



Academic Register

T102/0102

2010/2011 Academic Register



Union College Academic Register
Schenectady, NY 12308



Academic Register

2010/2011

UNION
COLLEGE

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The information in this *Academic Register* was prepared as of July 1, 2010. Provisions of this publication are not to be regarded as an irrevocable contract between the student and Union College. The College reserves the right to make changes in its course offerings, degree requirements, regulations and procedures, and fees and expenses as educational and financial considerations require. Updates to the academic sections of this publication are maintained at www.union.edu/Academics/Departments.

Union College does not discriminate on the basis of age, sex, race, color, religious belief, disability, sexual orientation, or national origin. The College's policy of nondiscrimination extends to all areas of college operations, including but not limited to admissions, student aid, athletics, employment, and educational programs. All the rights, privileges, programs, and activities generally accorded to all full-time matriculated students of the College are accorded on a nondiscriminatory basis.

The 2010-11 Calendar

August 2010

6 Fall tuition due

September 2010

4 Residence halls open for First Year Students only
 4-6 First-year student orientation
 5 Residence halls open for returning upperclass students
 6 First-year student advising and schedule adjustments (morning)
 6 Fall term classes begin at 1:50 p.m.; add/drop begins for upperclass students
 6-9 Off-campus and commuter student registration data verification
 13 Last day to add an open course without instructor's written approval; last day to add/drop without a late fee
 20 Last day to drop a course without a "W" and to finalize fall term course schedule
 27 Last day to declare a course "Pass-Fail"

October 2010

11 Winter term prescheduling materials available at Registrar's Office
 11-28 Academic advising for winter term courses; students must consult with their faculty advisors
 15-17 Homecoming and Family Weekend
 29 Graduation application due for Class of 2011
 29-Nov. 4 Winter term prescheduling appointments

November 2010

1 Last day to drop a course with a "W"
 15 Fall term classes end at 12:50 pm; reading period begins at 1:00 p.m.
 17 Reading period ends at 12:00 noon; fall term final exams begin at 1:00 p.m.
 23 Fall term final exam period ends at noon
 24 Residence halls and houses close at noon

December 2010

1 Fall term grades due
 3 Winter tuition due

January 2011

2 Residence halls and houses open at noon
 3 Winter term classes begin; drop/add starts
 3-4 Off-campus and commuter student registration data verification
 7 Last day to add an open course without instructor's written approval; last day to add/drop without a late fee

14 Last day to drop a course without a "W" and to finalize winter course schedule
 21 Last day to declare a course "Pass-Fail"

February 2011

7 Spring term prescheduling materials available
 7-24 Academic advising for spring term courses; students must consult with their faculty advisors
 25-March 3 Spring term prescheduling appointments
 25 Last day to drop a course with a "W"

March 2011

11 Last day of winter term classes
 14-17 Winter term final exams
 18 Residence halls and houses close at noon
 21 Winter term grades due
 27 Residence halls and houses open at noon
 28 Spring term classes begin; drop/add starts
 28-29 Off campus and commuter student registration data verification

April 2011

1 Spring tuition due
 1 Last day to add an open course without instructor's written approval; last day to add/drop without a late fee
 8 Last day to drop a course without a "W" and to finalize spring course schedule
 15 Last day to declare a course "Pass-Fail"

May 2011

2 Fall term prescheduling materials available at Registrar's Office
 2-20 Academic advising for fall term courses; students must consult faculty advisors
 13-14 Steinmetz Symposium and Prize Day
 19-22 Alumni Weekend – ReUnion 2011
 20 Last day to drop a course with a "W"
 23-26 Fall term prescheduling appointments

June 2011

3 Last day of spring term classes
 6-9 Spring term final exams
 10 Residence halls and houses close at 3:00 p.m. for students not involved in Commencement
 12 Commencement
 12 Residence halls and houses close at 6:00 p.m.
 15 Spring term grades due



Union College Mission Statement

Union College, founded in 1795, is a scholarly community dedicated to shaping the future and to understanding the past. Faculty, staff, and administrators welcome diverse and talented students into our community, work closely with them to provide a broad and deep education, and guide them in finding and cultivating their passions. We do this with a wide range of disciplines and interdisciplinary programs in the liberal arts and engineering, as well as academic, athletic, cultural, and social activities, including opportunities to study abroad and to participate in undergraduate research and community service. We develop in our students the analytic and reflective abilities needed to become engaged, innovative, and ethical contributors to an increasingly diverse, global, and technologically complex society.

Adopted by the Faculty on May 23, 2008.

Approved by the Board of Trustees on May 31, 2008.

General Information

Union's Faculty: The student-faculty ratio at Union is 10:1. Ninety-six percent of the teaching faculty holds the doctorate or terminal degree (excluding library staff, some of whom hold faculty rank).

Union's Students: More than 4,800 applicants seek freshman class positions. Exact statistics vary from year to year, but approximately 50 percent of the applicants are in the top decile of their secondary school class. The majority of the College's students are from the Northeast, with about 75 percent from New York and New England; 40 states and territories and 35 other countries also are represented. More than half receive financial aid from the College. About 85 percent of each class completes the degree requirements within five years. About one-third of each graduating class continues directly to graduate or professional school.

Enrollment: Union College enrolls approximately 2100 full-time undergraduates.

Accreditation: Union College is fully accredited by the Middle States Association of Colleges and Secondary Schools, 3624 Market St., Philadelphia, PA 19104, 215-662-5606. The programs in chemistry are certified by the American Chemical Society. The computer, electrical, and mechanical engineering programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET).

The Board of Trustees: The governing body of the College is the Board of Trustees. The Board of Trustees holds title to the property, is responsible for the administration of the College and its funds, and determines the policies under which programs are offered. The chief executive officer is the president, who also serves as chancellor of Union University, comprising Union College, Albany Medical College (1839), Albany Law School (1851), Dudley Observatory (1852), Albany College of Pharmacy (1881), and Union Graduate College (2003). Each institution has its own governing board and is responsible for its own programs. The Board of Governors of the University serves both to advise and to expand the areas of voluntary cooperation.

Alumni: The College's 30,000 alumni are represented by the Alumni Council, which is incorporated under the laws of the State of New York. The council has at least two representatives from each class, possibly more depending on the size of the class. It helps operate the alumni program through a group of standing committees and an executive committee, in conjunction with the Alumni Office. Alumni are welcome on campus every day of the year, with special emphasis on Homecoming and Family Weekend in the fall and ReUnion Weekend in late spring. ReUnions are held officially every five years, although all alumni are invited back to campus every year. Alumni clubs are organized wherever local alumni wish to use such an organization as a center of their college activity. The College's quarterly magazine, *Union College*, is sent to all alumni and to parents of undergraduates.

About Union College

A Brief History

Union College can trace its beginnings to 1779. Several hundred residents of northern New York, certain that Burgoyne's defeat at Saratoga two years before would mean a new nation, began the first popular demand for higher education in America. These residents pursued that dream for 16 years until, in 1795, Union became the first college chartered by the Regents of the State of New York. The first trustees consciously attempted to bring their new college into the mainstream of their world. The very name, Union, carried echoes of the new national union. More immediately and directly, it recognized the fact that the College was an outgrowth of a new sense of community among the several religious and national groups in the local population. Union's founders were determined to avoid the narrow sectarianism characteristic of earlier American colleges; today, Union is one of the oldest nondenominational colleges in the country.

Union did not share the heavily classical bias of most colleges of the day. Its motto ("*Sous les lois de Minerve nous devenons tous freres*," or "We all become brothers under the laws of Minerva") is significantly of French rather than Latin origin. Union was among the first to introduce French on an equal level with Greek and Latin. In the 1820s, when the classical curriculum was the most widely accepted field of study, Union introduced a bachelor's degree with greater emphasis on history, science, modern languages, and mathematics. This liberality of educational vision characterized Union during the early years of the term of Eliphalet Nott, president from 1804 to 1866. Science and technology became important concerns; chemistry was taught before 1809, a degree in scientific studies was added, and in 1845 Union became the first liberal arts college to offer engineering. The College was one of the first to offer work in American history and constitutional government and did pioneer work in the elective system of study.

By about 1830, Union was graduating as many students as any other college in America. Along with Harvard, Yale, and Princeton, it was spoken of as one of the big four. Students came from the South and West as well as the East. Among them were the father of Franklin D. Roosevelt, the grandfather of Winston Churchill, a president of the United States (Chester A. Arthur, Class of 1848), seven cabinet secretaries, 15 United States senators, 91 members of the House of Representatives, 13 governors, 50 important diplomats, more than 200 judges, 40 missionaries, 16 generals, and 90 college presidents, including the first presidents of the University of Illinois, the University of Iowa, the University of Michigan, Vassar College, Smith College, and Elmira College.

Nott's ingenious schemes for financing higher education, including a statewide lottery, also were instrumental in building Union's reputation. Innovations under the leadership of Andrew Van Vranken Raymond, president from 1894 to 1907 include the establishment of a Department of Electrical Engineering and Applied Physics, headed by the "electrical wizard" of the General Electric Company, Charles P. Steinmetz. The new department gave impetus to the development of strong programs in science and technology and attracted attention and applications to the College.

The 20th century brought other changes to Union. In 1970, the College adopted co-education and welcomed the first class of two dozen women transfer students. The group celebrated the 35th anniversary of their graduation at ReUnion 2007. Today, roughly half of Union's students are women. More recently, the College has added programs in Asian Studies, Bioengineering, Film Studies, Nanotechnology, and Neuroscience.

In 2004, the Minervas were inaugurated to broaden the educational experience for students, faculty and staff. Every incoming student is assigned to one of seven Minerva Houses, joining upperclass students, faculty and staff in a house affiliation. Each Minerva, with its own budget and governing council, is a center for intellectual and social activity. Union's fraternities and sororities continue a proud tradition of service. Theme Houses are a popular option for students who seek residential affiliation with others who are committed to themes such as community service, environmental awareness, art, music and language.

The College has done important experimental work in interdepartmental studies, which is reflected in a number of programs that cut across the lines of academic disciplines. Organized interdepartmental majors are offered in numerous areas, and the College has also developed programs that enable students to work toward both a bachelor's degree and an advanced degree. The General Education Curriculum has received national recognition, and the College has an innovative program of Writing Across the Curriculum. Efforts to renew and enhance the College's academic programs and curricula continue to be supported by major foundations.

Presidents of Union College

John Blair Smith	December 9, 1795 - May 1799
Jonathan Edwards Jr.	July 1799 - August 1, 1801
Jonathan Maxcy	September 1802 - July 1804
Eliphalet Nott	August 1804 - January 29, 1866
Laurens Perseus Hickok	March 1, 1866 - June 30, 1868
Charles Augustus Aiken	October 12, 1869 - June 1871
Eliphalet Nott Potter, Class of 1861	Summer of 1871 - July 31, 1884
Harrison Edwin Webster, Class of 1868	Mid-1888 - January 1894
Andrew Van Vranken Raymond, Class of 1875	May 5, 1894 - mid-1907
Charles Alexander Richmond	April 1, 1909 - January 20, 1928
Frank Parker Day	January 20, 1929 - August 10, 1933
Dixon Ryan Fox	July 1, 1934 - January 30, 1945
Carter Davidson	March 1, 1946 - January 31, 1965
Harold Clark Martin	July 1, 1965 - June 30, 1974
Thomas Neville Bonner	July 1, 1974 - August 31, 1978
John Selwyn Morris	August 1, 1979 - August 31, 1990
Roger Harold Hull	September 1, 1990 - June 30, 2005
Stephen Charles Ainlay	July, 1 2006 -

The College Grounds

The Union College campus, officially known as the College Grounds, occupies 100 acres in Schenectady, a city of 60,000 founded by the Dutch in 1661. The Grounds are the College's third home. In 1813, shortly after the College decided to move to the new location, the French architect and landscape planner Joseph Ramée laid out the new campus — the first unified campus plan in America. He designed a great central court, flanked on three sides by buildings and open to the west, with a round pantheon as the focus of the court.

The distinctive Ramée style, with its arches and pilasters in white, remains the dominant motif in Union College architecture. Additions to the campus have included the Science-Engineering Center; Achilles Rink; Frank Bailey Field, an all-weather athletic field; the Morton and Helen Yulman Theater; and the F.W. Olin Center, a high-technology classroom and laboratory building.

Alumni Gymnasium, the Murray and Ruth Reamer Campus Center, and Schaffer Library have received major renovations and expansion, the historic Nott Memorial has been restored to become a display and discussion center, and a \$25 million project revitalized the neighborhood to the immediate west of campus by creating apartment-style housing for 160 students, a community center, and a residence hall for 230 students. Other recent projects have included the Viniar Athletic

Center, home of women's and men's basketball; the Taylor Music Center, a state-of-the art classroom, rehearsal and performance facility; Breazzano Fitness Center in Alumni Gymnasium; the new Center for Bioengineering and Computational Biology; and the dedication of Messa House, one of the seven Minervas made possible by a gift from Frank Messa '73

North of the central campus lie the eight acres of formal gardens and woodland known as Jackson's Garden, begun in the 1830s by Captain Isaac Jackson of the Mathematics Department. Through the garden runs Hans Groot's Kill, the brook that bounds through Union's Grounds in the College song. A durable local legend, never confirmed by historians, holds that the villagers of Schenectady burned a local maiden at the stake there in 1672, and that the ghost of the dead girl has haunted Jackson's Garden ever since.

At the center of the Grounds, on the spot designated by Ramée for his pantheon, stands Union's most unusual building, the distinctive, 16-sided Nott Memorial. Begun in the 1850s and completed in 1875, it has been hailed by architectural historians as an important example of American Victorian architecture and is a National Historic Landmark. Facing the Nott Memorial is Memorial Chapel, built in 1925 as a monument to the Union College graduates who lost their lives in World War I. Along its walls hang portraits of the former presidents of the College.

Also near the center of campus is Schaffer Library, which houses more than 600,000 volumes, 1,600 current periodical subscriptions, together with aperiodicals reading room, faculty studies, and more than 500 individual study spaces. It operates on the open stack plan and offers bibliographic instruction, interlibrary loan, online bibliographic retrieval services, electronic document delivery, and Internet workstations for access to indexes, abstracts, and full-text journals online. Automated circulation of books and other library materials as well as the online catalog are in place. The library has been a depository for federal government documents since 1901. Professional reference service is offered during most of the hours that the library is open. Within the library are several of the College's most prized possessions, including an elephant folio edition of Audubon's *Birds of America*, which the College purchased directly from the artist; the original Ramée drawings for the campus; the Trianon editions of William Blake's works; the first books bought for the library in 1795; and the original College charter.

Flanking the library and connected to it by a curved colonnade are the Humanities and Social Sciences Buildings. The Humanities Building is the home for the Departments of Classics, English, Modern Languages, and Philosophy. In the Social Sciences Building are the Departments of Anthropology, Economics, History, Political Science, and Sociology. After renovation in 2011, the building will be renamed Lippman Hall in honor of Robert Lippman '50 through a gift by his son, Jim '79.

Filling the area in front of the library and between the two classroom buildings is Roger Hull Plaza (named for the former Union president), an open space with benches and flower beds. This campus crossroads was furnished and landscaped in part with gifts from parents of Union College students. It serves as the site for such formal ceremonies as Commencement and for informal meetings and conversation.

The focal point of the Murray and Ruth Reamer Campus Center is a commons area, part of a multi-level atrium looking out over Jackson's Garden. The building also houses an auditorium, a dining hall, food court, a two-level bookstore, and a variety of office and activity rooms for student organizations such as *Concordiensis*, the student newspaper; WRUC, the first radio station to offer regularly scheduled broadcasts; *The Garnet*, the yearbook; the literary magazine, *Idol*; and the student activities office.

Alumni Gymnasium houses Breazzano Fitness Center, made possible by a gift from David Breazzano '78, a spacious facility with an extensive assortment of equipment for cardio fitness and weight training. The building also has an eight-lane swimming pool with seating and a diving area; racquetball/squash courts; and multi-use rooms for dance, aerobics and yoga programs.

Old Chapel, the former chapel and student meeting hall, is still used for many meetings.

The Science and Engineering complex, which includes the Science and Engineering Building, Bailey Hall, Steinmetz Hall and Butterfield Hall, is the home of the Departments of Biological Sciences, Chemistry, Computer Science, Electrical and Computer Engineering, Mathematics, Mechanical Engineering, Physics and Psychology. Mathematics and Psychology are in Bailey Hall, Computer Science

in Steinmetz Hall, and Bioengineering in Butterfield Hall. In this complex, and available for student use, are such research tools as a nuclear magnetic resonance spectrometer, a Pelletron accelerator, X-ray diffraction equipment, a centrifuge, and a scanning electron microscope capable of examining a surface area 200,000 times smaller than what can be seen with a conventional light microscope.

The nearby F.W. Olin Center's interactive computerization capabilities make the building adaptable for use by nearly every academic department and student. The Geology Department is located here, and, in addition to a variety of collaborative computer classrooms and laboratories, the center has a multi-media auditorium and a 20-inch, remote-controlled telescope. In fall 2009, the College began construction of the Peter Irving Wold Center for Science and Engineering, through a gift from John Wold '38. The interdisciplinary Center will serve as a platform for learning, research and innovation and will solidify the College's role as a national leader in the integration of science, engineering and the liberal arts. Slated for completion by winter 2011, the three story 35,000 square foot research and education facility will house space for interdisciplinary programs such as Biochemistry and Environmental Science and Engineering, a high performance computer lab, state-of-the-art laboratories and classrooms, and flexible incubator labs for leading edge interdisciplinary research.

The Arts Building is located in North Colonnade in the former Philosophical Hall, which held the first analytical chemistry laboratory specifically opened for college students. West of the Visual Arts Building is the new Taylor Music Center, completed in 2007. It includes the Fred L. Emerson Auditorium, a performance and teaching space with state-of-the-art recording technology. Surrounding the performance hall are practice rooms, high-tech classrooms and faculty offices.

South College, built in 1814, contains Sorum House, one of the College's Minerva Houses. North College, its counterpart on the other side of Library Field, is the home of Messa House and Wold House. Other residence halls are Davidson and Fox Houses; West College, home for many freshmen; Richmond House; Raymond House; Potter House; College Park Hall; and apartments along Seward Place to the west of campus.

Admissions

The Admissions Committee is concerned with the ability of candidates to profit from and contribute to the academic, intellectual, and extracurricular life of the College.

Three factors are considered in evaluating each application:

- the candidate's record in secondary school, including grades, the quality of courses taken, and rank in class
- the recommendations of the secondary school
- the personal qualities and extracurricular record of the applicant

The Admissions Committee attempts to broaden geographic and socioeconomic distribution in the student body by giving preference to students who live or attend schools in regions not well represented in the College and to students who will broaden the range of backgrounds and lifestyles within the College community.

The candidate's potential contribution to the Union community is also taken into consideration. Union is a close-knit community and, as such, depends heavily upon the constructive participation of each individual in the life of the College.

Application and Admission Procedures

Applications should be filed by Jan. 15 of the final year in secondary school, with the exception of applications to the Law and Public Policy program which must be filed no later than Jan. 1. Applications to the Leadership in Medicine program are due by Dec. 1. The Admissions Committee announces its decisions before April 15.

Applications for admission to Union's four-year undergraduate program must be accompanied by a non-refundable \$50 application fee. Applications submitted on-line have no fee. Admitted candidates must reserve places by paying the \$500 admissions and security deposit on or before May 1. The admitted applicant then becomes a degree candidate entitled to a place in the class with all the rights and privileges of a Union student. Reservations submitted without the deposit are considered incomplete. If the degree candidate withdraws for any reason or is removed from candidacy for the degree before successfully completing three terms at Union, the admissions and security deposit is retained by the College in consideration of the degree candidate's placement in the class. After the student successfully completes three terms, if all obligations of the student to the College, financial and otherwise, are satisfied, the deposit may be refunded upon withdrawal (within the specified guidelines), removal, or graduation.

Requirements for Admissions: The Admissions Committee will carefully consider applications from candidates whose preparation is unusual and who, for good reason, do not meet the norms as stated below. Normally, a minimum of 16 units (courses) of secondary school preparation are required for admission. These should include certain fundamentals such as English, a foreign language, mathematics, social studies, and science. The following units are prescribed:

For Liberal Arts: Students should have four years of English, at least two years of a foreign language, and a minimum of two and one-half years of college preparatory mathematics. Students planning to major in chemistry, physics, and mathematics should have at least three and one-half years of mathematics.

For Engineering: Students planning to complete the engineering curriculum should have elementary and intermediate algebra, geometry, trigonometry, chemistry, physics, and four years of English. Although more advanced mathematics work is not required, it will prove helpful.

For the Leadership in Medicine Program: Students applying for the accelerated B.S./M.S. or M.B.A./M.D. program sponsored by Union College, Union Graduate College, and Albany Medical College must present at least four years of English, one year each of biology, chemistry, and physics, and at least three years of college preparatory mathematics.

Interviews and Group Information Sessions: Interviews are strongly recommended. Appointments should be made two weeks in advance of the proposed visit by calling (518) 388-6112 or 888-843-6688. To arrange for an interview off campus with an alumnus/a, go to www.union.edu/alumniinterview from August 1 - December 1. Personal interviews are offered on weekdays from May 1 to Jan 15. All interviews must be scheduled by Dec. 15. Group information sessions are held during the summer and on selected Saturdays in the fall. Student-guided tours are available in conjunction with interviews and group information sessions. Transfers may visit at any time. Contact the Admissions Office for daily schedules or check www.union.edu/Admissions.

School Reports and Recommendations: The secondary school report form, requesting a recommendation from the guidance counselor and a transcript of the academic record, is part of the application. The transcript should include a listing of the courses in progress as well as completed courses. A report of mid-year grades is required. The Admissions Committee requires that each candidate request a letter of recommendation from one of his or her secondary school teachers. The recommendation is confidential and should be sent directly to the Admissions Office by the teacher. All materials must be on file with the Admissions Office by Feb. 1.

College Entrance Examinations: Standardized testing is optional for most applicants. The SAT I and two SAT II exams (in mathematics and a science) or the ACT are required of those applicants considering the Leadership in Medicine program. For the Law and Public Policy program, applicants must submit either the SAT I or the ACT. The December date is the last available to applicants to Leadership in Medicine or the Law and Public Policy program. Testing is also required for U.S. residents for whom English is not a first language; the TOEFL, ACT or SAT I fulfill that requirement. Applicants must arrange to have official score reports sent to the College by the College Board or by the American College Testing Program. Under terms of its membership in these organizations, the College cannot honor reports sent by the candidate or secondary school.

Early Decision: A significant number of Union's applicants request Early Decision. The College recommends this program to all candidates who have decided that Union is their first choice college. A candidate wishing to be considered for Early Decision must check the appropriate space on the application for admission. An early decision application carries with it the commitment that the candidate will enroll if admitted. Regular applications to other colleges may be filed, with the understanding that these will be withdrawn if the candidate is accepted on an early to Union.

Applications and requests for Early Decision must be received by the College by Nov. 15 for Option I or Jan. 15 for Option II. All other forms and credentials, including the early decision statement of intent, must also be received by Nov. 15 or Jan. 15, respectively. Early decision candidates will be notified of the decision by Dec. 15 for Option I and Feb. 1 for Option II. Candidates not offered admission under the Early Decision Program may either be issued a denial of admission or may be deferred to the regular applicant group and reconsidered in the spring.

Early Admission: In recent years a number of high school students have expressed an interest in accelerated completion of high school requirements and early admission to the College. The Admissions Committee will consider candidates for early admission providing that, on the basis of high school achievement, they have demonstrated the potential to do college-level work. Interviews are required of candidates requesting early admission.

International Students

Students living abroad should inquire about admission as early in the year as possible, since much time is involved in correspondence and procuring records. Limited financial aid is available to non-U.S. citizens. Union expects international applicants to be able to contribute a minimum of \$5,000 (US) each year toward the cost of attending. All aid is determined by the College's evaluation of a family's financial contribution. To apply for aid, non-U.S. citizens must include a complete copy of the International CSS Profile and International Certification of Finances with their application. This form is due no later than Jan. 15. The form is available from the Admissions Office (admissions@union.edu). Canadian citizens are required to file the PROFILE form with the appropriate agency before Feb. 1.

All students from abroad must be proficient in reading, listening, writing, and speaking English because English is the language of instruction at Union. The Admissions Committee requires that all international students (for whom English is not the first language) submit the results of the Test of English as a Foreign Language (TOEFL) or IELTS examination for consideration in the application procedure. All non-U.S. citizens must complete the International Students' Certification of Finances upon application.

Transfer Students

Union welcomes the applications of students wishing to transfer from other two-year and four-year colleges. In making its decisions, the Admissions Office considers college work completed and the recommendations of appropriate officials at the college presently attended. Students should arrange for transcripts of all college work, a secondary school transcript and recommendations to be sent to the Admissions Office. An interview is recommended. To facilitate the transfer process, Union has an affiliation with several community colleges in New York State.

Financial aid for transfer students depends on the economic need of the student, the academic and extracurricular promise demonstrated. Candidates for financial aid must submit the College Scholarship Service's PROFILE Form and the FAFSA (Free Application for Federal Student Aid) Form to their respective processing agencies by the application deadline.

The admissions process for transfer students follows a separate timetable. For admission to the fall term, transfer applicants must submit their completed applications by May 1. For entry into the winter term, the deadline is Oct. 1; into the spring term, the applicable date is Feb. 1. All applicants are notified of admissions decision on a rolling basis. Admission for spring and winter terms is on a space available basis only.

Visiting Students

Occasionally, non-matriculated students, who have begun their college education elsewhere, may wish to attend the College on a full-time basis. These students are considered visiting students. They may take courses full-time at the College for a maximum of two trimesters, at which time they must apply for transfer admission and be admitted to the College before continuing their studies. High school students who wish to take a course or courses at Union should inquire about that possibility at the Admissions Office.

Admissions Timetable

Application: Must be filed by Jan. 15 of the candidate's senior year. Applications for the Law and Public Policy program must be filed by Jan. 1. The deadline for the Leadership in Medicine program is Dec. 1. Transfer applications should be filed by May 1 for fall term, Oct. 1 for winter term, and Feb. 1 for spring term.

School Transcripts: Secondary School Report forms are included in the Common Application and should be completed and filed by school authorities by Feb. 1. Updated transcripts should be requested from the schools at the mid-year and in June.

Entrance Examinations: Standardized testing is optional for most applicants. If the candidate submits testing, the SAT I and SAT II Tests or the ACT must be completed by January of the senior year (by December for accelerated programs).

Interviews: Individual interviews are strongly recommended and must be completed by the middle of January. December 15 is the last day to schedule an interview.

Financial Aid Applicants: Applicants must file the College Scholarship Service's PROFILE Form and the Free Application for Federal Student Aid (FAFSA) with the appropriate agencies no later than Feb. 1. Citizens of other countries file the International CSS Profile.

Admissions and Financial Aid Decisions: Will be announced before April 15.

Candidate Reply Date: Accepted candidates will be expected to reserve places in the first-year class by May 1.

Early Decision: Two options are available. Applications and credentials received by Nov. 15 will be considered under Option I; decisions will be announced by Dec. 15. Option II provides for receipt of applications and credentials by Jan. 15; decisions will be announced by Feb. 1. By applying Early Decision, the student undertakes a commitment to attend Union College if admitted.

Admissions Office Hours: Weekdays, 8:30 a.m. to 4:30 p.m. Selected Saturdays, 10 a.m. to 2 p.m., July through November.

Guided Campus Tours: Weekdays from the Admissions Office 10:30 a.m., 12:30, 1:30 and 3:30 p.m. Selected Saturday tours, July through November.

Costs

The costs included in this *Academic Register* are those in effect at the time of publication. They are subject to change by action of the Union College Board of Trustees. Tuition and fees paid by students cover about 70 percent of the instructional and operating costs of the College. The difference is met by income from endowment and contributions from individuals and organizations that recognize the opportunities offered by Union College.

Comprehensive Fee: The comprehensive fee, which includes tuition, room, board, and fees for all full-time undergraduate programs for the year 2010-11, is \$52,329. A year's tuition allows students to register for three terms, taking three courses per trimester. This amount will be billed in three equal installments, payable on receipt of the bill for each term, in advance of registration. All full-time undergraduate students are expected to register for three courses per trimester. All continuing matriculated (full-time) students must register for at least three courses in every trimester prior to graduation. Last-term seniors will be permitted to register for only two courses; however, payment for full tuition is still required.

Additional Courses / Fourth Courses: Full-time undergraduate students who are required to pay for additional courses above the normal course load will be charged \$3,075 per course in 2010-11. Please see "Academic Policies, Fourth Courses" for policies regarding enrollment charges for fourth courses. Refer to "Academic Policies, Fourth Courses" for policies regarding enrollment and applicable charges for fourth courses.

