3) 
Pre-requisite: 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) 
Pre-requisite: 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) 
Pre-requisite: CHM 26200 
A continuation of CHM 26500. All experiments are designed to illustrate the principles discussed in CHM 26200. 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 26605 ORGANIC CHEMISTRY  
(Class 3, Cr. 3) 
Pre-requisite: CHM 26505 
A continuation of CHM 26505, but 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 27300 INTRODUCTORY PHYSICAL CHEMISTRY  
(Class 3, Cr. 3) 
Pre-requisite: 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 29000 SELECTED TOPICS IN CHEMISTRY FOR LOWER DIVISION STUDENTS  
(Class 0 to 4, Lab. 0 to 90, 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) 
Pre-requisite: 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 3, Lab. 3, Cr. 2) 
Pre-requisite: 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) 
Pre-requisite: CHM 26100 and CHM 26200 or CHM 25500 and CHM 26500 
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) 
Pre-requisite: CHM 11500 and CHM 11600 and CHM 25500 or CHM 26100 
Structure and function of biologically important molecules. Intended for students in life science.
COURSE DESCRIPTIONS

CHM 34200  INORGANIC CHEMISTRY
(3, 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 solvolyis and thermodynamics of inorganic systems.

CHM 34300  INORGANIC CHEMISTRY LABORATORY
(3, 1)
Prerequisite: CHM 34200
Laboratory work to accompany CHM 34200.

CHM 37300  PHYSICAL CHEMISTRY
(3, 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
(3, 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
(2, 3)
Prerequisite: CHM 37300
Laboratory portion of CHM 37300 and 37400.

CHM 42400  ANALYTICAL CHEMISTRY II
(2, 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 & VISUALIZATION
(3, 3)
Prerequisite: CHM 25600 or CHM 26200 or CHM 26605
Principles and applications of current theoretical and computational methods is molecular modeling. Advanced visualization methods will be used to study molecular structure.

CHM 44400  COSMOCHEMISTRY
(3, 3)
NucleosyNThesis and chemical abundances. Origin, composition, and structure of the earth and extraterrestrial objects. Isotope geology, geo- and cosmochronology with particular emphasis upon the moon and meteorites.

CHM 46200  INTERMEDIATE ORGANIC CHEMISTRY
(3, 3)
Prerequisite: CHM 26600 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
(0 to 4, 1 to 4)
Variable Title. Selected topics not covered in other courses.

CHM 49400  JUNIOR-SENIOR CHEMISTRY SEMINAR
(3, 3)
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
(0 to 5, Lab. 3 to 12, Cr. 1 to 5)
Experiential Learning
Undergraduate Research, which will qualify as an Experiential Learning experience. Admission by special permission.

CHM 49900  SPECIAL ASSIGNMENTS
(3 to 15, Cr. 1 to 5)
Undergraduate level special work, such as a senior thesis, not included in other courses.

CHM 50400  ORGANIC CHEMISTRY
(3, 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. Credit in this course may not be used toward a degree in chemistry.

CHM 50500  ADVANCED CHEMISTRY FOR TEACHERS I
(3, 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 graduate degree in chemistry.

CHM 50600  ADVANCED CHEMISTRY FOR TEACHERS II
(3, 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
(1, 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
(3, 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
(3, 3)
Continuation of CHM 5330 with emphasis on enzymatic catalysis and metabolic transformations.

CHM 53500  BIOCHEMISTRY LABORATORY
(1, 1)
Co-requisite: CHM 53400
Laboratory work to accompany CHM 53400.

CHM 54800  RADIOCHEMISTRY
(3, 3)
Prerequisite: CHM 37400
Elements of nuclear chemistry; the uses of isotopes in chemical research; elementary principles of radiation chemistry.

CHM 54900  RADIOCHEMISTRY LABORATORY
(1, 1)
Co-requisite: CHM 54800
Laboratory work to accompany CHM 5480.

CHM 56100  ORGANIC CHEMISTRY
(3, 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
(3, 3)
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 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 synTHETic, 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)
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)
The 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)
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, arithemtic 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: ECE 17100 or EET 17100 or CIS 21000 and MA 15300
This course is an introduction to computer operating systems and other software systems. 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. Courses 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 II
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, database, 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
An introduction to the development cycle, logic diagrams, debugging procedures, top-down design, top-down programming is used to implement program solutions. Extensive programming exercises are assigned.

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 Co-requisite:
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)
Emphasis in this course will be on the object-oriented paradigm using C# (C-sharp). Topics include definition of classes and objects, definition of class methods, definition of derived classes, inheritance, polymorphism, exception handling, and an introduction to development of Windows applications. Extensive programming exercises using C# are required.

CIS 23000 DATA COMMUNICATIONS
(Class 3, Cr. 3)
Prerequisite: ECE 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, BSVscript, 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 systems, 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: CIS 16600 and MA 15100  
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 15100  
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 2, 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 2, 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.

CIS 28600 COMPUTER OPERATING SYSTEMS I  
(Class 3, Cr. 3)  
Prerequisite: ECT 11000 or CIS 21000 and MA 15100  
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, partitioned. Associated data manipulation algorithms: data entry, searching, retrieval, sorting; algorithmic analysis. Selected applications.

CIS 30200 INFORMATION SYSTEMS BUDGETING & 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)  
Prerequisite: CIS 20400 and CIS 17400  
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: CS 25500  
This course focuses on legal issues surrounding Information Technologies. Current legal issues in information technology are addressed including elements of contracting, payment systems, copyright issues, database integrity, 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: CS 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: CS 24100  
This course is a continuation of CIS 24100. Advanced Web content generation techniques are covered. Topics include using advanced multimedia and database application integration.

CIS 34200 MULTIMEDIA FOR WEB DEVELOPERS  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: CS 24100  
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 the Web. 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: CS 16600 and MA 15100  
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: CS 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: CS 25200 and CS 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 data 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: CS 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/restore 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)  
Prerequisites: CS 26100 or CS 26300 or CS 26500 or CS 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: CS 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: CS 26100  
The 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: CS 26500  
Advanced COBOL topics concerning indexed files with variable length records, direct files, sophisticated table handling employing subscripting 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. Programming exercises include advanced file maintenance techniques and menu-driven programs.

CIS 38300 ON-LINE PROGRAMMING TECHNIQUES  
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)  
Prerequisite: CS 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, CICS commands, program design, programming, screen maps, debugging and testing are covered utilizing business-oriented assignments. Screen maps, debugging and testing are utilized 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 API’s, CLI, ODBC 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 V  
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) Experimental Learning  
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 & 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 40000  
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 form 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) Experimental Learning  
Prerequisite: CIS 42400 or CIS 32300  
A capstone course integrating the knowledge and abilities gained through the other computer related courses in the curriculum within 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)  
Prerequisite: 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 131000  
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 prevention 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 TECHNOLOGY  
(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 principles, 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. This 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)  
Prerequisite: CS 14000 and CS 24100 and CS 28600  
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: CS 34100 or CS 35500 or CS 36100  
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: CS 36200 and CS 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: CS 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: CS 180000  
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 7 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 PowerPoints presentations will be included. The correct use of calculators will be addressed.

CMET 10300 INTRO 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 ten weeks work experience in the construction industry, plus written report of directed academic project.

CMET 280000 QUANTITY SURVEY AND ESTIMATING  
_Class 2, Lab. 3, Cr. 3_  
Prerequisite: ABET 25000 or CET 28000  
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 ten 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_ Experiential Learning  
Prerequisite: ABET 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 construct sites, fabrication shops, and testing laboratories.

CMET 39000 CONSTRUCTION EXPERIENCE III  
_Class 1, Cr. 1_  
Minimum of ten 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. 3, Cr. 3_  
Prerequisite: CMET 28000 and CMET 34100  
Estimating total job costs (material and labor, quality survey, overhead, subcontractors 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  
Co-requisite: 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 1, Cr. 1_  
Students will develop a topic for the following design project, CMET 490. 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_ Experiential Learning  
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 ABET 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 & 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, Transferable  
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 students 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)  
Prerequisite: COM 20100  
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  
(Cr. 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)  
Introduction to Communication Studies will introduce students 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 ethic, 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) Transfer IN
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
(Class 2, Lab. 2, Cr. 3)
Prerequisite: ENGL 10800 or ENGL 10500
Fundamentals of gathering, evaluating, writing, and editing news. (Basic typing ability desirable.)

COM 25600 INTRODUCTION TO ADVERTISING
(Class 3, Cr. 3)
This survey course provides the needed foundation for advanced courses in advertising, communication and marketing. The course examines the structure of advertising messages, how they are adapted to specific audiences, and the social setting in which they occur.

COM 29000 SPECIAL TOPICS IN COMMUNICATION
(Class 1 to 3, Cr. 1 to 3)
Topics will vary.

COM 30000 INTRODUCTION TO RESEARCH IN COMMUNICATION
(Class 3, Cr. 3)
Prerequisite: COM 11400 and COM 22800
Introduction to the development and application of historical, critical, and empirical research methods pertinent to communication problems. Fundamental concepts of problem identification, sampling, surveys, historical sources, critical models, reliability and validity of both measurement and research design in communication research. Helpful to have taken a communication theory course such as COM 21400, COM 32000, COM 20100, COM 25000. It is not recommended to take COM 30000 concurrently with COM 35300.

COM 30100 APPLIED COMMUNICATION RESEARCH
(Class 3, Cr. 3)
Prerequisite: COM 11400 and COM 30000
Students in applied Communication Research will be exposed to specific communication research methodologies in more depth and detail than possible in the introductory communication research course, COM 300. Students in Applied Communication Research will undertake research projects which apply research concepts and methods obtained in COM 30000 and expand their knowledge of the art and practice of communication research.

COM 30200 PUBLICATIONS DESIGN
(Class 3, Cr. 3)
This course focuses on the design, layout and production of various documents using personal computers. Emphasis is given to principles of publications design and page make-up, typography, and the use of personal computers in business publishing.

COM 30500 NEWS EDITING
(Class 2, Lab. 2, Cr. 3)
Prerequisite: COM 25500
Study of, and practice in, the fundamentals of editing copy for and display of news in the mass media.

COM 30600 ADVANCED NEWS REPORTING AND WRITING
(Class 3, Cr. 3)
Prerequisite: COM 25500
Advanced study of, and practice in, methods of journalistic research and presentation; preparation of in-depth news stories based on student research.

COM 30700 WRITTEN AND ORAL COMMUNICATION FOR ENGINEERS
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 and COM 11400 and ECE 27500 and ECE 37000 or ME 30500 or CE 27000
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.

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
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 performative 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 counterflow.

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, Lipman, LaFleur, Lazarfeld, 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. Treats 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 3, 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 is the focus of this class.

COM 35000 INTERRacial COMMUNICATION  
(Class 3, Cr. 3)  
Prerequisite: COM 11400 and COM 22800  
Analysis of problems and solutions in interracial communication. Investigation of negative attitudes and other barriers impeding interethnic communication, especially between blacks and whites. Use of model communicative situations in interracial dialogue.

COM 35200 MASS COMMUNICATION LAW  
(Class 3, Cr. 3)  
Prerequisite: COM 20100  
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)  
Prerequisite: COM 25300  
Approaches to problems in public relations as they occur in industry, government, education, social agencies, and other institutions. It is not recommended to take COM 30000 concurrently with COM 35300.

COM 36500 COMMUNICATION AND AGING  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
Study of communication with and among the elderly, within the contexts of family, social networks, and social and health providers. Effects of communication on the aged and the perception of aging will be discussed.

COM 37100 HEALTH COMMUNICATION  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
Exploration of the communication competencies needed by health care professionals (doctors, dentists, nurses, social workers, therapists, etc.) in the performance of their health care tasks. The course will emphasize helper-helper interviewing, verbal and nonverbal skills, group interaction, intercultural communication, health care organizations, and therapeutic communication.

COM 39000 SPECIAL TOPICS IN COMMUNICATION  
(Class 7 to 3, Cr. 1 to 3)  
Topics will vary.

COM 40300 COMMUNICATION ETHICS  
(Class 3, Cr. 3)  
Prerequisite: COM 20100 or COM 25000  
Through research and discussion, students will develop an understanding of the ethical issues confronting the mass media and will formulate a framework which can be used for resolving ethical questions in their professional work.

COM 40500 THE RHETORIC OF WOMEN’S RIGHTS  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
An analysis of the major arguments and persuasive techniques used in the American women’s movement and continuing through the current struggle for equal rights. Included will be major speeches as well as non-oratorical forms of rhetorical messages.

COM 41800 COMMUNICATION AND GENDER  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
An exploration of how men and women differ in the communication behavior by examination of an array of communication concepts and contexts. An exploration of gender differences as developed through our perceptual processes, our socialization processes, and our communication processes. To provide the student a better understanding and awareness of the gender differences in order to improve combination behaviors and to enable better understanding of why effective communication between men and women is often difficult to accomplish.

COM 42000 INTRODUCTION TO ORGANIZATIONAL COMMUNICATION  
(Class 3, Cr. 3)  
Prerequisite: COM 22800  
Examination of the communication concepts and practices related to the function and success of organizations. Formal and informal channels will be analyzed on the basis of use, source content, potency and trustworthiness. Readings and analyses will focus on goals, reliability and applicability appropriate of organizational settings. Types of organizational settings. Types of organizations to be studied will include industrial giants, governmental agencies, social and educational administrative bodies, and formal task groups.
COM 42500 RHETORICAL CRITICISM  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
A comparative study of the writings on traditional and contemporary rhetorical criticism. Students will have an opportunity to describe, analyze, interpret, and evaluate persuasive discourse.

COM 42600 ETHNICITY AND COMMUNICATION  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
Ethnicity and Communication explores communication processes and strategies used by African-Americans, Latinos, Asian-Americans, and Euro-Americans. The course focuses on the meaning of ethnic identification and celebrates ethnic communication differences.

COM 42900 ADVERTISING CAMPAIGNS  
(Class 3, Cr. 3)  
Experiential Learning  
Prerequisite: COM 25600 and COM 44600  
Emphasize the preparation of a complete advertising campaign for a business or non-profit organization. The student will be able to integrate marketing research and segmentation, media, and promotion plans, strategy, creative and presentation in a unified campaign to serve a local or national organization.

COM 43000 PRACTICUM IN RADIO/TV  
(Class 1, Lab. 4, Cr. 3)  
Experiential Learning  
Prerequisite: COM 31000 and COM 33200  
Students engage in Independent Study projects and actual production of a television program under the direction of a professor or Purdue Calumet television studio manager.

COM 43600 SCRIPT WRITING  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10500  
Study of forms and materials suitable for the electronic mass media; practice in selection, adaptation, and organization of program materials.

COM 43700 PERFORMANCE PRACTICUM  
(Class 3, Cr. 3)  
Experiential Learning  
Performance Practicum extends performance knowledge and skills acquired in COM 343, Fundamentals of Oral Interpretation. Students will participate as scripters, directors, and performers in a campus and community performances.

COM 43900 FOCUS GROUP RESEARCH  
(Class 3, Cr. 3)  
Experiential Learning  
Prerequisite: COM 11400  
In Focus Group Research, students will learn when to use and how to conduct this specific method of qualitative inquiry. Through theory and practice, this course will provide the information necessary for students to conduct focus groups in organizational academic contexts.

COM 44100 ADVANCED TELEVISION PRODUCTION  
(Class 3, Lab. 4, Cr. 3)  
Prerequisite: COM 31000 and COM 33200 and COM 20100  
Students will produce, direct and edit programs which will be aired via cable or closed circuit. An emphasis on remote television production and linear editing. Students will produce, direct and edit various programs, which will be suitable for airing.

COM 44300 ADVERTISING MEDIA  
(Class 3, Cr. 3)  
Prerequisite: COM 25600  
This course is an introduction to advertising media planning in traditional and new media to creatively and effectively reach targeted prospects. Attention is given to media characteristics, media terminology, scheduling, testing, and buying efficiencies. Included in the use of syndicated media research and development of media plans.

COM 44500 TELEVISION EDITING  
(Class 3, Lab. 4, Cr. 3)  
Prerequisite: COM 31000 and COM 33200  
A study of the history of editing and the practical application of current editing techniques. Students will learn to apply both analog and digital non-linear editing techniques to class assignments.

COM 44600 ADVERTISING MANAGEMENT  
(Class 3, Cr. 3)  
Experiential Learning  
Prerequisite: COM 25600 and BA 22400  
This course consider 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 to specifically to the mass media. Students will learn how to research a mass media related issue.

COM 45100 MAGAZINE JOURNALISM  
(Class 3, Cr. 3)  
Experiential Learning  
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 media for magazines. Emphasis is on the adaptation of topics and presentation of editorial policies and reader groups.

COM 45200 PRACTICUM IN JOURNALISM  
(Class 1, Lab. 2, Cr. 2)  
Prerequisite: COM 25500  
Assigned projects in journalism.

COM 46000 ADVANCED PUBLIC RELATIONS  
(Class 3, Cr. 3)  
Experiential Learning  
Prerequisite: COM 25300 and COM 25500  
Research design and implementation skills applied by students individually and in groups to actual business communication problems.

COM 46300 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)  
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 25500 or W O S T 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 ETHNIC IDENTITY IN FILM  
(Class 3, Cr. 3)  
Prerequisite: COM 11400  
Ethnic Identity in Film explores 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 values and traditions.

COM 49000 INTERNSHIP IN COMMUNICATION  
(Class 1 to 3, Lab. 0 to 6, Cr. 1 to 3)  
Experiential Learning  
Prerequisite: COM 11400  
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 12000  
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 53200 TELECOMMUNICATION SYSTEMS MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: COM 20200  
A study of problems of organization and management of radio and television stations—both commercial and public—with emphasis upon economic factors as well as on the interrelationships of various departments. Special problems related to programming, production, sales, public relations, CATV, audience, governmental regulation, current and future trends will be treated.  

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 SYSTEMS  
(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 53600 RADIO AND TELEVISION WRITING  
(Class 3, Cr. 3)  
Prerequisite: COM 32000 (Class 1 to 3, Lab. 0 to 3, Cr. 1 to 3)  
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 eighteenth, nineteenth, and twentieth centuries.  

COM 55900 CURRENT TRENDS IN MASS COMMUNICATION RESEARCH  
(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 eighteenth, nineteenth, and twentieth centuries.  

COM 56000 RHETORICAL DIMENSION OF MASS MEDIA  
(Class 3, Cr. 3)  
A study of the ways in which rhetorical elements and processes are embodied in 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 search 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. 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 research. These general methodologies are applied to specific research approaches.

COM 58400 HISTORICAL/CRITICAL RESEARCH IN COMMUNICATION
(Class 3, Cr. 3)
Introduction to modes of qualitative research in communication, including theoretical assumptions, bibliographical methods, varying approaches to historical and critical inquiry, and the standards and techniques of scholarly writing. Emphasis is placed on historical research during fall semesters and on critical research during the spring semesters.