Part-time and non-degree course fees: All students in the part-time undergraduate program, both matriculated and non-degree, will be charged \$4,619 per course.

Food Services: All resident students are required to be on one of the following meal plans: 19 meals per week plus \$125 declining balance, 15 meals per week plus \$200 declining balance, 12 meals per week plus \$235 declining balance, 10 meals per week plus \$265 declining balance, 7 meals per week plus \$300 declining balance, or 5 meals per week plus \$325 declining balance. All freshmen are required to be on the 19-meal plan. Upperclass students may choose any of the meal plans offered. Each meal plan includes declining balance credit per term. Full time undergraduate students living off campus may elect the declining balance meal plan, which includes \$200 per term, for a total of \$600 per year. Students who choose this meal plan will receive a rebate on their student bill equal to \$1,147 per term, for a total of \$3,441 per year.

Credit left on the student's declining balance at the end of the fall or winter term will be credited to the following term. Because the meal plans are exempt from New York State sales tax, any credit remaining at the end of the spring term will be forfeited. Students have the option of adding to their declining balance in increments of \$25. The declining balance credit can be used in any of the College's dining service facilities:

Dutch Hollow Restaurant - open seven days a week for hot fresh baked goods, lunches, late afternoon snacks, New York-style deli sandwiches, pizza, grilled items, and dinner. Cash or Declining Balance cards are accepted. Monday through Thursday, 7:30 a.m. to midnight; Friday, 7:30 a.m. to 10 p.m.; Saturday, 10 a.m.-10 p.m.; Sunday, 10 a.m. to midnight.

Rathskellar - operates Monday through Friday from 11 a.m. to 7:30 p.m., and for "Late Night" on Friday and Saturday, from 9 p.m. to 1 a.m. Declining Balance cards will be honored any time for all items including the purchase of prepackaged snacks or deli items.

Upperclass Dining Hall - serves a variety of full entrees, deli items, salads, and grilled selections. It is open Monday through Friday, 11 a.m. to 2 p.m., for lunch, and for evening meals from 5 to 7:30 p.m. It features "all-you-can-eat" format and is open to upperclass students on the meal plan and any others who choose to purchase fixed-price meals. Entrance may be obtained by using the meal plan, cash, or Declining Balance credit.

West College Dining Hall - operates seven days per week and serves a full breakfast, lunch, and dinner with unlimited servings, Monday through Friday, and brunch and dinner on Saturday and Sunday. West College Dining is open Monday to Thursday 7:30 to 10 a.m. for breakfast, 11 a.m. to 2 p.m. for lunch, and 4:30 to 7 p.m. for dinner. West College is open only for breakfast and lunch on Fridays. Weekend hours are 10 a.m. to 2 p.m. for brunch and 4:30 to 7 p.m. for dinner.

All students will receive a declining balance card, which has the cardholder's picture for identification and a magnetic strip to track the student's cash and meal balance. Students wishing to purchase additional credit may do so in the Dining Service Office. The card is non-transferable and alterations or misuse can result in disciplinary action. Lost cards should be reported to the Campus Safety Office immediately. Replacement charges are \$25.

Any board student requiring a special diet must comply with the following procedures:

1. A letter from the student's physician must be submitted detailing the specific diet, the reason for the diet, and the expected duration of the diet.
2. A copy of the diet must be sent to Health Service.
3. A follow-up letter from the student's physician must be sent at the end of each term stating the results of the diet and whatever changes, if necessary, must be made in that diet.

Union College holds a club New York State liquor license. The laws governing the locations, sale, and consumption of alcohol on or off campus by student groups or organizations using the dining services will be strictly enforced. Temporary beer and wine permits are necessary for any group wishing to sell beer or wine or charge admission at a social function where beer and wine are being served. Such permits are available through the local A.B.C. Board.

College Housing: Union is a residential college, and all students are expected to live on campus during the course of their undergraduate years, provided housing is available. Each year, prior to the spring housing lottery, the Office of Residence Life will publish guidelines for requesting permission to live off campus. Students living off campus will receive a rebate of \$1,598 per term, for a total of \$4,794 per year. Students who are married or who commute can be exempted from the on-campus requirement. (There are no housing facilities for married students.) Once the residence contract is signed, the student is bound to all College policies as outlined in this *Academic Register*, the College's *Student Handbook*, and the terms and conditions of the residence hall contract.

All residence hall rooms are provided with a single telephone connection and an individual network connection for each occupant. Telephone service that is provided with no connection or service charges includes dial tone for touch tone service; campus and local calling; and custom calling features. The phones for the rooms are provided by the residents. Long distance calling can be provided by the College using personal authorization codes obtainable through the Telecommunications Office, or by other long distance carriers using a calling card. The 100Mbit/second Ethernet network connection provides access to the computers run by the Office of Information Technology Services and to the Internet.

Bookstore Charges: Students may open a charge account at the Bookstore at any time, with a parent as co-signer on the account agreement. These charges will be included on the student account bill. Students with financial holds will have their Bookstore account closed until the balance is satisfied. The Bookstore also accepts cash, checks, and major credit cards as payment.

Student Health Insurance: All full-time undergraduate students are required to be covered by health insurance that meets the minimum requirements established by the College. Students who are covered by their parents'/responsible party's insurance may waive enrollment in the College plan by completing the online waiver at www.gallagherkoster.com and by submitting proof of alternate coverage to the Office of Student Accounts. Students will be enrolled for insurance provided through the College and charged accordingly if the online waiver and submission of insurance information is not completed. The waiver is only valid for the current year, therefore it must be completed annually. The deadline to waive for 2010/11 is August 6 and is the only means students have of avoiding compulsory enrollment under the College-sponsored plan.

Withdrawal Deadlines, Refunds, and Obligations

Planning requirements and financial commitments of the College require strict adherence to the following policies and deadlines regarding withdrawal, refunds, and payment of obligations. Students and parents are expected to acquaint themselves with these regulations and to make decisions with the deadlines and policies clearly in mind.

Withdrawal from a course: If a student drops or withdraws from a course for any reason and as a result takes less than a full course load for the term, tuition will not be prorated for that particular term.

Withdrawal from the College:

1. All students who intend to withdraw from Union must notify the Dean of Students Office in writing.
2. No withdrawal, or leave of absence, or cancellation of registration or reservations is official except by written notice to the Dean of Students. Neither failure to preregister or register, nonpayment of the term bill, nor a request for a transcript constitutes official notice. Requests for deadline extensions should be made in writing, before the deadline, to the Dean of Students.

3. Notification to the Dean of Students must occur by July 1 preceding an upcoming academic year of the intent to withdraw for a term during that year. Failure to inform the College of the intention to withdraw by July 1 will result in a \$200 withdrawal fee. Exceptions may be made in cases of illness or emergency and for seniors requiring fewer than three courses for graduation and electing to withdraw during the winter term and return for the spring term. Notification of the intent to exercise the latter option must be made in writing to the Dean of Students before the due date of winter term bills.

Additional Charges and Refunds for Withdrawal After the Due Date of Term Bills or During a Term: Students who do not register, or who withdraw or otherwise fail to complete an enrollment period, will be charged on a prorated basis according to the schedule below. Refunds are a percentage of the comprehensive fee less any rebates, based on the date of the student's last day of attendance (separation) as reported by the Dean of Students. Students who withdraw from all three courses for documented medical reasons after the fourth week will not receive a refund. However, they will be eligible to make up these classes without additional tuition charge by either taking fourth courses during the Academic year or by completing an additional term should one be required at the end of four years.

The refund percentage is as follows:

Withdrawal during first and second week:	75%
Withdrawal during third week:	50%
Withdrawal during fourth week:	25%
Withdrawal after end of fourth week:	No refund

Refunds will be credited in the following order: Federal Stafford Loans; Federal Supplemental Loan to Students (SLS); Federal PLUS Loans; Federal Perkins Loans; Federal Pell Grant program; Federal Supplemental Educational Opportunity Grant program; other Title IV funds; non-Title IV funds; any remaining credit balance to the student.

Each withdrawing student will be charged a \$200 fee that is not subject to refunding. Other fees not subject to a refund include health service fees; health insurance; late payment fee; security fines; late registration fee; telephone charges; and declining balance.

Students will not be entitled to any portion of a refund until all Title IV programs are credited and all outstanding charges have been paid.

Registration: All financial obligations must be satisfied before prescheduling. This includes the receipt of funds from student loans and scholarships from sources outside of Union College.

General Financial Obligations: Diplomas and transcripts will be withheld from a student who has not met all of his or her financial obligations to the College. Failure to satisfy financial obligations may result in suspension from the College and the account being sent to an agency for collection, where the student is responsible for collection fees assessed. To return to Union, the student must apply to the dean of students for readmission. Payment of the outstanding tuition balance plus the full amount of the next term's bill will be required before the student is accepted.

Fees

Admission and Security Deposit — \$500

- \$250 will be applied to the orientation program
- \$250 deposit is retained until graduation or withdrawal. If the student does not attend Union, this \$250 deposit is forfeited.

Application Fees (nonrefundable)

- Four-Year Undergraduate — \$50
- Accelerated Programs and Leadership in Medicine — \$50

Collection Fee

- \$10-\$25 (a fee of \$10 for the first check, \$15 for the second check, and \$25 for the third check will be charged for each check returned for insufficient funds.)

International Programs

- Includes tuition, room, board, and group excursions, but excludes transportation. Deposits are required for these programs to reserve a place in the group. Exchanges are billed the comprehensive fee, and all other programs are billed the comprehensive fee plus a \$600 International Program fee.

Late Fees

- \$100 (assessed for failure to pay bills or check-in on schedule, make-up, or special examination, term examination).

Student Activity Fee

- Included in the Comprehensive Fee (allocated to student organizations/committees by the student government. Payment is required of all full-time matriculated undergraduate students)

Financial Aid

Union College has a long-standing history of enrolling students who have an outstanding record of personal and academic achievement with a strong commitment to excellence. Since not all qualified students have the financial resources required to attend the College, we have a very comprehensive financial aid program designed to make a Union education an affordable option for all undergraduate students.

Although the College offers some merit awards to recognize the outstanding accomplishments of applicants, the majority of aid resources are awarded based on demonstrated financial need as measured through both the Free Application for Federal Student Aid (FAFSA) and the CSS Profile. All candidates for admission are automatically considered for merit awards. There are no separate applications required.

Applying for Financial Aid

Prospective students who would like to be considered for need-based financial aid must indicate on their admissions application their desire to apply for aid and submit both the Free Application for Federal Student Aid (FAFSA) at www.fafsa.ed.gov and the CSS Profile at www.collegeboard.com by February 1. In addition, if the parents of the dependent student are separated and/or divorced, the noncustodial parent must also submit the CSS Non-Custodial Profile. If the parent of the dependent student owns a business and/or farm, they must also complete the CSS Business/Farm Supplement. All forms are available on the College Board web site.

Continuing students must complete the current year FAFSA and Profile and submit all verification documents to the aid office by April 15th. A listing of the required verification documents is provided on the financial aid web site.

Aid Awards

Generally awards consist of a combination of scholarships, grants, loans, and part-time employment. In determining the aid award, Union typically includes a part-time job ranging from \$1,500 to \$1,800 as well as some minimal amount of loan. The balance of the award consists of scholarship assistance. The College attempts to meet the full demonstrated need of all of our applicants. Since needs change from year to year, students must submit applications each year to determine their award eligibility.

Initial aid awards will be offered based on the information provided on both the FAFSA and Profile. All enrolling students will be required to submit copies of previous year's tax returns to verify the awards that have been offered. Awards may be adjusted when there are differences between FAFSA/Profile estimates and actual figures. If a student receives outside scholarship awards, he or she must notify the financial aid office. If federal need has not been fully met or a student is receiving only merit awards, he or she may be able to keep the outside award in addition to our financial aid offer. If federal need is fully met, the College will reduce the loan or work portion of the package first. For questions about how the award may affect an aid package, please contact the financial aid office.

Disbursement of Aid

Financial aid awards will be disbursed to a student's account provided that the award has been income verified and all required documents have been completed online or submitted directly to the aid or finance office. Typically the aid will be disbursed at the beginning of each term and subsequent disbursements will occur on a weekly basis.

Annual Renewals

Since family circumstances change from year to year, need is re-evaluated annually. Continuing students will receive a reminder via email from the Department of Education for the renewal of their FAFSA application. In addition, the Financial Aid office will provide detailed information on its web site regarding the renewal application process. The deadline for continuing students is April 15th. The College will begin mailing renewal aid awards in May for all completed applications. Please note that all students are eligible to receive a maximum of 12 terms of financial assistance.

If a student is receiving only a merit award the scholarship will automatically be renewed in subsequent years provided the student is enrolled as a full-time undergraduate at Union College. Students who are enrolled in the Leadership in Medicine Program and/or the 6-Year Law Program are not eligible to receive merit and/or need-based aid from Union College once they have officially enrolled at Albany Medical College or Albany Law School.

Refunds

In some cases the total amount of financial aid will exceed the amount of the bill. This most often occurs for students living off-campus. If a credit balance exists on a student account, he or she may elect to leave the surplus to be used for a future term or request a refund from the Finance office. Please note that refunds can be issued only on amounts that have been credited to the account.

Satisfactory Academic Progress

There are no minimum grade point average requirements for the renewal of Union College scholarship awards. However, if a student is receiving federal and/or New York State awards, he or she must meet satisfactory progress guidelines described in the sections that follow.

Academic Eligibility for Federal Title IV Programs

To remain eligible for Title IV federal student aid, a student must earn a specified number of credit hours and maintain a minimum grade point average each year. The requirements are noted in the chart below:

Federal Title IV Satisfactory Academic Progress

Terms	3	6	9	12	15	18
Credit Hours	6	12	18	24	30	36
GPA	1.65	1.80	1.80	1.80	1.80	1.80

If a student fails to maintain the minimum credit hours and/or achieve the required grade point average, he or she will be placed on federal financial aid probation and will have one academic year in which to earn sufficient credits or achieve the required grade point average before losing federal aid eligibility.

Students who are denied federal aid due to lack of satisfactory academic progress may appeal through the Office of Financial Aid.

New York State – Satisfactory Academic Progress

To maintain eligibility for New York State financial assistance, you must earn a certain number of credit hours each semester and maintain a minimum grade point average. The requirements are outlined in the chart below:

New York State: Academic Eligibility Requirements

Payment:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Credit hours:	0	1	2	3	5	7	10	12	15	18	21	24	27	30	33
GPA:	0	1.0	1.1	1.2	1.25	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

A student must also achieve what is referred to as “satisfactory program pursuit.” This is defined as completing, with either a passing or a failing grade, a certain percentage of a full-time course load in each term for which an award is received. The percentage is 50 percent of the minimum full-time course load in each term of study during the first year in which an award is received; 75 percent of the full-time course load in each term of study in the second year for which an award is received; and 100 percent of the minimum full-time course load in each term thereafter.

Student Rights and Responsibilities

A student has the right to know and understand all aspects of the financial aid process and programs that are administered through the Union College Financial Aid Office. Questions may be directed to the staff of the Office of Financial Aid. For example:

- What financial assistance is available, including information on all federal, state, and Union College aid programs?
- What are the specific deadlines for submitting applications for each of the various aid programs?
- What is Union’s cost of attendance and what is our policy with regard to making refunds to students who leave the College?
- What criteria does Union use to determine which students are eligible to receive aid?
- How does the College determine financial need, including how costs for tuition, fees, room and board, travel, books and supplies are considered in the calculated budget?

- What resources (such as parental contribution, other aid resources, assets, etc.) are considered in the calculation of need?
- How much of financial need as determined by the College has been met?
- What do each of the types of aid included in a package mean?
- What portion of an aid award must be repaid and what portion represents gift aid? If any portion of a package includes a loan, the student has the right to know the interest rate, the total amount that must be repaid, the payback procedures, the total time to repay the loan, and when the repayment is to begin.

Along with these rights, students also have responsibilities which include:

- Review and consider all information about a school’s financial aid program and specifically, the financial aid award, before enrollment.
- Complete financial aid applications accurately and within the established deadlines. Errors may result in a delay the processing of an application. Intentional misreporting of information on application forms for federal aid is a federal violation and is subject to penalties under the U.S. Criminal Code.
- Return all additional documentation, verification, corrections, or other requests from the financial aid office or by agencies to which a student has submitted applications.
- Read and understand and accept responsibility for all of the forms. Keep copies for records.
- Notify a lender of any change in name, address, or school enrollment status.
- Perform in an acceptable manner, the work that is agreed upon when accepting employment through the Federal Work-Study Program.

Financial Aid Programs

Federal Aid

Students must file the Free Application for Federal Student Aid (FAFSA) in order to be considered for any of the federal programs (grants, loans, and work study). Based on the FAFSA, the Financial Aid Office reviews eligibility and makes awards within program guidelines and formulas (as always, subject to available funds).

Grants

Pell Grant: These grants, varying from \$555 to \$5,550, are awarded to the neediest students (based on a federal calculation).

Federal Supplementary Educational Grant Program (FSEOG): These additional grants are awarded to Pell Grant recipients.

Academic Competitiveness Grant (ACG): This grant is available to Pell eligible students who are enrolled full time in their first or second academic year and have graduated from a rigorous high school program of study.

National Science and Mathematics Access to Retain Talent Grant (SMART): This grant is available to Pell eligible students who are enrolled full time in their third or fourth academic year, majoring in science, mathematics, technology, engineering, or critical foreign languages and maintain a minimum grade point average of 3.0.

Work Study

Federal Work-Study Program: Students work in part-time jobs on campus and can earn up to the amount indicated on the award letter. This is a federally subsidized program administered by the College and offered to students as part of their aid package. Preference for jobs is given to students based on financial need.

Loans

Federal Perkins Loan Program: A need-based loan program administered by the college, with a fixed interest rate of 5%. Repayment begins nine months after completion of studies or leaving college and may extend up to ten years.

Federal Direct Subsidized Stafford Loan Program: A need-based student loan with a fixed interest rate (4.5% effective July 1, 2010). Loan maximum amounts are \$3,500 (freshmen), \$4,500 (sophomores), \$5,500 (juniors and seniors) with a maximum cumulative total of \$23,000. Both principal and interest are deferred while the student is enrolled at least half time. Repayment begins six months after completion of studies or leaving college and may extend up to ten years. Stafford Loans are subject to a 1.5% origination fee. However, an upfront interest rebate of 1% is offered for borrowers as a repayment incentive. In order to preserve the rebate, a borrower must make their first twelve monthly payments on time.

Federal Direct Unsubsidized Stafford Loan: Students who do not qualify for all or part of the subsidized Stafford Loan may qualify for an unsubsidized Stafford loan. The interest rate is fixed at 6.8%. Accrual of interest begins at time of disbursement (or the student can choose to pay the interest while still in school). For dependent undergraduate students, the annual loan limits include amounts borrowed under a Federal Direct Stafford Subsidized Loan (i.e. freshmen \$3,500; sophomores \$4,500; juniors and seniors \$5,500). Dependent undergraduates may borrow an additional \$2,000. Undergraduates who are independent according to the federal guidelines or whose parents are ineligible for a Federal Direct PLUS Loan may borrow up to an additional \$6,000 (for freshmen and sophomores) and \$7,000 (for juniors and seniors). The loan fees described above apply to the Unsubsidized Stafford Loan as well.

Federal Direct Parent Loan for Undergraduate Students (PLUS): If creditworthy, parents of undergraduate students may be eligible to borrow up to the cost of attending Union (minus other financial aid accepted). The PLUS loan has a fixed interest rate of 7.9% and repayment begins 60 days after the funds are fully disbursed. The parent borrower does have the option to defer payments on the PLUS loan until the student's six month grace period ends. PLUS loans are subject to a 4% origination fee. However, an upfront rebate of 1.0% is offered for borrowers as a repayment incentive. In order to preserve the rebate, a borrower must make their first twelve monthly payments on time. Information on the application process is available on our web site or from the Financial Aid Office.

Other Programs

Veterans Administration (VA) Benefits: Many programs of educational assistance benefits are available to those who have served in the active military, naval, or air service and their dependents. Program benefits vary with dates and length of service. Detailed information on all veterans' benefits and assistance in applying for benefits can be obtained from offices of the Veterans Administration in each state.

State of New York Aid

New York offers a number of financial aid programs to residents. The Tuition Assistance Program (TAP) and Higher Education Opportunity Program (HEOP) are described below. In addition, the state offers other special programs including the following for which details and application information are available at New York State Higher Education Services Corporation (HESC), 99 Washington Avenue, Albany, NY 12255 as well as www.hesc.com:

- Memorial Scholarship for Families of Deceased Firefighters, Volunteer Firefighters, Police Officers, Peace Officers and Emergency Medical Service Workers
- New York State Volunteer Recruitment Service Scholarship
- New York State World Trade Center Memorial Scholarship
- Regents Awards for Children of Deceased or Disabled Veterans
- Regents Health Care Scholarship

- Regents Professional Opportunity Scholarships
- Robert C. Byrd Honor Scholarships
- Scholarship for Academic Excellence
- State Aid to Native Americans
- Veterans Tuition Award

Tuition Assistance Program (TAP): Awards range from \$500 to \$5,000 annually and eligibility is based on New York State family net taxable income. Applicants must apply each year to the New York State Higher Education Services Corp., 99 Washington Ave., Albany, N.Y. 12255. In addition to meeting the income eligibility guidelines, TAP recipients must continue to meet the satisfactory academic progress and program pursuit requirements as described in the N.Y.S. Academic Eligibility section. Students who fail to meet the minimum successful completion of coursework and grade point average requirements, may lose their eligibility for TAP for the following term or until they meet the minimum requirements. Students must also be enrolled full time to qualify for New York State awards. Students withdrawing from all courses in a particular term will be ineligible for the next term. More information is available under the section "New York State Satisfactory Academic Progress".

Higher Education Opportunity Program: To qualify for this program a student must be a N.Y. State resident attending a N.Y. college or university, and be economically and educationally disadvantaged. Need is met through a combination of state, federal, and institutional funds. In addition to the financial component, the program offers support services such as counseling and tutoring. There is not a separate application required for this program.

Other State Aid

Students who are residents of certain states may be eligible to receive grant assistance from their state applicable to their costs at Union. Contact the appropriate state agency listed for further information and applications:

- Delaware Postsecondary Education Commission, 820 French St., 4th Floor, Wilmington, Delaware 19801; (302) 571-3240; www.doe.state.de.us
- Rhode Island Higher Education Assistance Authority, 274 Weybosset St., Providence, Rhode Island 02903; (401) 277-2050; www.riheaa.org
- Vermont Student Assistance Corp., Champlain Mill, P.O. Box 2000, Winooski, Vermont 05404; (802) 655-9602; www.vsac.org
- Department of Human Services Office of Postsecondary Education Research & Assistance, 1331 H. St. N.W., Suite 600, Washington, D.C. 20005; (202) 727-3688; www.ed.gov

Institutional Aid

Scholarships

Including all of the College's endowed and annual scholarships, this is by far the largest single source of assistance available to our students. Most of the scholarship money offered is based on need as determined by the FAFSA and PROFILE forms. Union does offer some merit awards ranging from \$7,000 to \$13,000 per year. It is not necessary to complete a separate application to qualify for a merit scholarship.

Loans

These college funded loans normally range from \$1000 to \$5000 and have a fixed interest rate of 8%. The interest does not accumulate while the student is enrolled and repayment begins 6 months after the student has graduated or leaves school. These loans are generally based on need and the standard application procedures apply. Repayment can be deferred for graduate school.

Student Life

Residential Life: The College's student residences include seven halls with traditional, suite and apartment style housing. The newest facility, College Park Hall (upperclass), opened in the fall of 2004. Other residence halls are Davidson (first-year) and Fox (upperclass) Houses; West College (first-year); College Park Apartments (upperclass); Richmond House (first-year); and Webster House (focused study). Focused-Study Housing, incorporating a 24-hour quiet consideration is available to all students. Upperclass students also are eligible to live in Minerva Houses, Greek Housing or Theme Houses.

College Residences

Minerva Houses (2004) – Seven houses make up the student-run Minerva House System (see About Union College section for more on the Minerva System). Up to 45 students live in each of these houses: Beuth House, Golub House, Sorum House, Wold House, Messa House, Green House, and Breazzano House.

College Park (1999) — The College Park neighborhood adjacent to campus offers apartment-style housing for 160 students, including numerous theme houses. Our newest facility is College Park Hall, which opened in the fall of 2004, and houses 260 upperclass students.

Davidson Hall (1968) — Named for Carter Davidson, 13th president of the College (1946-1965). Houses first-year men and women in suites and men in double rooms on the garden level. Also the home of the Sigma Phi Society and the Alpha Epsilon Pi fraternity.

Edwards House (1948) — Named after theologian Jonathan Edwards, Jr., second president of Union College (1799-1801). Houses Theta Delta Chi fraternity.

Fox Hall (1968) — Named for Dixon Ryan Fox, 12th president of the College (1934-1945). Houses upperclass men and women in suites, men in double rooms on the garden level, as well as the Delta Kappa Epsilon fraternity.

Hickok House (1957) — Named for Laurens P. Hickok, Union's fifth president (1866-1868). Home of the Gamma Phi Beta sorority.

North College (1814) — Used for classrooms and labs until the late 1920s, when it was converted to a residence and office building. Is now the home for Messa and Wold Houses.

Potter House (1961) — Named for Dr. Eliphalet Nott Potter, grandson of Eliphalet Nott and the seventh president of the College (1871-1884). The Chi Psi fraternity is housed on the north side of Potter and the Delta Delta Delta sorority is on the south side.

Raymond House (1961) — Named for Union's ninth president, Andrew Van Vranken Raymond. The Sigma Chi fraternity is in the south side and the Sigma Delta Tau sorority is on the north side of Raymond.

Richmond House (1960) — Named for Dr. Charles A. Richmond, president of Union from 1909-1928. Richmond houses first-year students.

South College (1814) — Oldest residence hall still in use as a residence in New York, South College was home to Chester Arthur, William Seward, and most of Union's oldest alumni. Sorum and Green Houses are located in South College.

Smith House (1894) — Named for Rev. John Blair Smith, first president of Union (1795-1799). Houses upperclass coed students in a theme house focused on supporting multicultural issues on campus.

Webster House (1920) — Named for Harrison E. Webster, Class of 1868 and president of Union from 1888 to 1894. Webster House used to serve as the Schenectady library and is now a focused-study, substance-free residence for first-year and upperclass students.

Wells House (1908) — Named for Professor William Wells, whose family lived in the house until 1930. Renovated in 1994 to become the home of a theme house that emphasizes community service.

West College (1951) — Named for the original West College, the College's first home in the Stockade area of Schenectady, West was built to house the post-World War II expansion of student enrollment. Houses first-year students as well as one of the College dining halls.

Theme Houses: Union gives students autonomy in creating the community atmosphere in which they live. The College recognizes 13 student-initiated theme houses. *Arts House* is a home to students who seek to express themselves through the visual and performing arts. *Bronner House* is dedicated to furthering multicultural understanding among all students. *Culinary House* promotes expertise in culinary arts and healthy dining options. *Dickens House* celebrates the literary mind and holds events focused on literature. *Religious Diversity House* connects those from various religious backgrounds with one another and seeks to enrich the campus community with religious diversity and equality. *Iris House* focuses on creating a supportive environment and educational events for issues in the gay, lesbian, bisexual, and transgender communities. *Safe House* encourages programming and outreach surrounding the issue of sexual assault on campus. *Wells House* seeks to strengthen the relationship between Union and the local community through volunteer service. *Ozone House* is an environmentally-focused community designed to reduce waste and promote living options that better support our ecosystem. *Thurston House* promotes enhanced social and intellectual life with a focus on Asian cultures. *Europa House* provides opportunities for improved foreign language skills and cultural knowledge with a focus on Russian and German cultures. *Music Culture House* promotes events that connect the impact music has on popular culture. *Symposium House* seeks to heighten intellectual discourse outside the classroom.

Minerva Houses: Union's Minerva Houses are designed to give all students an opportunity to make rewarding connections and to blend the campus social, academic and cultural life. Every student is assigned to a house, which can be a focus for social activities, dinners and discussion, community service, making new friends, or simply a welcoming place. Up to 45 students live in each house; all houses are equipped with a kitchen, a great room, an office, and a seminar room for meetings and classes. Non-resident members may take advantage of house gathering space and activities even though they live elsewhere. Each house has an activities budget to be used at the discretion of the membership. All faculty and some staff are affiliated with one of the houses and join in many of the house events, giving students an enriched out-of-class experience.

Fraternities and Sororities: Twelve national fraternities, five national sororities, and one local sorority have chapters in good standing at Union. The Alpha chapters of six national fraternities were founded at Union, starting with the famed Union Triad - Kappa Alpha (1825), Sigma Phi (1827), and Delta Phi (1827). The others formed at the College are Psi Upsilon (1833), Chi Psi (1841), and Theta Delta Chi (1847). The national fraternities also include Alpha Delta Phi, Alpha Epsilon Pi, Alpha Phi Alpha, Delta Kappa Epsilon, Iota Phi Theta, Phi Delta Theta, Phi Iota Alpha, Sigma Chi, and Zeta Beta Tau. The national sororities are Delta Delta Delta, Gamma Phi Beta, Lambda Pi Chi, Omega Phi Beta, and Sigma Delta Tau. The local sorority is Alpha Delta Lambda.

Student Activities: Union believes that a student's life outside the classroom is an important part of his or her total education. These unique leadership opportunities challenge students outside of the class room on a daily basis. The student government (Student Forum) funds, organizes, and supervises a variety of activities and organizations; students are responsible for the planning and implementation of these student-funded activities with the assistance of the Office of Student Activities. The College requires students to have individual health insurance in effect as partial protection from the consequences of engaging in various activities and advises discretion while participating in these activities.

The following is a list of current clubs and organizations; however new groups start up each year and others discontinue depending on student interest.

Student clubs (groups recognized by the Student Forum and funded by Student Activity fees): African and Latino Alliance of Students; American Society of Mechanical Engineers; Asian Student Union; Baja Club; Ballroom Dancing Club; Baseball Club; Best Buddies; Bhangra Big Brothers/Big Sisters; Biology Club; Black Student Union; Campus Action; CELA; Cheer and Spirit Squad; Chemistry Club; Chet's; Classics Club; Cocoa House; College Against Cancer; Concert; Concordiensis; Cycling; Dance Team; Debate; Dutch Oven

Also, Economics Club (Ceteris Paribus); Entrepreneurship Club; Environmental; Fashion Show; Fencing Club; Film Committee; French Club; Garnet Yearbook; Geology Club; German Club; Golf Club; Gordie Foundation; Gospel Ensemble/Heavenly Voices; Idol; Institute of Electrical and Electronics Engineers; Karate Club; Kendo; MECCA; Men's Hockey Club; Men's Rugby Club; Mountbanks; Network Gaming Association; The National Society of Black Engineers.

Also, Outing Club; Philosophy; Physics; Pre-Health Club; Pre-Law; Safe Space; Shakti; Ski Club; Social Committee/U-Program; Society of Hispanic Professional Engineers; Society of Women Engineers; Spanish Club; Speakers Forum; Spectrum; Springfest; Student Forum; TVUC; Ultimate Ultimate Club;

UMED; Virtual U; Women's Rugby Club; Womyn's Union; and WRUC.

Organizations (recognized by the Student Forum but not funded from Student Activity fees): Catholic Student Association; Delphics; Dutch Pipers; Eliphalets; Ephemeris; Etta Kappa Nu; Garnet Minstrelles; Interfraternity Council; Hillel; Multicultural Greek Council; Muslim Student Union; Newman Club; Panhellenic Council; Philomathean; Protestant Campus Ministry; Psi Chi; Tau Beta Pi; Theme House Consortium; Union College Choir; Union College Christian Fellowship; Union Community Action Reaching Everyone (UCARE); Union College Democrats; Union College Republicans;

Lectures and Concerts: Union makes available to all students a general cultural program of concerts, lectures, and movies. Speakers visit the campus for periods of up to several days, making formal appearances at lectures and less formal visits to classes and other small groups.

The Office of Religious and Spiritual Life: An important and fundamental dimension of all individuals is their spiritual and ethical nature. The Office of Religious and Spiritual Life at Union is served by several staff members: The Director of Religious and Spiritual Life, who also serves as the Campus Protestant Minister a Catholic Chaplain and a Hillel Director.

It is the mission of this office to:

- Engage and empower students exploration of faith.
- Provide for worship and observance of religious holidays.
- Develop a sense of community and fellowship.
- Foster awareness of and participation in current issues.
- Provide opportunities for community service.
- Offer pastoral counseling and spiritual direction.
- Develop and nurture student leadership skills.
- Provide opportunities for spiritual and theological growth.
- Offer a religious perspective to the academic community.
- Support the mission of the College.

Athletics: The College believes that every student should be encouraged to take part in sports activities at a level commensurate with his or her abilities. Each individual should have the opportunity to improve skills and to learn new sports that will carry over later in their lives. Thus, Union offers an extensive program of intercollegiate, intramural, club, and recreational sports, along with several wellness programs. The College insists that athletics be kept in harmony with the essential educational purpose of Union. Its athletes, like those engaged in all extracurricular activities, are an integral part of the campus community and are students first.

Intercollegiate competition is offered in 25 sports; for men, in baseball, basketball, crew, cross-country, football, ice hockey, lacrosse, soccer, swimming, tennis, and indoor and outdoor track; and for women, in basketball, crew, cross-country, field hockey, ice hockey, lacrosse, soccer, softball, swimming, tennis, indoor and outdoor track, and volleyball. Union is a member of the National Collegiate Athletic Association (NCAA), the Eastern College Athletic Conference (ECAC), the Liberty League and the ECAC Hockey League (ECACHL). Men's and women's ice hockey compete at the NCAA Division I level; all other sports compete at the NCAA Division III level.

All club sports are administered through the student activities office. The most active and popular clubs are baseball, bowling, fencing, golf, ice hockey, karate, rugby, skiing, and volleyball. An extensive intramural program is offered in a wide range of sports along with noncredit physical education classes as part of the wellness program.

Facilities include Messa Rink at Achilles Center (hockey, recreational skating, and intramurals as well as locker rooms for football, lacrosse, field hockey and ice hockey); Viniar Athletic Center, a hardwood floor venue completed in the fall of 2004 (men's and women's basketball); Frank Bailey Field, a multipurpose, all-weather, lighted field with a 400-meter track, stadium seating for 1,500 and press box (intramurals, outdoor track, football, men's and women's lacrosse, soccer, and field hockey); Breazzano Fitness Center at Alumni Gymnasium (fitness center, swimming, racquetball, squash, and coaches' offices); Garis Field (men's and women's soccer); the turf at College Park, a multipurpose, all-weather, lighted field (intramurals, men's and women's soccer); College Boathouse (men's and women's crew); Memorial Field House (intramurals, recreation, indoor track, volleyball, and tennis); Alexander Field (softball); Travis J. Clark Strength and Conditioning Center (varsity strength training) and seven outdoor tennis courts and an outdoor basketball/street hockey court, all used for intercollegiate competition, intramurals, clubs and open recreation.

Student Services

Union College provides a variety of services for full-time students. These include:

Campus Safety: Union College is committed to assisting all members of the Union College community in providing for their own safety and security. The Campus Safety Office is located in College Park Hall. Parking, vehicle registration, and ID card services are in the front lobby. Administrative offices and dispatcher are in the rear of the building.

Important Phone Numbers:

Emergency: 911

Non-Emergency: (518) 388-6911

Escort Service: (518) 388-6386

Union College's Campus Safety Department provides 24-hour, year-round security and safety programs. Members of the department are employees of the College who report to the Director of Campus Safety. Officers work eight-hour shifts to perform their duties, which include:

- Preventive patrol of grounds and buildings
- Emergency medical assistance
- Incident investigation and reporting
- Hazard control
- Crime prevention
- Parking and traffic management

Special services, including lockout assistance, noise and nuisance control, security escorts, lost and found, and other needs associated with quality of life, safety, and security.

Members of the department have portable radios and are centrally dispatched by control operators in the Campus Safety Building who monitor telephone and emergency lines as well as fire and security alarms. Every College building is linked to the Control Center for fire alarm monitoring, and a number of buildings have security alarm systems.

The Campus Safety Department is a private security force empowered by the College and the State of New York to enforce its rules, regulations, policies and the laws of the State of New York. Enforcement procedures include issuing parking tickets, issuing summary fines, filing conduct charges, and making arrests.

The Campus Safety Department works closely with Federal, state, county, and local authorities in the investigation and prosecution of crimes and in fire, safety, and health-related issues.

Information regarding campus security and personal safety including topics such as, crime prevention, Campus Safety law enforcement authority, crime reporting policies, crime statistics for the most recent three year period, and disciplinary procedures is available from the Director of Campus. Access to crime data reported to the U.S. Department of Education may be found through the following Web site: www.union.edu/Safety/Campus_Safety/community_report.php.

Counseling: The Counseling Center provides services for students who elect to address personal/psychological concerns with a professional counselor. Typical concerns of students range from interpersonal issues, family concerns, academic problems, etc., to problems such as anxiety, depression, and addictions. Most students are seen in individual counseling sessions. Group and family sessions are arranged when appropriate. All communications with the Counseling Center are confidential. All Counseling Center services are free of charge for enrolled undergraduate students.

International Student Services: The Office of Student Support Services is involved in international student services and wants to serve students in the best way possible. We consider each international student a valuable member of the community with specific and unique needs. The Director assists individual international students by advising them concerning federal immigration, tax and labor regulations, and by providing counseling on personal, academic and cultural matters. In addition, the office promotes cross-cultural awareness in the community through educational programming, such as orientation, support groups, and the yearly international festival.

Please contact Shelly Shinebarger, Director of Student Support Services, at (518) 388-8785 should you have any questions.

Disability Services: The Student Support Services office is committed to providing students with disabilities equal opportunities to benefit from all services, programs, and activities offered. We are in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. The Director of Student Support Services determines eligibility for services, authorizes appropriate academic accommodations, provides academic advising and counseling, assists faculty with regard to disability, issues and questions, and helps assist students with self-advocacy in locating additional resources on or off campus.

Please contact Shelly Shinebarger, Director of Student support Services, at (518) 388-8785 should you have any questions.

Health Services: We are staffed with Nurse Practitioners, Registered Nurses, a secretary and a collaborating physician. Our hours are Monday from 9AM to 8PM, Tuesday- Thursday from 9 am to 6 pm, and Fridays from 9 am to 5 pm. We are closed on weekends. A nurse practitioner is available on the weekend by phone for urgent matters. Local hospitals and urgent care facilities are available nearby for emergencies after hours. Visits are by appointment only. Walk-in patients with urgent concerns are assessed and triaged by the nursing staff. There is no charge to be seen by any of our staff. Charges for medications, x-rays, laboratory procedures, hospitals, or specialists are the direct responsibility of each student. We are unable to honor insurance prescription cards for medications dispensed at Health Services. Students may request a written prescription and have it filled at a local pharmacy. Lange's Pharmacy delivers to Health Services daily, Monday- Friday. If you would like to have your prescription card registered with Lange's call (518) 374-3324. If you have a concern about the school health insurance plan, please contact Carmela Hartman at (518) 388- 6106.

Students: Please be sure to have your insurance cards (medical and prescription) available for Health Services to verify if needed. Please refer to our immunization policy in the student handbook. Students requesting religious or medical exemptions should submit a letter according to the Dept. of Health regulation 10NYCRR, Section 66.13 (d). This consists of either: 1. A certificate from a physician, licensed to practice medicine in this State, that one or more of the required immunizations may be detrimental to the child's health. This certificate must specify which immunizations may be detrimental, or 2. A written and signed statement from the parent, parents or guardian of such child, stating that the parent, parents or guardian objects to their child's immunization due to sincere and genuine religious beliefs which prohibit the immunization of their child, in which case the principal or person in charge of the school may require supporting documents. All health forms are available on our website at www.union.edu/healthservices.

Stanley R. Becker Career Center: The Becker Career Center is committed to helping all students develop their goal attainment skills so that they are able to secure opportunities that evoke their passions and manage their careers for a lifetime in a dynamic, diverse, and global environment. The Career Center empowers students to take personal responsibility for shaping their future. This is accomplished by encouraging self-assessment, exploration, and reflection, providing opportunities to apply learning and begin careers, educating students about the world of work, and providing resources to advance students through all phases of their career development.

Students are encouraged to take advantage of the Career Center during all four college years. A recommended first step is to learn about oneself by engaging in all aspects of college life including academics, student organizations, activities, and events. As students reflect upon these and other life experiences, their interests, values, and skills will become increasingly apparent and begin to serve as a foundation for developing their career plans.

Career Center staff help students develop five core career competencies: Career Decision Making (including self assessment, exploration, and reflection), Resume Writing, Cover Letter Writing, Interviewing, and Networking. By mastering these competencies, students equip themselves with the lifetime ability of finding and securing positions for which they are well suited. Becker Career Center programs are designed to facilitate student growth in these areas and prepare students to find and connect with opportunities consistent with their interests. In addition, the Career Center houses a number of online career research tools that allow students to research potential career fields, locate employers by industry and/or geographic area, and connect with Union College alumni working in their targeted career fields. eRecruiting, the Career Center's web based database, provides students with access to internship and job opportunities from employers specifically looking to hire Union College students.

For more information, visit www.union.edu/BeckerCareerCenter or call (518) 388-6176.

The Academic Program

Union College offers studies in the humanities, the social sciences, the sciences, and engineering. The curriculum, which has a wide range and balance across areas of study, offers breadth and depth as students explore particular disciplines and interdisciplinary subjects. Union's curriculum and student life are designed to educate students to understand and appreciate diversity in its many dimensions.

Union has a tradition of curricular innovation dating back to its founding in 1795. In the 19th century, Union pioneered the introduction of science, modern languages and engineering into the undergraduate curriculum. More recently, the College has received recognition for its leadership in general education, study abroad and undergraduate research. This tradition continues as Union pioneers ways to integrate engineering and the liberal arts. The forces of change are increasingly emerging at the boundaries of traditional disciplines. At Union we bring together faculty from diverse academic backgrounds so that students can gain mastery of a wide range of disciplines as well as understanding how different disciplines approach particular questions. Students thus prepared are ready to communicate, work, and think within and beyond their area of specialty in our increasingly global, diverse, and technologically-complex society. Many students study abroad as part of their Union education, often in programs led by Union faculty as well in programs of their own design.

A major may be centered in one of the College's academic departments or a student may choose an interdepartmental major involving work in two or more departments, a formal interdisciplinary program, or a personally-designed "organizing theme major" organized around a central, unifying topic cutting across disciplinary lines. Students may also elect to take up to two minors.

The College is also committed to ensuring that all students become good writers. The College's program of Writing Across the Curriculum constitutes a systematic way of ensuring that students pay close attention to writing in courses scattered throughout the curriculum. The First-Year Preceptorial is the foundation of Union's writing requirements. The Sophomore Research Seminar provides a foundation of research skills for upperclass work.

In cooperation with Union Graduate College, Union also offers five-year, two-degree programs leading to a bachelor's degree and a master's degree in selected fields. The College has an eight-year, three-degree program in cooperation with Albany Medical College and Union Graduate College and a six-year, two-degree program in cooperation with Albany Law School.

Overview of the Academic Program

Degree Requirements

Union offers the following undergraduate degrees: Bachelor of Arts, Bachelor of Science, and Bachelor of Science degrees in Computer Engineering, Electrical Engineering, Mechanical Engineering, and Bioengineering.

A Union education is a four-year integrated living and learning experience. Our curriculum is designed to enable a student to achieve the breadth and depth that mark the graduate of a liberal arts college. There is a structure in the movement of our curriculum from first to senior year, a structure that ensures the intellectual sophistication and maturity that we want our graduates to have. Normally it takes four years of work to achieve these goals. To qualify for a degree, a student must:

1. Satisfactorily complete a minimum of 36 term courses in all programs except engineering, which requires up to 40 courses. For two-degree programs refer to the section, "Combined Degree Programs."
2. Satisfactorily complete requirements in the General Education curriculum;
3. Satisfactorily complete requirements in the major field, degree program, or interdepartmental major, including senior capstone requirements such as a senior thesis, as applicable;
4. Attain minimum cumulative indices of 1.80 overall and 2.00 in the major (and 2.0 in the minor if a minor has been declared).

To graduate, a student also must have paid all sums due the Finance Office, must have made satisfactory provision for payment of any other financial obligations assumed while in college, and must have returned all books borrowed from the library. The individual student is solely responsible for assuring that the program presented for graduation fulfills all requirements, both in general and in specialized study. The Office of the Registrar should be consulted when questions arise about the satisfaction of graduation requirements. Notice of intent to graduate must be sent to the Registrar as per the deadline specified by the Registrar's Office.

Academic Calendar and Enrollment Requirements

Union divides the academic year into three terms of 10 weeks each. The normal course load for a full-time student is three courses in each of the three terms, or nine courses a year. To complete the entire curriculum in four years, engineering students should expect, on occasion, to take more than three courses per term. For additional information on course enrollment policies, refer to "Academic Policies".

It is expected that students will be enrolled full-time for 12 terms (at least 36 courses) through the spring term prior to graduation, with the two exceptions noted below. Additional courses, taken at Union or elsewhere, may be used to fulfill departmental or General Education requirements or to compensate for deficiencies in credits, but may not be used to graduate early or to take a term away from Union, with the following two exceptions:

1. Any student entering the College with three or more pre-matriculation credits may graduate one term early or be unenrolled from Union for a term during the junior or senior year, provided that these credits have not been used to compensate for deficiencies incurred during their time at the College. Students who have completed a full International Baccalaureate diploma may receive up to a full year of credit and may graduate up to a year early. See "Transfer Credit Policy" for details.
2. Students in the Scholars, Seward Fellows, and NSF-STEM Scholars programs may use any additional course credits they earn at Union to accelerate their graduation or to be unenrolled for a term. Any student seeking early graduation must obtain approval from the Office of the Dean of Studies by the end of the junior year. Students seeking to be unenrolled for a term must contact the Office of the Dean of Students.

For guidelines regarding transfer credits, refer to Transfer Credit Policy.

The General Education Curriculum

As a liberal arts college, Union is devoted to educating students to flourish in this rapidly changing world, a world with fluid geographic, intellectual and cultural boundaries. The General Education curriculum seeks to nurture in students a commitment to learning as central to one's development over the course of a lifetime. Union starts with the assumption that college represents a beginning and not an end of one's education. Union's approach, ensuring that students learn much of what the College deems important and at the same time develop and satisfy a taste for exploration, combines elements of choice within a structure of requirements.

Union's curriculum ensures that students analyze and integrate knowledge from a wide variety of areas, communicate the results of their learning and, most important, continue to learn, an essential skill in today's world. To accomplish this, we start with a first-year seminar that emphasizes critical reading and writing using the perspectives of multiple disciplines, and a sophomore research seminar that focuses on learning research skills necessary to assess through informed reflection the enormous varieties of information to which we have access today. Because we value the importance of integrating information, we require a three-course cluster in which students learn to bridge and integrate information on a common topic from diverse perspectives. Union's General Education curriculum provides the breadth that defines a liberal arts education through requirements in linguistic and cultural competency, quantitative reasoning, and science and technology. The curriculum is designed to enable students to become life-long learners by learning to analyze, synthesize, integrate, and communicate effectively, and obtain an appreciation of different disciplines and areas of knowledge, as well as interdisciplinary study.

A detailed description of the General Education curriculum is under "Courses of Instruction."

The Major

The major should be viewed as a coherent series of courses providing a solid background in the area of study as well as an introduction to advanced study. Depth of knowledge and understanding in a particular field of study is provided by the major. Courses in this area of special study may also count toward meeting some General Education requirements, but the prescribed program of study for a major is primarily intended to develop competence in the scholarship represented by an academic department or a group of departments. In addition to majors offered through academic departments, Union offers majors in interdisciplinary programs and individually designed "organizing theme" majors.

Students can pursue an interdepartmental major by combining coursework in two different departments or in a department and an interdisciplinary program. Departments and interdisciplinary programs specify the terms and conditions for interdepartmental majors. Students should consult each department or program section in Courses of Instruction for descriptions of available options and requirements. At this time, Bioengineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering may not be used as a component of interdepartmental majors, though this may be possible in the future. Senior Writing Experience requirements vary among areas of study. Where appropriate, students can do one two-term thesis to satisfy both departments' writing requirements.

Students may pursue a "double major" by satisfying all requirements of two majors, neither of which can be an interdepartmental major. Except as indicated under "Combined Degree Programs," a student satisfactorily completing two majors earns one rather than two degrees. The double major will be noted on the permanent record of the student, who will be eligible for departmental honors in both majors. A student in such a program will be eligible for his or her degree whenever the requirements for both majors, along with those in the General Education program, are satisfied and a minimum of thirty-six course credits has been earned. Normally an overlap of at most three courses is allowed for the two majors.

The student who enters college with a fairly firm notion about a proposed field of concentration will find it advantageous to test his or her interest in the proposed major field during the first year. In many programs, a student need not begin a major during the first year in order to complete that major by the end of the fourth year. In engineering and science, however, it can be extremely difficult to complete a major in four years unless course sequences are begun in the first year. Students in premedicine also need to consider taking the requisite courses in their freshman year. At the end of the first year, the major may be declared or changed without penalty in the form of lost time and credit. Soon thereafter, and certainly by the end of the second year, the student should make a serious commitment to a focus of study. Every student is required to file with the Registrar a declaration of major no later than the end of the sophomore year ("Liberal Arts" and unspecified "Engineering" are not considered majors). This decision may be altered subsequently, although late change of major may require extra courses or terms. Requirements for majors appear at the head of each departmental listing. Some areas require additional courses from related disciplines.

Students may change their major program upon application to the Registrar. The change must have the consent of the Department Chair or Program Director. A request for a change of major submitted after the first week of the final term of study at the College may not be possible to accommodate without delaying the student's graduation.

The Minor

Students who wish to pursue a secondary field of concentration may select and declare up to two academic minors. A minor normally consists of six courses. Requirements for the minor may be found in the course listings by department and program. Students are normally expected to declare a minor in the sophomore or junior year. They must obtain the approval of the department chairperson or program director.

For students who wish to declare one minor, those courses used to satisfy the major field requirement plus those used to satisfy the minor field requirement may in no case total fewer than 18. For students who wish to declare two minors, the minimum is 23. A minimum cumulative index of 2.00 must be attained in courses used to satisfy the minor requirement. All students are responsible for verifying the accuracy of their declared minor at the time of their senior year audit review. Minors cannot be added once the degree has been conferred.

Combined Degree Programs

Union College offers programs in which a student may earn two baccalaureate degrees in the following combinations: engineering and bachelor of science or bachelor of arts, or two engineering degrees.

Nine courses beyond the requirements for the professional degree are required, and normally five years are required to complete them. Certain combinations of curricula within five-year programs may involve carrying an occasional course overload. If a student cannot fulfill all requirements for the two degrees, modification of the program is permitted only with the concurrence of the department.

Also offered are two-degree programs in cooperation with Union University, leading to a bachelor of arts degree from Union and a law degree from Albany Law School; or to a bachelor of science degree from Union, an M.S. or M.B.A. degree from Union Graduate College, and an M.D. from Albany Medical College; to a bachelor of arts or bachelor of science and a master of business administration; or to a bachelor of arts or bachelor of science and a master of teaching; or to a bachelor of science in a science or engineering field and a master of science in electrical or mechanical engineering. For more information on the two-degree programs with Union University, refer to the following sections under Courses of Instruction:

Law and Public Policy (6-year program)

Leadership in Medicine/Health Systems Program (8-year program)

Master of Business Administration and Master of Business Administration in Health Care

Management Programs (5-year program)

Master of Arts in Teaching (MAT) (5-year program)

Master of Science in Electrical Engineering and Master of Science in Mechanical Engineering

International Programs

The College considers its commitment to international programs to be a central part of its identity. In addition to broadening perspective and deepening knowledge, study abroad often energizes and challenges students so that they are motivated to a higher level of commitment to the enterprise of learning. Students studying away from Union do so through Union College terms abroad programs and exchanges. Students may apply for “non-Union” programs through Union’s International Programs office to study abroad on programs run by other colleges and universities. Independent Study Abroad programs allow students the opportunity to design their own study abroad experience. Mini-term programs are offered over winter and summer breaks as well. Refer to “International Programs” under Courses of Instruction for more information, including eligibility criteria and application procedures.

Academic Policies

Registration for Courses

Registration Confirmation: Each term the Registrar conducts prescheduling via the web for continuing students who, with the help of their advisors, select three courses for the coming term. Prescheduling must be completed during the announced periods. Students who do not intend to preschedule should notify the Dean of Students of their intended withdrawal from the College. After prescheduling, a request for a change of course ordinarily must be filed with the Registrar no later than the fifth academic day of the term; such changes should be recommended by the advisor. Students who fail to finalize their course schedule after the end of the first week of the term will be assessed a late charge on their bill. With written permission from the instructor, a student may enter a course as late as the second week of the term. Students not enrolled in courses by the end of the second week of classes will be withdrawn from the College for the term and will have to reapply for admission to the Dean of Students.

No regular student may take fewer than three courses each term, unless an exception is approved by the Dean of Studies. All regular undergraduate students are charged each term’s full tuition, which covers enrollment in three courses during that term. The tuition is not prorated for single courses unless the student has been in attendance for 12 full terms (or, for five-year programs, 15 terms).

Students must attend those sections of courses to which they have been scheduled by the Registrar. A change of section may be made only with the specific approval of the Registrar.

Fourth Courses: Students are allowed to enroll in one fourth course in each academic year at no charge, provided they have a grade point average of at least 3.3 and are making satisfactory progress in their program of study. These courses can be used to fulfill program requirements; however, they will be considered additional credits beyond the 36 required for graduation and can only be used towards graduation should the student fall behind in credits at a later date or if the student is making up a deficiency in credits because of withdrawal or failure. If such credit is used towards graduation, a fourth course fee will be charged. Students who have below a 2.5 GPA need approval from the Dean of Studies to enroll in a fourth course. Engineering students are required to take 40 classes for their degree and are therefore allowed to register for four (4) additional fourth courses at no charge. This policy also applies to fourth courses taken on an international program. Such courses can only be used toward graduation should the student fall behind in credits, in which case a fourth course fee will be charged. Refer to “Costs, Additional Courses / Fourth Courses” for the relevant fee. Refer to “Special Curricular Opportunities” for information regarding extra courses for Union Scholars and Seward Fellows.

A student in good standing may audit a course if the instructor gives permission. An audit is not made a part of the student’s permanent record.

Attendance and Completion of Courses

Classroom Absences: The College expects students to attend classes and laboratories regularly, but it leaves to each instructor his or her statement of policy with respect to absence. It is the student’s responsibility to be aware of the policy and to inform instructors in advance of unavoidable absences. An instructor may lower a grade or assign a failing grade for excessive absence.

Withdrawal from Courses: With proper notice to the Office of the Registrar, a student may drop a course during the first eight weeks of a term after consulting with his or her advisor and getting that advisor’s approval. After the end of the second week of classes and until the end of the eighth week, a grade of “W” will be assigned in such cases. Dropping a course after the end of the eighth week will result in a grade of “F” unless there are extraordinary circumstances beyond the student’s control that prevented him or her from completing the course. The Dean of Studies must approve the withdrawal. In such a case the grade shall be “WP” or “WF” depending on whether the student was passing or failing at the time the course was dropped. A “Failure” (“F”) shall be posted to a student’s record if

proper notice of withdrawal from a course is not given to the Registrar. For information on how this would affect tuition, please see “Withdrawal Deadlines, Refunds and Obligations” in the “Costs” section.

Three Final Exam Policy: Students with three final exams scheduled for the same day should speak with their professors to make arrangements to reschedule one of the exams. If arrangements can not be made with individual faculty members, the student should consult with the Dean of Studies.

Absence from Final Examinations: Students are required to appear for scheduled final examinations. Absence from a final examination produces an automatic grade of “Failure” on the exam. In cases of a student’s absence caused by verified personal misfortune, the Dean of Studies may allow a grade of “Incomplete,” and the student must arrange with the instructor to take a makeup examination not later than two weeks after the last day of the examination period of the term in which the “Incomplete” was given.

Incomplete Course Work: Students must submit all course work not later than the closing hour of the last scheduled final examination period of each term, unless the instructor has set an earlier deadline. A grade of “Incomplete” may be requested only for extraordinary circumstances beyond the student’s control, and the instructor’s approval must be obtained. The instructor must complete the appropriate form and file it with the Registrar. When an “Incomplete” is granted, the course work must be completed not later than two weeks after the last day of the examination period of the term in which the “Incomplete” was given. Course work not completed within the allotted period of time will be assigned a failing grade unless the Dean of Studies, in consultation with the instructor, grants an extension of the incomplete.

Students receiving financial aid who elect or are permitted to drop a course may be ineligible for such aid in subsequent terms. See the chapter on “Financial Aid” for details.