COM 59000 DIRECTED STUDY OF SPECIAL PROBLEMS
(Class 3, Cr. 3)
Directed study of special problems. May be repeated for credit.

COM 61200 SEMINAR: SPECIAL TOPICS IN INTERPERSONAL COMMUNICATION
(Class 3, Cr. 3)
(May be repeated for credit) Intensive study of selected topics varying from semester to semester, from the theoretical and research literature of interpersonal communication. Topics may include communication models, information theory, systems theory, general semantics, sociolinguistics, etc., as they relate to the study of interpersonal communication.

COM 62100 SEMINAR: SPECIAL TOPICS IN RHETORICAL THEORY
(Class 3, Cr. 3)
(May be repeated for credit) Intensive study of selected topics, varying from semester to semester, from the literature of rhetorical theory.

COM 63200 SEMINAR: SPECIAL TOPICS IN MASS COMMUNICATION
(Class 3, Cr. 3)
(May repeat for credit) Intensive study of selected topics, varying from semester to semester, from the literature of mass communication. Topics may include institutional analysis, mass communication law, information diffusion, uses of mass communication, or other issues.

COM 67400 SEMINAR: SPECIAL TOPICS IN ORGANIZATIONAL COMMUNICATION
(Class 3, Cr. 3)
(May be repeated for credit.) Intensive study of selected topics, varying from semester to semester, from the theoretical and research literature of organizational (including business and industrial) communication; analysis of recurring communication problems in complex organizations; critique of research findings and methodologies.

COM 69800 RESEARCH MS THESIS
(Class 0 to 18, Cr. 1 to 18)
Research coursework for MS Thesis.

Computer Science

CS 10000 AN INTRODUCTION TO COMPUTER SCIENCE
(Class 1, Cr. 1) General Education
This course is intended to: integrate freshman computer science majors into the department; help them adjust to university life; assist them in developing their academic and intellectual capabilities; introduce them to contemporary issues in computer science; provide an overview of the careers open to those with degrees in computer science. This course must be taken Pass/No Pass only. Credit by exam is not available for this course.

CS 12300 PROGRAMMING I: JAVA
(Class 3, Cr. 3)
Prerequisite: MA 15100 or MA 15900 or MA 16300
This course is an introduction to computer science and computer programming with an emphasis on the scientific basis and applications. The primary language for this course is Java. The topics of the course include: identifiers, basic data types, operators, expressions, control statements, methods, recursion program structure, arrays, objects, classes, inheritance, polymorphism, and the design of simple graphical user interfaces.

CS 12400 PROGRAMMING II: C++
(Class 3, Cr. 3)
Prerequisite: CS 12300
This course is an extension of CS 123 that introduces the C++ programming language. The topics of the course includes: 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, learning 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
Data structures describe the way that computer programs organize and 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 19100 or 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 a 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 will also 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) Experimental Learning
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; roundoff 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 eigenvalue 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 Sciences

EAS 11000 SURVEY OF GEOLOGY
(Class 2, Lab. 2, Cr. 3 or Class 2, Lab. 3, Cr. 3) Transfer IV
Not available for credit to students with credit in GEOS 11100 or EAS 1100. 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 lifecycles 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 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 201. The complex frequency plane, resonace; coupled circuits. Two-port network parameters. Polyphase analysis. Fourier series; Fourier Transform; Laplace Transform.

ECE 20700 ELECTRONIC MEASUREMENT TECHNIQUES  
(Lab 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  
(Lab 3, Cr. 1)  
Prerequisite: ECE 20700 and ECE 20200  
Co-requisite: ECE 20200  
A continuation of ECE 207, with the introduction of advanced measurement methods and more sophisticated instrumentation.

ECE 23300 MICROCOMPUTER PROGRAMMING AND INTERFACING  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: ENGR 15200  
An introduction to microcomputers and microcontrollers with emphasis on single board embedded systems; gates, memory, microcomputer hardware, data representation, programming, input/output, interfacing, digital to analog conversion, analog to digital 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  

ECE 30200 PROBABILISTIC METHODS IN ELECTRICAL ENGINEERING  
(Class 3, Cr. 3)  
Prerequisite: MA 26500 and ECE 20200 or ME 32500 and ECE 30100  

ECE 31100 ELECTRIC AND MAGNETIC FIELDS  
(Class 3, Cr. 3)  
Prerequisite: MA 26400 and PHYS 26100  
Continued study of vector calculus, electrostatics, and magnetostatics. 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: ECE 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.
COURSE DESCRIPTIONS

ECE 37000 DIGITAL SYSTEMS-LOGIC DESIGN
(Class 2, Lab. 3, Cr. 3)
Prerequisite: ENGR 15300 or ECE 15300
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 & 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, Exploiting 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 2, Lab. 3, Cr. 3)
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 accept 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 accept 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 31700
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. 2) Experiential Learning
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 of 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) Experiential Learning
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 of 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 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 systems 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 30700 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 equivalp plte 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—ANALYSIS AND DESIGN
(Class 3, Cr. 3)
Prerequisite: ECE 38200 or ME 48500
An introduction to computer-controlled systems from both the state variable and z-transform points of view, along with sampling theory and its effect on digital control design. Design of digital controllers from the state space and frequency domain points of view.

ECE 49500 SELECTED TOPICS IN ELECTRICAL ENGINEERING
(Class 0 to 4, Lab. 0 to 3, Cr. 1 to 4)
Hours and credits to be arranged.

ECE 49600 ELECTRICAL ENGINEERING PROJECTS
(Class 0 to 18, Cr. 0 to 18)
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 careen in fields such as audio engineering, human-machine interfacing, speech and speaker recognition applications, and multimedia applications. This course is aimed primarily to ECE graduate students specializing in communication and signal processing areas.

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 sciences, 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

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)
Prerequisite: college level physics, signals and systems, and programming experience in Matlab or C.
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 engineering 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 inter-disciplinary engineering.

ECE 50700 INTRODUCTION TO BIOMEDICAL IMAGING
(Class 3, Cr. 3)
Prerequisite: college level physics, signals and systems, and programming experience in Matlab or C.
This course covers topics related to advanced methods for DC and AC electric drives control systems. The emphasis is on AC drives control and 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 the environment, AC transmission lines and underground cables, power quality, synchronous generators and reactive power, voltage regulation and stability, transient and dynamic stability, control of power systems, economic dispatch, transmission line faults and transient over-voltages. Simulink/MATLAB and/or 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  
Effective project managers have complete command of their project costs and a  
throughout understanding of the financial aspects of their business. This course re-  
views the fundamentals of accounting; examines project cost accounting principles,  
applications, and impact on profitability; examines the principles of project costing,  
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.  
Prerequisite: ME 31100 or 31200 plus basic statistics.

ECE 51900 CONTROL THEORY II  
(Class 3, Cr. 3)  
Prerequisite: ECE 38200 or ME 48500  
The approximation of common non-linearities by describing functions and the  
analysis of resultant system behavior. Review of matrix analysis. Statespace  
formulation, representation, solution and design. Introduction to optimization and  
computational methods.

ECE 52900 INTRODUCTION TO MICROWAVE ENGINEERING  
(Class 3, Cr. 3)  
Prerequisite: ECE 37100  
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 S  
parameters. Other topics include transmission lines, Smith Charts, microwave  
networks, couplers, detectors, mixers and amplifiers. This course also includes the use  
of hands-on commercial CAD software.

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, photodetectors, 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 photodetectors.

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 principal 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 queuing 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, d-c  
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 process 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 managements concepts. Team project work is part of the course  
requirements. Students are expected to use their programming skills and knowledge  
edge 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 & PARAMETER ID OF STOCHASTIC SYSTEMS  
(Class 3, Cr. 3)  
Introduction to point estimation, least squares, Bayes risk and maximum likelihood.  
Optimum mean-square recursive estimation for non-dynamic stochastic systems.  
State estimation for discrete-time and continuous-time dynamic systems. Parameter  
identification of stochastic approximation, least squares, and random search  
algorithms.

ECE 59500 SELECTED TOPICS IN ELECTRICAL ENGINEERING  
(Class 0 to 3, Lab. 0 to 3, Cr. 1 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: EE 30100  
Positive real functions. SyANThesis of LC, RC, and RLC one-ports. SyANThesis of LC  
two-ports. SyANThesis of singly terminated and doubly terminated lossless two-  
ports. Design of equalizers. Design of active filters using operational amplifiers. The  
sensitivity problem.

Electrical, Computer Engineering Technology  
ECEET 10000 INTRODUCTION TO ELECTRICAL & COMPUTER ENGINEERING TECHNOLOGY  
(Lab. 3, Cr. 3) General Education  
An introduction to the different fields of Electrical and Computer Engineering Tech-  
nology. 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 be utilize them.
ECET 10200 ELECTRICAL CIRCUITS I
(Class 3, Lab 2, Cr. 4) or Class 3, Lab 3, Cr. 4
Prerequisite: MA 14700. (MA 14700 is a pre or co-requisite for ECET 10200.)
A study of DC electrical circuits, Ohm’s Law, Kirchoff’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 IRQs,
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
AC circuits, including j-operator, phasors, 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)
Prerequisite: 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
heat sink 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 embed-
ded 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 em-
phasize the interfacing of electromechanical systems with software and generation
of embedded coding.

ECET 21200 ELECTRICAL POWER AND MACHINERY
(Class 3, Lab 2, Cr. 4) or Class 3, Lab 3, Cr. 4
Prerequisite: ECET 15200
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
This course introduces fundamental concepts of process control systems open loop
and closed loop controls. Input output characteristics of process elements dead
time and time span. Switching analysis of process hardware Modeling of static and
dynamic processes. Diode transistor and SCR switching characteristics. Measure-
ments of electronic signals. Solid state switching devices. Loading effects and power
interfaces. Noise and signal conditioning and grounding. Studying cables and their
characteristics. Various industrial instruments and interface buses, standards and
practices.

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, pro-
gramming techniques, ladder logic programming, data manipulation, data highway,
varying input/output modules and their interface for actuation signal control.

ECET 26500 COMPUTER NETWORKS
(Class 2, Lab 3, Cr. 3)
Prerequisite:
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
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 3, Lab 3, Cr. 2)
Prerequisite: ECET 15900 and ECET 15400
The course includes electronics schematic, printed circuit board design and fabrica-
tion using Electronic Design Automation (EDA) tools. Designing electronic circuit
schematic, schematic annotation netlist file generation, electronic packaging
selection printed circuit board (PCB) artwork design using autorouter and manual
router software tools. Populate the printed circuit board with electronic compo-
nents; 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 con-
trolled oscillators; phase-lock-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)
Prequisite: ECET 15400
An introduction to physiological variants, the concept of measurements and problems encountered in measurements from a living human body. Detail 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 2, Lab. 3, Cr. 4)
Prequisite: ECET 15400 or ECET 21200
Prerequisites - ECET 15400 for ECET majors ECET 21200 and ECET 21700 for Mechatronics majors. Introduction to the characteristics of power semiconductor 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)
Prequisite: 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 & NETWORKING
(Class 2, Lab. 2, Cr. 3)
Prequisite: 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 2, Lab. 3, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prequisite: ECET 21200
A study of the generators 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)
Prequisite: 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)
Prequisite: ECET 26500
This course is a continuation of ECET 265. 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)
Prequisite: 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)
Prequisite: 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)
Preliminary class, emphasis on the use of software tools.

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)
Prequisite: 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. 3, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prequisite: ECET 30500
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, Lab. 3, Cr. 3)
Prequisite: 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, Lab. 2, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prequisite: ECET 21000
The impact of new technologies on computer hardware and software is studied.

ECET 45500 C++ OBJECT ORIENTED PROGRAMMING
(Class 3, Lab. 3, Cr. 4 or Class 3, Lab. 3, Cr. 4)
Prequisite: ECET 21000

ECET 45600 COMPUTER HARDWARE DESIGN
(Class 3, Lab. 3, Cr. 4)
Prequisite: ECET 29900
An extension of ECET 209. 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)
Prequisite: 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 49900 THIS COURSE HAS BEEN CANCELLED

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ECET 46500 ADVANCED TOPICS IN COMPUTER NETWORKS  
(Class 2, Lab. 3, Cr. 3)  
Prerequisite: ECET 36700  
This course is a continuation of ECET 367. 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) Experiential Learning  
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) Experiential Learning  
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 strategies the access schemes and interfacing with wireless/cooper 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)  
Prerequisites: consent of instructor/Graduate standing with C or C+ in 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, 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)  
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. Graduate student standing in School of Technology with Mathematics course sequence required in the BS EET or equivalent.

ECET 55400 HYBRID & 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.

ECET 55500 SYSTEM RELIABILITY  
(Class 3, Cr. 3)  
This course deals with the statistics and probability methods used in reliability engineering. The primary focus of the course is on the statistical methods used to estimate a products reliability from product failure data and concurate information. The course also touches on the probability modeling methods that use knowledge of system architecture and system component reliability to calculate system reliability. Graduate status or senior status with consent of instructor.

ECET 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 technology and their harvesting systems. There will also be modeling simulation and analysis of wind and solar energy harvesting systems. Permission of instructor required.

ECET 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 (THT), surface mount technology (SMT), mechanical design aspects, EMI, electrical characteristics, power systems, multilayer and stack up. Design for testability and manufacturability. Quality assurance in THT and SMT. The course also encompasses RF, high speed digital and mixed signal PCBs throughout the semester.

ECET 56100 WIRELESS NETWORKING  
(Class 3, Cr. 3)  
Prerequisite: ECET 30300  
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 this 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/cooper network systems. Graduate status in the School of Technology or other school required.

Economics

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  
Price theory and resource allocation. Emphasis is on developing a detailed understanding of the principles of microeconomics and analysis and their application to understanding price and market behavior.

ECON 25200 MACROECONOMICS  
(Class 3, Cr. 3) General Education, TransferIN  
Prerequisite: ECON 25100 and MA 15500  
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 upon 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 provides an analysis of regression and problems encountered in utilizing regression analysis. Emphasis is placed on diagnosing common empirical problems, selecting the most appropriate approach and interpreting the results. This course will utilize examples from the fields of finance and marketing as well as economics.

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 upon 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 upon 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 techniques are applied to managerial decision making situations. Emphasis is placed upon applications 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 international 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 links the behavior observed in markets with the theory of price. Emphasis is placed upon policy issues and the application of microeconomic theory. Topics include imperfect information, product differentiation, transaction costs, ownership integration, research and development, and innovation. Special contractual relations such as tying arrangements, resale price maintenance, franchising, exclusive dealerships and joint ventures are also considered.

ECON 46200 THE ECONOMICS OF HEALTH CARE  
(Class 3, Cr. 3)  
Prerequisite: ECON 25200  
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 25100  
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. Arrange with instructor before enrolling.

ECON 51300 ECONOMIC THEORY  
(Class 3, Cr. 3 or Class 4, Cr. 4)  
Theoretical analysis of a market economy with an emphasis on 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 3, Cr. 3)  
Prerequisite: ECON 25200  
Problems of the international economy 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 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: EPS 22000 and EPS 28500 and EDCI 26000  
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: EDCI 20500 or EDCI 20600 and OS 20400  
An introductory course covering instructional uses of microcomputers; the selection, evaluation, and management of hardware and software; and curricular applications for microcomputers.

EDCI 30001 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 2, Lab. 3, Cr. 3)  
Prerequisite: EDCI 32100 and EDCI 33700  
Explores aspects of child development and it 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)  
Prerequisite: EDCI 30400 or EDCI 30900  
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 EDCI 26000  
A course for prospective secondary teachers. Emphasis place 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: EPS 22000 and EPS 28500 and EDCI 26000  
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)  
Prerequisite: EDCI 21200  
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 2, Lab. 3, Cr. 3)  
Prerequisite: EDCI 32100 and EDCI 31600 and SCI 11500  
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

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 26000 or 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

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDCI 26000 and 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

(C Class 3, Cr. 3) General Education  
Explores classroom applications of educational technology in K–12 setting and methods addressing how to effectively integrate technology into the teaching and learning process. Knowledge in this area can be gained through an understanding of the social stimuli to technological development and their effects on society. Students will learn about technology-based instructional resources and the pedagogical processes they can facilitate.

### EDCI 32700 STRATEGIES OF SOCIAL STUDIES INSTRUCTION IN JUNIOR HIGH & MIDDLE SCHOOLS

(C 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

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 32000  
Acquaints students with developmentally appropriate content methods and materials for teaching English in Junior High/Middle schools, includes 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 SCHOOL

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 32000  
Acquaints students with developmentally appropriate content and materials for teaching foreign language both as a language experience and as a cultural experience. Comparative studies of various language 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.

### EDCI 33400 STRATEGIES OF MATHEMATICS INSTRUCTION IN JUNIOR HIGH AND MIDDLE SCHOOL

(C 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 SCHOOL

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 32000  
Acquaints students with developmentally appropriate content and materials in 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, and planning of instructional units. Field experiences are integrated with classroom instruction.

### EDCI 34100 ENGLISH TEACHING IN SENIOR HIGH, JUNIOR HIGH & MIDDLE SCHOOL

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 35500  
Acquaints students with developmentally appropriate content methods and materials 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.

### EDCI 34200 STRATEGIES OF FOREIGN LANGUAGE INSTRUCTION IN SENIOR HIGH, JUNIOR HIGH & MIDDLE SCHOOL

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDCI 35500 and EDPS 26000  
Acquaints students with developmentally appropriate content methods and materials for teaching foreign language in the high school, junior high and middle school. Includes an overview of the role of the high school, junior high and middle school English 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 34400 STRATEGIES OF MATHEMATICS INSTRUCTION IN SENIOR HIGH, JUNIOR HIGH & MIDDLE SCHOOL

(C Class 2, Lab. 3, Cr. 3)  
Prerequisite: EDPS 26000 and EDCI 35500  
Acquaints students with developmentally appropriate content 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 and middle school science 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 & MIDDLE SCHOOL

(C 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 and 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 & MIDDLE SCHOOL

(C 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

(C Class 2, Lab. 3, Cr. 3) Experiential Learning  
Prerequisite: EDFG 20000 and EDPS 26000 and EDPS 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  
(Clas 3, Cr. 3)  
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 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 through 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)  
Prerequisite: EDPS 37000  
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 is a classroom under the supervision of the teacher in charge of the class and a University supervisor.

EDCI 49900 TEACHING FULL TIME IN AN ENDORSEMENT AREA IN A SCHOOL  
(Class 3 to 9, Cr. 3 to 9)  
Teaching full-time in a school under the supervision of the teacher in charge of the class and a University supervisor. Prerequisites: ED 24900, ED 28500, Admittance to Teacher Education, Completion of Education courses required for the Endorsement Area.

EDCI 50000 FOUNDATION OF LITERACY  
(Class 3, Cr. 3)  
Survey course in the acquisition of and instruction in reading, writing and other aspect of language.

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 ENG LANG LRNRS  
(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 (ie. Specialty Designed Academic Instruction in English SDAIE). Some familiarity with elementary teaching methods is assumed. Graduate status in School of Education.

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 School of Education.

EDCI 53201 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. 1)  
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 Class 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 60100 PROBLEMS IN LITERACY ACQUISITION: ADVANCED PRACTICUM  
(Class 1, Lab. 5, Cr. 3)  
Prerequisite: EDCI 50000 and EDCI 50100  
Examine 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 problems-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.
COURSE DESCRIPTIONS

EDCI 64600 SUPERVISION IN CAREER AND TECHNICAL EDUCATION
(Class 3, Cr. 3)
Purpose, principles, and procedures of supervision and management in education and work contexts; theory and practice, human resource environment, development and management.

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 microcomputers 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)
Prerequisite:
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 1 Lab. 4, 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 mediatational 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.

EDCI 68100 ELEMENTARY SCHOOL CURRICULUM
(Class 3, Cr. 3)
Needs of children and society: modern programs; procedures for developing a curriculum, including ways to improve the present offerings of a school.

EDCI 69500 INTERNSHIP IN EDUCATION
(Class 1 to 10, Cr. 7 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.

EDCI 69800 RESEARCH MS THESIS
(Class 1 to 18, Cr. 1 to 18)

EDFA 20000 HISTORY AND PHILOSOPHY OF EDUCATION
(Class 3, Cr. 3) General Education
How history and philosophy have informed school organization, curriculum, and teaching practice. Students develop their own philosophies of teaching. Topics include continuities and discontinuities of schooling, colonial period to present, Conflicting demands placed upon schools, Issues of race, class and gender inform debates over school purposes and practices.

EDFA 22100 SOCIETY, SCHOOL AND THE PROFESSIONAL EDUCATOR
(Class 3, Cr. 3)
Examination of philosophical ideas and social forces which have shaped and continue to shape public education. Consideration of past, present and future relationships between school and society. The role of the professional educator in shaping these relationships. Introduction to basic legal responsibilities and ethical guidelines which determine professional conduct. Consideration of contemporary educational issues. Selected schools representing diverse educational philosophies, cultural settings and levels will be visited and studied.

EDFA 49000 INDIVIDUAL RESEARCH AND TEACHING EXPERIENCE
(Cr. 1 to 8)
Opportunity for undergraduate students to investigate particular problems in the field of education under supervision.

EDFA 49100 TOPICS AND ISSUES IN EDUCATION
(Class 1, Cr. 1)
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.

EDFA 50000 PHILOSOPHY OF AMERICAN EDUCATION
(Class 3, Cr. 3)
Consideration of the major ideas, trends, and movements in the philosophy of American education. Their significance for educational objectives, teaching and evaluative methods, and classroom organization and management is analyzed in depth.

EDFA 51100 INFORMATION SYSTEMS IN EDUCATION
(Class 3, Cr. 3)
An overview of automated data processing application to education. Primary emphasis on administrative applications for pupil, staff, facility, program, and financial accounting.

EDFA 51200 FOUNDATIONS OF EDUCATIONAL ADMINISTRATION
(Class 3, Cr. 3)
Administration of education; roles of local, state, and federal government. Focus on purpose, organization, task areas, and processes of educational administration.

EDFA 51300 EDUCATIONAL FACILITIES PLANNING
(Class 3, Cr. 3)
Systems approach as a basis for school facilities planning. Study directed toward procedures for solving facilities problems. Emphasis on techniques for developing and securing technical information.

EDFA 51600 SCHOOL-COMMUNITY RELATIONS
(Class 3, Cr. 3)
This course will stress concepts and principles relevant to school-community interaction. It will focus on the new roles of the public in education and will deal with problems encountered by education in communicating with the public.

EDFA 58900 SPECIAL TOPICS FOR TEACHERS
(Class 7 to 4, Cr. 7 to 4)
Consideration of concerns of experienced educational personnel related to educational development, technology, methodology and curriculum. Designed for workshop or inservice formats. Not available for use in graduate degree programs.

EDFA 59000 INDIVIDUAL RESEARCH PROBLEMS
(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.

EDFA 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 issue within the usual graduate class format.

EDFA 60200 SEMINAR: THE SCHOOL PRINCIPALSHIP
(Class 4, Cr. 4)
Prerequisite: EDFA 51200
Individual exploration in depth of selected aspects of the school principalship and critical analysis of related issues.

Educational Foundations and Administration
**EDFA 60400 SECONDARY SCHOOL ADMINISTRATION**  
(Class 2 to 3, Cr. 2 to 3)  
Prerequisite: EDFA 60200  
Study of role and responsibilities of the secondary school principalship; focus on organization and administration of students, staff and educational program; special consideration devoted to schedule construction, program accounting, and school and community relations.

**EDFA 60500 ELEMENTARY SCHOOL ADMINISTRATION**  
(Class 2 to 3, Cr. 2 to 3)  
Prerequisite: EDFA 60200  
Study of role and responsibilities of the elementary school principalship; focus upon leadership functions in staff and pupil personnel, school and class organization, plant management, instructional and educational program, and school and community relations.

**EDFA 60700 ADMINISTRATION OF EDUCATIONAL SYSTEMS**  
(Class 3, Cr. 3)  
An examination of administrative function, process, structure, and practice. Special emphasis given to theory development in administration. Exploration of system analysis applications to educational administration.

**EDFA 60800 BUSINESS MANAGEMENT IN EDUCATION**  
(Class 3, Cr. 3)  
Examination of internal and external determinants of school fiscal policy. Experiences with fiscal procedures for school budgeting and accounting, including preparation of a school budget.

**EDFA 60900 LEGAL ASPECTS OF AMERICAN EDUCATION**  
(Class 3, Cr. 3)  
Legal foundations of education as established by constitutional provisions, court decisions, opinions of attorney generals, administrative rulings and executive directives. Emphasis on legal theory and principles currently in state of change. Stress on case study method of investigation into educational law.

**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 ADMIN**  
(Class 1 to 3, Cr. 7 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 10, Lab 0 to 30, 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.

**EDFA 69800 RESEARCH MS THESIS**  
(Cr. 1 to 18)  
Research for Master’s Thesis.

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**EDPS 10300 INTRODUCTION TO HIGHER EDUCATION**  
(Class 3, Cr. 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 lifelong 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 freshman.

**EDPS 22000 PSYCHOLOGY OF LEARNING**  
(Class 3, Cr. 3)  
Prerequisite: EDFA 20000  
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 3, Cr. 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 3, Cr. 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 2, Lab 2, Cr. 3)  
Prerequisite: EDCI 20500 or EDCI 20600  
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 & LIFE PLANNING SEMINAR**  
(Class 3, Cr. 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 2, Lab 3, Cr. 3)  
Experiential Learning  
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 0 to 8, Lab 0 to 16, Cr. 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 1, Cr. 1 or Class 3, Cr. 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 2, Lab. 2, Cr. 3)  
Human relations skills; the functioning and use of group processes. Leadership styles are treated by the instructional component. Students participate in laborato- ries designed to increase personal awareness and relationship skills.

EDPS 50100 INTRODUCTION TO SCHOOL COUNSELING  
(Class 3, Cr. 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 3, Cr. 3)  
Provides an overview of mental health counseling as it relate to community issues and needs. Roles and settings for mental health counselor and specific intervention skills will be stressed.

EDPS 50500 CAREER THEORY AND INFORMATION  
(Class 3, Cr. 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 3, Cr. 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 53000 ADVANCED EDUCATIONAL PSYCHOLOGY  
(Class 3, Cr. 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 3, Cr. 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 3, Cr. 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  
(Class 3, Cr. 3)  
Individuals 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 3, Cr. 3)  
Includes basic concepts (historical perspective, definition, classification, assessment and etiology); introduction to levels of retardation; life span issues and programs; and current teaching trends.

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 57400 SEVERELY EMOTIONALLY HANDICAPPED INDIVIDUALS: HISTORICAL  
(Class 3, Cr. 3)  
Perspectives, Etiology, And Characteristics 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)  
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 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 12, 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  
(Lab. 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  
(Class 2, Cr. 2 or Class 5, Cr. 3)  
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.
ENGL 02100 LOW-INTERMEDIATE GRAMMAR & 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. 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 02500 INTRODUCTION TO AMERICAN CULTURE
(Class 3)
This is an elective for students with Low-Intermediate skill level. Each section of ENGL 025 will introduce American Culture through different themes and skill emphasis, such as film, reading and writing short stories, etc.

ENGL 03100 LOW-INTERMEDIATE LISTENING & SPEAKING
(Class 6)
Prerequisite: TOEFL score, a writing sample or an interview
This course focuses on the development of listening skills and oral fluency in an academic context. Students at this level 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, conversation prompts and small-group tasks, assist in the development of listening and oral fluency.

ENGL 03200 INTERMEDIATE LISTENING & 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 topics, both inside and outside of the classroom, in order to expand these abilities. A wide variety of listening excerpts, conversation prompts and small-group tasks, assist in the development of listening comprehension and oral fluency.

ENGL 03300 ADVANCED LISTENING & SPEAKING
(Class 6)
Prerequisite: ENGL 03200 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 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, America culture etc.
ENGL 04100 LOW-INTERMEDIATE READING COMPREHENSION  
(Class 6)  
Prerequisite: Placement is based upon TOEFL score, a writing sample or an interview.  
This is a course that focuses on skills and strategies for effective reading at a basic level. Students at this level are expected to read both inside and outside the classroom in order to improve their reading skills. Student 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, 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 03500  
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 104 or ENGL 105 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 for students at all skill levels. This course may not be substituted for ENGL 104 or ENGL 105 nor be counted toward degree requirements.

ENGL 10000 ENGLISH COMPOSITION  
(Class, 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, Cr. 3) General Education, TransferIN  
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, Cr. 3) General Education, TransferIN  
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, 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, Cr. 3) General Education  
An accelerated composition course that substitutes for English 104 for students with superior writing ability.

ENGL 18600 COLLEGE READING AND STUDY SKILLS  
(Class, 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, 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, Cr. 3) General Education, TransferIN  
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, Cr. 3) General Education, TransferIN  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
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, 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, Cr. 3) TransferIN  
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, 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  
(Class, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Through The Neoclassical Period 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, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
A continuation of ENGL 240, this course surveys English literature (excluding the novel) from the late eighteenth century to the twentieth 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, Cr. 3)  
Prerequisite: English 10400  
Several books, such as The Scarlet Letter, Moby Dick and Walden, 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) Transfer IN  
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) Transfer IN  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
A comparison of some of the major works of world literature in translation, from 1700 to present. Emphasis on Continental, African, Latin-American and Eastern literature.

ENGL 28600 THE MOVIES  
(Class 2 Lab 2, 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 and COM 11400  
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 10000 or ENGL 10800  
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 as Pauline Hopkins, Nella Larsen, Ann Petry and Gloria Maylor. 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 prosody, major movements and major themes.

ENGL 31500 AMERICAN FOLKLORE AND FOLKLIFE 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 Folklife 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 Folklife and Folklife.

ENGL 31900 CREATIVE WRITING  
(Class 3, Cr. 3) Transfer IN  
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800  
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 emphasizes significant texts by major women writers such as Atwood, the Brontes, Cather, Chopin, Dickinson, Eliot, Glassperry, Hurston, Jewett, Lessing, Mansfield, Morrison, Oates, Rich, and Woolf. Although the class will study mainly 19th and 20th century it will not be restricted to these. In addition, the readings will also include a variety of literary genres: novel, short fiction, poetry, and drama. Cross listed as WOST 320.

ENGL 32300 SEXUAL IDENTITY IN LITERATURE  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10400 or ENGL 10800 or ENGL 10000  
This course explores how sexual identity informs literary works. Fiction, poetry, drama, personal narrative and essays from lesbian, bisexual, gay and transgendered (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) TransferIN  
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) Experiential Learning  
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) TransferIN  
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) TransferIN  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
A continuation of ENGL 350, 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: 1940 TO THE 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 10000 or ENGL 10800  
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 ABSURDIST  
(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 1970  
(Class 2, Lab. 1, 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 10400 or ENGL 10000 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 2, 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, 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) Experimental Learning  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Intensive practice in the writing of book, film, and theatre criticism, as well as reviews of musical programs and art exhibits. Readings in critics to serve as possible models. Audience analysis of newspapers and periodicals that would be potential markets.

ENGL 41100 STUDIES IN MAJOR AUTHORS  
(Class 3, Cr. 3)  
Prerequisite: ENGL 10000 or ENGL 10400 or ENGL 10800 and ENGL 20100  
A study of the literary critical or cinematic works of one or two influential authors or directors.

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 41700 PEER MENTORING  
(Class 3, Cr. 3) Experimental Learning  
Instruction on intercultural awareness, mentorship, leadership, and education. Daily interaction with peer international students enrolled in the English Language Program.

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 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, may 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 & READING ON THE WEB  
(Class 3, Cr. 3) Experimental Learning  
This course assists students in writing effective Web-based content and understanding how to make Web sites usable. Course examines how users interact with Web sites, how/when sites are successful, and how/when they are not. Students will learn how to write effective online content for the Web and Intranets/Extranets, understand usability issues, and conduct user testing a Web sites.

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) Experimental Learning  
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) Experimental Learning  
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800  
Provides an introduction to writing for narrative interactive media. Materials 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 narrative interactive programs and scripts including computer/video games, simulations, and world, 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 MAGAZINE JOURNALISM
(Class 3, Cr. 3) Experimental Learning
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.

ENGL 47900 THE SHORT STORY
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10300 or ENGL 10800
An historical and critical study of nineteenth and twentieth century short stories: Irish, British, American, Continental.

ENGL 48000 INTERNSHIP IN WRITING
(Cr. 3) Experimental Learning
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
To gain admission to the internship, the student must have a 3.0 GPA in all courses in the writing focus or consent of the instructor. At least 21 hours of this coursework must be completed prior to the internship. Assigned internships in business, industrial and other professional situations.

ENGL 49101 SPECIAL TOPICS ENGLISH LANGUAGE & LITERATURE
(Class 3, Cr. 3)
Prerequisite: ENGL 20100
Each time the course is taught, it will focus on a topic that is not currently offered in the catalogue.

ENGL 49200 LITERATURE IN THE SECONDARY SCHOOLS
(Class 3, Cr. 3)
Prerequisite: ENGL 10400 or ENGL 10000 or ENGL 10800
Exploration of the theory, research and pedagogy supporting the teaching of literature at the secondary level. Topics include text selection, instructional strategies, adolescent literacy, student engagement and the use of alternative texts.

ENGL 50100 INTRODUCTION TO ENGLISH STUDIES
(Class 3, Cr. 3)
Introduction to graduate studies in English with special emphasis on research and reference tools, methods of bibliography, and the writing of scholarly papers.

ENGL 50200 PRACTICUM IN TEACHING COLLEGE COMPOSITION
(Cr. 1)
Reading professional literature, preparing syllabi, evaluating student papers, leading discussion. Required of all teaching assistants in their initial semester.

ENGL 50300 THE THEORY AND PRACTICE OF TEACHING LITERATURE
(Class 3, Cr. 3)
OFFERED AT CALUMET ONLY - Focusing on current theories, debates, and issues, this course will explore ideas regarding the teaching of literature that are a concern at all levels in the English Curriculum. Coursework will introduce students to questions and problems of the concept of canon, the integration of theory and practice, and of methodologies that promote appreciation of literary works.

ENGL 50400 PRACTICUM IN THE TEACHING OF ENGLISH COMPOSITION I
(Class 3, Cr. 3)
OFFERED AT CALUMET ONLY — Prepares new Graduate Aides in the Department of English and Philosophy to teach Freshman English. Orient new Graduates Aides to issues in college and provides practice in applications of those issues. This course is not, however, a part of master’s degree requirement.

ENGL 50600 INTRODUCTION TO ENGLISH AND GENERAL LINGUISTICS
(Class 3, Cr. 3)
General study of language and linguistic theory with emphasis on English. Problems and methods in phonology, morphology, syntax, and semantics. Current techniques of linguistic analysis.

ENGL 51000 HISTORY OF THE ENGLISH LANGUAGE
(Class 3, Cr. 3)
Prerequisite: ENGL 50600 or AUSL 53000
Introduction to theories of linguistic change and their application to the historical development of English from its beginnings.

ENGL 51200 MODERN ENGLISH GRAMMAR
(Class 3, Cr. 3)
Prerequisite: ENGL 50600 or AUSL 58000
Introduction to English syntactic structure, syntactic argumentation, and syntactic theory. Emphasis on one current theory as primary theoretical framework, with other theories considered.

ENGL 51800 TEACHING ENGLISH AS A SECOND LANGUAGE PRINCIPLES & PRACTICE
(Class 3, Cr. 3)
Studies of issues and principles in USL/EFL program development. Emphasis is on practical application of theory in a variety of English learning and teaching contexts in the US and abroad.

ENGL 53100 THE RISE OF THE NOVEL
(Class 3, Cr. 3)
A study of the history of the emergent novel genre as it developed in 18th-century Britain and/or America.

ENGL 53200 THE ENGLISH NOVEL IN THE NINETEENTH CENTURY
(Class 3, Cr. 3)
A survey of fiction up to about 1900, including such novelists as Scott, Dickens, Thackeray, the Brontes, Eliot, and Meredith.

ENGL 53300 RENAISSANCE TEXTS/RENAISSANCE THEORY TO 1603
(Class 3, Cr. 3)
Nondramatic literature of the English Renaissance up to 1603, particularly the Elizabethan. Representative selections in both prose and verse are studied, with special attention to Spenser, Sidney, and Shakespeare.

ENGL 53400 SEVENTEENTH-CENTURY LITERATURE
(Class 3, Cr. 3)
Nondramatic literature from 1603 to 1660. Particular emphasis upon such figures as Jonson, Donne, Marvell, and Herbert, with representative prose from Bacon, Browne, Burton, and others.

ENGL 53500 RESTORATION AND EARLY EIGHTEENTH CENTURY LITERATURE
(Class 3, Cr. 3)
A survey of nondramatic literature from 1660 to 1744, from Clarendon through Thomson. Emphasizes Bunyan, Dryden, Pope, and Swift.

ENGL 53600 LATER EIGHTEENTH CENTURY LITERATURE
(Class 3, Cr. 3)
A survey of nondramatic literature from 1744 to 1798, from Young through Gibbon and Cowper. Excludes the novel. Emphasizes Gray and his circle and Johnson and his circle.

ENGL 53700 ENGLISH DRAMA TO 1642
(Class 3, Cr. 3)
A survey of the English drama from the beginning, through Marlowe and Jonson, to the closing of the theaters (excluding Shakespeare).

ENGL 54000 STUDIES IN CHAUCER'S TROILUS AND CRISEYDE
(Class 3, Cr. 3)
Critical reading of Troilus and Criseyde and related works in Middle English, with attention to the literary and cultural background and to secondary studies.
ENGL 54100 STUDIES IN CHAUCER’S CANTERBURY TALES
(Class 3, Cr. 3)
Critical reading of The Canterbury Tales and related works in Middle English, with attention to the literary and cultural background and to secondary studies.