Repeating Courses: Students who repeat a course that they previously failed will have both grades listed on their transcripts. All credits attempted and total quality points earned will be used in calculating the cumulative grade point average. Students who repeat a course that they have previously passed (grade of “D” or better) will have both grades listed on their transcripts, but neither the quality points nor the credit associated with the second grade will be factored into their cumulative grade point average. The one exception to this policy is when the course is a required prerequisite that the department has stipulated must be completed with a minimum grade of “C-.” If a student retakes a prerequisite course that they have previously passed with a grade of “D,” both grades will be equally factored into their GPA but they will only receive credit for taking the course once.

Making up Credits: There are many options for students to get caught up if they are behind in credits. Students behind in credits can take a fourth course at Union (subject to the fourth course fee), take a pre-approved summer course at another College (a maximum of three course credits can be earned at schools other than Union after matriculation), take an internship for a full course credit (with tuition), go on a mini-term, or earn a music, dance, ceramics or theater practicum credit by taking three terms of the same practicum with a passing grade (there is a fee associated with each term).

Withdrawal from College: Withdrawal from the College at any time is considered official only upon written notice to the Dean of Students. The withdrawal date is considered the date on which written notification is received. Notification to another office or person, failure to preschedule or confirm registration, nonpayment of the term bill, or a request for a transcript are not considered notice of withdrawal. A student who wishes to withdraw permanently or take a voluntary leave of absence should notify the Dean of Students as far in advance as possible to avoid or reduce financial penalties.

Suspension: Students cannot transfer credits to Union for courses taken at other institutions while under suspension from Union College. This applies to both academic and social suspension.

Readmission: All applications for readmission or return from absence must be made in writing to the Dean of Students, normally at least one month before registration for the term. Readmission becomes official only if or when the admission and security deposit is on hand or has again been paid.

Academic Standing

Academic Ratings: Instructors submit grades at the end of each term. A report of a student’s term grades is available to the student at www.webadvising.union.edu. A grade report will be mailed to the parent or guardian if the student requests one in writing. No other grade notices will be mailed to the student’s home address. The grades of scholarship and their associated quality points are A (4.0), A- (3.7), B+ (3.3), B (3.0), B- (2.7), C+ (2.3), C (2.0), C- (1.7), D (1.0), P (pass), and F (failure). A course in which a student receives the grade of “F” does not count toward graduation. If the course is required to complete a sequence in the major or otherwise required for graduation, a student must repeat this course and obtain a satisfactory mark. Some courses do not carry graduation credit and a few earn double credit.

Pass/Fail Grading: In order to encourage students to explore the curriculum, students may take up to four electives to be recorded as “pass” or “fail.”

- (1). No course registered as “pass/fail” may be used in fulfilling a requirement for the major, for a minor, for General Education or Writing Across the Curriculum, or for a term abroad.
- (2). The “pass/fail” option is not open to students in their first two terms.
- (3). A student may take no more than one “pass/fail” course per academic year (defined as the fall, winter, and spring) in the first three years.
- (4). A student may take up to two “pass/fail” courses in the senior year (defined as the fall, winter, and spring), and may register for no more than one “pass/fail” course per academic term.
- (5). A student may register for no more than one of the four “pass/fail” courses in any academic department and no more than two of the four “pass/fail” courses in any academic division (Refer to “Divisions” under Courses of Instruction).

(6). Independent study courses may not be taken Pass/Fail

A grade of “pass” will be equivalent to the lowest passing grade or better. A grade of “pass” will not be calculated in the term or cumulative index; a grade of “fail,” however, will count as any other failing grade. A course is registered as “pass/fail” by means of a form provided by the Registrar and the option must be exercised (or revoked) no later than the end of the third week of the term. The instructors (who will be informed of this choice by a particular student only by request) will submit regular letter grades, which will be appropriately converted to “pass” or “fail.” Later reconversion to the letter grade will be done only if required by a student’s official change of major or minor and only upon the specific request of the student.

Students who plan to pursue studies in graduate or professional schools should discuss with their advisors the effect of “pass/fail” grades on admission to such programs. Some graduate schools regard a grade of “pass” as a weak grade.

Academic Good Standing: Union College regards a student as “in good standing” academically if he or she is permitted to enroll for a subsequent term. To graduate, a student must present a cumulative grade point index of at least 1.80 and an index of at least 2.00 in the major.

The Subcouncil on the Academic Standing of Students will review the status of any student whose cumulative grade point index or immediate prior term grade point index falls below 2.00 or of any student for whom other considerations, particularly standing in the major, suggest questions of satisfactory progress toward graduation. If, after such a review, it is felt warranted, the Subcouncil may adopt one of the following actions:

Academic Warning: The student may remain in college, but unless the record improves, he or she will be subject to subsequent action. (This action is the minimum that will occur if either the cumulative grade point index or the prior term grade point index is below 2.00).

Special Academic Warning: Normally, the student must achieve a 2.00 or better index in the next term to remain in college. To be removed from Special Academic Warning, the student must achieve two consecutive term indexes of 2.00 or higher while carrying a full course load, with at least two graded courses in both terms. If the student’s cumulative index is still below 2.00, he or she remains on academic warning.

Suspension: An exceptionally weak record in a single term or a failure to improve after warning may result in suspension when, in the judgment of the Subcouncil on the Academic Standing of Students, a student's record makes it inadvisable to continue in college. The Subcouncil may recommend a one- or two- term suspension.

Dismissal: In certain cases, the Subcouncil may dismiss a student permanently. Requests for reconsideration of the Subcouncil's decisions must be submitted in writing to the Subcouncil through the Office of the Dean of Students. Reconsideration will occur only when information not previously available to the Subcouncil is submitted and, in the judgment of the Subcouncil, could have affected its decision. Such reconsideration in no way implies that the Subcouncil will subsequently reverse its original decision. Appeals (as opposed to requests for reconsideration) should be directed to the Dean of the Faculty. Such appeals will be considered only with respect to procedural issues.

Academic Honesty

The College does not tolerate dishonest academic behavior. Any academic work that students represent as their own must be their own. Students must take responsibility to seek advice from faculty members and academic deans if they have questions about what constitutes academic honesty. Students must not resort to plagiarism, theft and mutilation of library books and periodicals, or any other form of academic dishonesty. Any student found guilty of academic dishonesty will be subject to disciplinary action. Procedures regarding charges of academic dishonesty are described in the Faculty Manual and the Student Handbook. Additional information is found in the booklet *Plagiarism: A Cautionary Word to Students*, furnished to all entering students and available from the Office of the Dean of Studies.

Transfer Credit Policy

Credits received prior to matriculation at Union College, including Advanced Placement and International Baccalaureate courses

Note: Transfer students see "Transfer Students Only" section below

A matriculating first-year student can transfer in a maximum of four course credits to use towards graduation credit requirements through any combination of Advanced Placement (AP) examinations, the International Baccalaureate Program (IB), or college courses taken at other post-secondary institutions. For students completing the Full Diploma in the IB program, credit may be granted to the equivalent of a full year of Union College course work. Students must elect a more advanced course if they study in a department in which credit has been granted. Repetition of work for which credit has been granted will not be permitted. Please refer to department and program pages for specific guidelines.

Students with AP examination scores of three or higher in calculus and four or five in other subject areas may be eligible to receive college course credit. Credit for IB courses may be awarded for higher-level examination scores of six or better. Aside from AP and IB courses, Union College will consider granting credit for a course taken while the student is enrolled in high school only if the course is taken on the campus of the college or university offering the course, the course is available for enrollment by the students of that college or university, and the final grade is a C or better.

Any number of AP, IB, or college courses may be used to determine course placement with the approval of the appropriate department chair in each instance. Only one course may be used to fulfill a General Education requirement.

Students who enter Union College with a combination of three or more AP, IB, or college credits may petition the Dean of Studies to graduate one term early. Students with a Full Diploma in the IB program may petition the Dean of Studies to graduate up to one year early. Otherwise students are expected to be in full-time residence for 12 terms through the spring term prior to graduation. This rule does not apply to students enrolled in the Scholars, NSF STEM Scholars, or Seward Fellows programs.

Credits received at other institutions after matriculation at Union College

Normally, permission is granted for courses taken at other colleges to count towards the total number of courses required for graduation only when a student has failed or withdrawn from courses started at Union and as a result is "behind" in credits. A student may transfer in a maximum of three such course credits for courses taken at other institutions. Students behind in credits who wish to receive credit for courses taken at other colleges must have those courses approved by the appropriate department chair(s) and by the Dean of Studies. A form for this purpose is available at the Office of the Registrar and should be returned to that office in advance of taking the relevant courses.

Students who are not behind in credits may wish to enhance their education by taking courses at other colleges, particularly during the summer. Although credit towards the courses required for graduation will not be granted in such circumstances, up to three such courses may be used with the permission of the appropriate department chair(s) and the Dean of Studies to fulfill particular course requirements and to satisfy course prerequisites. Such permission must be obtained in writing and filed with the Registrar's office in advance of taking such courses.

Normally, course work at other colleges will be recognized only if a minimum grade of "C" is achieved. The credit value of a course must be at least three semester-hour credits or five quarter-hour credits to earn one full course credit at Union. Students with 18 or more credits towards graduation may receive degree credit for courses taken at a two-year college only if approved by the Dean of Studies. The grades for course work accepted from other colleges will not be recorded on a student's Union College transcript nor will these grades be factored into a student's cumulative academic average.

Selected graduate courses at Union Graduate College are open to advanced undergraduates with the approval of the student's advisor. Students matriculated in a five year combined degree program may take up to three graduate level courses as an undergraduate. All other students will be limited to two graduate courses. The first two graduate courses (or three for matriculated combined degree students) that a student takes automatically count towards this limit. No substitutions may be made at a later date. For a list of eligible courses, please refer to the Graduate College Supplemental Listing, which is available in the Registrar's Office during prescheduling. If the graduate course is cross-listed with an undergraduate course, Union students must enroll in the undergraduate course. For course descriptions, please consult the course catalog of Union Graduate College.

For cross-registration involving the Hudson-Mohawk consortium, please consult the catalog under that heading. Students with 18 or more credits toward graduation may not cross-register for courses at a two-year college unless specifically approved by the Dean of Studies.

Transfer Students Only

Transfer students may bring in up to two full years of college course credit and must complete two years of study at Union to qualify for a Union degree. At most four of these transfer course credits can come from any combination of Advanced Placement (AP) examinations or the International Baccalaureate Program (IB). Students who are awarded 15 credits or fewer may, after matriculating at Union, transfer in an additional three course credits for courses taken at other institutions. Students who are awarded 16 credits may transfer in up to an additional two credits; those with 17 credits may transfer in one additional credit from another institution. Prior approval must be obtained for these courses from the appropriate department chair and the Dean of Studies. Permission is normally granted only if the student is behind in course credits or to fulfill general education or departmental requirements if the student is not behind in credits. These credits cannot count towards the total number of credits required for graduation or towards accelerated graduation.

Proficiency Examinations

With the approval of the relevant department and notification to the Registrar, proficiency examinations covering the substance of courses listed in this Academic Register, except independent study, may be taken by matriculated undergraduate students in good standing at a cost of \$250 for each examination. Credit may be obtained from proficiency examinations to allow for placement out of certain courses, but cannot be used toward accelerated graduation.

Any proficiency examination may be taken only once. It will be graded “pass” or “fail,” but failures will not be recorded. In the Department of Modern Languages, credit may normally be earned by proficiency examination only for courses in literature and civilization numbered 300 and above. Students may not take proficiency examinations in subjects in which they have already taken courses at a higher level for credit.

Participation in Graduation

A senior who is one course short of completing degree requirements will be allowed to participate fully in all aspects of the June commencement ceremony. The degree will be conferred the following December 15th, pending a final audit of requirements. The diploma will be mailed to the student provided that all financial holds have been resolved.

A senior who is more than one course short of completing degree requirements may participate partially in the commencement ceremony, as described below, if all of the following criteria are met:

1. The student is in his or her fourth year at the College,
2. The student has earned 27 course credits by the end of winter term,
3. The student is registered for a full course load for the spring term, and
4. The student will be within six courses of completing the degree by the end of spring term.

Students who are more than one course short of completing degree requirements will march in following their classmates and be seated behind the last group of graduating seniors. They will not cross the stage. Their names will not appear in the commencement program but will be read by the Dean of the Faculty. If they complete their studies by the following December 15th, their diplomas will be mailed to them provided there are no outstanding financial obligations.

Academic Honors and Recognition

Dean’s List: A student achieves Dean’s List standing for an academic year, which is defined as the fall, winter, and spring term, by meeting the following requirements:

1. An academic index of at least 3.50 for the year.
2. Students with first year, sophomore or junior status at the end of the academic year must have a total of nine completed courses, at least eight of which are graded. Students with senior status at the end of the academic year must have completed eight courses, at least seven of which are graded. For seniors graduating early this rule will be applied to their last three terms at Union College.
3. No grades of “D” or “WF” or “F”

A student who spends part of an academic year at the College may be admitted to the Dean’s List by the Dean of Studies if extraordinary circumstances prevent full-time attendance and the academic index for the courses taken is at least 3.50 with no grades of D or F.

Graduation with Distinction: Union College recognizes academic distinction by awarding some degrees summa cum laude, magna cum laude, and cum laude, these Latin honors signify various levels of the graduates’ cumulative grade point averages. The faculty has the responsibility and authority for setting the levels necessary to attain the various honors. Standards are summa cum laude (3.80 or better), magna cum laude (3.65 or better), and cum laude (3.50 or better). To be eligible, students must have taken at least eighteen courses toward their undergraduate degree while enrolled at Union.

Departmental Honors: In general, students become eligible for departmental honors provided that they (1) have achieved a cumulative index of 3.3 or better; (2) have an index of 3.3 or better in courses taken in the major with grades of A- or better in at least three such courses, exclusive of the senior thesis; (3) completed their Senior Writing Experience on which a grade not lower than A- has been earned (4) satisfy any other requirements set by the major department, and (5) have taken the final six terms of their program at Union or elsewhere in a study program approved by Union. Students

should consult their departments for complete information. In the case of interdepartmental majors, students must satisfy the above for each department, except that for (2), they need to have at least two (not three) grades of A- or better in each department. Interdepartmental majors also must submit to the Honors Committee, through the major departments, evidence of independent work of substance and distinction, in the form of a thesis or some other written or documented work on which a grade not lower than A- has been earned, and they must be nominated by both of the major departments. Leadership in Medicine students are not subject to the above restrictions on interdepartmental majors.

Academic Honor Societies

Alpha Kappa Delta: Omega chapter of New York of Alpha Kappa Delta, the national honor society of sociology, was established at Union in 1979. Juniors and seniors who have done outstanding work in sociology are eligible.

Eta Kappa Nu: Phi chapter of the national honor society of Eta Kappa Nu for electrical engineers was established at Union in 1926. Students of outstanding academic achievement who show admirable qualities of character are invited to become members during their junior and senior years.

Eta Sigma Phi: Eta Phi chapter of Eta Sigma Phi, the national honor society for Classics, was established at Union in 2005. Students who demonstrate high achievement in the study of Greek or Latin are eligible for election to full membership.

Nu Rho Psi: Alpha chapter in New York, the national honor society for Neuroscience, was founded in 2006 under the auspice of the Faculty for Undergraduate Neuroscience and through the joint efforts of faculty and students at Baldwin-Wallace College, Baylor University and Johns Hopkins University.

Omicron Delta Epsilon: Alpha Beta chapter of New York of Omicron Delta Epsilon, the international honor society in economics, was established at Union in 1973. Juniors and seniors who have shown outstanding achievement in the study of economics are invited to become members.

Phi Alpha Theta: Alpha Iota Chi chapter of Phi Alpha Theta, the national honor society for history, was established at Union in 2001. Students who have compiled outstanding academic records in history are eligible.

Phi Beta Kappa: Juniors and seniors of academic distinction who are candidates for the B.A. or general B.S. degree are eligible for membership in Phi Beta Kappa. Election is based on scholarship and character, with particular attention given to intellectual maturity and breadth. Union’s Phi Beta Kappa chapter, Alpha of New York, was established in 1817 and is the fifth oldest in the country. Election to membership is one of the highest distinctions to be gained by academic achievement.

Pi Sigma Alpha: The Union chapter of Pi Sigma Alpha, the national honor society in political science, was established in 1974. Students who have compiled outstanding academic records in political science are eligible.

Pi Tau Sigma: Established in 1915, Pi Tau Sigma is the national honorary mechanical engineering fraternity. Juniors and seniors with high academic achievement and character are eligible.

Psi Chi: Psi Chi is the national honor society founded to encourage, stimulate, and maintain scholarship in and advance the science of psychology.

Sigma Delta Pi: Established at Union in 1993, the Tau Mu chapter of Sigma Delta Pi honors juniors and seniors for outstanding achievement in the study of Spanish language and literature.

Sigma Pi Sigma: Founded in 1975, the Union chapter of the national honor society Sigma Pi Sigma recognizes outstanding scholarship in physics.

Sigma Tau Delta: Established at Union in 2009, Sigma Tau Delta is the international English honor society.

Sigma Xi: The Society of Sigma Xi is an honorary organization dedicated to the encouragement of scientific research pure and applied. The Union chapter, the third in the nation, was begun in 1887. Annually, the society elects to associate membership selected students in science or engineering who have demonstrated, usually by a written report, marked aptitude for scientific research. In addition, students and faculty who have demonstrated noteworthy research achievement may be elected to full membership.

Tau Beta Pi: Established at Union in 1964, Tau Beta Pi annually elects as members a rigorously-selected group of juniors and seniors who have achieved outstanding records in engineering studies and have demonstrated excellence of character.

College Policy Resources

The Student Handbook and the Faculty Manual are resources, available on the College's web site, that outline College policies, including those regarding academic dishonesty, intellectual property, grades, and use of computing resources.

Students' Rights and Confidentiality of Student Records

One of the goals of a Union College education is to enable students to gain the maturity, independence, and confidence to function as responsible adults. According to New York State law, students who have reached the age of 18 are considered to be adults and are accorded the full rights that such status entails. Because of this, it is the policy of Union College to communicate directly with students on all academic matters, such as grades, academic standing and issues of credit.

The 1974 Family Educational Rights and Privacy Act (FERPA) stipulates that in the case of students who are dependents of their parents in the eyes of the Internal Revenue Service, the College is allowed to disclose information from the student's educational records without obtaining the student's consent. It is the policy of the College to notify both students and parents in writing of formal academic warnings, probationary status and dismissal. Additionally, the College will notify the parents of a student in connection with a health or safety emergency as expressly permitted under FERPA.

In other communications with parents, the College will normally respect the privacy of the student. Information from the student's educational records will not be disclosed without the student's formal written consent. Grades are considered to be part of the student's educational record and will not be disclosed to parents without the student's formal written consent. Upon obtaining such written consent, the College will provide information to parents (or guardians).

All students will be required to declare their tax status at the commencement of each academic year. Any student who claims not to be a legal dependent must provide appropriate evidence to the College in writing within the first month of each academic year.

Student Right-to-Know Act

In compliance with the federal Student Right-to-Know Act requiring institutions of higher education to make available graduation rates, Union has calculated a six-year graduation rate of 86 % based on the first-time freshman cohort entering in September 2003. This calculation does not include students who have transferred into the College from other institutions. The complete graduation rate report is available on line at www.union.edu/Resources/Campus/institutional_studies/index.php or by contacting the Office of Institutional Studies, (518) 388-6607.

Academic Support and Services

Academic Affairs

V.P. for Academic Affairs & Dean of the Faculty: Therese McCarty, Feigenbaum Hall, 388-6102

Dean of Academic Departments: David Hayes, Science & Engineering S-100, 388-6233

Dean of Engineering: Cherrice Traver, Steinmetz Hall, 388-6530

Dean of Interdisciplinary Studies: J. Douglass Klein, F.W. Olin Building, 388-6056

Dean of Studies: Kristin Bidoshi, Science & Engineering S-100, 388-6234

Associate Dean of Academic Affairs: Nic Zarrelli, Feigenbaum Hall, 388-6033

Academic Affairs is responsible for the formulation of educational policy, matters involving the faculty, and all academic related processes. The Academic Affairs Office includes the Vice President for Academic Affairs & Dean of the Faculty, the Dean of Academic Departments, the Dean of Engineering, the Dean of Interdisciplinary Studies and Special Programs, the Dean of Studies, and the Associate Dean for Academic Affairs.

The Vice President for Academic Affairs & Dean of the Faculty has the responsibility for all academic matters related to faculty and students, the curriculum, and academic budgeting. Supervisory responsibilities include, Information Technology Services, Intercollegiate Athletics, International Programs, Registrar's Office, Schaffer Library, and the Union College Academy for Lifelong Learning (UCALL).

The Dean of Academic Departments plays a key role in faculty recruiting, develops curriculum, and advises the Vice President for Academic Affairs & Dean of the Faculty on matters associated with the review and promotion of faculty. The Dean of Engineering has responsibility for planning, professional accreditation, and outreach efforts for the Engineering programs. The Dean of Interdisciplinary Studies and Special Programs oversees the academic opportunities that span across the academic disciplines, as well as overseeing the General Education curriculum. The Dean of Studies has responsibility for implementation of academic policies and has supervisory responsibilities that include Academic Advising, Health Professions program, Academic Opportunity Program, Scholars program, Undergraduate Research, Post-Baccalaureate Fellowships & Scholarships, and the Writing Center. The Associate Dean of Academic Affairs manages the academic budget and assists in various other academic and faculty matters.

Academic Opportunity Program / Higher Education Opportunity Program

Director: Philip Poczlik, Bailey Hall 101, 388-6115

aop@union.edu

The Academic Opportunity Program (AOP) and the Higher Education Opportunity Program (HEOP) have a long and proud tradition of scholarship and academic excellence, serving students for more than thirty-five years. Both programs offer support services to ensure academic success for a select group of students. Services include: an intensive five-week summer program; financial aid covering tuition, room & board, and book allowance; individualized and group tutoring; and academic, career, and financial counseling.

Advising

Director: Lecturer Brian Cohen (Biological Sciences)

Academic advising is central to the mission of a liberal arts college such as Union and is a key faculty responsibility. Union students enjoy a close working relationship with the faculty advisors who encourage and assist their advisees to make informed choices that maximize the benefits of a liberal arts education. First-year students are assigned advisors by the Dean of Studies while upperclass advisors are chosen by the student. Students may request a change of advisor at any time through the Dean of Studies office. Additional information on advising can be obtained on the advising website.

The College also has a peer mentoring program PALs (Peer Assistants for Learning). For more details, contact Gale Keraga (Director of Peer Mentoring and Academic Counselor, 388-6493).

Disabilities

The College provides support services for students with learning disabilities. Refer to "Disabilities" in the Student Services section for additional information. Students are also encouraged to consult with the Director of Student Support Services, in the Dean of Students office.

Health Professions Program

Director: Professor Carol Weisse (Psychology), Bailey Hall 101, 388-6300

The Health Professions Program at Union College was designed to advise students who are planning a career in medicine (including osteopathy, dentistry, podiatry, veterinary medicine, and other allied health professions). In addition to providing academic advising, the program works closely with students to help them identify the kinds of experiences on campus and in the community that will foster personal growth and the development of interpersonal skills necessary for a successful career in health-care delivery.

Professional schools give no preference to any particular major when seeking candidates; therefore, Union College does not offer a “premedical” major. Although many major in the natural sciences, students are encouraged to choose a major in any field in which they are interested. Today more than ever, professional schools are searching for students who have not only mastered the sciences but who also have backgrounds that are well-rounded and diverse. Most professional schools do require students to complete and do well in the following courses:

- two English courses (First-Year Preceptorial and at least one English elective);
- calculus course (through Math 102 or Math 112 or Math 113);
- three biology courses (Biology 110 and 112 or Biology 113; Biology 125);
- four chemistry courses (Chemistry 101 and 102 or Chemistry 110; Chemistry 231 and 232);
- two physics courses (Physics 110, 111).

Information Technology Services

Chief Information Officer, Peschel Computing Center, 388-6293
www.union.edu/ITS

Housed in the Stanley G. Peschel Center for Computer Science and Information Systems, Union’s Office of Information Technology Services (ITS) manages the College’s distributed network and the many computing and technology resources on the network. There are more than 1,600 College-owned computers and workstations on campus, with over 500 available for student use. The network is the backbone for much of the computing on campus, including academic, research, and administrative work; linking classrooms, offices, laboratories, and all College-owned residence hall rooms.

More than 45 smart electronic classrooms are used to enhance the academic program. Other facilities on campus include several departmental computer labs running a variety of Windows, Macintosh, and Linux computer systems. Information Technology Services maintains three computer laboratories that are available 24 hours a day; one is fully equipped for the development of multimedia projects. In addition, several departments and programs have installed computer facilities for specialized use by faculty and students.

Union College and Information Technology Services make computing resources available to all students. All students are entitled to an account on the academic computers, including full access to the Internet. Each student is also provided with space for a personal website and for file storage. A dedicated Internet network connection is provided to each student in every College-owned residence hall room. Wireless network access is available in most buildings on campus. In residence halls it is available in all lounge and public study areas. Additionally, all classrooms have wireless access. Outside wireless access is available in Library Plaza and the College’s outdoor classroom.

There are also many other resources dedicated to assist students. Student Resnet Consultants (RNC’s) are trained to help students connect their personal computers to the Union College network. Assistance with hardware and software problems is provided by USTAR, the student-run technical support program providing assistance to students by students. Full-time academic consulting personnel are also available to provide assistance.

Additional information including network access, assistance, training, computing policies & forms can be obtained from the ITS website.

Language Center

Director: Audrey Sartiaux; Schaffer Library, 388-8363

The Language Center is open to all students with a valid Union ID. The Center is divided into a main lab, a collaborative workspace, and a reception/social space. The main lab contains a Smartboard, 15 IBM computers running Windows XP and Microsoft Office 2003. The collaborative workspace area contains 2 iMacs with dual boot (Mac/PC), 1 PowerMac G4 (running Mac OS X), two IBM computers (one equipped with a webcam for videoconferencing and one with a scanner), a multi-standard VCR and 3 multi-zone DVD players. Headsets with microphones are available upon request. All computers have East

Asian, Slavic, and Arabic languages enabled. Language Assistants (skilled in Chinese, French, German, Japanese, Russian, and Spanish) also hold their office hours in the collaborative workspace. The Center is open during Union College academic terms. Consult the Language Center website for more information.

Prelaw Advising

Prelaw Advisor: Assistant Professor Bradley Hays (Political Science)

Union College provides prelaw advising to students interested in graduate legal education. As a general rule, law schools do not require a specific major but instead look for academic success in a student’s chosen academic discipline. Given the many available academic paths to law school, prelaw advising is inclusive of general curricular and extracurricular guidance, insight into the Law School Admission Test and the application process, and aid in targeting appropriate law schools for admissions.

Post Baccalaureate Fellowships

Director: Maggie Tongue, Becker Career Center, 388-8311

The Office of Post-Baccalaureate Fellowships and Scholarships recruits and supports applicants for external, prestigious merit awards both during and after college. Students are recruited approximately six months to one year before the deadline for the award, usually based on academic success, faculty and administrator recommendations, and/or demonstrated impact on the community. During the application process, the director works closely with students to understand their goals and match opportunities to their needs, as well as oversee the application process. Union regularly supports students for awards such as the Rhodes Scholarship, the Marshall Scholarship, the Fulbright programs, the Watson Fellowship and many more.

Registrar’s Office

Registrar: Penelope Adey, Silliman Hall, 388-6109
www.union.edu/Academics/Registrar

The Registrar’s Office oversees the setup and process of web registration, maintenance of student schedules, creation of course and final exam schedules, assignment of classrooms, grade entry, web advising, rank in class, Dean’s List, academic records, graduation, transcript processing, veterans’ affairs and certification of attendance or eligibility for veterans’ benefits, athletic participation, etc. The Registrar’s Office also coordinates the process of student status and degree verification via the National Student Clearinghouse.

Schaffer Library

Director: Thomas G. McFadden
www.union.edu/Library

Schaffer Library’s mission is to provide timely access to information for specific assignments and for the general pursuit of knowledge. This includes a commitment to individualized service and instruction on Library resources. Professional reference librarians are available for consultation during most of the Library’s opening hours. Refer to the Schaffer Library website for additional information.

Undergraduate Research

Director: Associate Professor Kristin Fox, Science & Engineering Center S-230, 388-6250

Students are encouraged to explore the many different ways that student-faculty collaborative scholarly activity is promoted at Union. There are generous funds available to students for research opportunities including the Summer Undergraduate Research Fund which provides funds to over 50

students who work on independent projects with a sponsoring faculty member. The Internal Education Fund provides financial support for over 100 students every year for senior thesis/project work expenses. In addition, Union sends one of the largest contingents to the annual National Conference on Undergraduate Research where students present their work and interact with peers from institutions across the country. More than 300 students take part in the annual Steinmetz Symposium, an annual celebration of student scholarly work, held during Parents Weekend. Students communicate the results of their scholarly efforts through oral presentations, exhibits, posters, and performances.