ENGL 54200 SHAKESPEARE’S DRAMATIC ART
(Class 3, Cr. 3)
A study of the development of Shakespeare’s comic art from the early comedies through the later comedies and tragi-comedies. Ten to 12 plays will be read.

ENGL 54300 SHAKESPEARE IN CRITICAL PERSPECTIVE
(Class 3, Cr. 3)
A study of the early and mature tragedies, the English histories, and the Roman plays. Ten to 12 plays will be read.

ENGL 54400 MILTON
(Class 3, Cr. 3)
A study of Milton’s poetry and prose, with particular emphasis on Paradise Lost, and some attention to the social, political, and literary background.

ENGL 54700 THE ROMANTIC MOVEMENT IN ENGLISH LITERATURE
(Class 3, Cr. 3)
Principal writers of the Romantic movement (Burns to Keats), emphasizing Wordsworth; relation of the historical background to the thought and feeling of the writers concerned.

ENGL 54800 VICTORIAN LITERATURE
(Class 3, Cr. 3)
A survey of English poetry and prose from about 1832 to 1880.

ENGL 54900 LATE VICTORIAN AND EDWARDIAN LITERATURE
(Class 3, Cr. 3)
A study of the rebellion against Victorian conventions which characterized the period from 1880 to 1910. Such movements as aestheticism, decadence, symbolism, and naturalism are examined in the works of Hardy, Yeats, Butler, Wilde, and others.

ENGL 55400 AMERICAN LITERARY CULTURE, 1820-1860
(Class 3, Cr. 3)
A survey of American literature from about 1820 to 1855, concluding with Melville.

ENGL 55600 NINETEENTH-CENTURY AMERICAN FICTION
(Class 3, Cr. 3)
Surveys the development of American fiction from its beginnings. Though representative works of all periods will be read, emphasis will be given to Hawthorne, Melville, Twain, and James.

ENGL 55800 THE RISE OF REALISM IN AMERICAN LITERATURE
(Class 3, Cr. 3)
A survey of American literature from about 1855 to 1900, beginning with Whitman and ending with James and the early naturalists.

ENGL 55700 MODERN ENGLISH AND AMERICAN POETRY
(Class 3, Cr. 3)
Surveys modern poetry from Hardy to Auden; relates it to the main currents of contemporary thought and feelings; introduces elementary critical principles.

ENGL 57800 MODERN AMERICAN FICTION
(Class 3, Cr. 3)
Critical study of twentieth-century novels and short stories, mainly before World War II, by writers such as Anderson, Dreiser, Fitzgerald, Hemingway, Dos Passos, and Faulkner.

ENGL 57900 MODERN BRITISH FICTION
(Class 3, Cr. 3)
Critical study of twentieth-century novels and short stories by such writers as Conrad, Lawrence, and Forster. Special attention is given to James Joyce’s Ulysses.

ENGL 58000 LITERATURE AND MODERN THOUGHT
(Class 3, Cr. 3)
Readings in literature, philosophy, and social criticism, concentrated on the political, industrial, and scientific revolutions that have molded modern life and thought.

ENGL 58100 PROBLEMS IN MODERN LITERATURE
(Class 3, Cr. 3)
Chief ethical systems. Novels written by writers with contrasting ethical assumptions. Ethical problems considered both abstractly and concretely.

ENGL 58200 ADOPTING COMPOSITION THEORY INTO PRACTICE, NORTHWEST
(Class 3, Cr. 3)
Indiana Writing Project Institute in-depth examination into various theories surrounding the teaching of writing and the adoption of those theories to actual classroom practice.

ENGL 58400 LITERATURE AND PSYCHOLOGICAL PROBLEMS
(Class 3, Cr. 3)
Novels, stories, plays, and other types of literature dealing with important psychological problems, to show how great imaginative writers have treated problems of human relationship with which contemporary psychology is concerned.

ENGL 58900 DIRECTED WRITING
(Class 0 to 3, Cr. 1 to 3)
Writing creative, popularly technical, biographical, historical, philosophical papers on subjects of the students’ choice. Individual conferences only; no class meetings.

ENGL 59000 DIRECTED READING
(Class 0 to 3, Cr. 1 to 3)
Directs the reading of students with special interests. Guides students in profitable 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 locus 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 content course dealing with topics such as cultural studies and composition, medieval rhetoric, renaissance, rhetorics, literacy, historiographics of rhetoric, qualitative studies and profession 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  
(Class 3)  
Advanced study of special subjects.

ENGL 69800 RESEARCH MA/MFA THESIS  
(Class 1 to 18, Cr. 1 to 18)  
Master’s Thesis Research

**Engineering**

ENGR 15100 SOFTWARE TOOLS FOR ENGINEERS  
(Class 2, Lab. 2, Cr. 3) General Education  
Prerequisite: MA 15900  
Introduction to MATLAB and engineering problem solving, with MATLAB. Students will be introduced to arrays rational and logical operations, control flow of sequence, selection and repetition, function definition, 2-D and 3-D graphics, data analysis, Graphical User Interface (GUI) development, and Simulink.

ENGR 15200 PROGRAMMING FOR ENGINEERS  
(Class 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.

ENGR 18600 FIRST YEAR SEMINAR FOR ENGINEERS  
(Class 1, Cr. 1)  
The course will provide the foundations for students enabling them to: learn to succeed, work together in teams, understand the field chosen for study and orient them to university life and environs.

ENGR 19000 ELEMENTARY ENGINEERING DESIGN  
(Class 1, Lab. 3, Cr. 2)  
Prerequisite: MA 15900  
An introduction to engineering design.

ENGR 19500 FIRST-YEAR ENGINEERING TOPICS  
(Class 1 to 3, Lab. 0 to 6, Cr. 1 to 3)  
Topics vary

ENGR 22000 INTRODUCTORY ENGINEERING III  
(Class 1, Cr. 1)  
Prerequisite: ENGR 16000  
Continuation of ENGR 160. Further lectures on the engineering profession and a continuation of computer programming design and implementation. Emphasis on engineering applications.

**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 & 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 & design skills into self-employment and entrepreneurship.

ENTR 30000 GROWING THE FIRM  
(Class 3, Cr. 3)  
Prerequisite: ENTR 10000 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 ‘intrapreneurship’, 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 and 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 & NEW PRODUCT DEVELOPMENT  
(Class 3, Cr. 3)  
Prerequisite: ENTR 10000  
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  
(Class 3, Cr. 3)  
Prerequisite: BA 21000 or MGMT 31000  
For students interested in business start-up or management of a growing firm. Exposure to the principles, methods and tools used in financial planning, analysis, and control of the small business enterprise. Covers short-term financial planning and control, creation of pro forma financial statements, and business valuation techniques. Presents how and where to seek financing via a variety of debt and equity sources.

ENTR 40000 SMALL BUSINESS CONSULTANT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 3 1 000 or BA 21000 and MGMT 3 6 000 or BA 3 6 100 and MGMT 3 2 400 or MGMT 2 2 400  
Student consultant teams are assigned to individual, local, client companies to look at, study, and analyze one or more of their existing business problems or challenges. Each consultant team, with the active involvement and help of the instructor, will conduct the consulting assignment and submit a final report by the end of the semester. Consulting teams will also make a live presentation to the client.

ENTR 40100 SOCIAL ENTREPRENEURSHIP  
(Class 3, Cr. 3)  
Prerequisite: ENTR 10000  
This is an experiential learning course designed to show students that entrepreneurship can be useful for community enrichment and just direct generation of wealth. In the course, students will learn about various aspects of social entrepreneurship and undertake a project of their choice designed to improve the local community.

ENTR 42000 BUSINESS PLAN DEVELOPMENT  
(Class 3, Cr. 3)  
Prerequisite: ENTR 10000 and BA 12000 or MGMT 20000  
The components of a business plan are analyzed. The focus is on the research, preparation, and presentation of the plan in a critical environment. Major components are marketing analysis, financial calculations and the applications of sound managerial principles. Public and private resources are available to fun new start-ups, expansions, and acquisitions will be explored and prefom statements will be constructed.

**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  
(Classe 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 web site.

EQU 22000 GLOBAL PERSPECTIVE OF EQUINE INDUSTRY  
(Classe 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  
(Classe 3, Cr. 3) Experiential Learning  
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  
(Classe 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  
(Classe 3, Cr. 3)  
Prerequisite: EQU 20000  
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  
(Classe 3, Cr. 3)  
This course provides an introduction to ethical issues in the equine industry.

EQU 35000 EQUINE EVENT OPERATIONS  
(Classe 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  
(Classe 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  
(Classe 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  
(Classe 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  
(Classe 3, Cr. 3)  
Prerequisite: EQU 10000  
This course discusses the role of international and national equine competition governance bodies, breed registry and association governance, and USDA governance role in the equine industry.

EQU 42000 HORSE RACING AND GAMING SYSTEMS  
(Classe 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  
(Classe 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  
(Classe 3, Cr. 3) Experiential Learning  
Prerequisite: EQU 40000  
This course requires students to combine their experience in an internship with their coursework to produce a 3 year business plan for an equine operation.

EQU 48000 HORSE SHOW PROJECT MANAGEMENT  
(Classe 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  
(Classe 1 to 4, Cr. 1 to 4)  
Arrange with Instructor before enrolling. Investigation in a specific equine management field.

Engineering 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  
(Classe 1 to 3, Cr. 1 to 3) Experiential Learning  
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  
Coop Work Experience

ET 25200 INTERNSHIP PROGRAM II  
(Classe 1 to 3, Cr. 1 to 3) Experiential Learning  
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.
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 340 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 explores 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 & Nutrition

F&N 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.

F&N 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 HTM majors.

F&N 12100 VEGETARIAN NUTRITION
(Class 1, Cr. 1) General Education
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.

F&N 20300 FOODS: THEIR SELECTION AND PREPARATION
(Class 2, Lab. 3, Cr. 3)
Principles of food selection, preparation, and meal planning.

F&N 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.

F&N 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 WOST 208) 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.

F&N 26000 NUTRITION FOR EARLY CHILDHOOD EDUCATORS
(Class 3, Cr. 3)
(This course does not satisfy the nutrition competency for Nursing or HTM majors.) Study of the basic principles of food and nutrition from pregnancy through the primary years and methods to achieve good nutritional status. Special emphasis on nutrition education, legislation, and regulation in pre-school and elementary classrooms (grades K–3).

F&N 26100 NUTRITION FOR HEALTH, FITNESS, AND SPORTS
(Class 2, Lab. 2, Cr. 3)
(This course does not satisfy the Nutrition competency for Nursing or HTM 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.

F&N 30300 ESSENTIALS OF NUTRITION
(Class 3, Cr. 3) General Education, Transfer
Basic nutrition and its application in meeting nutritional needs of all ages.

F&N 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.
F&N 32200 COMMUNITY NUTRITION & HEALTH PROMOTION ENTREPRENEURSHIP  
(Class 2, Cr. 3)  
Prerequisite: F&N 30300 or F&N 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.

F&N 33000 DIET SELECTION AND PLANNING  
(Class 3, Cr. 3)  
Prerequisite: F&N 20300 or F&N 25000 and F&N 30300 or F&N 31500  
Diet selection for health maintenance in culturally diverse populations based on current dietary guides with utilization of the computer for diet evaluation.

F&N 36000 NUTRITION FOR THE AGING  
(Class 3, Cr. 3)  
Prerequisite: F&N 30300  
(This course does not satisfy the Nutrition competency for Nursing or HTM 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.

F&N 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.

F&N 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 dietician. Clinical experience ultimately to include total staff responsibility as a dietician in nutritional care. Satisfactory/Unsatisfactory.

F&N 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 dietician. Clinical experience ultimately to include total staff responsibility as a dietician in institutional management. Satisfactory/Unsatisfactory.

F&N 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.

Foreign Languages and Literatures

FLL 10300 FRESHMAN EXPERIENCE WORLDVIEWS  
(Class 3, Cr. 3) General Education  
This course would include utilization of campus resources, goal setting, values exploration, relationship of academic planning and life goals, discipline specific career exploration and critical thinking relative to the study of foreign languages and literature.

FLL 19000 SPECIAL TOPICS  
(Class 3, Lab. 0 to 4, Cr. 3)  
Special topics related to world languages, cultures and literatures. Variable title. This course may be repeated for credit, providing the topic is different.

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 39000 SPECIAL TOPICS  
(Class 0 to 4, Lab. 0 to 4, Cr. 1 to 4)  
Special topics related to world languages, cultures, and literatures. 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, culture, and literatures. Variable title. This course may be repeated for credit, providing topics are different.

Fitness Management

FM 10000 INDIVIDUALIZED WELLNESS STRATEGIES  
(Lab. 2, Cr. 1) General Education  
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) General Education  
This course is repeatable for credit. This 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) General Education  
This course is repeatable for credit. This 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  
(Lab. 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 10400 PHYSICAL FITNESS  
(Lab. 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 10500 YOGA  
(Lab. 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 10600 RACQUETBALL  
(Lab. 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 10700 BASIC SELF DEFENSE  
(Lab. 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 11200 AIKIDO  
(Lab 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 11300 TIA CHI  
(Lab 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 11400 PILATES  
(Lab 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 11600 WING CHUN  
(Lab 2, Cr. 1) General Education  
This course is repeatable for credit. This 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 11700 LATIN BALLROOM DANCE PARTNER  
(Lab 2, Cr. 1) General Education  
This course is an introduction to dance partnering techniques in Latin dance. It is an exercise class to facilitate the development of proper style and understanding of ballroom/Latin dance partnering movements and techniques while providing aerobic benefit. This course also provides students with a working knowledge of healthy living practices, and assessment of students' present fitness status and the opportunity to develop wellness strategies that can be enjoyed throughout life.

FM 11701 LATIN BALLROOM DANCE EXERCISE  
(Lab 2, Cr. 1) General Education  
This course is an introduction to ballroom 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 student 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  
(Lab 1, Cr. 1) General Education  
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  
(Cr. 1) General Education  
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 student 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  
(Lab 1, Cr. 1) General Education  
This course 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  
(Class 3, Cr. 3)  
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  
(Class 2, Lab 2, Cr. 3)  
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  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: CHM 11900 and BIOL 21400  
(Co-requisite: F&M 30300)  
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  
(Class 1, Lab 2, Cr. 2)  
Transferrable  
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  
(Class 1, Lab 4, Cr. 3)  
Experiential Learning  
Prerequisite: F&M 30300 or FM 31500 and FM 26800  
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)  
Experiential Learning  
Prerequisite: FM 30000 and FM 41000 and FM 47400  
Limited to students enrolled in the Fitness Management degree, Classification 8, Advanced level clinical field experience in fitness management facility. At least 300 hours in an approved health and/or nutrition facility under the direction of a certified or registered instructor. An off-campus facility or club and their managerial/professional staff is the primary site for this practicum.

FM 31300 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 31400 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 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 HTM 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 0 to 6, Lab 0 to 6, Cr 0 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**  
(Class 2, Lab 2, Cr 3)  
Prerequisite: FM 26800 and FM 30000 and FM 30200  
Instruction and laboratory experience in the scientific evaluation, testing and assessment of exercise. Includes data collection, analysis and statistical applications. Oriented toward interpreting test data and applying it toward the design of individual exercise programs.

**FM 47400 PHYSIOLOGY OF EXERCISE II**  
(Class 1, Lab 2, Cr 2)  
Prerequisite: FM 26800 and FM 30200 and FM 41000  
Advanced level exercise physiology course exploring physiological concepts and principles assessing physiological function and evaluating performance in physical efforts in a laboratory setting. Includes integration of metabolic, cardiovascular, respiratory, endocrinological and biochemical functions of the human body in response to exercise.

**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.

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**French**

**FR 10100 FRENCH LEVEL I**  
(Class 3, Lab 1, Cr 3) TransferIN  
Introduction to French.

**FR 10200 FRENCH LEVEL II**  
(Class 3, Lab 1, Cr 3) TransferIN  
Prerequisite: FR 10100  
Continuation of FR 101.

**FR 19000 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.

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**FR 20100 FRENCH LEVEL III**  
(Class 3, Lab 1, Cr 3) TransferIN  
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) TransferIN  
Prerequisite: FR 20100  
Continuation of FR 201 and the presentation of intellectual readings.

**FR 23000 FRENCH LITERATURE IN TRANSLATION**  
(Class 3, Cr 3)  
Prerequisite: FR 20200  
The essentials of French grammar as applied in composition.

**FR 29000 SPECIAL TOPICS IN FRENCH**  
(Class 0 to 3, Lab 0 to 6, Cr 1 to 3)  
Prerequisite: FR 20200  
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.

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**FR 30700 COMMERCIAL FRENCH**  
(Class 3, Cr 3)  
Prerequisite: FR 20200  
This course will provide students with the fundamentals of effective expression and communication as they apply to French business situations. It will concentrate on commercial vocabulary, reading, writing and speaking as related to international business.

**FR 35000 HISTORY AND CULTURE OF FRENCH CUISINES**  
(Class 3, Cr 3)  
Prerequisite: FR 20200  
(In English) This is a study of the historical and cultural development of French cuisine as it evolved to its present status.

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**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)  
Prerequisite: FR 20200  
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: FR 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)
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)
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)
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 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, Cr. 3)
Introduction to German.

GER 10200 GERMAN LEVEL II
(Class 3, Cr. 3)
Prerequisite: GER 10100
Continuation of GER 101.

GER 20100 GERMAN LEVEL III
(Class 3, 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, Cr. 3)
Prerequisite: GER 20100
A continuation of GER 201 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
(Class 3, Cr. 3)
Prerequisite: GER 20200
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 405 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 55500 GERMAN DRAMA FROM NATURALISM TO THE PRESENT
(Class 3, Cr. 3)
Prerequisite: GER 40600
Development of the drama through the various literary movements of the period, including consideration of the underlying social and ideological forces.

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 290 or EDPS 103.

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
GREK 10100 MODERN GREEK LEVEL I
(Class 3, Lab. 3, Cr. 3)
Introduction to Modern Greek.

GREK 10200 MODERN GREEK LEVEL II
(Class 3, Lab. 3, 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) General Education  
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, TransferN  
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, TransferN  
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-Saharan 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)  
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 231 - 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  
A survey of Latin American History from its origins to the end of the major movements toward independence with emphasis on discover, colonization, expansion and the transfer of intuitions from Spain to Portugal.

HIST 27200 LATIN AMERICAN FROM 1824  
(Class 3, Cr. 3)  
A survey of Latin American history from independence to the present with particular attention on political, economic, and social problems connected with modernization.

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. If or HIST 582 -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 Puritanism, 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 1960s and approaches and efforts to resolve these issues. The class will utilize the 1960s 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)  
Prerequisite: HIST 10400  
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 31300 MODERN GERMANY  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
Defines the nature of 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 Hohenzollens, Wimar Republic, and Hitler; and the post-World War II division and reunification of Germany.