Writing Center

Director: Mary Mar, Schaffer Library, 388-6680

The Writing Center offers help to Union students with all forms of writing: essays, reports, research papers, theses, personal statements, etc. The director and trained tutors are available to work with students to plan, organize, revise, or edit their writing to improve its structure, style, clarity, or overall effectiveness. Supporting the College's mission to improve students' writing and critical thinking skills, the Writing Center provides assistance to students of all ability levels and within all disciplines. Open afternoons and evenings from Sunday evening to Friday afternoon, no appointment is necessary.

Special Curricular Opportunities

Scholars Program

The Union Scholars Program offers selected students an enriched educational experience. The Admissions Office, in conjunction with the Director of the Scholars Program, selects the candidates for the Scholars program. Specific features of the Scholars Program are an enriched two-term sequence of Honors courses beginning with a special Scholars Preceptorial (FPR 100H) followed by a Research Seminar (SCH 150), which is also taken in the first year; a two-term (one course credit) sophomore independent study project (295H-296H) with a professor of the student's choosing; and, in the senior year, an optional Scholars Colloquium (SCH 400). Scholars need 2 additional course credits to graduate (i.e. 38 for nonengineering majors and 42 for engineering majors) and use their additional courses to create an enriched program that meets their specific needs and interests. There are also options for accelerated study and for taking additional courses. Union Scholars may take one extra course each term at no extra cost, starting in the winter term of the first year, provided they maintain a GPA of 3.2 or better. These courses can be used to accelerate graduation. New opportunities for scholars, such as summer research fellowships and special classes, are available in selected years.

Seward Interdisciplinary Fellows

The Seward Interdisciplinary Fellows program gives students an opportunity to develop their own program of study exploring connections among disciplines. The program is open to students from any discipline who have demonstrated excellence in their first year at Union College. Similar to the Scholars program, Seward Fellows have the privilege of taking extra courses.

Students apply for the Seward Fellows Program at the end of the fall term of their sophomore year. All Union College students are eligible to apply. Applications from sophomores submitted later than the beginning of winter term will be considered only if there is room in the program. Normally applicants should have at least a 3.5 grade point average; however, the committee will also take into consideration the extent to which students have challenged themselves by taking more advanced introductory courses, honors courses (when available), and a diverse curriculum. Seward Fellows may take one extra course each term at no extra cost, starting in the winter term of the sophomore year, provided they maintain a GPA of 3.2 or better. These courses can be used to accelerate graduation.

Independent Study

With the approval of a professor, a student who has shown the requisite depth of interest and the necessary intellectual skills may register for an independent study course which will allow the student to research into a specific topic that is not offered through the Union course offering. The precise form of independent study projects varies with the student and the subject; the most common are research projects in the sciences and engineering, and substantial investigative papers of "thesis" caliber in the humanities and social sciences. Appropriate credit is granted for all independent study courses that are successfully completed. Independent study courses cannot be taken Pass/Fail.

Internships

Students are eligible to receive academic credit for internship experiences that meet the following criteria: the nature of the internship work must be substantial in nature (clerical and other types of routine work are not appropriate), the internship must be unpaid, and should involve a minimum of 100 hours of work experience. Students requesting credit for their internships must apply for credit prior to beginning their internship. Students may receive credit for up to two internship experiences, but the second internship needs to be substantially different in nature from the first in order for credit to be granted. For more information please contact the Director of Post-Baccalaureate Fellowships, Scholarships and Internships.

Hudson-Mohawk Association Consortium (HMAC) Courses

As a member of the Hudson-Mohawk Association of Colleges and Universities, Union participates in programs of cross-registration permitting students to take courses at other consortium colleges and universities.

Consortium cross-registrations are subject to several conditions. In general, students are advised to confer with the instructor of the course proposed to be taken, but in any case they must fulfill the prerequisites set by the institution giving the course, including permission of the instructor if that is a normal condition for entering the course. Separate applications, obtainable from the registrar, must be completed for each course. When institutional calendars do not coincide, as will be the case in most instances, the individual student will be responsible for making the necessary accommodations, including food and lodging if the home institution is closed during the course. Cross-registering students will be expected to abide by all regulations, including attendance, parking, honor systems, and the like, at the host institution.

Cross-registrations will be approved only for courses not offered at the home institution; in general, they will be limited to a maximum of half the normal course load in any one term. Further, students must have their academic advisor's permission to cross-register for the course(s) in question. Cross-registration will be permitted only in courses that Union normally would consider for transfer credit.

Through the consortium, Union students may enroll in Reserve Officer Training Corps programs of the Navy and Air Force at Rensselaer Polytechnic Institute, in Troy, and in the Army ROTC program at Siena College, in Loudonville. The Reserve Officers Training Corps (ROTC) programs are elective program for students who desire commissions in the armed forces; ROTC courses do not carry credit toward Union College graduation. The objective is to develop professional officers who have varied educational backgrounds in major fields of interest and have the professional knowledge and standard needed for future growth. Such ROTC students may be eligible for scholarships and other benefits available under two- and three-year programs of the several services. Interested students should contact the respective branches of ROTC. Students must work the scheduling of these courses around their course work at Union College.

Members of the consortium, in addition to Union and Union Graduate College, are Adirondack Community College, Albany College of Pharmacy, Albany Law School, Albany Medical College, The College of Saint Rose, Columbia-Greene Community College, Empire State College, Fulton-Montgomery Community College, Hartwick College, Hudson Valley Community College, Junior College of Albany,

Maria College, Massachusetts College of Liberal Arts, Rensselaer Polytechnic Institute, Russell Sage College, Schenectady County Community College, Siena College, Skidmore College, the State University of New York at Albany, and the State University of New York College at Cobleskill.

Students with 18 or more credits toward graduation may not cross-register for courses at a two-year college.

Part-Time Undergraduate Study

Union College makes a limited number of its undergraduate programs of study, specifically computer science and computer, electrical, and mechanical engineering, available on a part-time basis to meet the needs of students who are employed full time or have other commitments beyond the campus. Most of these courses are taught by full-time Union College faculty and regularly enroll full-time undergraduate students as well. Part-time students may also take these courses on a non-degree basis. Registration is handled for all part-time students by the Registrar's Office in Silliman Hall.

Students wishing to matriculate in an engineering or computer science program on a part-time basis are required to meet with the Dean of Engineering. Before registering for their first course, all degree seeking part-time students must complete an application form and submit it to the Admissions Office along with a non-refundable \$50 application fee. Application forms are available from the Admissions Office in Grant Hall. Non-degree students may obtain an application from the Registrar's Office. Students intending to pursue a degree are allowed to register for up to three courses before a final decision is made on their application.

Degree status is granted on the basis of transcripts from high school and/or previous college work, adequate performance in courses taken at Union College as a non-matriculated student (2.3 minimum grade point average), letters of recommendation, and a written recommendation from the departmental program advisor. Financial aid based on demonstrated need is available to matriculated part-time students. Information, assistance, and application forms for financial aid are available through the Office of Financial Aid in Grant Hall.

College credits earned at other institutions may be transferred for full or partial credit toward a Union degree if the student's advisor and the Dean of Studies certify that they are equivalent to Union's requirements. The credit value of a course must be at least three semester-hour credits or five quarter-hour credits to earn full Union course credit.

Registration for courses normally occurs during the tenth week of the term. Registration materials are available from the Registrar's Office during the seventh week of the term. Students registering for the first time must do so in person and should meet with an academic advisor prior to registration. In most instances, the department chair is responsible for advising part-time students. Proof of immunization must be on file at the Health Services Office prior to registration. Continuing, part-time students may register in person, by mail, or by fax.

A very few courses are offered in the evening, so matriculated students will generally need to take most of their courses during the daytime in order to complete degree requirements. Many day courses have restricted enrollments and in some cases, it may be necessary to obtain permission from the academic department offering the course. These courses, referred to as "petition" courses, require the student to sign up on webadvising.union.edu during the seventh week of the term preceding the registration period. For more information about deadlines and procedures, please refer to the current course schedule posted at www.union.edu/Academics/Schedules. Refer to "Costs, Part-time and Non-degree Course Fees" for the per course cost.

Part-time students must satisfactorily complete all requirements for their degree within 12 years after matriculating at Union. They are subject to the same program requirements as full-time students. Students intending to graduate by June of the current academic year must submit a letter of intent to the Union College Registrar's Office as per the deadline specified by the office.

Additional information about baccalaureate degree requirements, course descriptions, grading policies, and financial aid may be found elsewhere in this *Academic Register*.

Union University

Union College, Union Graduate College, Albany Medical College, Albany Law School, Albany College of Pharmacy, and the Dudley Observatory of the City of Albany are united and recognized by the New York State Board of Regents as "Union University." The purpose of Union University, created in 1873, is to promote learning and the development of the several component institutions in the interest of higher education while retaining and continuing the respective and distinctive organizations, rights, powers, and corporate existence. The President of Union College, Stephen C. Ainlay, serves as Chancellor of Union University.

Courses of Instruction

Departments and interdisciplinary programs are described in detail using alphabetically ordered headings below, with individual courses listed by department or program. Courses in separate sub-disciplines within departments (e.g., Chinese, Art History, and Engineering Science) are listed within the relevant department. To find the location of specific courses for subjects that do not correspond to specific departments, please check the comprehensive list of areas of study below. **Some areas of study below have major and minors, while some have minors only. Please refer to the detailed sections on each area of study.**

D: Department	I: Interdisciplinary Program
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Comprehensive Listing of Areas of Study

Africana Studies^I
 American Studies^I
 Anthropology^D
 Asian Studies^I
 Art History (See Visual Arts^D)
 Astronomy (See Physics & Astronomy^D)
 Biochemistry^I
 Bioengineering^I
 Biology^D
 Chemistry^D
 Chinese (See Modern Languages and Literatures^D)
 Civic Engagement
 Classics^D
 Computational Methods^I
 Computer Engineering^I
 Computer Science^D
 Dance (See Theater and Dance^D)
 Digital Media^I
 Economics^D
 Electrical Engineering^D
 Energy Studies^I
 Engineering^D
 English^D
 Entrepreneurship
 Environmental Science, Policy and Engineering^I
 Ethics Across the Curriculum
 Film Studies^I

French and Francophone Studies(See Modern Languages and Literatures^D)
 Geology^D
 German Studies (See Modern Languages and Literatures^D)
 Greek (See Classics^D)
 Hebrew (See Modern Languages and Literatures^D)
 History^D
 International Programs
 Japanese (See Modern Languages and Literatures^D)
 Latin (See Classics^D)
 Latin American and Caribbean Studies^I
 Law and Public Policy (6-year program)^I
 Leadership in Medicine/Health Systems Program (8-year program)
 Managerial Economics
 Master of Arts in Latin American Studies (5-year program with Georgetown University, see Latin American and Caribbean Studies^I)
 Master of Arts in Teaching (MAT) (5-year program)
 Master of Business Administration and Master of Business Administration in Health Care Management Programs (5-year program)
 Master of Science in Electrical Engineering and Master of Science in Mechanical Engineering
 Mathematics^D
 Mechanical Engineering^D
 Modern Languages and Literatures^D
 Music^D
 Nanotechnology^I
 Neuroscience^I
 Organizing Theme^I
 Philosophy^D
 Physics (see Physics and Astronomy^D)
 Political Science^D
 Psychology^D
 Religious Studies^I
 Russia and East European Studies^I
 Russian (See Modern Languages and Literatures^D)
 Science, Medicine, and Technology in Culture^I
 Sociology^D
 Spanish and Hispanic Studies (See Modern Languages and Literatures^D)
 Studio Fine Arts (See Visual Arts^D)
 Theatre (See Theatre and Dance^D)
 Visual Arts^D
 Women's and Gender Studies^I
 World Musics and Cultures^I (see Music^D)

Requirements to fulfill a major or minor appear at the beginning of the course listings for that department or program. All students must also complete the courses in the General Education Curriculum (see below), including Writing Across the Curriculum (WAC) requirements and other requirements that pertain to the undergraduate degree. Courses are numbered as follows.

000-049 – Non-credit courses.

050-099 – General Education courses and others that do NOT count toward the major.

100-199 – Introductory-level courses which count for the major.

200-299 – Sophomore/junior-level courses that often may be easily taken by non-majors. (Some departments may use 200-249 and 250-259 to delineate between sophomore and junior level offerings.)

300-399 – Upper-level courses intended primarily for majors – these are courses representing the depth component of the major.

400-499 – All advanced courses for seniors, including those used to fulfill WS (Senior Writing Experience requirement), small seminars, research, thesis, and independent studies.

Wherever possible, the departments have indicated the instructor and the term during which a course is given. Some courses are offered only occasionally and are so indicated. The College retains the right not to offer a course, especially if enrollment is insufficient.

A few courses are not valued at full course credit, and some carry double credit.

A full course unit may be equated to five quarter-credit hours, or three and one-third semester credit hours.

The General Education Curriculum

The General Education curriculum involves between 10 and 13 courses. Students can double-count courses taken in Part B with Part C but are required to take at least 10 courses total to complete general education. **Note:** Students may satisfy any of the requirements in Parts B and C with appropriate courses taken on international programs.

Part A: Core (two courses)

1. First-Year Preceptorial (FPR-100)
2. Sophomore Research Seminar (SRS 200)

Part B: Distribution requirements (eight courses)

1. One Social Science course including psychology, anthropology, history, sociology, economics, and political science.
2. Two Humanities courses including studio and performing arts courses; one course must be a literature (HUL) course. Note that all English courses and all Modern Languages in Translation courses count for HUL. The General Education Board may approve other courses, which will carry the HUL designation.
3. Two courses in Linguistic and Cultural Competency. This requirement can be satisfied in one of three ways:
 - a sequence of two courses in one foreign language at level 101 or higher
 - any two courses designated “LCC” by the General Education Board
 - term abroad courses (including mini-terms) dealing with a cultural tradition outside the U.S.
4. Three (3) courses: one in quantitative and mathematical reasoning, one in natural and applied science with a lab, and one in science or engineering or the impact of science and technology on society.
 - one course in quantitative and mathematical reasoning. Includes courses in math or those offered in a number of departments, listed as “QMR.” Note that Math 100 must be taken in a sequence with Math 101 to satisfy QMR.
 - one course in natural sciences, with lab, listed as “SCLB”
 - one course selected from the following categories:
 - a second science course, but need not have a lab
 - a course from engineering or computer science, to foster understanding of technology
 - a team-taught ID course (including at least one faculty from Division 3 or 4), with significant science or engineering content, about the impact of science and/or technology on the human world, listed as “SET”

Part C: Clusters: Making connections across disciplines (three courses)

Clusters prompt awareness of interdisciplinary connections by requiring students to take three courses in an approved cluster, from at least two different departments. Overlap between distribution requirements (Part B) and clusters (Part C) is expected. Students are encouraged to choose courses for Part B in such a way that three come from one cluster. At most one Cluster course may be taken in the department of the major. (Note that interdepartmental and double majors may count one course from each department.) Students may automatically satisfy the cluster requirement by completing either a major or a minor in any interdisciplinary or organizing theme program.

The list of approved clusters is as follows (specific courses associated with each cluster are listed at the General Education advising web site):

Africana Studies
 Art and Politics in Latin America and the Caribbean
 Art and Technology
 Asia in Motion
 China: From Yao to Mao to Yao
 The Classical Tradition of the West and its Roots
 The Cold War
 Creative Arts
 Critical Film and Photography Studies
 Critical Race and Ethnic Studies
 Design
 Energy
 Entrepreneurial Thinking
 Environmental Policy
 Environmental Science
 Global Cultures
 International Narratives: Personal and Historical
 International Affairs and Global Studies
 Japan
 Latino/a Studies
 Legal and Social Justice
 Life Course and Society
 Life in the Universe
 Ordering the West From Ancients to Moderns
 Politics and Power in Latin America and the Caribbean
 Public Policy
 Queer Studies
 Religious Studies
 Science, Medicine & Technology in Culture
 Theater Studies
 Women's and Gender Studies

Writing Across the Curriculum

The Writing Across the Curriculum (WAC) program is intended to promote improvement in students' writing and critical thinking skills. Every student will have opportunities to improve these skills by completing the following requirements:

1. the First-Year Preceptorial
2. the Sophomore Research Seminar
3. five courses from at least two different divisions (refer to "Divisions" below) that have been certified as WAC courses
4. a Senior Writing Experience such as a senior thesis or a senior seminar paper.

The First-Year Preceptorial and Sophomore Research Seminar, required of all students, focus on developing critical reading, analytic writing, and research skills. The WAC courses that fulfill the second requirement fall within the normal disciplinary offerings and provide students with feedback on their writing while incorporating writing as an important and clearly evaluated part of the coursework.

Courses currently certified by the College Writing Board as meeting WAC requirements are listed in the course schedule posted on-line each term. As courses and course syllabi frequently change, additional courses are certified each year by the College Writing Board and the roster of WAC courses changes over time.

The form of the senior writing experience that meets the third requirement is determined by the Writing Board and the student's major department(s). In most departments, this requirement is fulfilled by completing a thesis, another research project, or a senior seminar. Courses that satisfy this requirement are designated as WS courses.

WAC: course certified by the Writing Board	WS: fulfills senior writing requirement
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Divisions

For purposes of faculty governance and the General Education requirements, the departments of instruction are grouped into divisions as follows:

The Walter C. Baker Faculty of the Humanities (Division I)

Classics
 English
 Modern Languages and Literatures
 Music
 Philosophy
 Theater and Dance
 Visual Arts

Social Sciences (Division II)

Anthropology
 Economics
 History
 Political Science
 Psychology*
 Sociology

Sciences (Division III)

Biological Sciences
 Chemistry
 Geology
 Mathematics
 Physics and Astronomy
 Psychology*

Engineering and Computer Science (Division IV)

Computer Science
 Electrical and Computer Engineering
 Mechanical Engineering

* Except as otherwise noted in the course listings, courses in the Psychology Department are classified as social science courses (Division II) for purposes of the General Education curriculum. The Psychology Department is included within the sciences (Division III) for purposes of faculty governance.



Africana Studies

Director: Associate Professor D. Hill-Butler (Sociology)

Faculty: Professor T. Meade (History); Associate Professors A. Morris (History), C. Ndiaye (Modern Languages), L. Cox (Visual Arts), T. Olsen (Music); Assistant Professors E. Garland (Anthropology), K. Lynes (English), K. Aslakson, B. Peterson (History); Lecturer M. Lawson (History)

Africana Studies offers an interdepartmental major and a minor involving the study of the history, culture, intellectual heritage, and social development of people of African descent, focusing on the continent of Africa as well as places in the diaspora such as the Caribbean, Latin America, Europe, and the United States. The program features a variety of approaches to intellectual, creative, and practical interests, and draws upon the arts, humanities, and social and behavioral sciences.

Requirements for the Interdepartmental Major: Eight courses. AFR-100 plus six courses chosen from the course list below, at least three of which must be core courses, designated with an asterisk (*). A senior thesis (IDM 498-499) which includes Africana Studies combined with the other departmental major. Students are advised to select courses with a view toward preparing for the area of their thesis.

Requirements for the Minor: AFR-100 plus five courses chosen from the course list below, at least two of which must be core courses, designated with an asterisk (*). Three courses must be from the same department or discipline.

Africana Studies

AFR-100 Introduction to Africana Studies

Anthropology

ANT-186 Political Economy of South Africa
ANT-191 Global Africa
ANT-192 African Ethnographies
ANT-287 Postcolonial Africa

Art History

AAH-460 Seminar: Visual Culture, Race, and Gender

Classics

CLS-110 Ancient Egypt: History and Religion

English

*EGL-216 African-American Literature in Historical Context: Beginnings to 1900: Vision and Re-Vision
*EGL-219 African-American Literature in Historical Context: 1900-Present
*EGL-240 Black Women Writers
*EGL-274 Introduction to Black Poetry
*EGL-310 Junior Seminar: Harlem Renaissance

History

*HST-107 Africa to 1800
*HST-108 Modern Africa 1800-Present
*HST-109 African Slave Trade
*HST 131 African-American History I
*HST 132 African-American History II
HST-171 Europe and the Americas in the Era of Columbus
HST-172 Reform and Revolution in Latin America and the Caribbean

HST-201 Contemporary Africa

*HST-231 The Civil Rights Movement

HST-232 Race & Law in American History

HST-233 Gender & Afro-American History

HST-270 Latin American Popular Culture

HST-272 History of Brazil

HST-273 The History of the Caribbean and Central America

HST-278T South Africa Mini-term

HST-302 Comparing Muslim Cultures

HST-315 Race and Constitution

*HST-322 Slavery and Freedom

HST-324 Race in American Memory

HST-362 "Black Britain": Race and Ethnicity in British History

HST-370 Colloquium: Latin American History

HST-401 Seminar: Islam in Africa

HST-402 Seminar: French Empire

HST-411 Seminar: Old South

Modern Languages and Literatures

*FRN-304 Studies in the French Caribbean

FRN-305T Mini-term in Martinique

*FRN-307 Negritude Movement: Point of Departure in Black African and Afro-Caribbean Literatures in French

FRN-430 West African Oral Literature

FRN-431 Voices of Francophone Literature from French Speaking Countries and Territories other than France

*MLT-213 West African Oral Literature

MLT-283 Beyond the Sunny Paradise: Literature and Politics in the Caribbean

MLT-284 Popular Religion and Politics in Latin America

SPN-332 An Introduction to Afro-Hispanic Literatures and Cultures

SPN-431 Colonial Latin America 1492-1800

SPN-432 Islands Adrift: Race, Politics, and Diasporas in the Hispanic Caribbean

SPN-433 Latin American Colonial Crossroads at the Movies

Music

*AMU-131 Music of Black America

*AMU-132 The History of Jazz

*AMU-133 Music of Latin America

*AMU-134 Music and Culture of Africa

Political Science

PSC-235 African American Political Thought

PSC-240 Comparative Racial and Ethnic Politics

PSC-263 The Politics of Poverty and Welfare

PSC-267 Race and the American Political System: Tyranny of the Majority?

PSC-284 Political Sociology

PSC-333 Twentieth Century American Political Thought

Sociology

*SOC-230 African-Americans in Contemporary Society

*SOC-233 Race, Class, and Gender in American Society

SOC-240 Political Sociology

SOC-245 Sociology of Developing Countries
 SOC-265 Sociology of Human Rights
 SOC-320 Africa: Social and Demographic Trends
 *SOC-323T A Survey of Brazilian Society
 *SOC-346 African American Women: Unheard Voices and Contemporary Lifestyles
 SOC-387T Community Service Mini-term

Theater and Dance

ADA-052 Dance in America

Terms Abroad

FRN-305T Mini-term in Martinique
 HST-278T South Africa Mini-term
 *SOC-323T A Survey of Brazilian Society
 SOC-387T Community Service Mini-term
 TAB-344T Ancient and Modern Egypt Mini-term

AFR-100. Introduction to Africana Studies (Fall; Hill-Butler). An interdisciplinary introduction to the field of Africana Studies. This course will examine the problems and perspectives—social, economic, political, historical, and cultural—of the peoples of Africa and the African diaspora. GenEd: LCC

American Studies

Director: Associate Professor L. Cox (Visual Arts)

Faculty: Professor C. Brown (Political Science); Associate Professors A. Foroughi (History), J. Matsue (Music), D. Hill-Butler (Sociology); Assistant Professors B. Tuon and K. Lynes (English), K. Aslakson (History), B. Hays (Political Science); Senior Lecturer A. Selley (English)

American Studies is an interdisciplinary field of concentration in the liberal arts relating to the United States as a geographical area and a cultural and political space. Drawing on courses from twelve departments, students learn to move among and connect history, art, politics, religion, popular culture, literature and other features of American life. Students are encouraged to explore the diverse character of the American experience, shaped by gender, race, class, sexuality, geography and ethnicity, and to situate that experience in a context of global economic, cultural and political relations. Students are asked, however, to develop a coherent approach to the study of American culture, politics and society, past and present. To accomplish these tasks, students in the American Studies program collaborate closely with an academic advisor to work out a thematic core around which to build a unique and innovative course of study that knits together the methods and perspectives of several disciplines. Themes may be centered on a specific era (e.g. antebellum America or the United States since the Cold War) or a topical focus (e.g. the emergence of mass culture or ethnicity and race in American life).

The American Studies program offers an individualized program of study that allows each student to tailor his or her course work to his or her own personal interests and needs. There is no one way to complete the major or minor. A student is urged to meet with the Program Director as soon as he/she becomes interested in the program, preferably no later than the beginning of his or her junior year.

Requirements for the Major:

1. A minimum of 13 courses. Three of the four required core courses (at least one core course must be from English and one from History) must be completed by the end of student's junior year. The core courses are EGL-100, EGL-101, HST-101, HST-102, HST-113, HST-131, HST-132, HST-212 or HST-213.

- 2.** In consultation with his or her American Studies academic advisor, a student must complete five (5) courses of intensive study around a specific theme centered on either an era (such as antebellum America or the United States since the Cold War) or a topical focus (such as the emergence of mass culture or ethnicity and race in American life). For example, a concentration on 19th Century America might include AMU-130, EGL-228, HST-118, HST-215, PHL-341, and/or PSC-332, or a thematic concentration on progressive America; civil rights and social justice might include AAH-460, ECO-345, EGL-274, HST-231, HST-312, PHL-264, PSC-283, PSC-371, and/or PSC-385. Additional possible themes are listed on the Union College website. One of the five theme courses must come from Division I (Humanities) and one from Division II (Social Sciences). In addition, the thematic courses must come from at least three different departments. Every student must complete an American Studies course selection list with his or her American Studies advisor to determine which courses would best fulfill his or her theme and to find out how often the courses are offered. All courses counted towards the major must have American Studies course approval. (See list of courses below)
- 3.** An additional two (2) American Studies approved courses, which can be at any level and may be outside the student's thematic concentration.
- 4.** During the junior year one additional upper level American Studies approved course, preferably a WAC and a methods or theory course. If possible, the course should be related to the thematic concentration. If not taken in the junior year, this course must be completed by the end of the student's senior year.
- 5.** A two-term written thesis or two-term senior project (AMS-498-499) related to the student's thematic concentration. To fulfill the Writing Across the Curriculum (WS) requirement, the senior project (which may be done in a non-text medium such as audio, video, or multi-media) and must have a written component in the form of a journal that results in a final paper of at least 15 pages. A student will work with a primary, or 1st thesis advisor, and a 2nd thesis advisor from a different department whom the student must consult early in research portion of the project to better ensure the interdisciplinary focus of the thesis. Both thesis advisors will participate in the oral defense of the thesis at the completion of the project. A student must consult with the program director by the fifth week of spring term of his or her junior year and provide a description of his or her proposed project or thesis topic to determine his or her thesis advisors.
- 6.** One of the thirteen courses must cover issues of race and ethnicity or gender in America, and no course can double count towards the student's minor if one is being pursued.

Requirements for the Interdepartmental Major: The purpose of the American Studies Interdepartmental major is to allow students the opportunity to cultivate a multi-dimensional picture of our culture as a complement to or in relation to another area of concentration, be it Middle Eastern history, Latin American and Caribbean Studies or an area of interest outside the humanities and social sciences. As with the full American Studies major, interdepartmental majors must focus their coursework around a coherent topic, either chronologically or thematically. (See possible choices above under major)

- 1.** A student must complete a minimum of eight courses, including two of the four core courses. (See list under major above)
- 2.** In consultation with his or her American Studies academic advisor, a student must complete four courses with either an historic or thematic concentration from the American Studies approved course list. (See possible themes above under major requirements) One of the four must come from Division I (Arts & Humanities) and one from Division II (Social Sciences). No courses can double count towards the student's other ID major or a minor. One of the four theme-connected courses must be at the 300 level or above. The eight required courses must be from at least three different departments and have American Studies course approval. (See list of courses below)
- 3.** During the junior year, one additional upper level American Studies approved course preferably a WAC and a methods or theory course. If possible, the course should be on a topic related to the thematic concentration. If not taken in the junior year, this course must be completed by the end of the student's senior year.

4. A two-term written thesis or two-term senior project (AMS-498-499) related to the student's thematic concentration, or a WAC/WS course with American Studies approval. The ID thesis should demonstrate a combination of the student's American Studies theme with the other ID program or department. To fulfill the (WS) Writing Across the Curriculum requirement, the senior project (which may be done in a non-text medium such as audio, video, or multi-media) and must have a written component in the form of a journal that results in a final paper of at least 15 pages. A student will work with a primary, or 1st thesis advisor, and a 2nd thesis advisor from a different department whom the student must consult early in the 1st early research portion of the project to better ensure the interdisciplinary focus of thesis. Both thesis advisors will participate in the oral defense of the thesis at the completion of the project. A student must consult with the program director by the fifth week of spring term of his or her junior year to provide a description of his or her proposed project or thesis topic and to determine his or her thesis advisors.