HIST 31400 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 31500 MODERN NATIONALISM  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
Analyzes the nature and development of modern nationalism as a force of integration and disintegration in various major European and non-European states.

HIST 31600 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 31900 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 out-break 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, 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  
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 34001 THIS COURSE IS AN INTRODUCTION TO VARIOUS ASPECTS OF CHINESE CIVILIZATION FROM ITS ORIGIN TO 1900.  
(Class 3, Cr. 3)  
While offering a comprehensive overview of the 4000 year of Chinese history, this course focuses on the changes and continuities of Chinese economy, culture, politics and society.

HIST 34002 HISTORY OF MODERN CHINA  
(Class 3, Cr. 3)  
Experiential Learning  
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 civilization, culture, politics and society.

HIST 34600 THE ERA OF WORLD WARS I AND II, 1914-1945  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400  
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  
An assessment and analysis of the nature of political, social, religious, economic, cultural, intellectual, and diplomatic change and the response to that change in the United States of the 1920's.

HIST 34800 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 INTRO. TO JEWISH STUDIES  
(Class 3, Cr. 3)  
Prerequisite: HIST 10400 or POL 10100  
Also cross-listed as IDS 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 Israeli 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 365 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)  
Prerequisite: HIST 10400 or HIST 11000 or HIST 15200 or HIST 15700  
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 form 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 375. 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) Experimental Learning 
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 our 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 
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 38900 THE WORLD OF IDEAS II  
(Class 3, Cr. 3) 
Prerequisite: HIST 10400 or HIST 15100 or HIST 15200 
Not open to students with credit in POL 38900 or PHIL 38900. 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) Experimental Learning 
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) Experimental Learning 
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 ascendency 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 
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 55300 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 domination of those forces and factors that led to a disastrous Civil War; slavery and anti-slavery; economic jostling 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 ante-bellum 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 Grand 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 if 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 relationship 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 (Class 0 to 3, Cr. 1 to 3)
Student must be at Graduate standing. May be repeated for credit.--- Bibliography and historiography of selected fields or topics in American history; may vary in subject matter from semester to semester.

Hons

HONR 10000 FRESHMAN HONORS SEMINARS (Class 3, Cr. 3)
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 (Class 1 to 4, Cr. 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 (Class 1 to 4, Cr. 1 to 4)
Admission to the Honor Program. Restricted to honors program students; this course will involve an investigation of a specific problem or topic.

HONR 40000 HONOR CAPSTONE PROJECT (Class 1 to 3, Cr. 1 to 3)
Admission to 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 (Class 1 to 4, Cr. 1 to 4)
Admission to Honors Program. Restricted to honors program students, this course will involve an investigation of a specific problem or topic.

Horticulture

HORT 10200 FUNDAMENTALS OF HORTICULTURE (Class 3, Cr. 3)
Study of the biology and technology involved in the production, storage, processing and marketing of ornamentals, fruits, vegetables, and other horticultural plants.
Health Sciences

HSCI 10500 FACTS OF LIFE
(Class 3, Cr. 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 and an human biology 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 study 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
(Class 3, Cr. 3)
This course includes instruction in the roles and responsibility of the paramed, 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
(Class 4, Cr. 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 & PHYSIOLOGY
(Cr. 4)
Review of topographical anatomy, cellular anatomy and physiology and human organ systems.

HSCI 23300 EMERGENCY PHARMACOLOGY
(Class 4, Cr. 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, intavenous, cannulation, precutaneous injection, arterial blood gas analysis, nasogastic intubation and urinary catheterization are taught.

HSCI 23400 CARDIOPULMONARY EMERGENCIES
(Class 4, Cr. 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
(Class 4, Cr. 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
(Class 4, Cr. 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, Cr. 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, Cr. 1)
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
(Cr. 1)
Pre-requisite: 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
(Cr. 2)
Pre-requisite: 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
(Cr. 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
(Cr. 2)
Pre-requisite: HSCI 24100
A continuum of HSCI 241 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
(Cr. 2)
Pre-requisite: 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 preform 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 24500 PHYSICAL EXAM II
(Cr. 1)
A continuum of HSCI 244 with emphasis on relating the physical exam to the clinical impression. Students will be assigned to physician preceptors.

HSCI 24600 PHYSICAL EXAM II
(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,
radios isotopes, 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, plate-
lets 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 opportuni-
ties 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 are 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 microbacteriology, with emphasis on
isolation and identification, Practical applications of fluorescent antibody tests are
preformed.

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 “in vitro”
rationale and procedures pertinent to a nuclear medicine department.

HSCI 45700 CLINICAL PARASITOLOGY
(Class 1 to 10, Lab 0 to 10, Cr. 7 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 radioimmunassay.

HSCI 45900 CLINICAL TOXICOLOGY
(Class 1 to 10, Lab 0 to 10, Cr. 7 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. 7 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 virologic studies for rubella, influenza,
mumps, Newcastle disease, herpes, polio, hepatitis. Tissues 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 labora-
tory tests; heart, kidney, liver, hematopoietic system, etc.

Hospitality and Tourism Management

HTM 10000 INTRODUCTION TO THE HOSPITALITY & 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 to become acquainted with the
Purdue system and with the HTM department and program. Information presented
is designed to assist students with developing strategies for academic and career-related suc-
cess at Purdue.

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 state-
ments, 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 & MGMT IN THE HOSPITALITY &
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 busi-
nesses are discussed and evaluated including packaging, the travel trade, advertis-
ing, sales promotion, merchandising, and personal selling.
COURSE DESCRIPTIONS

HTM 24100 MANAGERIAL ACT 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: CS 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: ISBN 20300 or ISBN 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 flow 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) Experiential Learning
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
(Cr. 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)
Repeatable to a maximum of 6 credits. HTM Major and Classification 5 (Junior Standing)
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)
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)
Prerequisite: 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: (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 foodservice 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.

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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 explosion in Sport and Adventure Tourism.

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/rental ownership.

HTM 38500 EDUCATIONAL CRUISE STUDY  
(Class 3, Cr. 3) Experimental Learning  
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 39000 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 41100 HOSPITALITY AND TOURISM LAW  
(Class 3, Cr. 3)  
Overview of the fundamentals 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 42200 FRAUD EXAMINATION FOR HOSPITALITY MANAGERS  
(Class 3, Cr. 3) Experimental Learning  
Prerequisite: HTM 24100 or MGMT 20100  
FRAUD EXAMINATION FOR HOSPITALITY MANAGERS  
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 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 beverage in the hospitality industry. State of Indiana responsible alcohol service certification is required to earn course credit.

HTM 49101 SALES & 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 hand-on expertise. Students must acquire responsible alcohol service certification to earn course credit.

HTM 49200 ADVANCED FOODSERVICE MANAGEMENT  
(Class 3, Cr. 4)  
Prerequisite: HTM 21200 and HTM 29100 and HTM 31100 and HTM 34100 and HTM 49101  
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 TOURISM  
(Class 3, Cr. 3)  
Prerequisite: HTM 31100 and HTM 32100 and HTM 34100 and 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  
(Class 0, Cr. 0) Experimental Learning  
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) Experimental Learning  
Prerequisite: Classification of 2 or higher  
This course is repeatable once. Applied experiential research opportunity in student major field and one other discipline, directed by a tenure-track faculty member. Requires level 1 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) Experimental Learning  
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 level 2 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.

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. This course focuses on methods design. 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.

IDIS 35001 ADVANCED EXPERIENTIAL UNDERGRADUATE RESEARCH
(Class 3, 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, new products, volume variations and advancing technology.

IDIS 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, lifecycle costing, and economic analysis. The focus is on managing an engineering project through scheduling, budgeting, resource management, execution and control.

IDIS 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.

IDIS 33500 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 355. 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 an/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 breakeven 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 1, Cr. 1) Experimental Learning
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) Experimental Learning
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 & 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.

IET 52000 ENTERPRISE QUALITY PLANNING AND ANALYSIS
(Class 3, Cr. 3)
Prerequisite: IET 50700 or IET 50800
This course provides advanced quality techniques required for improving quality, reliability and maintenance in modern business enterprises by providing essential tools. The course will focus on problem solving and team sessions with participation of students. Graduate student status or Senior with instructor approval. Leveling courses may be required based on student undergraduate degree and experience.

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 2, 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. 3, Cr. 3)
Introduction to Italian.

ITAL 10200 ITALIAN LEVEL II
(Class 3, Lab. 1, Cr. 3)
Prerequisite: ITAL 10100
Continuation of ITAL 101 (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 schools and departments who wish to choose Italian in order to meet the mandated 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, 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. 2, 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 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 INTERNET/NETWORKING 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**  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 24500  
This course covers the concepts, methods and techniques of simulation and game development programming. This course focuses on the mathematics, related to game development, game and simulation programming techniques, algorithm design, data structures, game-specific software development, as well as the technical aspects of game testing. Extensive laboratory exercises are assigned.

**ITS 33000 ADVANCED OPERATING SYSTEMS**  
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3)  
Prerequisite: ITS 24000  
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, 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)  
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 the configuration of networks 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 6, Cr. 1 to 4)  
This course covers topics in Information Technology or Security topics.

ITS 40000 SIMULATION & 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 details topics on modeling and simulation, real-time systems, rendering engines, gaming engines, gaming logic, and interactivity. It addresses a detailed study of how games function to create experiences, including rule design, play mechanics, game balancing, social game interaction, and the integration of visual, audio, tactile textural elements into total game experience.

ITS 40900 TOPICS IN SIMULATION AND GAME DEVELOPMENT  
(Class 3, Cr. 3)  
Prerequisite: ITS 40400  
This course covers special topics and emerging technologies in Simulation and Game development.

ITS 43000 SYSTEMS PROGRAMMING  
(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 45000 SOFTWARE ASSURANCE  
(Class 2, Lab. 2, Cr. 3)  
Prerequisite: ITS 34000  
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 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)  
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)  
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.
**Japanese**

**JPNS 10100 JAPANESE LEVEL I**  
(Class 3, Lab. 1, Cr. 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. 1, Cr. 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. 1, Cr. 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. 1, Cr. 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 AMERICAN 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, 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 2 hours each week will be devoted to viewing films and 2 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. 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.

LTHN 10200 LITHUANIAN LEVEL II
(Class 3, Lab. 1, Cr. 3)
Prerequisite: LTHN 10100
Continuation of Lithuanian 10100. This course stands as an elective for student in
other University departments. The course is a contribution to intellectual growth
and development as well as a service to the community.

Mathematics

MA 02100 BEGINNING ALGEBRA
(Class 4)
Prerequisite: Beginning level course in Algebra
CREDIT: One unit for admission.

MA 02110 GEOMETRY
(Class 4)
Beginning level course in geometry. Credit: One unit for admissions.

MA 04100 INTERMEDIATE ALGEBRA
(Class 3)
The purpose of this course are to strengthen and expand the students basic algebraic
skills and problem-solving capabilities and to prepare them for higher level
mathematics courses.

MA 10000 AN INTRODUCTION TO MATHEMATICAL SCIENCES
(Class 1, Cr. 1) General Education
This course is intended to: integrate freshman mathematics majors into the depart-
ment; help them adjust to university life, assist them in developing their academic
and intellectual capabilities; introduce 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 mathemat-
ics courses. For the purposes of general education requirements MA 11500 is not
a collegiate 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) General Education
Prerequisite: MA 11500
Designed for prospective elementary school teachers. Problem solving. Numeri-
cal 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 School of Science.)

MA 13800 MATHEMATICS FOR ELEMENTARY TEACHERS II
(Class 3, Cr. 3)
Prerequisite: MA 13700
MA 13700 continues the study of number systems through integers, rational
numbers and real numbers. Quantitative and proportional reasoning as a founda-
tion for algebraic reasoning. Elementary statistical and probabilistic reasoning. (Not
available for credit in the School 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 School of Science.)

MA 14700 ALGEBRA AND TRIGONOMETRY FOR TECHNOLOGY
(Class 3, Cr. 3) General Education
Prerequisite: MA 04100 and MA 03100 or MA 11500
Not open to students with credit in MA 15100 or MA 15300. MA 14700 and 14800 is
a two semester sequence in algebra and trigonometry for students in technology.
The emphasis is on technique and problem solving. MA 147 concentrates on topics in
algebra.

MA 14800 ALGEBRA AND TRIGONOMETRY FOR TECHNOLOGY II
(Class 3, Cr. 3)
Prerequisite: MA 14700 or MA 15300
Not open to students with credit in MA 15100 or MA 15400. Continuation of MA
14700. MA 14800 concentrates on trigonometry.

MA 15300 ALGEBRA AND TRIGONOMETRY I
(Class 3, Cr. 3) General Education, Transfer IN
Prerequisite: MA 03100 and MA 04100 or MA 11500
Not open to students with credit in MA 14700, 14800, or 15100. The content of MA
15300, 15400 is similar to that of MA 15100 but the pace and emphasis is directed to
students who do not intend to take MA 16300. MA 15300 is College Algebra.

MA 15400 ALGEBRA AND TRIGONOMETRY II
(Class 3, Cr. 3) Transfer IN
Prerequisite: MA 15300
Not open to students with credit in MA 14800 or 15100. Continuation of MA
15300. MA 15400 is Trigonometry.

MA 15900 PRECALCULUS
(Class 5, Cr. 5)
Prerequisite: MA 03100 and MA 04100
Algebra and Trigonometry topics designed to prepare students for calculus.

MA 16300 INTEGRATED CALCULUS AND ANALYTIC GEOMETRY I
(Class 5, Cr. 5) General Education, Transfer IN
Prerequisite: MA 15100 or MA 15900 or MA 15400
Topics from plane analytic geometry. Introduction to differentiation and integration.
Applications.

MA 16400 INTEGRATED CALCULUS AND ANALYTIC GEOMETRY II
(Class 5, Cr. 5) Transfer IN
Prerequisite: MA 16300
Continuation of MA 16300. Completion of introductory study of topics in plane
analytic geometry and the calculus of one variable, infinite series.

MA 20500 DISCRETE MATHEMATICS FOR COMPUTER TECHNOLOGY
(Class 3, Cr. 3)
Prerequisite: MA 14700 or MA 15300
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.

MA 21400 LINEAR ALGEBRA AND LINEAR PROGRAMMING
(Class 3, Cr. 3)
Prerequisite: MA 15300
Matrix algebra, systems of equations, topics from discrete mathematics.
MA 21900 CALCULUS FOR TECHNOLOGY I
(Class 4, Cr. 4)
Prerequisite: MA 14800
MA 21900 and 22200 is a two semester sequence in the techniques of calculus for student enrolled in certain technical curricula. MA 21900 develops topics from analytic geometry and introduces differentiation and integration differentiation. The offering pattern depends on the term offered. Not open to students with credit in MA 16300, MA 22300 or MA 22500.

MA 22200 CALCULUS FOR TECHNOLOGY II
(Class 3, Cr. 3)
Prerequisite: MA 21900 or MA 22100
Not open to students with credit in MA 22400 or 16400. Covers differentiation and integration of trigonometric, exponential, and logarithmic functions, infinite series, and first-order differential equations.

MA 22300 INTRODUCTORY ANALYSIS I
(Class 3, Cr. 3) General Education, Transfer IN
Prerequisite: MA 15400
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.

MA 22400 INTRODUCTORY ANALYSIS II
(Class 3, Cr. 3) TransferIN
Prerequisite: MA 22300
Not open to students with credit in MA 16400 or 22200. Continuation of MA 22300.

MA 22500 CALCULUS FOR BUSINESS AND ECONOMICS
(Class 3, Cr. 3) General Education
Prerequisite: MA 15300
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 22500.

MA 26100 MULTIVARIATE CALCULUS
(Class 4, Cr. 4)
Prerequisite: MA 16400
Solid analytic geometry, partial differentiation, multiple integrals.

MA 26400 DIFFERENTIAL EQUATIONS
(Class 3, Cr. 3)
Prerequisite: MA 26100
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.

MA 26500 LINEAR ALGEBRA
(Class 3, Cr. 3)
Prerequisite: MA 16400
Not open to students with credit in MA 26200. An introduction to linear algebra. Systems of linear equations, matrix algebra, vector spaces, determinants, eigenvectors, diagonalization of matrices, applications.

MA 31200 PROBABILITY
(Class 3, Cr. 3)
Prerequisite: MA 26100
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.

MA 31500 INTRODUCTION TO ABSTRACT MATHEMATICS
(Class 3, Cr. 3)
Prerequisite: 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 construct proofs, examples and counterexamples.

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 ELEMENTS OF ALGEBRA
(Class 3, Cr. 3)
Prerequisite: MA 26500
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 automorphisms. Galois Theory.

MA 47200 INTRODUCTION TO APPLIED MATHEMATICS
(Class 3, Cr. 3)
Prerequisite: MA 26500 and MA 26400 and CS 20600
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 362. Functions of several variables: partial derivative, differential; quadratic approximation, extrema; 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
Complex numbers and complex-valued functions; differentiation of complex functions; power series, uniform convergence; integration, contour integrals; elementary conformal mapping.

MA 53400 ADVANCED ANALYSIS FOR ENGINEERS AND SCIENTISTS
(Class 3, Cr. 3)
Prerequisite: MA 26400 and MA 26500
An introduction to normed linear spaces; Hilbert spaces; linear operations; spectral theory; selected applications.

MA 54000 ANALYSIS I
(Class 3, Cr. 3)
Prerequisite: MA 44500
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 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 axiomatic 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 45100

MA 59800 TOPICS IN MATHEMATICS
(Class 0 to 5, Cr. 1 to 5)
Sem 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. 1, 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, orthographic 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 15200 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)
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: ME 31200
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: 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
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 ME 27500 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 3, Cr. 3)
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, firm 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
(Lab 3, Cr. 1)
Prerequisite: ME 41600
Heat transmission 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 1, Lab 3, Cr. 2) Experiential Learning
Prerequisite: COMP 31700 or ENGS 31700 and ME 30500 and ME 31100 and ME 31200 and ME 34500 and MEE – 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 a 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 3, Cr. 3) Experiential Learning
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. ICEs topics-engines with advanced combustion systems such as clean diesels, direct-injection spark-ignition engines (DISI), and low-temperature combustion (LTC) 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 projects, 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 2, Lab. 3, Cr. 3)
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
(Class 3, Cr. 3)
Prerequisite: ME 30600
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 variety of systems and problems including phase and reaction equilibrium.

ME 50200 NUMERICAL HEAT AND MASS TRANSFER
(Class 3, Cr. 3)
Prerequisite: ME 41600 and ME 31200
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 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, & AIR CONDITIONING
(Class 3, Cr. 3)
Prerequisite: ME 41600
This course is an introduction to analysis and design of HVAC&R systems. 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 54300 ADVANCED ENGINEERING ECONOMICS
(Class 3, Cr. 3)
Prerequisite: ME 37100 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 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.