5. One of the eight courses must cover issues of race and ethnicity or gender in America, and no course can double count towards the student's other ID area or minor if one is being pursued.

Thematic Concentration: The following are possible thematic concentrations for an American Studies major, interdepartmental major or minor (these are only suggestions, there are many more possibilities): The Colonial Era; American Revolution through the Civil War; 19th Century America; Contemporary America: c. 1960-present; Latino(as) in US History & Culture; Comparative American Ethnic Studies; America in the World; American Identity: Race, Class & Gender; American Modernism; The Cold War Era; American Creativity in the 20th Century; Progressive America: Civil Rights and Social Justice; American Industrialization: The Environment, Society and Labor; American Media & Popular Culture; Rural America and Regional Traditions. The program website under Union College Academics also list possible themes with possible courses.

Requirements for Honors: To receive honors as an American Studies major or an ID major, a student must (1) have a cumulative grade point average of 3.3; (2) maintain a grade point average of 3.3 in his or her American Studies approved courses; (3) successfully complete a two term senior thesis with a grade of A or A-; (4) receive a high pass or pass with distinction for the oral thesis defense; (5) give an oral presentation at The Steinmetz Symposium in the spring of his or her senior year; and (6) place a copy of the thesis in the library archives. Further guidelines for the senior thesis and honors are available from the program director.

Requirements for the Minor

1. A minimum of six (6) courses, including two of the four required core courses (see above under major).

2. Four additional courses, chosen in consultation with the student's minor advisor from the American Studies approved course list, that must have either a historic or thematic concentration. One of four must come from Division I (Arts & Humanities) and one from Division II (Social Sciences). One course must cover issues of race and ethnicity or gender in America. No course for the minor can double count towards a student's major.

Union College Courses with American Studies (AmS) Approval: The following courses, from twelve different departments, have American Studies approval to count towards the major, ID and minor. Descriptions of each course can be found under the respective departments that offer the course. Those marked with an asterisk (*) are American Studies approved courses that meet the race and ethnicity requirement, and those listed with WGS are approved courses that meet the gender requirement. Note that some American Studies approved courses require prerequisites, which can be found under the department course descriptions. New courses not listed may be granted American Studies approval as determined by the Program Director. All courses counted towards the major must have American Studies course approval as listed below.

Course Registration Guidelines: A student must meet with his or her American Studies academic advisor prior to registration. It should be noted that some courses, notably in English and Economics, require prerequisites, so a student needs to make plans early in his or her studies to complete these if her or she plans to take an upper-level course in these departments to complete his or her theme. A student must consult with the American Studies Program Director and the Registrar for approval of AP or IB credits for the major.

Division I Humanities Courses

Art History

AAH-221 History of Photography II
 AAH-250T The Architecture of the Federal Capital
 AAH-260 Art of the United States
 AAH-363 Early American Modernism, 1900-1945
 AAH-366 Contemporary Art and Theory
 *AAH-460 Seminar: Visual Culture, Race & Gender (WGS)

English

EGL-100 Intro to Study of Lit: Poetry
 EGL-101 Intro to Study of Lit: Fiction

Note: Students must take Introduction to Literary Studies: Poetry (EGL-100) or Introduction to Literary Studies: Fiction (EGL-101) as a prerequisite for any 200 or 300 level course in the English Department. Students must take two intermediate courses before enrolling in a Jr. Seminar and four intermediate courses before enrolling in a Sr. Seminar.

EGL-209 American Literature in Historical Context: Beginnings to 1800
 EGL-215 American Literature in Historical Context: The 19th Century
 *EGL-216 African-American Literature in Historical Context: Beginnings to 1900: Vision and Re-Vision
 EGL-217 American Literature in Historical Context: 1900-1960
 EGL-218 American Literature in Historical Context: 1960-Present
 *EGL-219 African-American Literature in Historical Context: 1900-Present
 EGL-228 The American Renaissance
 EGL-229 American Realism and Naturalism
 EGL-233 New York Modern
 EGL-234 The Beats and Contemporary Culture
 *EGL-239 American Indian Women Writers
 *EGL-240 Black Women Writers
 *EGL-243 Introduction to American Indian Literature and Film
 *EGL-244 Asian American Literature and Film
 EGL-253 American Sentimental Novel: Desire, Incest, Cross-dressing, and Homoerotic
 *EGL-254 Narratives of Haunting in US Ethnic Lit
 *EGL-255 Discourses on the Viet Nam War: Literature, Film and History on the Conflict in Vietnam
 EGL-260 Modern American Novel
 EGL-261 American Fiction Since 1960
 EGL-262 American Regionalism
 EGL-270 Modern Poetry
 EGL-272 American Poetry Since 1960
 *EGL-274 Introduction to Black Poetry
 EGL-283 Autobiography
 EGL-285 Film as Fictive Art: American and European Films
 EGL-286 Film: The American Western
 EGL-287 Science Fiction
 EGL-293 Studies in a Major Film Director
 EGL-304 & 305 Junior Seminar: Topics vary but must be American author(s) for American Studies credit, such as Bob Dylan, Harlem Renaissance, Emily Dickinson, Hughes, Hurston, and others. Please see English Department course listings for a complete list.
 EGL-404 & 405 Senior Seminar: Topics vary but must be American author(s) for American Studies credit, such as Bob Dylan, Harlem Renaissance, Emily Dickinson, Hughes, Hurston, and others. Please see English Department course listings for a complete list.

Music

- AMU-130 American Music
 *AMU-131 Music of Black America
 AMU-132 The History of Jazz

Modern Languages

- *MLT-203 Asian American Film and Performance (EAS & WGS)
 *MLT-282 North/South Relations and Diasporic Politics
 *MLT-285 From Virgin to Sex Goddess: Re-Envisioning the Chicana Experience Through Art & Literature
 *MLT-289 Literature of the Mexican-American Border

 *SPN-350 Vision and Voices: Chicana Icons from Myth to Matter (WGS)

Philosophy

- PHL-170 Philosophy in America
 PHL-264 Philosophy of American Education
 PHL-341 Twentieth Century Philosophy

Theater & Dance

- ADA-052 Dance in America
 ADA-140 American Musical Theatre and Dance. (ATH-140)
 ATH-140 American Musical Theatre and Dance. (ADA-140)

Division II Social Science Courses**Anthropology**

- *ANT-180 North American Indians
 ANT-210 The Anthropology of Poverty
 ANT-236 Youth and Popular Cultures

Economics

Note: Students must take Introduction to Economics (ECO-101) as a prerequisite for any 200 level or above course in the Economics Department.

- ECO-224 Competing Philosophies in US Economic Policy
 ECO-225 Economics of Sin
 ECO-226 Financial Markets
 ECO-233 Public Policy and American Industry
 *ECO-234 Japanese-American Finance & Trade Relations
 ECO-237 Gender Issues in Economics (WGS)
 ECO-339 Public Finance
 ECO-344 Economics of Education
 ECO-345 Nonprofits, Cooperatives, and Other Non-Traditional Firms
 ECO-374 Sports Economics
 ECO-386 Seminar in Public Policy
 ECO-387 Seminar in Labor

History

- HST-101 History of the United States to the Civil War
 HST-102 History of the United States Since the Civil War
 HST-113 Origins of American Society
 HST-114 The American Revolution

- HST-118 Civil War and Reconstruction
 HST-120 The Progressive Era and the Great War, 1890-1920
 HST-121 The Depression and New Deal
 HST-123 Postwar America and the Origins of the Cold War
 HST-125 Coming Apart? America in the Sixties (WGS)
 HST-126 Since Yesterday: United States History, 1974-2000 (WGS)
 HST-127 America in the Vietnam War
 *HST-128 The American Jewish Experience
 HST-129 History of Sports in America
 *HST-131 African-American History I
 *HST-132 African-American History II
 *HST-135 Latinos (as) in U.S. History
 *HST-211 American Indian History
 HST-212 Women in Colonial and Victorian America (WGS)
 HST-213 Women in Modern America (WGS)
 HST-215 Revolutions in Americans' Lives
 HST-216 The Writing and Ratification of the Constitution
 HST-217 American Folk Music/American History
 HST-218 Death in America
 HST-222 Other Voices: Women in the History of American Ideas (WGS)
 HST-223 Twentieth Century American Intellectual History
 HST-224 Introduction to Public History
 HST-225 American Environmental History
 *HST-231 The Civil Rights Movement
 HST-310 Special Topics in United States History
 HST-311 Frontiers in the Americas
 HST-312 History of Women's Rights in the United States (WGS)
 HST-315 Race and the Constitution
 *HST-322 Slavery and Freedom
 *HST-324 Race in American Memory
 HST-331 Representing America: United States History in Film
 HST-332 Transnational America
 HST-333 Hollywood Film: An American History
 HST-335 American Environmental History
 HST-336 The Roosevelt Era
 HST-411-413 Seminar in US History: Topics vary. Please see History Department course listings in the Academic Register.

Political Science

- PSC-111 Introduction to U.S. Politics
 *PSC-235 African American Political Thought
 PSC-239 Feminist Political Theory (WGS)
 *PSC-240 Comparative Ethnic and Racial Politics
 PSC-246 Contentious Politics
 PSC-247 Politics and Film
 PSC-251 American Foreign Policy
 PSC-257 U.S. Empire in Crisis
 PSC-260(R) Policy Making and American Society
 PSC-261 Public Opinion
 PSC-262 The American Experiment
 PSC-263 The Politics of Poverty and Welfare
 PSC-264 Congressional Politics
 PSC-268 Electoral Politics
 PSC-269 Media and Politics

PSC-270 Constitutional Law
 PSC-272 The Environment, Energy, and U.S. Politics
 PSC-273 The Supreme Court and Judicial Politics
 PSC-277 Local Government Internships
 PSC-279T & 280T Washington, DC Internship Program
 PSC-281 Issues in American Education
 PSC-282 Health Politics and Policy
 PSC-283 Social and Political Movements (SOC 270)
 PSC-284 Political Sociology (SOC 240)
 PSC-332 American Political Thought To World War I
 PSC-333 Twentieth Century American Political Thought (WGS)
 PSC-355(R) Defense Policy
 PSC-362 CIA and the Art of Intelligence
 PSC-366 Presidential Politics
 PSC-369 Seminar: U.S. Politics
 PSC-371 Civil Rights and Civil Liberties
 PSC-385 Women and Politics (WGS)
 PSC-434 Feminist Film (WGS-495)

Sociology

SOC-212 The American Family and Cross-Cultural Perspectives
 *SOC-230 African-Americans in Contemporary Society
 *SOC-231 Sex and Gender in American Society (WGS)
 SOC-233 Race, Class, and Gender in American Society (WGS)
 SOC-240 Political Sociology (PSC-284)
 SOC-270 Social and Political Movements (PSC-283)
 SOC-284 Sociology of Women & Health (WGS)
 *SOC-346 African American Women: Unheard Voices and Contemporary Lifestyles (WGS)
 SOC-364 Sex and Motherhood (WGS)
 SOC-387T Community Service Miniterm

Women's & Gender Studies

WGS-495 Capstone Course: Feminist Film

Division III Science Courses

Geology

GEO-201 Stratigraphy and Depositional Environments of New York

Anthropology

Chair: Professor K. Brison

Faculty: Professors L. Cool, S. Gmelch (on leave 2010-11), G. Gmelch (on leave 2010-11); Associate Professor S. Leavitt (Dean of Students); Assistant Professor E. Garland; Visiting Assistant Professors E. Shever, J. Witsoe

Staff: J. Bazar (Administrative Assistant)

Requirements for the Major: Twelve courses including four Foundation courses (ANT-110, ANT-114, ANT-290, and ANT-363), a Term Abroad* (Anthropology Field Program in Fiji/Palau or Tasmania preferred), and a two-term senior thesis in cultural anthropology. **If necessary, accommodations will be made.*

Requirements for the Interdepartmental Major: Eight courses, including ANT-110, ANT-290, ANT-363, a senior thesis, and three electives.

Requirements for Honors: For departmental honors, a major must fulfill the following requirements: (1) a minimum overall G.P.A. of 3.30; (2) a minimum G.P.A. of 3.50 in all anthropology courses; (3) completion of all requirements for the anthropology major or interdepartmental major; (4) a grade of at least A- on the senior thesis.

Requirements for the Minor: Six courses including (1) ANT-110, (2) ANT-290 or ANT-363, and (3) four electives.

Field Program in Anthropology: (Palau-Fall; K. Brison) This anthropology field school - gives students an intensive, firsthand experience studying another culture. Students live with local families while carrying out full-time field research. Palau participants are enrolled in ANT-185T (Peoples and Cultures of the Pacific), ANT-255T (Culture and Work), and ANT-490T (Independent Study Abroad).

Foundation Courses

ANT-110. Introduction to Cultural Anthropology. (Fall, Winter, Spring; Staff). The basic concepts, methodology, and findings of cultural anthropology. Examines the similarities and diversity of human societies through in-depth case studies and cross-cultural comparisons. Emphasis on non-Western cultures. *GenEd: SOCS, LCC*

ANT-114. Language and Culture. (Winter; Brison). Examines the complex relationship between culture and language. Case materials drawn from societies in North America, Oceania, Southeast Asia, and the Middle East are used to explore various theories about how language is shaped by, and in turn shapes, culture and social relations. Topics include the acquisition of language by children in various cultures, everyday speech styles, verbal art, and the ways of talking about such things as emotion and illness to show how linguistic categories and patterned ways of using language influence the way we perceive the world around us. *GenEd: LCC*

ANT-290. Thinking about Culture. (Winter; Cool). A broad overview of the history of American and European anthropological approaches to studying individuals and societies. Students examine the strengths and weaknesses of contemporary and historical paradigms through critical reading and analysis papers. *GenEd: LCC*

ANT-363. Qualitative Research Methods. (Spring; Brison). An introduction to qualitative research methods in anthropology. The course examines the ways anthropologists collect data through participant observation, non-directive interviewing, questionnaires, examining case studies, and doing symbolic and behavioral analyses. We examine the strengths and weaknesses of these methods and compare them to methods of other social sciences to illuminate the anthropological approach to understanding society and culture. Students learn how to formulate research questions and a research project, apply the best methods to a particular research design, and write a proposal.

Electives

(only one cross-listed course can count for the major or minor)

ANT-125. Childhood in Anthropological Perspective. (not offered in 2010-11). The comparative study of childhood: examines child-rearing practices in various cultures including the U.S. Topics include theories of gender difference, play as socialization, education across cultures, and socialization practices. *GenEd: LCC*

ANT-130. Food and the Self. (not offered 2010-11). What is the relationship between food and the body? What are the boundaries of food and the body? Are you what you eat or how you eat? This course looks at anthropological approaches to eating, consumption, identity, the body and food, while also examining current controversies such as obesity, genetically modified foods, and food taboos. While much of the course concerns itself with the cultural and historical construction of the American diet, it also draws examples from other cultures. *GenEd: LCC*

ANT-139. Family and Kinship. (Fall; Cool). This course provides an analysis of families in the U.S. and other cultures. The aim is to develop an appreciation for the variety of ways that family life can be organized as well as an understanding of the causes and consequences of different family and kinship patterns. *GenEd: LCC*

ANT-146. Education and Culture. (not offered 2010-11). Examines theories of learning and education systems across cultures. How are schools shaped by cultural values? What is the role of education in reproducing or challenging social systems? *GenEd: LCC*

ANT-148. Introduction to World Music. (Same as AMU-120). Introduces students to the music of the world and to methodological approaches to the study of music. Surveys the music of various regions of the world while also considering issues such as the connection between society and music, the formation of syncretic music, improvisation vs. composition, and the connection between language and music. Music is presented as an integral part of culture. *GenEd: LCC*

ANT-150. Anthropology of Religion. (Winter; Brison). Comparative study of religious behavior and ideology. Examines the ways that a wide array of religions help individuals to cope with life problems and reinforce social groups. Examines debates about the extent to which religion shapes human motivation and about the relationship between religion and society. *GenEd: LCC*

ANT-160. Photographing Culture. (Spring; S. Gmelch). This course examines the various uses of photography to depict, understand, and influence human behavior, focusing on the visual depiction of non-Western peoples (e.g., in National Geographic, contemporary advertising, early government and ethnographic reports, in boarding school and orphanage literature). It also discusses interpretation and the manipulation of photographic "evidence." Other topics include tourist photography, the photographic conventions used by different cultures, and the use of photography as a research method. Emphasis on student projects. *GenEd: LCC*

ANT-170. Myth, Ritual and Magic. (Same as REL-170) (not offered in 2010-11). This course examines some of the theoretical issues surrounding myth, ritual and magic as well as specific examples of their cultural expression. How do people make sense of themselves, their society and the world through myth and ritual? How do cosmology and belief systems help them gain and organize knowledge about the world and themselves? The course will be examining a number of "occult" and "esoteric" practices, that is, practices that were not commonly known to all members of society, including sufism, kabbalah, alchemy, and shamanism. *GenEd: LCC*

ANT-182. Anthropology of Mediterranean Europe. (Spring; Cool). Sources of similarity and diversity in the rural and urban cultures of Mediterranean Europe from Spain to Greece. Emphasis on modes of social relationships such as patronage and on cultural formulations such as honor and shame. Economic development and change in rural communities, urban life and the urbanization of migrants, and the rise of ethnic and regional movements are analyzed. *GenEd: LCC*

ANT-183. Peoples and Cultures of Latin America. (Fall; Shever). Examines the peoples and cultures of Latin America in historical and contemporary perspectives. Uses case studies, accompanying articles, and a range of media. Themes include: colonialism, identity politics, expressive culture, religion, gender, race, ethnicity, nationalism, and political economy. *GenEd: LCC*

ANT-184. Contemporary Japanese Society. (not offered in 2010-11). An anthropological introduction to contemporary Japanese society and culture. Provides an historical overview, then explores

in greater depth of such topics as family structure, education, religious traditions, the work place, women, and contemporary social problems. *GenEd: LCC*

ANT-185T. Peoples and Cultures of the Pacific. (Fall; Brison). An overview of the cultures of Polynesia (including Fiji, Tonga and Samoa), focusing particularly on kinship, religious beliefs, economic systems, and the impact of colonization and missionization. Offered on the Fiji Term Abroad. *GenEd: LCC*

ANT-210. The Anthropology of Poverty. (Spring; Witsoe). Why has urban poverty remained so entrenched in the United States, even amidst the unprecedented economic expansion of the post-war period? This course will seek to answer this question by exploring the relationships between race, public institutions, economic change and inequality within American society. In doing so, the course will examine the theoretical and practical dimensions of anthropology's engagement with poverty. We will begin by examining theoretical approaches for understanding the persistence of poverty in the United States, as well as the major policy frameworks that seek to reduce poverty. In addition, the course will cover anthropological critiques of these approaches and anthropological accounts of the everyday realities and struggles of poor people. Students will do internships in local organizations dealing with poverty and will use this experience to reflect on larger debates.

ANT-220. Women's Lives Across Cultures. (Spring; S. Gmelch). Examines women's lives in different cultures through detailed case studies and film, focusing on common experiences (e.g., motherhood, work), gender-based inequality, and sources of women's power and influence. It also examines topics that exclusively or disproportionately affect women (e.g., female genital cutting, domestic violence, rape, sex tourism) as well as the varied forms feminism takes in other cultures. *GenEd: LCC*

ANT-225. Gender and Society. (not offered 2010-11). An examination of the role gender plays in human life. How does being labeled and socialized to be male or female shape peoples' daily life and life chances? How do our culture and others regard people who do not fit mainstream conceptions of maleness or femaleness? The course will discuss the concepts of gender and sex, gendered behavior and expectations, "third genders" (e.g., the North American berdache, the Indian hijra), homosexuality, transgendered individuals and sex-reassignment surgery, and cross-cultural similarities and differences. *GenEd: LCC*

ANT-228. Cross-Cultural Perspectives on Race. (not offered 2010-11). Does race matter in today's world? Has race always existed as a human category of difference? Is race just a black and white thing? How do other cultures outside the U.S. configure race? To address these and other questions we will focus on the historical and cultural peculiarities of race. This course asks students to move conceptually from the era of European colonialism and the invention of the modern conception of "race" to the U.S. Civil War period to the ascension of negritude, and, finally, race in contemporary times. We will investigate the diversity and complexity of "racialization" in various places, such as Detroit, Rio de Janeiro, Martinique, China, Paris, and Capetown. *GenEd: LCC*

ANT-229. Ruminations on Violence. (not offered in 2010-11). Is violence best understood as a set of "random acts" marginal to society? Or do societies need violence to make culture systematic and to make hierarchy function? We will address three major issues: the extent to which "violence" is culturally relative or a human universal; different types of violence; and the ways social groups turn violence into an aesthetic object and an artistic project. To accomplish our task, we will adopt both an ethnographic and theoretical approach. *GenEd: LCC*

ANT-230. Medical Anthropology. (not offered 2010-11). An examination of beliefs about illness, healing, and the body and how these are shaped by culture and society. Topics include non-Western healing practices, political forces shaping medical practice in the U.S., and birthing practices in different cultures. *GenEd: LCC*

ANT-232. Bombs to Buddhism: Fatalism, Technology, and Modern Japanese Culture. (not offered 2010-11). An exploration of Japanese culture through critical reading of a variety of texts including classic literature, historical accounts, contemporary fiction, *manga* (Japanese comics), *anime* (Japanese animation), and film. Throughout the course, students will question what religious beliefs, natural disasters and historical events have shaped Japanese media, which, in turn, will deepen our understanding of contemporary Japanese society. The importance of such disparate phenomena as Buddhism, the dropping of the nuclear bomb, the 1954 film "Godzilla," and the mega-manga "Akira" will be considered. *GenEd: LCC*

ANT-235. Fundamentalism. (not offered 2010-11). This course examines the spread of fundamentalist and evangelical religions around the world, and at theories about the appeal and impact

of fundamentalism. We will start with a series of general, comparative works analyzing the rise of fundamentalist strains of Christianity, Islam, and other religions around the world. We will then move to specific case studies analyzing the impact and appeal of various fundamentalist religions in the Pacific, in the Caribbean, in South Africa, in the US, in the Middle East and in the Indonesia. Issues covered will include: the relationship between fundamentalism and modernity; the place of women in fundamentalist religious movements and so on. *GenEd: LCC*

ANT-236. Youth and Popular Cultures. (not offered 2010-11). Over the past decade, anthropologists have become increasingly aware of the importance of popular culture as a powerful field where people not only express themselves but an arena that also shapes some of the basic tenets of society. In this course we will examine the Internet and other “virtual” community formations, television, advertising, shopping malls, mobile homes, sports fandom, spirituality, hip-hop, “grrl” movements, and drug “cultures.” This course provides an opportunity to turn an anthropological lens onto the everyday life of teenagers and the flavor-of-the-month styles of popular culture and consumerism. *GenEd: LCC*

ANT-240. Technology, Culture & Society. (not offered 2010-11). Examines the role of technology in cultural change and the role of culture in technological change. Particular attention will be given to: the Internet and other so-called “virtual community” formations, graphic design and other media, “reality” TV, cross-cultural advertising, and popular music. *GenEd: LCC*

ANT-241. Environmental Anthropology. (Winter; Shever). This course examines anthropological approaches to the environment and environmentalism. It asks questions such as: How does culture shape our perception of nature? What can conflicts over environmental protection, natural resources and human manipulations of natural materials tell us about contemporary societies? What does it mean to call an issue “political” or “cultural,” versus “scientific” or “technical”? Students will develop the critical analysis skills to examine the natural world as a site of cultural politics, using anthropological concepts to examine environmentalism in diverse geographical and historical settings, including the Amazon, the Niger Delta, the suburban mall, and the Union campus. *GenEd: LCC*

ANT-242. Economic Anthropology. (not offered in 2010-11). This course explores the social and cultural dimensions of production, exchange and consumption. Do all people everywhere seek to accumulate property, and to maximize profits? Is “rationality” the same in every culture? Do all think the same way about debt, bribery, gambling or marriage payments? Do human economies evolve inexorably—for example, from public to private property, from cowrie shells to electronic money, or from gifts and barter to sale and credit? Or is the picture more complex and the direction inconstant? Is there really any such thing as a “free” gift? What does *The Godfather* have to do with the exchange of necklaces and armbands in the South Pacific? Who wins and loses from “globalization”? Why do people value things? *GenEd: LCC*

ANT-243. Anthropology and International Development. (Fall; Witsoe). Faith in twentieth-century development and progress has been severely shaken by the environmental crisis and the failures of the international development assistance. What is development? What is the third world? How was it made? What problems does it face and how is it changing? What are the causes of failure in development / aid programs? Drawing on a variety of ethnographic materials and case studies, this course discusses the nature of economic and social changes in post colonial societies and underdeveloped areas in the West / North, offers a critical analysis of sustainable development, and introduces the students to the practices, anthropological and otherwise, of planning policy interventions. The course shows how anthropological knowledge and understanding can illuminate “development issues” such as rural poverty, environmental degradation and the globalization of trade. *GenEd: LCC*

ANT-246. Anthropology of Human Rights. (Winter; Witsoe). In recent years, anthropological discussions of human rights have gone beyond the traditional debate between universalism and relativism sparked by the 1948 Universal Declaration of Human Rights. Marginalized peoples who are the traditional subjects of anthropological research are increasingly using human rights rhetoric to advance their own causes or draw attention to their plight. This course will examine philosophical and anthropological discussions of human rights and contemporary debates and controversies surrounding human rights. In particular, we will examine the deployment of truth commissions in the aftermath of political violence, the role of human rights NGOs, contested claims of suffering, and human rights interventions. *GenEd: LCC*

ANT-247. Living With Globalization. (Fall; Garland). In recent decades, technologically-enabled increases in flows of capital, people, things, images and ideas around the world have resulted in the process

of global integration and compression commonly called “globalization.” In this course we will explore globalization from the perspective of anthropology, tracing its consequences both for the world’s economic and political systems, and for the everyday lives of people around the globe. Topics will include: cultural dimensions of changing labor practices and systems of production, the role of globalization in cultural homogenization and differentiation, the ways the migrants, refugees, tourists and others forge new supra-national forms of sociality and identity, and the role of media flows and commodity consumption in the production of global identities. *GenEd: LCC*

ANT-250. Humans and Animals. (not offered in 2010-11). This course explores the cultural dimensions of human relationships with animals. Topics to be covered include the diversity of relationships between people and animals around the world, the nature and significance of the boundary between humans and animals, and the ways in which people use animals to create, think through, and naturalize human social dynamics, particularly in relation to distinctions of race, gender, sexuality, and class. Drawing on a combination of symbolic and historical analysis, we will examine subjects such as animal husbandry, the display of animals in zoos and museums, the animal rights movement, wildlife conservation and hunting, and the challenges increasingly being posed to the notion of species by new, technologically-enabled life forms like clones, cyborgs, and chimeras. *GenEd: LCC*

ANT-251. Anthropology of Aging. (not offered 2010-11). Using anthropology’s cross-cultural approach, this course examines both universal patterns and particular aspects of aging in a variety of cultures, including the U.S. Attention will be given to creating a future environment that may better satisfy the cultural and social needs of older people in the U.S. *GenEd: LCC*

ANT-255T. Culture and Work. (Fall; Brison). This course takes a broad perspective on the relationship between culture and work. Course readings, assignments and discussions, will prompt students to consider how work activities are shaped by culture and the larger social context by examining: i) institutional cultures involving idiosyncratic authority structures, routines, shared knowledge and so on; ii) how local cultures are influenced by their place in larger international production chains. *GenEd: LCC*

ANT-260. Tourists and Tourism. (Spring; Garland). This course examines the practice of tourism as a way of knowing the world and constituting the self. It also explores the role of tourism in the lives of those who act as hosts to tourists. Topics include the role of tourism in the essentialization and commodification of culture, the emergence, organization, and effects of mass tourism, the cultural dynamics surrounding several kinds of niche tourism, and the possibility of socially and ecologically responsible tourism development. *GenEd: LCC*

ANT-265. The Museum: Theory & Practice. (same as HST-265) (Spring; Staff). This course is designed to introduce students to the work of museums through an internship at the Schenectady Museum and accompanying seminar. Articles from anthropology and history (including art history) expose you to the range of practical (e.g., exhibit design, collections policy, planning educational programs) and theoretical issues scholars study (e.g., intellectual property, commodifying culture, whose voice and history should be heard). The internship at the Schenectady Museum gives hands-on experience with museum work and the day-to-day issues museum staff confront. Several fieldtrips introduce different types of museums.