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 27100 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. Emphasis is 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, controllability, 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 masters 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)
Masters Research Thesis.

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 11000 APPLIED STATICS
(Class 2, Lab. 2, Cr. 3)
Prerequisite: MET 10000 and MET 16200
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)
Co-requisite: MA 14800
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)
Co-requisite: MA 14700
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. 3, 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 & 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 11800 or MET 11100  
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  
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: ECE T 21400  
This course consists of the study of compressible and incompressible fluid statics and dynamic as applied to hydraulic and pneumatic pumps, motors, transmissions and controls.

MET 24200 MANUFACTURING PROCESSES II  
(Class 2, Lab. 2, Cr. 3)  
Co-requisite: 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 3, Lab. 0 to 9, Cr. 1 to 3)  
Hours and subject matter to be arranged by staff. Primarily for third- or fourth-semester students with special aptitudes.

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: MA 22200 and MET 23000  
The fundamentals 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. Cutters 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: ECE T 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. Cr. 3)  
Prerequisite: MA 14800 and ECE T 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 ECE T 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. 1)  
Prerequisite: MET 21400 and MET 30500 or CEG 1100  
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 Manufacturing 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 design competition.

MET 46100 COMPUTER INTEGRATED DESIGN AND MANUFACTURING  
(Class 2, Lab. 2, Cr. 3)  
Experiential Learning  
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 design projects, graphical finite element analysis, rapid prototyping, computer controlled manufacturing, and testing using a common, three-dimensional graphical database.
COURSE DESCRIPTIONS

MET 46500 ADVANCED TOPICS IN COMPUTER-AIDED DESIGN
(Class 2, Lab 2, Cr. 3)
Pre-requisite: 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 49700 SENIOR PROJECT SURVEY
(Class 2 to 3, Lab 0 to 2, Cr. 3)
Pre-requisite: MET 49500
Directed work on individual projects for senior mechanical engineering technology students.

MET 49900 MECHANICAL ENGINEERING TECHNOLOGY
(Class 0 to 6, Lab 0 to 18, 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 10000 MANAGEMENT LECTURES I
(Class 1, Cr. 1) General Education
A survey of management professions with a focus on the academic development of the student, planning for educational success, and planning for future professional employment.

MGMT 10100 INTRODUCTION TO BUSINESS
(Class 3, Cr. 3) TransferN
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.

MGMT 10200 COMPUTER UTILIZATION FOR MANAGEMENT
(Class 2, Lab. 2, Cr. 3) General Education
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 resources, accounting and economics.

MGMT 19000 FRESHMAN LEVEL PROBLEMS IN MANAGEMENT
(Class 1 to 4, Cr. 1 to 4)
Investigation into specific topic areas of Management arranged with the instructor before enrolling.

MGMT 20000 INTRODUCTORY ACCOUNTING
(Class 2, Cr. 3 or Class 3, Lab. 2, Cr. 3) TransferN
Pre-requisite: MA 15300
An examination of the system by which accounting data is gathered from economic events. Construction and uses of financial statements.

MGMT 20100 MANAGERIAL ACCOUNTING
(Class 3, Cr. 3) TransferN
Pre-requisite: MGMT 20000 and MA 15300
An introduction to management's internal use of accounting information — for decision making, production management, product costing, motivating and evaluating performance, and budgeting.

MGMT 21100 PRINCIPLES OF INFORMATION SYSTEMS
(Class 2, Lab. 2, Cr. 3) General Education
Pre-requisite: MGMT 10200
An introduction to information systems from the perspective of a manager. This course provides an overview of information systems, system theory, human information processing, and current legal and ethical issues relating to computer usage. Extensive lab exercises on advanced spreadsheet and database management applications in business context are assigned.

MGMT 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.

MGMT 22400 PRINCIPLES OF MARKETING
(Class 3, Cr. 3)
Not open to Management majors. 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.

MGMT 22500 FUNDAMENTAL MANAGERIAL STATISTICS
(Class 3, Cr. 3) General Education
Pre-requisite: MA 22500
The foundation for statistical decision making. Topics include: probability theory, descriptive statistics, estimation, and hypothesis testing with managerial applications.

MGMT 24000 PERSONAL FINANCIAL MANAGEMENT
(Class 3, Cr. 3) TransferN
Credit will only be given for one of the following: ECON 24000, MGMT 24000 OR MGMT 44200. 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.

MGMT 29000 PROBLEMS IN MANAGEMENT
(Class 1 to 4, Cr. 1 to 4)
Investigation in a specific management field arranged with the instructor before enrolling.

MGMT 30100 MANAGEMENT CAREER LECTURES
(Class 1, Cr. 1)
Class rank of 5 or higher or consent of instructor. 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.

MGMT 30500 BUSINESS STATISTICS
(Class 3, Cr. 3)
Pre-requisite: MGMT 22500
An introduction to quantitative decision procedures under uncertainty and the foundations of probability theory and statistical decision theory.

MGMT 30600 MANAGEMENT SCIENCE
(Class 3, Cr. 3)
Pre-requisite: MGMT 22500
An introduction to quantitative decision procedures under uncertainty and mathematical model building. Linear programming and other topics in operations research.

MGMT 30700 SYSTEM ANALYSIS & DESIGN
(Class 2, Lab. 2, Cr. 3)
Introduces the information systems student to the procedural requirements of the systems development life cycle (SDLCL). 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.
MGMT 38000 INTERNATIONAL BUSINESS  
(Class 3, Cr. 3) General Education  
Prerequisite: MGMT 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.  

MGMT 38300 PRACTICUM IN QUALITY MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 36000 and MGMT 33100  
This course is run in conjunction with the Small Business Institute of the Department of Management. Students will design and help implement quality management systems and concepts in an actual business.  

MGMT 39000 JUNIOR LEVEL PROBLEMS IN MANAGEMENT  
(Class 3 to 4, Cr. 7 to 4)  
Investigation in a specific management field arranged with the instructor before enrolling.  

MGMT 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.  

MGMT 40200 FINANCIAL STATEMENTS ANALYSIS  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000 and MGMT 35000  
Develops the ability to use published financial statement information and related disclosures to assess the performances of the enterprises. Equity analysis, credit analysis, prospective analysis, cash flow analysis are covered.  

MGMT 40301 ACCOUNTING FIELD EXPERIENCE  
(Class 3, Cr. 3) Experiential Learning  
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.  

MGMT 40400 TAX ACCOUNTING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35000  
A foundation course in the law governing taxation of individuals, partnerships, corporations, and property transactions. Tax planning and professional responsibilities are also emphasized.  

MGMT 40600 AUDITING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 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.  

MGMT 40700 COST ACCOUNTING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 20100  
This course emphasizes the application of statistical tools and decision models to accounting data for the purpose of facilitating managerial control. Topics include asset acquisition, inventory control, profit maximization, budgeting, performance evaluation, and financial planning.  

MGMT 40800 GOVERNMENT ACCOUNTING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 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).  

MGMT 41000 ADVANCED FINANCIAL ACCOUNTING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 35100  
This is an 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.  

MGMT 41200 MONEY AND CAPITAL MARKETS  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000 and ECON 25200  
General subject matter in the financial behavior of households, corporations, the federal government, and financial institutions such as commercial banks, savings and loan associations, life insurance companies, and finance companies. Emphasis is on interaction of these sectors in the determination of various interest rates in recent years.  

MGMT 41400 NON PROFIT GRANT WRITING AND FUND RAISING  
(Class 3, Cr. 3)  
The purpose of the 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.  

MGMT 41600 INFORMATION SYSTEMS CONTROL AND AUDIT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31100 or MGMT 21100  
The study of information systems (IS) control and audit. IS auditing assesses whether computer systems safeguard assets, maintain data integrity and facilitate the implementation of the goals of the organization. The reason 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.  

MGMT 41800 KNOWLEDGE MANAGEMENT AND BUSINESS INTELLIGENCE  
(Class 3, Cr. 3)  
Prerequisite: MGMT 21100  
This is a 3-credit lecture and hands-on course. It may be taught either in classroom or distance learning. This course explores the theories, strategies, methods and tools for managing organizational knowledge and making business decision 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.  

MGMT 42100 PROMOTION MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 32400 or MGMT 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.  

MGMT 42200 INTERNATIONAL MARKETING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 32400 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 various country markets.  

MGMT 42400 CONSUMER BEHAVIOR  
(Class 3, Cr. 3)  
Prerequisite: MGMT 32400 or MGMT 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 are identified, motivated, and evaluated for use in various marketing activities. Emphasis is placed on the business approach for identifying the consumer's decision-making process.  

MGMT 42500 MARKETING PLANNING AND RESEARCH  
(Class 3, Cr. 3)  
Prerequisite: MGMT 32400 or MGMT 22400 or BA 22400  
The management of the marketing research function in industrial firms. Emphasis on market research and information systems for planning and control.  

MGMT 42600 RETAILING  
(Class 3, Cr. 3)  
Prerequisite: MGMT 32400 or MGMT 22400 or BA 22400  
Functions of a retail establishment are examined. The topics covered include retail operations planning; buyer behavior; store design, location, and layout; organizing and staffing the retail firm; merchandise management; pricing concepts and strategies; promotion; credit; financial management; and a discussion of the future of retailing. Emphasis is given to significant developments taking place in the major environments of retailing to include social, economic, technological, and legal aspects.
MGMT 42700 SALES MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 32400 or MGMT 22400  
Organization, management, and operation of the sales force; examines the recruitment, selection, and processing of the sales force; motivation; forecasting; sales department budgeting; and performance evaluation. Emphasis is given to the management of an outside sales force and its activities.

MGMT 42800 ADVERTISING MANAGEMENT  
(Class 3, Cr. 3) Experimental Learning  
Prerequisite: MGMT 32400 or MGMT 22400  
Provides an understanding and evaluation of the advertising function within the modern business environment. Covers history; advertising and the promotional mix; the advertising as a vital communication tool.

MGMT 42900 ADVERTISING CAMPAIGNS  
(Class 3, Cr. 3) Experimental Learning  
Prerequisite: MGMT 42800  
Emphasizes the preparation of a complete advertising campaign for a business or non-profit organization. The student will be able to integrate marketing research and segmentation, media, and promotion plans, strategy, creative, and presentation in a unified campaign to serve a local or national organization.

MGMT 43300 PERSONAL SELLING  
(Class 3, Cr. 3) Experimental Learning  
Prerequisite: MGMT 32400 or MGMT 22400 or MGMT 42900  
A detailed exposure to personal selling strategies and tactics. It examines effective selling in the consumer and industrial markets, including an analysis of consumers, motivation and communications, handling objections and closing techniques. The entire sales process is examined, with particular emphasis on relationship selling, planning and delivery of sales presentations, and trust-building techniques. The roles of professional salespeople within their organizations and economic systems are investigated, as are important dimensions of sales career.

MGMT 43400 ELECTRONIC MARKETING  
(Class 3, Cr. 3) Experimental Learning  
Prerequisite: MGMT 32400 or MGMT 22400 or MGMT 42900  
An introduction to electronic marketing and the dynamics of Internet marketing.

MGMT 43500 SERVICES MARKETING  
(Class 3, Cr. 3) Experimental Learning  
Prerequisite: MGMT 32400 or MGMT 22400 or MGMT 42900  
Addresses the distinct needs and challenges of managing services and delivering quality service to customers. The primary focus of the course is on distinctive approaches to marketing strategy, both in its development and execution, for service organizations. This course also addresses the role of service in manufacturing businesses as the basis for attaining a sustained competitive advantage.

MGMT 44000 MANAGEMENT OF FINANCIAL INSTITUTIONS  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000  
Management and policy topics providing insight on the internal operating procedures, and problems of financial institutions. Principles of loan analysis and the role of financial institutions in the capital markets are studies with an emphasis on commercial bank management.

MGMT 44100 FUTURES AND OPTIONS  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000  
Characteristics of futures and options and their relationship to stocks, bonds, and other financial assets. The determination of futures and options prices and how they are used for hedging and immunization purposes.

MGMT 44200 PERSONAL FINANCE  
(Class 3, Cr. 3)  
Credit only for ONE of the following: ECON 24000, MGMT 24000, OR MGMT 44200. 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.

MGMT 44300 FUNDAMENTALS OF INVESTMENTS  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000  
Operations of the markets in which securities are traded, and investment alternatives are studied. Theory and application of security valuation and portfolio selection techniques are examined with emphasis upon evaluation of investment performance.

MGMT 44400 INVESTMENT MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 44300  
Treatment of problems of portfolio analysis, securities investment selection, and capital markets. Theoretical development, as well as quantitative and practical applications at the level of the individual decision maker.

MGMT 44700 DERIVATIVES  
(Class 3, Cr. 3)  
Prerequisite: MGMT 44300  
Overview of derivative contracts and their relationship to stocks, bonds and other tradeable 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.

MGMT 44800 REAL ESTATE PRINCIPLES  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000  
The course focuses on the key aspects of negotiation, acquisition, and financing of real estate. Other topics include amortization, renovation, restoration management and depreciation of real estate assets.

MGMT 44900 INTERNATIONAL FINANCIAL MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 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 options contracts available for the firm to manage additional risk associated with international operations.

MGMT 45000 STRATEGIC MANAGEMENT: CAPSTONE  
(Class 2, Lab 2, Cr. 3) Experimental Learning  
Prerequisite: MGMT 31000 and MGMT 32400 and MGMT 36000 and OBHR 33000  
Should be taken only in last semester of senior year. An extensive study of management problems in business at policy-making levels; primarily for students majoring in management.

MGMT 46500 FORECASTING FOR MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 22500 NOT open to students with credit in ECON 46500  
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.

MGMT 48300 BUSINESS DATA COMMUNICATIONS  
(Class 2, Lab 2, Cr. 3)  
Prerequisite: MGMT 21100  
This course can be used as a business elective for BS of Management majors. It introduces the subject of data communication and the use of telecommunication in business applications. Topics include client-servers architecture, network hardware and software, distributed computing, key issues in telecommunication and network management, and the fundamentals of data communications. In addition to this, the course covers both legacy networks and modern high-speed networks used in business communications.

MGMT 48600 PROJECT MANAGEMENT  
(Class 2, Lab 2, Cr. 3) Experimental Learning  
Prerequisite: MGMT 31100 or MGMT 21100  
The application of the knowledge, skills, and techniques that project managers use to manage projects. Emphasis is placed on learning and applying concepts of Project Management Body of Knowledge (PMBOK), which includes integration, scope, time, cost, quality, human resource, communication, and procurement aspects.
MGMT 48700 KNOWLEDGE AND DECISION MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 31000 or MGMT 21100  
This course covers the exploration 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 context and types, expert systems opportunities, knowledge management, and the roles of decision-making tools.

MGMT 48801 E-AUCTION IN PRACTICE  
(Class 2, Lab. 2, Cr. 3) Experiential Learning  
Prerequisite: MGMT 21100 or MGMT 31100  
This 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 using case studies and hands-on online store practice.

MGMT 48900 INTERNATIONAL MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: OBHR 33000 or BA 23000  
Explores who 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.

MGMT 48901 ENTERPRISE RESOURCE PLANNING IMPLEMENTATION  
(Class 2, Lab. 2, Cr. 3) Experiential Learning  
Prerequisite: CS 25200 or MGMT 30700  
This class studies the types of issues that managers will need to consider in implementing cross-functional integrated enterprise systems. The objective of this course is to make students aware of the potential and limitations of enterprise resource planning implementation. This objective will be reached through case studies, lectures, guest speakers, and a real-world project.

MGMT 49000 PROBLEMS IN INDUSTRIAL MANAGEMENT  
(Class 0 to 4, Cr. 1 to 4)  
Arranged with instructor before enrolling. Investigation in a specific management field.

MGMT 49500 INTERNSHIP IN MANAGEMENT  
(Class 1 to 4, Cr. 1 to 4)  
Junior standing and consent of the instructor. 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.

MGMT 49900 UNDERGRADUATE RESEARCH IN MANAGEMENT  
(Class 3, Cr. 3)  
Students will work with a faculty member on a research project in their major. They will contribute to ongoing research and experience current research techniques in management. During this process, the students will develop critical thinking and oral and written communication skills.

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-nationals, 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 US 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  
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  
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 CRIMINOLGY 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, OOP 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, worker’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 studies 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 611, 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 consider 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 Cr 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 marking 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 3, Cr. 3)  
Prerequisite: MGMT 61000 and MGMT 62000  
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 and the value chain and generic strategy, drawing from the game theory.

MGMT 66000 INTRODUCTION TO OPERATIONS MANAGEMENT  
(Class 3, Cr. 3)  
Prerequisite: MGMT 61000 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 3, Cr. 3)  
For students in the management graduate program or by consent of school. An 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 uncertainty. 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 account 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.

Military Service

MILT UND MILITARY CREDIT  
(Class 1 to 15, Cr. 1 to 15)  
Credit by ROTC or DD 214.

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 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. 2)  
Hours and credits to be arranged.

Military Science and Leadership

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 3)  
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  
(Class 2, Lab. 2, Cr. 2)  
Course includes organizing for effective control, management tools and procedures for the leader, techniques of managing limited resources, and small unit leadership. Uses practical exercises, small groups, and role-playing to develop an understanding of concepts and procedures. Leadership lab consists of applied professional development courses.

MSL 30100 LEADERSHIP AND PROBLEM SOLVING  
(Class 3, Lab. 0 to 2, Cr. 4)  
Examines basic skills that underlie effective problem solving. Review the features and execution of the Leadership Development Program. Analyze military missions and plan military operations. Execute squad battle drills.

MSL 30200 LEADERSHIP & ETHICS  
(Class 3, Lab. 0 to 2, Cr. 4)  
Probes leader responsibilities that foster an ethical command climate. Develop cadre leadership competencies. Prepare for success at National Advanced Leadership Camp. Recognize leader responsibility to accommodate subordinate spiritual needs. Apply principles and techniques of effective written and oral communication.

MSL 40100 LEADERSHIP AND MANAGEMENT  
(Class 2, Lab. 0 to 2, Cr. 4)  
Builds on National Advanced Leadership Camp experience to solve organizational and staff problems. Discuss staff organization, functions and processes. Examine principles of subordinate motivation and organizational change. Apply leadership and problem solving principles to a complex case study/simulation.

MSL 40200 OFFICERSHIP  
(Class 3, Lab. 0 to 2, Cr. 4)  
Designed to explore topics relevant to second lieutenants entering the Army. Describe legal aspects of decision making and leadership. Analyze Army organization for operations from the tactical to strategic level. Assess administrative and logistics management functions.

MSL UND MILITARY CREDIT  
(Class 1 to 15, Cr. 1 to 15)  
Credit by ROTC or DD 214.

Music History and Theory

MUS 20300 MUSIC FOR ELEMENTARY TEACHERS  
(Class 1, Lab. 2, Cr. 2)  
Junior standing required.