ANT-267. Corporate Cultures. (not offered in 2010-11). This course provides an overview of the theories and methods of the anthropological study of organizations and organizational culture: the perspective that organizations and subsets within organizations develop their own ideological, sociopolitical, and material culture. This perspective can be used to understand the full range of organizations: large and small, corporate and non-profit, government and non-government, local and multinational. An understanding of organizational culture offers a means to organize information, symbols, values, and people in ways that influence planning, evaluation, policy, regulatory issues, and resource allocation. Through readings, discussion, guest speakers, and participant observation, students will become familiar with how organized culture can impede or enhance productivity and the success of organizations.

ANT-270. Political Anthropology. (not offered in 2010-11). The course introduces anthropological approaches to the study of politics. We will examine influential theories of power, democracy and the

state and apply them to understanding particular cases in various areas of the world. Topics covered will include: ethnographies of local politics, democratic elections, ethnographies of bureaucracy and other state institutions, ethnographic accounts of the political implications of development practice, and ethnographies in and of the “world system.” We end by exploring the implications of globalization for studying politics and the state. *GenEd: LCC*

ANT-274. Music and Culture. (same as AMU-220) (Winter; Matsue). Introduces students to the discipline of ethnomusicology, with particular emphasis on ethnographic methods, through readings on the history and development of the field, considering the major theoretical approaches, and supplemented by readings on specific world music areas. Students will conduct an extensive fieldwork project on music-making in the community.

ANT-280. India: Paradoxes of the 21st Century. (not offered in 2010-11). The second-fastest growing major economy in the world, India is also a country with hundreds of millions of people living in extreme poverty. Arguably the most successful democracy in the postcolonial world, Indian politics is also pervaded by corruption and violence. The course will examine recent political developments in India such as the rise of Hindu nationalism, the spread of lower-caste politics, and economic liberalization. We focus on the challenges that India faces in the twenty-first century, including land and water scarcities, the already visible effects of global warming, and growing inequalities between regions and social groups. This will add complexity and balance to the now widespread image of India as a rising economic superpower within an emergent “Asian Century.” *GenEd: LCC*

ANT-282. Business, Government, and Power. (Winter; Shever). This course examines the role of business corporations in the contemporary world, particularly focusing on their relationships to states and their position in global circuits of power. The course asks such questions as: Have transnational companies become as powerful as nation-states? Are they taking over the roles of state institutions? How do businesses govern their employees, consumers and neighbors? Students will be led to consider how studying business corporations can help us to understand capitalism and globalization at different sites across the world. *GenEd: LCC*

ANT-287. Postcolonial Africa. (Spring; Garland). This course explores sub-Saharan Africa in the aftermath of European colonization of the continent. African people have responded to the experience of colonial conquest in varied and imaginative ways, integrating this history with their pre-existing cultural practices and frameworks for understanding the world, and in the process developing new cultural forms that are “postcolonial” in nature. Drawing on a range of examples from East, West, and Southern Africa, this course will expose students to the diversity of contemporary African cultural forms, while providing the background and analytic tools necessary to make sense of the many challenges and opportunities African people face. Anthropological approaches will be used to understand political conflict, disease, and natural resource use. *GenEd: LCC*

ANT-295H & ANT-296H. Anthropology Honors Independent Project 1 & 2. (Tutorial for Union Scholars Sophomores; permission of instructor required.)

ANT-490-492. Independent Study. (Fall, Winter, Spring). Tutorial for individual students.

ANT-490T. Independent Study Abroad. (Winter). Tutorial for individual students.

ANT-498. Senior Thesis. (first term)

ANT-499. Senior Thesis. (second term)

Asian Studies

Director: Associate Professor J. Matsue (Music)

Faculty: Professors B. Lewis (Economics), L. Patrik (Philosophy); Associate Professors M. Ferry (Modern Languages), J. Madancy (History), E. Motahar (Economics), J. Ueno (Modern Languages); Assistant Professors M. Dallas (Political Science), B. Tuon (English), Z. Zhang (Modern Languages); Visiting Assistant Professor J. Witsoe (Anthropology)

The Asian Studies program provides a broad, interdisciplinary liberal arts education focusing on the language, culture, and the arts of Asia (with emphasis on China and Japan). The courses they take in this program equip students to pursue interest and careers that require exposure to global issues, particularly pertaining to Asia. The major leads to a bachelor of arts degree and our graduates have gone on to careers in business, government service, law, education, the arts, journalism, or further study in graduate school.

Requirements for the Major: Fourteen courses including six courses in either Chinese or Japanese language (not a combination of both, unless authorized by the program faculty), and two courses devoted to a senior project. Students must select three courses from AS offerings in *either* the Humanities or the Social Sciences, and two additional courses in the opposite division. One of those five courses must deal entirely with an Asian country outside the student’s language concentration. (For example, a student who takes a year of Japanese language must take one course that deals solely with China or another Asian country.) Students must also take at least one of the core courses that are designated in the course list below with an asterisk. A core course is designed to give students more breadth in their study of Asia by dealing with both China and Japan over a substantial period of time. Majors must pass a comprehensive examination in the form of an oral defense of their senior project. Students are required to participate in a term abroad to China or Japan, or in a mini-term to Asia.**

***If necessary, accommodations will be made.*

Requirements for the Interdepartmental Major: Eight courses including three courses in either Chinese or Japanese language and one course devoted to a senior project. Students must also take at least one of the core courses that are designated in the course list below with an asterisk. A core course is designed to give students more breadth in their study of Asia by dealing with both China and Japan over a substantial period of time. Of the three remaining AS courses, one must deal entirely with an Asian country outside the student’s language concentration. (For example, a student who takes a year of Japanese language must take one course that deals solely with China or another Asian country.) Students are strongly encouraged to apply for the terms abroad to China and Japan.

Requirements for Honors: To be eligible for honors in the program, the student must fulfill the following requirements: (1) a minimum index of 3.30 in the program; (2) a cumulative index of 3.30 or better; (3) a grade of “A minus” or higher on the senior project; and (4) superior performance in an oral exam based on the senior project.

Requirements for the Minor: Six courses including three courses in either Chinese or Japanese language, one core course with a content that includes more than one Asian country (listed below with an asterisk *), and two additional AS courses.

EAS-490-492. Independent Study (Fall, Winter, Spring)

EAS-498-499. Senior Project (Fall, Winter). Interdisciplinary investigation of a topic in Asian Studies.

Humanities Courses in Asian Studies**Art History**

AAH-104 Arts of China
 AAH-105 Arts of Japan
 AAH-280 Buddhist Art
 AAH-287 Tibetan Art
 AAH-294 Visual Culture in Communist China

Chinese

CHN 100 Basic Chinese I
 CHN 101 Basic Chinese II
 CHN 102 Basic Chinese III
 CHN 200 Intermediate Chinese I
 CHN 201 Intermediate Chinese II
 CHN 202 Intermediate Chinese III
 CHN 300 Advanced Chinese I
 CHN 301 Advanced Chinese II
 CHN 302 Advanced Chinese III

English

EGL-244 Asian American Literature
 EGL-255 Discourses on the Viet Nam War

Japanese

JPN 100 Basic Japanese I
 JPN 101 Basic Japanese II
 JPN 102 Basic Japanese III
 JPN 200 Intermediate Japanese I
 JPN 201 Intermediate Japanese II
 JPN 202 Intermediate Japanese III
 JPN 300 Advanced Intermediate Japanese I
 JPN 301 Advanced Intermediate Japanese II
 JPN 302 Advanced Intermediate Japanese III

Modern Languages and Literatures

MLT-200 Modern Chinese Literature
 MLT-201 Chinese Cinemas
 MLT-202 Gender and Sexuality in Modern China
 MLT-203 Asian American Film and Performance
 *MLT-204 Literary Traditions in East Asia
 *MLT-205 Perspectives in Modern East Asian Literature
 MLT-207 China's Cultural Revolution
 MLT-209 The New Wall of China
 MLT-250 Japanese Sociolinguistics

Music

AMU-012 The Union College Taiko Ensemble Practicum (3 terms required to earn 1 credit)
 AMU-013 The Union College and Community Gamelan Ensemble (3 terms required to earn 1 credit)
 AMU-136 Popular Music in Modern Japan
 AMU-233 Japanese Wadaiko Workshop
 AMU-234 Balinese Gamelan Workshop
 *AMU-320 Encounters with East Asian Music Cultures

Philosophy

PHL-166 Indian Philosophy
 PHL-167 Chinese Philosophy
 PHL-180 Theories of the Good Life
 PHL-245 Buddhist Ethics
 PHL-338 Zen and Tibetan Buddhism

Social Sciences Courses in Asian Studies**Anthropology**

ANT-184 Contemporary Japanese Society
 ANT-232 Bombs to Buddhism: Fatalism, Technology, and Modern Japanese Culture

Economics

ECO-234 Japanese-American Finance and Trade Relations
 ECO-354 International Economics
 ECO-376 Seminar in Global Economic Issues

History

*HST-181 East Asian Traditions
 *HST-182 Modern East Asia
 HST-281 Modern Japan
 HST-283 The Mao Years
 HST-284 Women in China and Japan: Power and Limitations
 HST-285 The Samurai: Lives, Loves, and Legacies
 HST-380 Special Topics in East Asian History
 HST-382 World War II in Asia
 HST-383 The Last Dynasty: The Glory and Fall of the Qing Empire, 1644-1911
 HST-481 Seminar in East Asian History

Political Science

PSC-244 Japan: Conflict and Consensus
 *PSC-253 International Politics in East Asia
 PSC-258 Chinese Foreign Policy
 PSC-345 Contemporary Chinese Politics

Term Abroad Programs in Asian Studies

CHN-204T 205T Chinese Language and Culture Studies Abroad
 (See International Programs—China Term Abroad)
 JPN 252T 253T Japanese Language and Culture Studies Abroad
 (See International Programs—Japanese Term Abroad)

Art History (see Visual Arts)

Astronomy (see Physics and Astronomy)

Biochemistry

Director: Associate Professor K. Fox (Chemistry)

Faculty: Associate Professors S. Horton (Biological Sciences), J. Kehlbeck (Chemistry); Assistant Professor M. Paulick (Chemistry), Lecturer B. Cohen (Biological Sciences)

Requirements for the Major: Eleven courses in biology and chemistry: Biology 101, 102, 225 and 380; Chemistry 101, 102, 231, 232, 240, 351, 382; and three additional courses, two to be chosen from Biology 354, 355, 363, 378, 384 and Physics 200, and the third to be chosen from among the other biology courses in the subcellular or organismal areas or Biology 243, Chemistry 330 or 340. In addition, mathematics through Math 115 and two terms of physics are required. Note that acceptance to graduate school may require additional courses and/or undergraduate research experience.

Requirements for the Minor and Interdepartmental Majors: It is not normally permitted to minor in biochemistry or to have an ID major in which biochemistry is a component.

Departmental Honors in Biochemistry: Students eligible for honors in biochemistry must fulfill the College-wide criteria and satisfactorily complete a thesis, traditionally based on the results of original research, that receives the approval of the subcommittee for biochemistry and the appropriate College committee. It is customary, but not required, that students enroll in three honors research courses, typically during the senior year.

Course Registration Guidelines

Advanced Placement: AP credit is awarded as per current Biology and Chemistry Department guidelines. Since Biochemistry is an interdisciplinary major, students are not required to have a cluster to complete General Education requirements. For detailed advising suggestions see the advising website at www.advising.union.edu under Department-Specific Advising Tips.

Senior Writing Requirement: The senior writing requirement may be fulfilled in several ways:

1. By completing a senior thesis in conjunction with senior research (Biology 497, 498, 499 or Chemistry 491, 492, 493).
2. By selecting the biology senior seminar that emphasizes cellular/molecular topics, Biology 489.
3. Only in the event that neither of the above options is available, a student could satisfy the WS requirement by writing a research paper requiring extensive background reading in conjunction with taking Biology 380, Chemistry 382 or one of the molecularly-based biology electives, in addition to the regular course work. Students pursuing this option must consult the Director of Biochemistry before the beginning of the senior year to make arrangements.

Courses

Descriptions of courses from the Departments of Biology and Chemistry can be found under the department listings. Biochemistry 335 is a survey course for non-biochemistry majors. Biochemistry 380 and 382 comprise a two-term biochemistry sequence required for biochemistry majors. Either Biochemistry 380 or 382 can be taken first. Students who have completed Biochemistry 335 cannot enroll in Biochemistry 380/382 and vice-versa.

BCH-335. Survey of Biochemistry (Same as BIO-335 and CHM-335) (Spring; Paulick). A survey of topics in biochemistry including buffers, protein structure, lipid structure, carbohydrate structure, enzyme mechanism, and enzyme kinetics. The pathways by which biomolecules are synthesized and degraded will be investigated. Specifically we will look at carbohydrate, lipid and nitrogen metabolism. Medical applications will be emphasized throughout the course. Prerequisites: Biology 225 and Chemistry 231. Not open to students who have completed either BCH 380 or BCH 382.

BCH-380. Biochemistry: Membranes, Nucleic Acids, and Carbohydrates (Same as BIO-380) (Fall; Cohen). An in-depth investigation into some of the macromolecules which are essential to life's processes. The course focuses on non-protein molecules and their unique chemical properties. Three lab hours each week. Prerequisites: Biology 225 and Chemistry 232 or permission of the instructor. Not open to students who have completed BCH 335.

BCH-382. Biochemistry: Structure and Catalysis (Same as BIO-382 and CHM-382) (Winter; Fox, J. Anderson). Structure and function of proteins/enzymes including purification, mechanism, kinetics, regulation, metabolism, and a detailed analysis of several classic protein systems. Four lab hours each week. Prerequisite: Chemistry 232. Not open to students who have completed BCH 335.

Bioengineering

Directors: Associate Professors A. Rapoff (Mechanical Engineering), S. Rice (Biological Sciences)

Faculty: Professor L. Fleishman (Biological Sciences); Assistant Professors S. Cotter (Electrical and Computer Engineering), J. Currey (Bioengineering), S. Kirkton (Biological Sciences)

Bioengineering is an interdisciplinary engineering major designed for students interested in exploring the interface between engineering and the life sciences. In bioengineering, students learn to apply engineering principles and analytical approaches to the study of biological systems and seek to understand the benefits and constraints of engineered materials, devices and control systems in life science and biomedical applications.

Students in the bioengineering major choose from one of two tracks: the biomechanical track and the bioelectrical track. Tracks share common introductory courses in biology, engineering, computer science and bioengineering, diverge during their sophomore and junior years, and culminate in a common senior design experience.

The biomechanical track focuses on approaches to understanding the structural properties and dynamics of biological cells, tissues and systems, and of engineered devices with biological and biomedical applications. The bioelectrical track is organized around the interface among sensory physiology, neuroscience and electrical engineering and students focus on techniques to acquire, analyze and interpret neurological, biomedical and other biological signals and images.

Requirements for the Major: Students should consult with their academic advisor and the following yearly requirements when scheduling courses. Some 300 level courses are offered in alternate years, and some of these courses will be taken outside of the year indicated.

First Year:

Both Tracks: BIO-101, CHM-101, CSC-109, ESC-100, FPR-100, MTH-113⁽ⁱ⁾, MTH-115⁽ⁱ⁾, PHY-120⁽ⁱ⁾, PHY-121⁽ⁱ⁾, Elective⁽ⁱⁱ⁾

Second Year

Biomechanical Track: BIO-225, MER-101, MER-201, MER-212, MER-214, BNG-240, MTH-127, MTH-130, SRS-200, Elective⁽ⁱⁱ⁾

Bioelectrical Track: BIO-225, ECE-118, ECE-225, ECE-240, MER-101, BNG-240, MTH-130, SRS-200, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾

Third Year⁽ⁱⁱⁱ⁾

Biomechanical Track: BIO-3XX^(iv), BNG-344, BNG-331, BNG-375, BNG-345, MER-311, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾

Bioelectrical Track: BIO-3XX^(iv), BIO-362, BNG-331, BNG-386, ECE-241, ECE-366, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾

Fourth Year

Both Tracks: BIO-3XX^(iv), BNG-495, BNG-497, BNG-498, Elective⁽ⁱⁱⁱ⁾, Elective⁽ⁱⁱⁱ⁾, Elective⁽ⁱⁱⁱ⁾, Elective⁽ⁱⁱⁱ⁾

Biomechanical Track: BNG-346, Elective⁽ⁱⁱⁱ⁾

Bioelectrical Track: BNG-487 or BNG-397, CSC-283

⁽ⁱ⁾An alternative mathematics and physics sequence is possible depending on the preparation of the student.

⁽ⁱⁱ⁾The Elective courses must be satisfied as follows: five General Education courses and six Free Electives. Students planning to attend medical school should take BIO-102 and CHM-231/232 (organic chemistry) as electives.

⁽ⁱⁱⁱ⁾The Linguistic and Cultural Competency component of the General Education curriculum is recommended to be satisfied in the third year through a Term Abroad.

^(iv)See Biological Sciences: one Organismal Area course and one Subcellular Area course.

Requirements for Honors. The criteria for graduating with honors in Bioengineering are: (1) cumulative index of at least 3.3; (2) index in major courses of at least 3.3 with at least an A- in at least three major courses excluding BNG-497/498; (3) at least an A- in BNG-498; (4) final six terms of courses at Union; (5) majority approval by faculty in Bioengineering. The major courses are listed under “Courses for the Major” and also include BIO-101, BIO-225, BIO-3XX (Organismal Area course), BIO-3XX (Subcellular Area course) and MER-101. Major courses by Track include: Bioelectrical: ECE-118, ECE-225, ECE-240, ECE-241, ECE-366; Biomechanical: MER-201, MER-212, MER-214, BNG/MER-311

Requirements for the Minor: A minimum of six courses taken outside the major department organized around the following:

Core Course Requirements: BIO-101, BNG-240, ESC-100, MTH-112 (or MTH-113 or equivalent), PHY-110 (or PHY-120)

Upper-Level Course Requirements

Engineering and Computer Science Majors: Three courses from the following: 200 level or above biology or bioengineering courses and/or PHY-200 or PHY-210. Third and fourth year students entering the Minor may opt to take an additional 200 level or above course instead of BNG-240.

Biological Sciences Majors: Three courses from the following: 200 level or above engineering (BNG, MER, ECE, CSC) courses and/or PHY-200 or PHY-210. Third and fourth year students entering the Minor may opt to take an additional 200 level or above course instead of ESC-100.

Other Majors: Three 200 level or above courses in biology, engineering and/or PHY-200 or PHY-210 with approval by the Program Directors.

Course Registration Guidelines

Advanced Placement: Students will receive credit for AP or IB courses following the guidelines of the appropriate supporting department.

Senior Projects. During their junior year, students should meet with potential faculty advisors to identify a project and notify a Program Director when this process is complete. Students who cannot locate an advisor through this process must contact a Program Director who will help locate an advisor.

Courses

BNG-240. Introduction to Bioengineering (Winter; Same as BIO-240 & MER-240). In this course, students will explore the application of engineering principles and analyses to the study of biological systems and seek to understand the potential benefits and constraints of engineered materials and devices in medical and environmental applications. The course will cover principles of solid mechanics, fluid mechanics and biosignals. Topics include the mechanics of support and locomotion, biofluids, and neuro-muscular signal acquisition and processing. Course prerequisites: MTH-110 or equivalent and one course in BIO, CHM or PHY that counts towards the major.

BNG-331. Cell-Tissue-Material Interaction (Winter; Same as BIO-231). Study interactions between living cells, tissues and implant biomaterials, with a focus on molecular and cellular level phenomena in the initiation and generation of tissue and systemic responses. Prerequisite: BIO-101.

BNG-344. Biomechanics of Human Motion (Winter; Same as MER-344). Study of the dynamics of human motion through a series of modules comprised of lecture and laboratory activities. The modules will include: musculoskeletal modeling with inertial effects, determination of mass moments of inertia of body segments, principle mass moments of inertia, instrumentation used in kinematics and kinetics analyses, numerical differentiation and integration and terrestrial locomotion. Prerequisite: MER-212.

BNG-345. Orthopedic Biomechanics (Spring; Same as MER-345). Structure, function, mechanical properties, constitutive models, and methods of analysis of bone and other biologic hard tissues; introduction to the analysis of skeletal joints, prosthetics, and implants. Prerequisite: MER-214.

BNG-346. Soft Tissue Mechanics (Not offered in 2010-11; Same as MER-346). Introduction to the mechanical behavior of biological soft tissues including ligament, tendon, skeletal muscle, articular cartilage, intervertebral disc, and skin. Topics include the hierarchical structure, function, properties, and constitutive modeling of each tissue. Prerequisite: MER-214.

BNG-375. Animal Locomotion (Spring; Same as BIO-375). This course examines the evolutionary diversity of animal locomotion by investigating how physical properties of both the organisms and their environment affect the biochemistry, anatomy and physiology of movement. This course also uses engineering principles to explain animal locomotor mechanisms of animals. One lab per week. Prerequisite: BIO-101.

BNG-386. Introduction to Biomedical Instrumentation (Winter; Same as ECE-386). Introduction to the theory and application of instruments in medicine. Measurements of the major systems in the body are covered. A weekly laboratory provides an opportunity to perform measurements and use biomedical instruments. Prerequisite: ECE 225.

BNG-397. Biometric Signal Processing (Fall; Same as ECE 377). This course details how signal processing is applied to create biometric systems, which are technologies that measure and analyze human body characteristics. These systems are widely used today in security and forensic applications. The course will reinforce many of the fundamental concepts that students have learned in their introductory DSP course and will cover both 1D (voice) and 2D (face and fingerprint) biometrics. Students will be introduced to image processing, pattern recognition, and the statistics used to measure the performance of biometric systems. The important societal and ethical issues involved in the design and deployment of biometric systems will be addressed. A weekly laboratory will complement the lecture material.

BNG-487. Biomedical Signal and Image Processing (Not offered in 2010-11). Introduction to the applications of signal processing methods in the measurement of biomedical signals. Processing of one dimensional signals (e.g., ECG) and two dimensional image signals (e.g., fMRI) are covered. Prerequisites: ECE-241, CSC-109 or equivalent.

BNG-495. Bioengineering Capstone Design (Winter). A capstone design experience in which students work in teams comprised of at least one member from each track in Bioengineering. Each team will use design methodologies and techniques to produce a complete and detailed design for a designated bioengineering client. The course will be instructed by a team comprised of faculty from each track and from Biological Sciences. Co-Requisite: BNG-311, MER-311 or ECE-241.

BNG-497. Bioengineering Senior Project 1. Capstone research or design project, performed either independently or as a team, under the supervision of one or more faculty participating in the Bioengineering program. Co-Requisite: BNG-311, MER-311 or ECE-241.

BNG-498. Bioengineering Senior Project 2. Capstone research or design project, performed either independently or as a team, under the supervision of one or more faculty participating in the Bioengineering program. Prerequisite: BNG-497.

Biological Sciences

Chair: Associate Professor B. Danowski

Faculty: Professors L. Fleishman, R. Olberg; Associate Professors Q. Chu-LaGraff, S. Horton, R. Lauzon, K. LoGiudice, S. Rice, J. Salvo; Assistant Professors J. Corbin, S. Kirkton, N. Theodosiou; Visiting Assistant Professor J. Bishop; Senior Lecturers B. Pytel, P. Willing; Lecturer B. Cohen

Staff: M. Angie (Life Sciences Specialist), A. Kelly (Life Sciences Specialist), M. Hooker (Technician), P. Sendzicki (Administrative Assistant)

Requirements for the Major: Ten courses in biology, including Biology 101, 102 and 225. Students who have received Advanced Placement credit for biology will receive credit for Bio 101, which will count as one course toward the major or minor. The remaining courses must include at least one in each of the following areas:

Sub-cellular (Biology 352, 354, 355, 363, 378, 380, 384);

Organismal (Biology 240, 250, 315, 316, 321, 330, 332, 336, 362, 365, 370, 375);

Population or community (Biology 256T, 257, 320, 322, 323, 324, 325, 328, 345, 350).

Of the 10 courses, only one may be an independent study, research or honors course (Biology 490-496 or 497-499). Students must take at least 5 courses numbered 240 or above. Normally required are at least five courses collectively in mathematics, physics, chemistry, computer science, and geology to be chosen in consultation with the advisor. Students usually should take Chemistry 101 and 102 and Mathematics 110 and 112 (or 113) in their freshman year. Note that acceptance to graduate and professional schools often requires at least two mathematics, four chemistry (including organic chemistry), and two physics courses.

Requirements for Interdepartmental Majors: Students wishing to declare an interdepartmental major must submit a proposal to the department chair outlining their proposed program of study no later than the second term of their junior year. This program, which must be approved by the chair of the Biology Department, should be written in consultation with advisors from both departments to form a cohesive and integrated major; appropriate courses in mathematics and physical sciences should be included in the proposal. Students who wish to have their I.D. major listed as Bio/Other are required to take eight biology courses. Those wishing to have their I.D. major listed as Other/Bio are required to take six biology courses. Only one of these may be a research course. Interdepartmental majors are not required to take one subcellular, one organismal and one population course, although they are strongly encouraged to do so.

Requirements for Honors: Students eligible for departmental honors must fulfill the College-wide criteria and satisfactorily complete a thesis, traditionally based on the results of original biological research, which receives the approval of the department and appropriate College committee. It is customary, but not required, that research students enroll in three honors research courses, typically during the senior year. Interdepartmental majors must consult with their advisors in both disciplines during their junior year to receive approval for an interdepartmental thesis. The biology component of an interdepartmental thesis will normally incorporate at least one term of biological research.

Requirements for the Minor: Six courses in biology, including Biology 101 and 102. The courses must be selected from among those designated for credit toward the biology major. Students are cautioned that many upper-level biology courses require prerequisites (in biology or other science departments) beyond Biology 101 and 102. Therefore, any student who contemplates a biology minor must register at the Biology Department Office and be assigned a departmental advisor. Students with majors outside Division III or in psychology may count one biology GenEd course toward the minor if it is their first course in the minor.

For requirements for a major in biochemistry or neuroscience, see the relevant listings.

Requirements for Secondary School Certification: Educational Studies strongly recommends that no undergraduate student at Union attempt to seek secondary certification as an undergraduate. However, those students who wish to become public secondary school teachers are urged to visit The School of Education at Union Graduate College to learn the requirements for achieving certification during a fifth year. Union students who enter the Union secondary certification program are often eligible for special scholarship consideration during their fifth year.

All students who believe they will seek public secondary certification in Biology should be advised that they must complete the following courses in Biology: Biology 101, 102, 225; at least four 200 or 300 level courses including 350, and at least one course each from the areas of field biology (Biology 256T, 320, 323, 324, 325, 328); functional biology (Biology 316, 330, 355, 362, 370); one morphological biology (Biology 332, 336, 354).

All science majors are encouraged to seek certification in more than one science and/or in General Sciences. Students wishing to add certification in General Science must include at least two courses each from the areas of chemistry (Chemistry 101 and 102), physics (Physics 110, 111, or 210), and earth science (any geology course). Also required are at least six courses from mathematics, chemistry, and/or physics to be chosen in consultation with an advisor. Organic Chemistry (Chemistry 231 and 232) will normally be required. Highly recommended courses include History 242; Philosophy 273, or 274; and Political Science 281.

Biology interdepartmental majors seeking secondary school certification in any science must have a full major in their primary area of certification. In their second area of certification, a student hoping to teach in a public secondary school should have a minimum of eight courses which will count toward a major in that science.

All students considering a fifth year at Union Graduate College to achieve public secondary certification in Biology must complete additional requirements beyond science courses during their undergraduate career. Before the end of winter term of their senior year they must take PSY 246, EDS 500A and 500B (Field Experiences; see Educational Studies for the appropriate requirements to complete the Field Experiences), and one year of a foreign language.

Course Registration Guidelines

Advanced Placement: Students who received a score of 4 or 5 on the Advanced Placement exam may receive credit for BIO 101. The BIO 101 credit received from the A.P. exam counts as one of the Biology courses towards the major or minor.

Courses Suitable for Non-Majors: Biology 050, 051, 055, 065 and 094 are designed for the general college community and may not be counted toward the biology major nor toward interdepartmental majors that include biology. Biology 080, which requires permission from the instructor, is also suitable for selected non-majors. Some 200 level courses are also suitable for non-majors (e.g. 275).

General Education Courses

Of the following courses only BIO-275 may be counted toward the biology major.

BIO-050. Topics in Contemporary Biology (Fall; Willing). Recent developments in biology that are pertinent to human health and to concerns of the nature of life and of human social values. Not open to students who have had BIO-275; fulfills GenEd science with laboratory requirement.