An undergraduate methods course to provide future teachers in the elementary school with the knowledge, skills, and resources necessary to enhance the regular classroom situation with meaningful and varied musical experiences, and to execute the same with confidence, creativity, and enthusiasm. Emphasis is placed on effective planning and execution of musical experiences.

MUS 25000 MUSIC APPRECIATION  
(Class 3, Cr. 3)  
General Education, TransEthN  
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 29000 SPECIAL TOPICS IN MUSIC  
(Class 1 to 3, Cr. 1 to 3)  
Topics will vary.

MUS 36100 MUSIC THEORY I  
(Class 3, Cr. 3)  
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 36200 MUSIC THEORY II  
(Class 3, Cr. 3)  
Prequisite: MUS 36100  
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 36300 MUSIC THEORY III  
(Class 3, Cr. 3)  
Prequisite: MUS 36200  
Analytic study of art music and popular music representative of diatonic and chromatic tonal processes. Activities include analytic reading of musical scores, developing musical listening skills, and acquiring functional piano techniques. Creative applications are encouraged.

MUS 37800 JAZZ MUSIC  
(Class 3, Cr. 3)  
This course is a historical and stylistic study of jazz.

MUS 39000 SPECIAL TOPICS IN MUSIC  
(Class 1 to 3, Cr. 1 to 3)  
Topics will vary.

MUS 49000 GUIDED READING IN MUSIC  
(Class 0 to 6, Cr. 1 to 6)  
The course is offered for students with specialized needs and interests in the field.

Natural Resources and Environmental Sciences

NRES 49100 ENVIRONMENTAL INTERNSHIP  
(Class 1 to 3, Cr. 1 to 3)  
Experiential Learning  
Prequisite: NRES 20200  
Directed in-service training in government agencies or programs, industry, community organizations, or private-public joint organizations on environment subjects. Can be repeated to a total of 3 credits hours under the direction of the Environmental Science Program Coordinator.

Nursing

NUR 18100 INTRODUCTION TO PROFESSIONAL NURSING  
(Class 1, Cr. 1)  
General Education  
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 history 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 18200 CONCEPTUAL AND THEORETICAL THINKING IN NURSING  
(Class 2, Cr. 2)  
Prequisite: NUR 18100  
This course examines the concepts that forms the philosophical and theoretical basis of nursing science and patient centered care. The content is leveled to provide undergraduate students a foundational understanding of nursing as a discipline and profession. The conceptual framework and philosophy of the school of nursing will be studied. Special emphasis will be placed on the relationship between nursing philosophy, knowledge, research, and practice.
NUR 28500 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 psychosocial needs. Intercultural and communication skills are utilized to help clients attain their personally defined quality of life.

NUR 28800 ESSENTIALS OF MANAGEMENT AND LEADERSHIP IN NURSING
(Class 3, Cr. 3)
Prerequisite: NUR 28200 and NUR 28300 and NUR 29200 and NUR 28400 and NUR 28500. Note: 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
(Lab 9, Cr. 3)
Prerequisite: NUR 28300 and NUR 28700 and NUR 28400 and NUR 28500Co-requisite: NUR 28800, NUR 29200
Note: NUR 28400 and NUR 28500 can be taken before or during the same semester as NUR 2890 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 28100
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
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 29400 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 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 female patients and their families.

NUR 31800 MATERNITY PRACTICUM  
(Class 1, Cr. 1 Experiential Learning)  
Prerequisite: NUR 28300  
Building on the theoretical knowledge of Nursing Care of Women Throughout the Lifespan this 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 1, Cr. 3)  
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 people.

NUR 32500 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  
(Class 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: BIHS 21000  
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. 1)  
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 NURING II  
(Class 3, Cr. 3)  
Prerequisite: NUR 28300 Co-requisite: NUR 39100  
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  
(Class 9, Cr. 3)  
Prerequisite: NUR 28300 Co-requisite: NUR 39200  
Practicum III is the third clinical course in a series of three practica. Clinical laboratory 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)  
Prerequisite: EPL 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 CHRONICALLY ILL  
(Class 3, Cr. 3)  
Prerequisite: NUR 28300 and EPL 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 5, Lab. 0 to 9, Cr. 1 to 5)  
Hours, credit, and subject matter to be arranged by staff. Course may be repeated for credit up to nine hours.
COURSE DESCRIPTIONS

NUR 41500 PATHOPHYSIOLOGY
(Class 3, Cr. 3)
Prerequisite: NUR 26200 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) General Education
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 efficacy 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 and apply previous knowledge related to: patient-center care, team-work 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 & PUBLIC HEALTH NURSING
(Class 4, Cr. 4)
Prerequisite: NUR 39000 and 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) Experiential Learning
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 488. 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 1, Cr. 3) Experiential Learning
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 50400 HOLISTIC HEALTH PROMOTION
(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 advance 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 51000
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 PHYSIOLOGIC 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 nondisease-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. 6, Cr. 3)
Prerequisite: NUR 50000 and NUR 50100 and NUR 50400 and NUR 50600 and NUR 50800 and NUR 51000 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 and illness prevention are applied.

NUR 51000 NURSING RESEARCH
(Class 3, Cr. 3)
Prerequisite: PSY50000 and NUR 50100
Provides an in-depth examination of the research process as it applies to nursing and health-related disciplines. Students develop a systematic approach to developing a proposal for a clinical research project and to evaluating the scientific and clinical merit of published reports of research. The role of advanced practice nurses as collaborative members of research teams and users of researched stressed.

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 maladaptations 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 advanced 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 nurse 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 nondisease based phenomena. The focus is on understanding etiologies of symptoms and functional problems, the need for intervention, and associated outcomes of practice.
COURSE DESCRIPTIONS

NUR 60100 ADULT HEALTH CLINICAL NURSE SPECIALIST PRACTICUM I
(Class 3, Cr. 2)
Prerequisite: NUR 50000 and NUR 51100 and NUR 60000
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
(Class 3, Cr. 3)
Prerequisite: NUR 50000 and NUR 51100 (Co-requisite: NUR 60300)
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 nonseisde 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 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, utilizing critical thinking and diagnostic reasoning skills. Students apply knowledge of clinical research, pharmacology, physiology, and conceptual framework to the primary care of childbearing and childrearing clients and families.

NUR 61800 ADULT HEALTH NURSING II
(Class 3, Cr. 3)
Prerequisite: NUR 62000 (Co-requisite: NUR 62200)
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 62200)
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 63500 ADVANCED PRACTICE IN NURSING SEMINAR
(Class 1, Cr. 3)
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 advanced 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 62000 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
(Cr. 2)
Prerequisite: NUR 65500 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 precepted 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 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 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 operation 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 18, 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 Leadership and Supervision

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 preforming 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 term 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) Experiential Learning
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 development 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
(Student)
This course presents and examines the principles of employee-employer relations law. Students will be exposed to various federal and state laws pertaining to employee 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) Experiential Learning
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 SCIENCE
(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 school. 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 unions cooperation, and the impact of unions on wages, fringe benefits, turnover, absenteeism, etc.

OBHR 63300 HUMAN RESOURCE MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: OBHR 69000
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 data bases 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 school. 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 behavior are the central components of 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 ORGANIZATION AND MANAGEMENT
(Class 2 to 4, Cr. 2 to 4)
For students in the management graduate program of by consent of school. Analysis of management theories and the administrative processes. Specific managerial activities as they relate to productive efficiency and effectiveness are analyzed. Management functions of planning, organizing, directing, controlling, and staffing are also discussed.
### OLS 10200 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 & 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 compares and contrasts several frameworks for self-leadership and provides students with the opportunity to study these frameworks to achieve success in life, school and career.

### 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)
Overview of 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. Constrictive 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 17900
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 & 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, EPA, 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)
Prerequisites: OLS 33100 and OLS 33200
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)
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 exposed 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. Throughout 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 relations with others, and his 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 25200 and OLS 16300
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 results is also 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 1 to 6, Cr. 1 to 6)
Hours and subject matter to be arranged by staff. (May be repeated for credit.)

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 33700
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 42000 ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT
(Class 3, Cr. 3)
Prerequisite: OLS 33100 and OLS 33600 and OLS 33500
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)
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. (To enroll in this course you must have had six credit hours in safety-related courses or consent of instructor.)

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, handicap, 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)
(Student will need nine hours of safety related courses 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) Experiential Learning
Prerequisite: OLM 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 a 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 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
(Cr. 1 to 3) Experiential Learning
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 must incorporate the concepts taught in the Organizational Leadership courses. Department approval required for registration. Repeatable for credit. This 1-3 credit hour course may be repeated up to a total of 6 credits.

OLS 49700 SENIOR PROJECT
(Class 3, Cr. 3) Experiential Learning
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 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, or 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 School 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 standing 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 & 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/N  
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/N  
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 standards of 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 reason, 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 150 as an alternative to a Mathematics requirement when their major allows it.

PHIL 20600 PHILOSOPHY OF RELIGION  
(Class 3, Cr. 3) General Education, Transfer/N  
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) General Education  
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 Presocratics 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 nineteenth 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) General Education  
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 39000 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/N  
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/N  
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  
(Class 1, Cr. 1) General Education  
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)  
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 N  
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. 3, Cr. 5) General Education, Transfer N  
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 51500.

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 Schrödinger 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 phenomena, 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 and 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 and MA 26400  
Electrostatics; electric currents; magnetostatics; 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 34200 and PHYS 34300 and PHYS 33000  
An introduction and survey of modern experimental topics in advanced physics, including areas such as: Interferometry Zeman 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)  
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)  
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 311, 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. 1 to 5)  
Experiential Learning  
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 extensions 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 501 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 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 32000
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; thermoelectric and photoelectric 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)
Prior general physics and calculus required. (Restricted for graduate credit to candidates in education or science teaching.) Elementary particles, Relativity, Quantum theory. Atomic spectra and X-rays. Pauli principle. Wave mechanics. Radiation and statistics.

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 nonuniform 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 compound 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 is 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.

PHYS 57100 SELECTED TOPICS IN PHYSICS.
(Class 3, Cr. 3)
Specialized topics in physics selected from time to time.

PHYS 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.

PHYS 60000 METHODS OF THEORETICAL PHYSICS I
(Class 3, Cr. 3)
Graduate Students 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.

PHYS 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. 3, Cr. 3)
Introduction to Polish.

PLSH 10200 POLISH LEVEL II
(Class 3, Lab. 3, Cr. 3)
Prerequisite: PLSH 10100
Continuation of PLSH 101 - Polish Level I.
POLE 10000 AMERICAN PUBLIC AFFAIRS
(Class 3, Cr. 3)
A survey of current public affairs in America designed to help students become conversant with the societal issues of our times.

POL 10100 AMERICAN GOVERNMENT AND POLITICS
(Class 3, Cr. 3) General Education, TransferRN
A study of the nature of democratic government, the U.S. Constitution, federalism, civil 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, TransferRN
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
Introduction to the basic concepts and methods of political science. Basic concepts including 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)
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 231 - 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: POL 10100 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 approaches and efforts 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: POL 10000 or 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 study 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)
Prerequisite: POL 10100 or POL 10400
Contemporary public opinion, political socialization, and voting behavior in America.

POL 32000 INTRODUCTION TO PUBLIC POLICY ANALYSIS
(Class 3, Cr. 3)
Prerequisite: POL 10100 or POL 12000
Examination of 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 in this course 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 religion 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 10000 or 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 33400 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 33500 CURRENT POLITICAL IDEOLOGIES
(Class 3, Cr. 3)
Prerequisite: POL 10100
Liberalism, conservatism, socialism, fascism, communism, and other political ideologies.

POL 33600 CRIMINAL LAW AND THE CONSTITUTION
(Class 3, Cr. 3)
Prerequisite: POL 10100
A study of the rights of criminal law in the United States focusing upon the Constitution, legislation, court decisions, and executive implementation.

POL 33700 COMPUTER APPLICATIONS IN PUBLIC ADMINISTRATION
(Class 3, Cr. 3)
Prerequisite: POL 12000 and 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 33800 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 33900 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 34100 CRIMINAL INVESTIGATION
(Class 3, Cr. 3)
Prerequisite: POL 10100 or POL 10100 or POL 13000 or POL 14100 or POL 19000 or POL 12000
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 34200 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM
(Class 3, Cr. 3)
Prerequisite: POL 10100 and SOC 1000
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 perspectives; 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 INTRO TO JEWISH STUDIES
(Class 3, Cr. 3)
Prerequisite: POL 10100
A study of the political, legal, and social aspects of the Jewish experience in the United States, focusing on the Constitution, legislation, court decisions, and executive implementation.

POL 35500 INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM
(Class 3, Cr. 3)
Prerequisite: POL 10100
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 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 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 35700 COMPUTER APPLICATIONS IN PUBLIC ADMINISTRATION
(Class 3, Cr. 3)
Prerequisite: POL 12000 and 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 35800 LAW AND SOCIETY
(Class 3, Cr. 3)
Prerequisite: POL 10100
Nature and development of law and legal institutions in historical, comparative, and contemporary perspectives; interrelationship of law, morality and custom; legal change and social change; and the legal profession.
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 or 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)
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 388 or PHIL 388. 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 10400 or POL 12000 or POL 13000 or POL 14100
May be repeated for credit. Must be Sophomore 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, casual 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 1, 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. Student 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)
Prerequisite: POL 10100
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 students 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)
Prerequisite: POL 10100
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: POL 10100
It is a prerequisite you have a 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 or POL 12000
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
(Cl. 3, Cr. 3) Experiential Learning
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
(Cl. 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
(Cl. 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
(Cl. 3, Cr. 3)
Prerequisite: POL 14100 or POL 30300
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.
(Cl. 1, Cr. 3)
Requires consent of instructor. May be repeated once for credit as either POL 443 or SOC 443. 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
(Cl. 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 or naturalistic 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 POLICIES
(Cl. 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
(Cl. 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
(Cl. 3, Cr. 3)
Prerequisite: POL 10100
Sophomore standing required. May be repeated for credit.

POL 49100 POLITICAL SCIENCE SENIOR SEMINAR.
(Cl. 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.
(Cl. 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.
(Cl. 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, the control of the environment by the government, and to the legal aspects of public policy.

POL 56200 ADMINISTRATIVE LAW AND POLICY MAKING.
(Cl. 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.
(Cl. 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
(Cl. 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
(Cl. 2, Lab. 2, Cr. 3) Experiential Learning
Prerequisite: BHS 20100 or PSY 50000 or STAF 30100 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
(Cl. 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
(Cl. 3, Cr. 3) Experiential Learning
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
(Cl. 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
(Cl. 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
(Cl. 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 learned and the implications of these theories, and the learning approach generally, for a variety of practical problems are emphasized.
An analysis of growth trends in adulthood as arising from the experiences of childhood and adolescence as manifesting themselves in the performance of a variety of adult roles. The realization of maturity, as seen in self-assessment and examination of systemic life history data. The prospects for later adulthood: involvement versus disengagement.
COURSE DESCRIPTIONS

**PSY 44300 AGGRESSION AND VIOLENCE**  
(Class 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**  
(Class 1, Cr. 3) Experiential Learning  
Prerequisite: 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**  
(Class 2, Cr. 3) Experiential Learning  
The Seminar in Human Development and Disability will expose students multiple perspectives related to the issue 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**  
(Class 1 to 6, Cr. 7 to 8)  
Variable titles.

**PSY 49800 SENIOR RESEARCH**  
(Class 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**  
(Class 3, Cr. 3)  
Sociology (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**  
(Class 2, Lab. 2, Cr. 3) or Class 3, Lab. 2, Cr. 3)  
Prerequisite: 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**  
(Class 3, Cr. 3)  
Prerequisite: six hours of psychology including PSY 50000 or equivalent. 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, StampsF), and cognitive-phenomenological (e.g., Rogers, Kelly, Perls).

**PSY 53200 PSYCHOLOGICAL DISORDERS OF CHILDHOOD**  
(Class 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**  
(Class 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**  
(Class 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**  
(Class 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**  
(Class 0 to 3, Lab. 0 to 7, Cr. 1 to 3)  
Individual Research Problem 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**  
(Class 3, Cr. 3)  
Prerequisite: PSY 50000  
Emphasis is given to principles underlying both parametric and nonparametric inference.

**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, clinical 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.

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**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 102. LEVEL II**  
(Class 3, Lab. 3, Cr. 3)  
Prerequisite: PTGS 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.

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**Russian**

**RUSS 10100 RUSSIAN LEVEL I**  
(Class 4, Cr. 4)  
Introduction to basic skills in the languages.

**RUSS 10200 RUSSIAN LEVEL II**  
(Class 4, Cr. 4)  
Prerequisite: RUSS 10100  
Continuation of Russian 101. Prerequisite: Russian 101

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**Science**

**SCI 10300 SURVEY OF THE BIOLOGICAL WORLD**  
(Class 2, Lab. 3, Cr. 3)  
General Education  
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.
SC 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 majors 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.

SC 10500 INVITATION TO HUMAN BIOLOGY  
(Class 2, Lab. 2, Cr. 3) General Education, TransferRN
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.

SC 10601 FOOD CHEMISTRY  
(Class 2, Lab. 2, Cr. 3) General Education
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.

SC 11200 INTRODUCTION TO THE PHYSICAL SCIENCES I  
(Class 2, Lab. 2, Cr. 3) General Education
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.

SC 11300 INTRODUCTION TO THE PHYSICAL SCIENCES II  
(Class 2, Lab. 2, Cr. 3) General Education
An introduction to science and the scientific method as evidenced by the physical and geological aspects of nature. General topics will include: planetary geology, chemical concepts of matter including classification, chemical reactions, bonding and energy.

SC 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.

SC 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.

SC 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.

SC 15000 BREWING SCIENCE  
(Class 2, Lab. 2, Cr. 3) General Education
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.

SC 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 041 or equivalent.

SC 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 population dynamics, natural resources, renewable and nonrenewable energy and environmental pollution.

SC 22000 HEALTH & SAFETY  
(Class 2, Cr. 2)  
Prerequisite: CHM 11600
A course on laboratory safety, health related issues and laboratory stockroom management in the physical sciences for science education majors.

SC 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.

SC 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.

SC 32400 PHYSICAL SCIENCE & 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, toxics, energy flow, and environmental technology.

SC 49100 ENVIRONMENTAL SCIENCE INTERNSHIP  
(Class 1 to 3, Cr. 3)
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) Experiential Learning
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) Experiential Learning
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.
COURSE DESCRIPTIONS

SERV 10300 SERVICE LEARNING/CIVIC ENGAGEMENT - LEVEL III
(Class 3, Cr. 3) Experiential Learning
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) Experiential Learning
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) Experiential Learning
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) Experiential Learning
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, TransferIN
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) TransferIN
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) TransferIN
Prerequisite: SOC 10000
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 is 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) Experiential Learning
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 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) TransferIN  
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) TransferIN  
Prerequisite: POL 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 
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 
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) Experimental Learning  
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, concepts, 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 premodern 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 workers’ 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 43000 FIELD EXPERIENCE IN CRIMINAL JUSTICE  
(Class 1, Cr. 3) Experimental Learning  
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 46000 FIELD EXPERIENCE IN GERONTOLOGY  
(Class 1, Cr. 3) Experimental Learning  
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, transsexuality, 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 grame 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.

SOC 59000 INDIVIDUAL RESEARCH PROBLEMS  
(Class 0 to 3, Cr. 1 to 3)  
This course requires consent of the instructor. (May be repeated for credit.) Individual research or reading in an area of sociology under a sociology department staff member. Does not include thesis work.

SOC 59100 SELECTED TOPICS IN SOCIOLOGY  
(Class 1 to 3, Cr. 1 to 3)  
Prerequisite: SOC 10000  
May be repeated for a maximum of six credit hours.

Spanish

SPAN 10100 SPANISH LEVEL I  
(Class 3, Lab. 1, Cr. 3) TransferN  
Introduction to Spanish.

SPAN 10200 SPANISH LEVEL II  
(Class 3, Lab. 1, Cr. 3) TransferN  
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 106. 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) Transferable
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) Transferable
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 GRAMMER
(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 101 through 202 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 determined native speaking ability in Spanish. Not open to students who have had SPAN 365 and SPAN 261. The presentation of the structure and phonology of 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)
Prerequisites: 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)  
This 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 26100  
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 26100  
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)  
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  
A continuation of SPAN 261. 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.

SPAN 46500 INTERMEDIATE SPANISH CONVERSATION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 36500 or SPAN 31300  
Continued practice in Spanish conversation, and the study of phonetics for accuracy in pronunciation and intonation. Students are encouraged to study contemporary culture as a basis for their conversations.

SPAN 47300 INTERMEDIATE SPANISH TRANSLATION  
(Class 3, Cr. 3)  
Prerequisite: SPAN 37300  
The continuation of SPAN 37300 to include more extensive and more difficult translations. Also, a presentation of theoretical concepts concerning translation, and an orientation to research materials for translation purposes.

SPAN 48100 SPANISH CULTURE  
(Class 3, Cr. 3)  
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.

SPAN 54600 THE SPANISH NOVEL FROM REGIONALISM THROUGH THE GENERATION OF ’98  
(Class 3, Cr. 3)  
Prerequisite: SPAN 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.

SPAN 54700 CONTEMPORARY SPANISH NOVEL  
(Class 3, Cr. 3)  
Prerequisite: SPAN 40600  
The contemporary novel as an insight into 20th century Spanish life and thought. Analysis of selected authors.

SPAN 55200 SPANISH AMERICAN LITERATURE FROM 1900-1970  
(Class 3, Cr. 3)  
Prerequisite: SPAN 43600  
A survey of a number of representative works, as well as excerpts from several others.

SPAN 55300 SPANISH AMERICAN LITERATURE FROM 1970-PRESENT  
(Class 3, Cr. 3)  
Prerequisite: SPAN 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.

SPAN 55500 CHICANO AND PUERTO RICAN WRITERS  
(Class 3, Cr. 3)  
Any 40000-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.

SPAN 56000 INTRODUCTION TO THE LINGUISTIC STUDY OF SPANISH  
(Class 3, Cr. 3)  
Prerequisite: SPAN 36500 and SPAN 26100  
Principles of phonetics, phonemics, and syntax as applied to Spanish. Brief introduction to general and historical linguistics.

SPAN 59000 DIRECTED READING IN SPANISH  
(Class 1 to 4, Cr. 1 to 4)  
May be repeated for credit.

Serbo-Croatian

SRTC 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.

SRTC 10200 SERBO-CROATIAN LEVEL II  
(Class 3, Lab. 1, Cr. 3)  
Prerequisite: SRTC 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 10700 and BIOL 10200 or BIOL 10800 and BIOL 10900
Not open to students with credit in BIOL 330. 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 49000 TOPICS IN STATISTICS FOR UNDERGRADUATES
(Class 0 to 3, 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 15100 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 301, 501, or 511. 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, poison, hypergeometric 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 53200 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 101 (Swahili Level I).

Technology

TECH 50100 INTERNSHIP IN TECHNOLOGY
(Class 0 to 3, Cr. 0 to 3)
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)
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. Prerequisite: Graduate Student standing, or upper class standing with consent of instructor. General knowledge of undergraduate mathematics, science, engineering or technology required.

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. Techniques 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 58100 WORKSHOPS IN TECHNOLOGY  
(Class 0 to 8, Cr. 0 to 8)  
Course topics will vary.

TECH 59000 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  
(Class 2, Cr. 1)  
Requires consent of instructor. May not be taken concurrently with THTR 168, 136, or 368. 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) TransferIN  
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  
(Class 2, Cr. 1)  
This course requires consent of instructor. May not be taken concurrently with THTR 136, 336, or 368. 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, TransferIN  
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.

THTR 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  
(Class 0 to 2, Lab. 0 to 4, Cr. 1)  
This course requires instructor consent. May not be taken concurrently with THTR 168, 368, 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. 3)  
This course requires instructor consent. May not be taken concurrently with THTR 136, 168, or 36800. 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 136, 168, or 33600. 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)  
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.

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 208. Exploration of women’s health issues with emphasis on nutrition. Review of current research in normal and preventive 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, Oates, 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 324.

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 Africa-American, Native-American, Asian-American, and Latin/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/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 34000.

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 450. 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 countermovements. Role conflicts and adjustments in such areas as family, education, employment, and the political area.

WOST 47000 WOMEN IN THE MEDIA  
(Class 3, Cr. 3)  
Prerequisite: COM 11400 or COM 20100 or WOST 12100  
Not open 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.
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- Ronald Corthell, Dean, School of Liberal Arts and Social Sciences
- Alice G. Anderson, Dean, School of Education
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- Peggy Gerard, Dean, School of Nursing
- Niaz Latif, Dean, School of Technology
- Tammy Guerreroy, Director, Learning and Research Services
- H. Frank Cervone, Vice Chancellor for Information Services
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- Sarah E. Howard, Interim Vice Chancellor for Student Affairs
- Roy L. Hamilton, Assistant Vice Chancellor for Educational Opportunity Programs
- Sarah Howard, Assistant Vice Chancellor for Campus Life/Dean of Students
Faculty and Administrative Staff*


Donna Alt (2011) CIT & 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.


Scott Bayer (2012) Continuing Lecturer, English Composition, MS Indiana University

Deborah Beal (2011) Manager Academic Resource Center, MS Rutgers 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


Laurie Brookhart (2009) Assistant Comptroller, Bachelor, Purdue University.
B.A., Purdue University Calumet, 2001.


Philip L. Brown (1990) Director; Procurement and General Services.
B.S., University of Illinois, 1977.

Jordon Bruner (2009) Assistant Director Sport Info Marketing
Event Management

Rita Brusca-Vega (2004) Associate Professor of Education.

Lizbeth A. Bryant (2004) Associate Professor; English. A.A.S., Piedmont Virginia

Janet A. Buckenmeyer (2004) Assistant Professor, Education. B.S.Ed., Bowling

Ivan Budisin (2009) Counseling Psychologist


Mechanical Engineering. B.Sch.E., University of St. Thomas (Manila), 1953.

Marie T. Cahn (1984-2007) Professor Emerita of Nursing, R.N., Diploma,
St. Luke's Hospital, 1960. B.S.N., University of Evansville, 1976. M.S.N., Indiana University,

Richardo Calix (2011), Assistant Professor Computer Info Tech, Ph.D. Louisiana
State University


Adam Carey (2011) Manager, University Archives, MS University of
Wisconsin – Milwaukee

Theresa M. Carilli (1988) Professor of Communication. B.A., University of


Gisele M. Casanova (1990) Associate Professor of Psychology. B.A., Illinois

Jose Castro-Urrioste (1998) Professor of Spanish. B.A., University of San Marcos,

State University, 1986; M.A., DePaul University, 1999; M.S.Ed., California
State University, 2002; Ph.D., Northern Central University, 2007.

Terri Chance (2002) Senior Business Manager, Bachelors, Purdue University.

Chandramouli, Magesh (2011) Assistant Professor of Computer Graphics
Technology. PhD, Purdue University

Corya K. Channing (2000) Continuing Lecturer. B.S., Indiana University-
M.A., Purdue University Calumet, 1996.


B.S., Northwestern University, 1954. M.S., Purdue University, 1968.
Ph.D., Indiana University, 1982.

Bin Chen (2008) Assistant Professor of Electrical Engineering. PhD, Duke University

Kuan-Chou Chen (2002) Head, Department of Information Systems; Professor
of Management. B.B.A., Management Information Systems, National Cheng

Yong C. Chen (1982) Professor Emeritus of Mathematics and Computer Science. B.S.,
Tsing Hua University (Taiwan), 1972. M.S., Fu Jen University (Taiwan), 1976.

Szu-Wei Chen (2012) Visiting Assistant Professor of Communication. M.A.,

Ph.D., University of Minnesota, 1983.


Young D. Choi (1990) Professor of Biology. B.S., Yonsei University, 1979. M.S.,
Southern Illinois University, 1984. Ph.D., State University of New York College


Mita Choudhury (2005) Associate Professor, English. B.A., Lady Shri Ram
State University, 1989.

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Angelo Ciccio (2012) Academic Advisor

April Clark (2009) Assistant Professor Political Science. Ph.D. University of
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Howard Cohen (2001) Professor Philosophy. B.A., University of


Robert J. Colon (1990) Head Grad Studies Educ/Assoc Prof Educ. B.A., University

Frank Colucci (2003) Associate Professor, Political Science.

Joy L. Colwell (1999) Director of Grad Studies/Professor, Organizational Leader-
ship and Supervision. B.A., Indiana University, 1980. J.D., Indiana University/ School
of Law, 1984.

Susan E. Connors (1993) Professor of Management. A.A.S., Indiana Vocational

Renee Conroy (2009) Assistant Professor Philosophy, PhD, University of Washington.

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Cynthia S. Cooke (2005) Clinical Assistant Professor in Nursing. A.S.N., Palm Beach
Sheryl Corey (2010) Assistant Director Advancement, Masters, Purdue University Calumet.


Mohamad Darwish (2012) Technology Specialist


Christine De Nicola (2006) Associate Dir NW IN Health Edu Ctr, MS College Of Mount St. Joseph


Carolyn Dildine (2011) Housing Assignments Coordinator, Bachelor, Purdue University.


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Thomas Dobes (2006) Technology Specialist; Bachelors, Purdue University.

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James Drzewiecki (2012) Head Men’s Soccer Coach BS, Purdue University Calumet


Sharon Duncan (2009) Clinical Assistant Professor-Special Education, PhD, National Louis University.


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.


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Norman Faiola (2011) White Lodging Prof of Hosp &Tourism Mgmt, Ph.D., Syracuse University.


Christine Fiorite (2010) Continuing Lecturer English Language Program, Masters, University of Illinois-Chicago.


Donna Gescheidler (2011) Business Manager; Bachelor’s degree, Calumet College of St. Joseph

Susan Giannini (2011) Recruitment and Outreach Specialist; Bachelor’s degree; Purdue University


Jan Gonzalez (2008) Testing Administrator

Doreen M. Gonzalez-Gaboyan (2007) Academic Project Manager


Patricia Grady (1988) Associate Director of Admissions & Recruitment.

Michelle L. Grant (1999) Director of Academic Space Management, Planning & Design.
B.S., Indiana State University, 1994.

Donald L. Gray (1990) Associate Professor of Electrical Engineering.


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Roy L. Hamilton (1988) Assistant Vice Chancellor for Educational Opportunity Programs and Director of McNair Achievement Program.

Eileen M. Hansen (1988) Assistant Director of Student Accounts.
B.S., Purdue University Calumet, 1985.

Matthew Hanson (2011) Visiting Instructor Master’s degree; Purdue University Calumet


Kemuel Hawkins (2007) Coord/Counselor 21stCentury Scholars Prg, Bachelor’s degree, Purdue University Calumet


Melissa Higgason (2009) Assistant Director, CSTE Final certificate; PUC.


Abbas Hill (2007) Interim Director of Housing and Residential Education, Bachelors, University of Akron.


B.S., DePaul University, 2002. Master’s Degree, Purdue University.

Emily J. Hixon (2001-2003; 2006) Assistant Professor of Education.


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**LaShawn M. Jones** (1996) Assistant Director of Financial Aid, Bachelor, Purdue University Calumet.

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**Debra Irving-Holley** (2003) Associate Professor of Criminal Justice.

**Kimberly A. Ison** (1997) Business Manager A.S., Purdue University Calumet.

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**LaShawn M. Jones** (1996) Assistant Director of Financial Aid, Bachelor, Purdue University Calumet.

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Talaya Legette (2011) McNair Post-Bachelor Achievement Program Coordinator.

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Mark Letcher (2010) Assistant Professor Secondyear English Education. Ph.D. The Ohio State University.


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Timothy Longacre (2010) Supervisor, Networking, Bachelors, Purdue University Calumet.


Timothy A. Loudermilk (2005) Associate Network Administrator. B.S., Purdue University Calumet, 2005.


Aaron Lush (2012) Server Administrator; Bachelor's degree, Indiana University


Jessica Madsen (2011) Visiting Instructor, Masters, Northeastern University.


Maja Marjanovic (2004) Director of Sponsored Programs, Masters, Purdue University Calumet.


Mary McGinnis (2011) Continuing Lecturer English Composition; Master's degree, Indiana State University


Rebecca Medley (2010) Continuing Lecturer, English Composition.


Susan Misner (2011)  Visiting Assistant Professor, Master, University of Illinois Chicago.


David Murchek (2010)  Continuing Lecturer Mathematics, Bachelors, Excelsior College, Master of Science in Mathematics Purdue University.


Katherine Mysliwiec (2007)  Course Management Systems Specialist, Masters, Purdue University.


Kathleen Paciga (2011) Assistant Director Student Accounts; Bachelor’s degree, Indiana State University .


Tiffany Reason (2010) Post Award Manager, Bachelors, Purdue University Calumet.


Victoria Riley-Grant (2011) Budget & Project Coordinator, Masters, Nova Southeastern University.


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Akili Sadiki-Shakur (2007) Assistant Director, Veterans/Student Service Program. B.S., Purdue University Calumet, 2002.

Omar Sahmoudi (2012) Business Manager, International Programs; Bachelor’s degree, Hassan II University.


Eugene Schlossberger (1992) Professor of Philosophy.

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.


Terry Stinnett (2010) Information Access Specialist, Bachelors, Purdue University Calumet.


Pitparnee Stompor (2011) Operations Lab Manager, Bachelors, Purdue University.


FACULTY AND STAFF


Wei-Tsui 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 Trekles (1998) Clinical Assistant Professor, Masters, Purdue University Calumet.


Matthew Van Someren (2011) Visiting Instructor; Master's degree, DePaul University.

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.


Amy Wedding (2010) Career Services Coordinator, Masters, Purdue University Calumet.

Su-Jeong Wee (2009) Assistant Professor of Human Development & Family Studies/Early Childhood.
Ph.D., University of Illinois, 2009.


Marcia L. Wellner Weinhold (2003) Associate Professor, Mathematics Education.


Lynda R. Willer (1992) Associate Professor of Communication.


Sara Witt (2011) Buyer & General Services Manager; Bachelor’s degree, Purdue University


Masters Degree, Purdue University Calumet.


Sarah Yager (2011) Visiting Instructor; Master’s degree, Missouri State University

Shuhui Yang (2009) Assistant Professor of Computer Science.

Xiaoli Yang (2005) Associate Professor.


Jinsong Yu (2009) Post-Doctoral Researcher II.

Mohammad A. Zahraee (1989) Assistant Dean Graduate Studies/Professor of Mechanical Engineering Technology.

Lauren Zajac (2010) Continuing Lecturer English Language Program.
M.F.A., Savannah College of Art and Design.

B.A., Purdue University Calumet, 2002.

Yueqi Zhang (2009) Assistant Professor of Communication.


B.S., Nanjing University, 2004. M.S., Purdue University, 2006.

Hairong Zhao (2005) Associate Professor Computer Science.

Lin Zhao (2007) Assistant Professor MIS.

Chenn Qian Zhou (1994) Interim Associate Vice Chancellor for Research and Graduate Studies.
Professor Mechanical Engineering.

Michael I. Zimmer (2008) Assistant Professor of Biological Sciences.


Samuel Zinach (1998) Associate Professor of Philosophy.

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, 2012. Any additions or changes after that date are not reflected in this list.*
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

Directions to Academic Learning Center

Location
Academic Learning Center
9900 Connecticut Drive
Merrillville, Indiana 46307

Mailing Address
Academic Learning Center
9900 Connecticut Drive
Crown Point, Indiana 46307

From North
■ Take I-65 South to Route 30 West
■ Take US Route 30 West to Broadway Avenue (IND Route 53) — Turn Left
■ Travel South on Broadway Avenue 2.5 miles
■ Turn Left on 98th Avenue
■ Turn Right on Connecticut Drive

From the Northwest
■ Take Indianapolis Boulevard South to Route 30 East—Turn Left
■ Take US Route 30 East to Broadway Avenue (IND Route 53) — Turn Right
■ Travel South on Broadway Ave. 2.5 miles
■ Turn Left on 98th Avenue
■ Turn Right on Connecticut Drive

From South
■ Travel I-65 North
■ Exit #247 (US 231 North)
■ Bear Right on Broadway Avenue (IND Route 53) approximately 3.5 miles
■ Turn Right on 98th Avenue
■ Turn Right on Connecticut Drive

From East
■ Travel West on US Route 30 to Broadway Avenue (IND Route 53) — Turn Left
■ Travel South on Broadway Avenue 2.5 miles
■ Turn Left on 98th Avenue
■ Turn Right on Connecticut Drive
## Calendar 2012-2013

### Fall 2012
- **Mon. Aug. 20**: Fall classes begin
- **Mon. Sept. 3**: Labor Day (no classes)
- **Mon. Oct. 15 & Tues. Oct. 16**: October Break (no classes)
- **Wed. Nov. 21**: Fall Recess (no classes)
- **Mon. Nov. 26**: Classes resume
  - **Sat. Dec. 8**: Classes end
- **Mon. Dec. 10**: Final exams begin
- **Sat. Dec. 15**: Final exams end

### Spring 2013
- **Mon. Jan. 14**: Spring classes begin
- **Mon. Jan. 21**: Martin Luther King Day (no classes)
- **Mon. Mar. 11**: Spring recess begins
- **Mon. Mar. 18**: Classes resume
  - **Sat. May 4**: Classes end
- **Mon. May 6**: Final exams begin
- **Sat. May 11**: Final exams end
- **Sun. May 19**: Commencement

### Summer 2013
- **Mon. May 13**: Summer session I begins
- **Mon. May 27**: Memorial Day (no classes)
- **Mon. June 10**: Summer session II begins
- **Thurs. July 4**: Independence Day (no classes)
- **Mon. July 8**: Summer session III begins
- **Fri. Aug. 2**: Summer sessions end