BIO-055. Evolution of Animal Behavior (Winter; Fleishman). Humans have long been fascinated by the complex behavioral interactions of other animals. Non-human animals communicate, fight, mate, and try to stay alive in a complex and dangerous world. The course will provide an introduction to the scientific study of animal behavior, with an emphasis on the processes by which complex and diverse behaviors evolve. In lab, students will observe and quantify behavior of living animals in order to test hypotheses about the function and mechanisms underlying different behaviors. Fulfills GenEd science with laboratory requirement. Not open to science majors.

BIO-065. Food in the 21st Century (not offered in 2010-11). An introduction to multiple aspects of food: basic nutrition; role of our dietary choices on health; modern and traditional food production systems; environmental issues in farming (fossil fuel use, climate change, pollution, depletion of water tables); sustainability of our modern food supply system; innovative approaches to providing sufficient food to a growing population. Fulfills GenEd science with laboratory requirement.

BIO-077. Technology of Biology (Winter; Salvo) Advances in technology have been utilized by scientists and physicians for many centuries. Today, with the rapid developments in molecular biology, the technology often outpaces the understanding and acceptance of the public. This course will look at technological advances relating to biology from both a historical and modern perspective, with an emphasis on how molecular biology has revolutionized our lives. Medical, environmental and industrial topics will be included. Not open to Biology majors. Fulfills GenEd science requirement (no lab).

BIO-094. Understanding Cancer (Spring; Cohen). Everyone has been touched at some point in their lives by cancer. This course aims to provide insight into the fundamental concepts involved in the life cycle of a cell, how cancer is related to those processes, and how those fundamental processes have led to advances in cancer treatment. Not open to students who have already completed Biology 101 or Biology 110 or Biology 113. Fulfills GenEd science requirement (no lab).

BIO-275. The Biology of Homo sapiens (Same as ANT-275) (not offered 2010-11) A survey of the contributions from many disciplines (paleontology, physical anthropology, ecology, genetics, and molecular biology) to our understanding of the biology and evolution of our own species. Not open to students who have taken Biology 050. Pre-requisites: None. Preference will be given to second-year students. Fulfills GenEd: SCI.

Practicum

BIO-080. Practicum in Hospital Health Care (Fall, Winter, Spring; Beaton, Hospital Staff). A field course combining supervised experience in various hospital departments with study of problems and means of health care delivery. Term paper and on-campus seminar meetings are required. Not for major credit and not for GenEd science credit.

Courses for Majors

BIO-101. Physiology of Cells and Organisms (Fall, Winter; Staff). Examines structure and function in both plant and animal systems from the level of biomolecules, cells, tissues, organs and organisms. Topics include metabolism and feedback control, plant water and carbon relations, cardiovascular function and the physiology of movement. One lab per week.

BIO-102. Heredity, Evolution, and Ecology (Winter, Spring; Staff). Examines the diversity of living things, including the molecular and evolutionary origins of diversity, factors maintaining diverse ecosystems, and global threats to biodiversity. Topics include an overview of the genetic basis of inheritance, evolution and natural selection at the population level, the process of speciation and the resulting diversity of animal and plant life, ecological interactions between species that influence community diversity, and elements of human-caused global change that imperil biodiversity such as global climate change. One lab per week. Prerequisite: 101 or permission of the instructor.

BIO-210. Introduction to Cognitive Neuroscience (Same as PSY-210) (Fall, Winter, Spring)

BIO-211 (410). Brain and Behavior (Same as PSY-410). Advanced coverage of the mechanisms of action of psychotropic drugs and a discussion of the effects of certain transmitter systems on behavior. Prerequisite: BIO-210.

BIO-225. Molecular Biology of the Cell (Fall, Spring; Staff). Major topics are the nature of the gene, the mechanism and control of gene expression, the relationships between important macromolecular constituents within the cell, the cell cycle and cell replication, the nature of the chromosomes and the mitotic process, and fundamental patterns of growth and differentiation at the cellular level. One lab per week. Prerequisites: BIO-101 and BIO-102 or permission of instructor.

BIO-231. Cell-Tissue-Material Interaction (same as BNG-331) (Winter; Currey)

BIO-240. Introduction to Bioengineering (Same as BNG-240) (Winter; Mafi, Rice). Students explore the application of engineering principles and analyses to the study of biological systems and seek to understand the potential benefits and constraints of engineered materials and devices in medical and environmental applications. Covers principles of solid mechanics, fluid mechanics, and biosignals. Topics include the mechanics of support and locomotion, biofluids and neuromuscular signal acquisition and processing. One lab per week. Prerequisites: MTH-110 and one major's course in biology, chemistry, or physics; PHY- 110 recommended.

BIO-243 (283). Bioinformatics: Information Technology in the Life Sciences (same as CSC-243). (Winter; Horton and Fernandes). The disciplines of biology and information technology are intersecting in increasing frequency, most notably in the emerging field of bioinformatics. Bioinformatics has been fueled by the advent of large-scale genome sequencing projects, which has generated enormous sets of "mineable" data representing an invaluable resource for biologists. Biology and computer science students in the course will gain a working knowledge of the basic principles of the others' discipline, and will then collaborate together in class on bioinformatics projects. Topics include pairwise and multiple sequence alignments, phylogenetic trees, gene expression analysis, and protein structure prediction. Additional topics will be presented by invited speakers. Prerequisites: BIO 225 or one course from CSC-103 to CSC-109.

BIO-250 (203). Vertebrate Natural History (not offered in 2010-11) This lab-integrated course explores the biology of vertebrate animals with emphasis on understanding the diversity, life history, taxonomy and unique adaptations of local vertebrate species. The laboratory focuses on developing scientifically sound skills in observation and identification of amphibians, reptiles, mammals and birds. The course is structured as a studio class with lecture content incorporated into the twice-weekly laboratory periods (total of 6 hours per week class time). There will be frequent field trips to observe vertebrates in their natural habitats. Additional meetings may be required for regional field excursions and for morning bird watching. Prerequisites: BIO-101 and BIO-102 or permission of the instructor.

BIO-256T. Coastal Biology (not offered 2010-11). A study of the diversity and adaptations of marine organisms in their environment, with emphasis on subtropical, temperate and subarctic communities. Study sites include Bermuda, Cape Cod, and Newfoundland. Permission of the faculty is required. Associated courses are Marine Policy and the Maritime Environment (SOC-358T) and Images of the Sea (TAB-355T).

BIO-257. Tropical Biology (not offered 2010-11). An introduction to the animals and plants and basic ecology of the new world tropics. The laboratory consists of a two-week field experience (during the summer or winter break) in the Republic of Panama which focuses on field work in tropical rainforest and coral reef habitats. This is followed by a seminar style course during the academic term. The field portion of the course is mandatory. Prerequisite: Permission of the instructor.

BIO-264. Epigenetics, Development and Diseases (not offered in 2010-11). This course will focus on the epigenetic phenomena (e.g. RNA interference and genomic imprinting) on development, embryonic stem cells, animal cloning and heritable human diseases. Epigenetic patterns are changes in gene expression that do not involve changes in DNA sequences. Prerequisite: BIO-225 or permission of the instructor. Preference will be given to second-year students.

BIO-275. The Biology of Homo sapiens (Same as ANT-275) (not offered 2010-11) A survey of the contributions from many disciplines (paleontology, physical anthropology, ecology, genetics, and molecular biology) to our understanding of the biology and evolution of our own species. Not open to students who have taken BIO-050. Pre-requisites: None. Preference will be given to second-year students. Fulfills GenEd: SCI.

BIO-295H/296H. Biology Honors Independent Projects, Parts 1 and 2. (Fall, Winter, Spring; Staff) Two-term sophomore independent study project on a biological topic, under the direction of a biology faculty member. Open to students in the Union Scholars Program. Students receive a Pass/Fail grade for the first term and a letter grade and one course credit upon completion of the second term of the project. Requirements are arranged with the faculty mentor.

BIO-315. Biology of Plants (Spring; Rice). A survey course of the land plants, with emphasis on diversity, physiology, ecology, field identification, economic importance, and natural history of these organisms. One lab per week. Prerequisites: BIO-101 and BIO-102 or permission of the instructor.

BIO-316. Plant Physiology (not offered 2010-11). The physiological processes of plants, including photosynthesis, water balance, mineral nutrition, and growth and how these processes relate to agricultural and environmental problems. One lab per week. Prerequisites: BIO-101 and BIO-102 or permission of instructor.

BIO-320. Ecology (Spring; LoGiudice). Organisms and their environment, population and community ecology and the structure and integration of ecosystems, with a focus on animal community ecology. One lab per week. Prerequisites: BIO-101 and BIO-102 or permission of the instructor.

BIO-321. Herpetology: Biology of Amphibians and Reptiles (Spring; Pytel). An introduction to the study of amphibians and reptiles, both extremely diverse groups. Topics will include structural and functional characteristics, reproductive adaptations and evolutionary relationships both within the Amphibia and Reptilia and among other vertebrate groups. Special emphasis will be given to local fauna. Students must be available for one Saturday field trip. Prerequisites: BIO-101 and BIO-102 or permission of the instructor.

BIO-322. Conservation Biology (not offered in 2010-11). A case-study approach where students will apply ecological understanding to the management of natural ecosystems. Topics include genetics and population biology of rare species, fire ecology and management, landscape ecology, and global climate change. Includes laboratory. Prerequisite: BIO-102 or permission of instructor.

BIO-324. Plant Ecology (Fall; Corbin). Examines the factors that affect the distribution and abundance of plant species. We will also relate current ecological research to such environmental issues as climate change, exotic species invasions and the impacts of land use. One lab per week plus one Friday-Saturday overnight trip to a field station in the Adirondack Park. Prerequisite: BIO-102 or permission of the instructor.

BIO-325. Animal Behavior (Same as PSY-311) (Fall, Fleishman) An introduction to the study of animal behavior. The mechanisms and evolutionary processes underlying animal behavior under natural conditions will be examined. Prerequisites: BIO-101 and BIO-102 or permission of the instructor.

BIO-328. Aquatic Biology (not offered in 2010-11). A study of the biological communities of freshwater streams, rivers, and lakes and how they are affected by the physical and chemical properties of the water. Prerequisites: BIO-101 and BIO-102 or permission of the instructor.

BIO-330. Comparative Animal Physiology (Fall, Fleishman) A study of internal physiological systems (e.g. respiration, circulation, muscle etc.) Physiological function in a wide variety of animal groups with a strong emphasis on the interaction of organisms with their environment. One lab every other week. Prerequisites: BIO-101 and BIO-102.

BIO-332. Comparative Vertebrate Anatomy (Winter; Kirkton). Comparative analysis of vertebrate structure with emphasis on evolution, development, and function. One lab per week. Prerequisites: BIO-101, BIO-102 (or BIO-113).

BIO-335. Survey of Biochemistry. (Same as CHM and BCH 335) (Spring; Staff). A survey of topics in biochemistry including buffers, protein structure, lipid structure, carbohydrate structure, enzyme mechanism, and enzyme kinetics. The pathways by which biomolecules are synthesized and degraded will be investigated. Specifically we will look at carbohydrate, lipid, and nitrogen metabolism. Medical applications will be emphasized throughout the course. Prerequisites: BIO-225 and CHM-231. Not open to students who have completed either BIO-380 or BIO-382.

BIO-336. Invertebrate Zoology (not offered in 2010-11). Phylogenetic relationships and adaptations of the invertebrate phyla with laboratory study emphasizing morphology and function of living members of each group. Combined lecture/lab sessions, meeting twice weekly. Prerequisite: BIO-102.

BIO-345. The Illustrated Organism (Same as AVA-345) (Spring; staff) Descriptive graphic and written analysis of plants and animals; direct observation in field, studio, and laboratory integrating biology and visual arts. Culminates with annotated portfolio illustrating organisms studied. Taught jointly by biology and visual arts faculty using combined facilities. Apply through participating department. Credit for biology and arts majors..

BIO-350. Evolutionary Biology (Winter; Bishop). Major concepts and mechanisms of biological evolution, including speciation, extinction, coevolution, adaptive radiation, origin of life, molecular evolution and critical aspects of vertebrate evolution. Prerequisite: BIO-101 and BIO-102 or permission of the instructor.

BIO-352. Microbiology (Fall; Lauzon). An overview of microbiology with emphasis on bacteria and viruses. Lectures focus on the structural and functional characteristics of prokaryotes and the diversity, growth, and control of bacteria with special attention to those organisms that cause disease in humans. Particularly recommended for students planning careers in medicine and other health-related professions. One lab per week. Prerequisite: BIO-225.

BIO-354. Developmental Biology (Spring; Theodosiou). Principles of embryonic development with emphasis on experimental design. Topics include cell fate specification, morphogenesis, gene expression and regulation and organogenesis explored within the context of model systems. Laboratory work emphasizes experimental design and use of living embryos. One lab per week. Prerequisite: BIO-225.

BIO-355. Immunology (Winter; Lauzon). The cellular and molecular basis of immunological specificity; regulatory and effector mechanisms of the mammalian immune response and the importance of the innate immune system in the initiation and development of adaptive immunity. Laboratory exercises include basic techniques in agglutination, enzyme-linked immunosorbent assay (ELISA), mouse immunization and antibody titer determination, immune cytolysis, immunofluorescence and western blotting. One lab per week. Prerequisite: BIO-225 or permission of the instructor.

BIO-362. Introduction to Neurobiology (Same as PSY-312) (Spring; Olberg). Function of neurons, nervous systems, and sense organs, with emphasis on vertebrates. One lab per week. Prerequisite: BIO-225 or permission of the instructor.

BIO-363. Introduction to Cellular Neurosciences (Winter; Chu-LaGraff). Lecture will focus on molecular, cellular, and biochemical principles governing neuronal development, function, and plasticity. Emphasis will be placed on development of the nervous system, neurochemistry, and signaling and second messenger systems. One lab per week. Prerequisite: BIO-225 or permission of the instructor.

BIO-365. Neural Circuits and Behavior (Same as PSY-315) (not offered 2010-11). A seminar course, focusing on recent findings in neuroethology, the neural basis of natural behavior. We consider how sensory information is obtained and used to control behavior in both vertebrates and invertebrates. Prerequisite: BIO-101 and BIO-102 and BIO-210, BIO-330, or BIO-362 or permission of the instructor.

BIO-370. General Endocrinology (Winter; Cohen). Basic principles of endocrine and neuroendocrine regulation in animals, concentrating on vertebrate metabolism, development, and reproduction. Prerequisite: BIO-225.

BIO-375. Animal Locomotion (Spring; Kirkton). This course examines the evolutionary diversity of animal locomotion by investigating how physical properties of both the organisms and their environment affect the biochemistry, anatomy, and physiology of movement. This class also utilizes mechanical and engineering principles to explain locomotory mechanisms of animals. One lab per week. Prerequisite: BIO-101. Physics 110 or 120 is recommended but not required.

BIO-378. Cancer Cell Biology (Fall; Danowski). This course investigates the molecular basis of cancer, by comparing normal cells to cancer cells with respect to growth control mechanisms, signal transduction, cell-cell and cell-environment interactions. A large percent of the content of the course comes from recent research papers which students read and present to the class. Laboratory exercises include primary tissue culture, immunofluorescence microscopy, immunodetection, and a final research project. One lab per week. Prerequisite: BIO-225.

BIO-380. Biochemistry: Membranes Nucleic Acids and Carbohydrates (Same as CHM-380 and BCH-380) (Fall; Cohen). An in-depth investigation into some of the macromolecules which are essential to life's processes. The course focuses on non-protein molecules and their unique chemical properties. Three lab hours each week. Prerequisite: BIO-225 and CHM-232, or permission of the instructor. Not open to students who have completed BIO-335.

BIO-382. Biochem: Structure & Catalysis (Same as CHM-382 and BCH-382).

BIO-384. Molecular Genetics (Spring; Horton). The molecular genetics approach is currently being applied to an extremely diverse array of questions in biology. This course will expose the student to many of the commonly-used techniques in the "toolkit" of the molecular geneticist. Emphasis will be on recent advances in our understanding of topics of current interest such as development, cellular response to environmental stimuli, tumor formation, and apoptosis, amongst others. One lab per week. Laboratory will emphasize the use of modern molecular biological techniques, and will involve group projects of the students' choice. Prerequisites: BIO-225 and CHM-102 (or CHM-113).

BIO-487, 488, 489. Senior Seminar (Fall, Winter; Staff). One of these three courses is required by, and limited to, seniors who are not satisfying their WS requirement through either an independent research project or thesis. Each seminar will provide a forum in which a biological topic of current interest and importance is explored in depth. Students will gain experience in giving oral presentations and critically evaluating the written work of both established scientists and fellow students, and they must submit a paper to fulfill the senior writing requirement. Enrollment is optional for interdepartmental biology-other majors.

BIO-487. Topics in Ecological and Evolutionary Biology (Winter; Rice)

BIO-488. Topics in Organismal and Physiological Biology (not offered 2010-11)

BIO-489. Topics in Cellular and Molecular Biology (Fall; Chu-LaGraff)

BIO-490-496. Research I-VII (Fall, Winter, Spring; Staff). Independent research in consultation with a member of the biology staff. Research students are required to attend departmental seminars.

Prerequisites: Permission of the chair and the instructor

BIO-497, 498, 499. Honors Research I, II, and III (Fall, Winter, Spring; Staff). A sequence which requires a thesis based on original scientific research. May be used to satisfy WS requirement and departmental component for honors in biology, or for WS requirement alone. Research students are required to attend departmental seminars. Prerequisite: Permission of the instructor.

Chemistry

Chair: Professor M. Carroll

Faculty: Professors J. Adrian, J. Anderson, D. Hayes (Dean of Academic Departments); Associate Professors K. Fox, M. Hagerman (on leave fall and spring), J. Kehlbeck, L. Tyler (on leave fall); Assistant Professors L. MacManus-Spencer, M. Paulick (as of Jan. 2011); Senior Lecturer K. Lou; Lecturer S. Kohler.

Staff: K. Ryan (Stockroom Supervisor), M. Howley (Technical Secretary)

The Chemistry Department is certified by the American Chemical Society. Bachelors' degrees with a major in chemistry may be either certified by the American Chemical Society or not, according to requirements listed below. The certified degree is not necessary for the furtherance of any professional goals.

Requirements for the Major: Eight core courses in the department (CHM-110*, -231, -232, -240, -260, -340, -351 and -352), one course in biochemistry (selected from BCH-335, BCH-380 or BCH-382), and one chemistry-related elective (chosen from CHM-224/ESC-224, CHM-330, -332, -354, -360, -365, or GEO-302), plus mathematics through MTH-115 and two terms of introductory physics (PHY-110 or 120, and PHY-111 or 121). Knowledge of a foreign language is strongly encouraged but not required. *Students without sufficient preparation for CHM-110 may substitute the two-course CHM 101/102 sequence.

Requirements for Certification by the A.C.S.: All of the core courses listed for the major, plus one advanced inorganic course (CHM-360 or -365), one biochemistry course with lab (BCH-380 or BCH-382), three terms of research in chemistry (CHM-491, -492, and -493), and one additional upper-level chemistry course chosen from CHM-330, -332 or -354. Additional courses in chemistry, physics, computer science, and/or engineering are recommended, as is knowledge of a foreign language.

Requirements for Interdepartmental Majors: Students completing an 8-6 or 8-4-4 interdepartmental program in which the eight courses are in chemistry, should take the following courses: CHM-101, and -102 or -110, -231, -232, -240, -340, -351, and one of the following five courses: CHM-260, -330, -332, -352, or -382. No exceptions will be permitted unless written approval is sent from the chair to the registrar. Students completing an 8-6 or 8-4-4 interdepartmental program in which either the six courses or the four courses are in chemistry should take CHM-101 and -102 or -110, -231, -232, -240, and -260 or -340, in the former case and any four chemistry major courses in the latter. Students completing interdisciplinary majors who are seeking secondary school certification should also follow the directions noted below. Students in the Leadership in Medicine program whose science emphasis is in chemistry should take the following six courses: Chemistry 101 and 102 or 110*, 231, 232, 240, and 382. *If CHM 110 is taken, a sixth Chemistry elective of a 200-level course with lab, or any 300-level course, excluding BCH/CHM-335, must also be taken.

Requirements for Honors in Chemistry: Candidates for honors in chemistry must have a cumulative index of at least 3.3 and an index of at least 3.3 in the courses of their major, excluding cognates, and must have at least three A or A- grades in such courses (not including any given in connection with the writing of their Senior Thesis). They must submit evidence of independent work in chemistry of substance and distinction in the form of a thesis which shall have been awarded a grade of at least A-. Candidates must fulfill the College-wide criteria for honors and they must be formally nominated by the Chemistry Department.

Requirements for the Minor in Chemistry: CHM-101 and -102 or -110, and -231 and any three other chemistry courses. Students with majors in Division I and II departments or psychology can count one chemistry GenEd course toward the minor if it is their first course in the minor.

Requirements for Secondary School Certification: PSY-246, EDS-500A, EDS-500B and at least one year of a foreign language. Chemistry requirements are identical to those of the chemistry major. All science majors are encouraged to seek certification in more than one science. To be certified in any science requires a complete major in that science. Students wishing to add certification in general science must include at least two courses each from the areas of biology (BIO-101 and -102), physics (PHY-120, -121, or -210), and earth science (any geology course or AST-200).

Chemistry interdepartmental majors seeking secondary school certification must choose all departments from among the Departments of Biology, Chemistry, Geology, and Physics. Interdepartmental majors completing an 8-6 or 8-4-4 interdepartmental program in which the eight or six courses are in chemistry would take the chemistry courses specified for interdepartmental majors (above). Students with chemistry as a four-course minor element in an 8-4-4 interdepartmental major, would include at least CHM-101 and -102 or -110, -231, and -232.

Course Registration Guidelines

Advanced Placement: Any student interested in taking introductory chemistry is required to take a placement examination to determine the appropriate course. Exception: a student wishing to take chemistry who has scored 4 or 5 on the AP chemistry exam will be automatically placed into CHM-110 and cannot take CHM-101. Students who have scored 4 or 5 on the AP chemistry exam or who successfully complete CHM-110 will also receive AP credit for CHM-101. CHM-110 is offered only in the fall term. [Note: occasionally a student who places out of CHM-101 may find it more appropriate to take CHM-102 instead of -110. This decision must be made in consultation with the chair of the Chemistry Department.]

Senior Writing Requirement: Chemistry majors may fulfill their WS requirement through a two- or three-term senior research thesis under the supervision of a faculty member in the Chemistry Department (CHM-491, -492, -493), through performing thesis research in another department (if a double major or ID major), or through an additional writing component added to an upper-level chemistry course (with permission of the instructor and the chair of the Chemistry Department). For the ACS major, three terms of thesis research in chemistry are required.

General Education Courses: CHM-050, -060 and -080 are designed for the general college community. They do not count toward the chemistry major nor for interdepartmental majors that include chemistry. Only students with majors in Division I and II departments or psychology can count one chemistry GenEd course toward the minor in chemistry, and only if it is their first course in the minor.

Environmental Chemistry: Environmental problems are usually complex, requiring expertise from several disciplines to address such problems adequately. Those who are best able to participate in these efforts will have a strong background in a relevant discipline and an awareness of how other related disciplines address these problems. As a result, the Chemistry Department endorses the following approach for those planning a career in environmental chemistry: take at least the 10-course chemistry major described above and supplement it with the following courses in biology and geology: BIO-320, GEO-100 or -102, -200, -302.

Courses

CHM-050. Topics in Chemical Analysis – Forensic Chemistry (GenEd; Not offered 2010-11).

Introduction to the analytical approaches used by forensic chemists. These methods of analysis, including the use of research-grade instrumentation, will be applied in the laboratory to simulated “crime scene” evidence. Not open to students who have completed CHM-101 or CHM-110, or have AP credit in chemistry.

CHM-060. Meals to Molecules (GenEd; Not offered 2010-11). What is a healthy diet? This course will discuss human nutrition from a molecular perspective. Readings from the textbook and laboratory exercises will familiarize the student with the components of foods and how these components are used by the human body. In addition, the course will examine the benefits and pitfalls of supplementation of the diet with vitamins, etc., and discuss how to interpret health claims. Not open to students who have completed CHM-101 or CHM-110, or have AP credit in chemistry.

CHM-080. Culinary Chemistry (GenEd; Spring; Kehlbeck). This culinary-themed course is an introduction to the chemistry involved in food preparation and cooking. The course will include lecture and a laboratory experience with inquiry-based exercises in both the traditional chemical laboratory setting and a typical kitchen setting. Topics include the chemical make-up of the food we eat, the relationship between structure and flavor, and how chefs exert exquisite control over chemical reactions to create the flavor and texture of a gourmet meal. Not open to students who have completed CHM-101 or CHM-110, or have AP credit in chemistry.

CHM-101. Introductory Chemistry I (Fall, Winter, Spring; Staff). Chemistry 101 is an introductory course that focuses on atomic and molecular structure, chemical bonding, stoichiometry, the nature of chemical reactions, and the properties of gases, liquids, solids and solutions. The goal of the course is to integrate these topics in chemistry with their applications to the environment, materials, and medicine. Three lab hours each week. Not open to students who have scored 4 or 5 on the AP Chemistry Exam or who have completed CHM-110. All students who wish to enroll in an introductory chemistry course must take a placement examination to determine the appropriate course (CHM-101, CHM-102 or CHM-110).

CHM-102. Introductory Chemistry II (Winter, Spring; Staff). A continuation of CHM-101, focusing on thermodynamics, chemical kinetics, chemical equilibrium, acids and bases, electrochemistry, and an introduction to organic chemistry. As in Chemistry 101, the chemistry concepts are set within the context of relevant applications, including polymers and biomolecules, fuels, and alternative energy. Three lab hours each week. Prerequisite: Chemistry 101 or placement via the placement exam. Not open to students who have taken CHM-110.

CHM-110. Accelerated Introductory Chemistry (Fall; Anderson, Lou). A laboratory-intensive course that will deal with the main topics of Chemistry 101 and Chemistry 102 and is meant to replace those courses for students who have strong backgrounds in Introductory Chemistry. Students wishing to take chemistry who have scored 4 or 5 on the AP chemistry exam will be automatically placed into Chemistry 110. All students who have not taken an AP Chemistry course or have scored 3 on the AP Chemistry Exam are required to take a placement examination to determine whether they will enroll in CHM-101 or CHM-110. Students who have scored 4 or 5 on the AP chemistry exam or who successfully complete CHM-110 will also receive AP credit for CHM-101.

CHM-224. Frontiers of Nanotechnology and Nanomaterials (Same as ESC-224.) (Winter; Cohen). An overview of nanotechnology and nanomaterials including interdisciplinary perspectives from engineering, materials science, chemistry, physics, and biology with emphases in sensors and actuators, nanoelectronics, alternative energy, nanocomposites, polymers, biomaterials and drug delivery. Prerequisites: PHY-111 or PHY-121 or IMP-113; MTH-115; and CHM-101 or CHM-110; or permission of instructor.

CHM-231. Organic Chemistry I (Fall, Winter; Staff). A mechanistic approach to the chemistry of carbon compounds organized around the reactions of functional groups. We cover alkanes, cycloalkanes, alcohols, alkyl halides (nucleophilic substitution and elimination), alkenes (addition and elimination), alkynes, spectroscopy (IR and NMR) and computer molecular modeling. Four lab hours each week. Prerequisite: CHM-102 or CHM-110.

CHM-232. Organic Chemistry II (Winter, Spring; Staff). A continuation of Chemistry 231 including an emphasis on synthesis, and the chemistry of conjugated and aromatic compounds, carbonyl compounds, and an introduction to important classes of biomolecules. Four lab hours each week. Prerequisite: Completion of CHM-231.

CHM-240. Analytical Chemistry (Spring; MacManus-Spencer, Lou). Introduction to chemical equilibrium, classical and instrumental methods of chemical analysis, including separations, and statistical treatment of data. Laboratory emphasis is on quantitation of analytes in sample mixtures. Six lab hours each week. Prerequisite: CHM-231.

CHM-260. Inorganic Chemistry. (Spring; Tyler). Foundations of inorganic chemistry with key focus on structure and symmetry, bonding, acid/base properties, reactivity, and physical characterization of inorganic compounds. Laboratory emphasis will focus on the synthesis and characterization of inorganic compounds and investigation of their physical properties. Four lab hours each week. Prerequisites: CHM-231 or permission of the instructor.

CHM-291, 292, 293. Research Practicum (Fall, Winter, Spring; Staff). This course is designed for students who want to gain research experience in chemistry or biochemistry under the direction of a member of the chemistry faculty. Expectations include a minimum of four hours per week of lab work, attendance at the weekly Chemistry Department seminar and presentation of research results at the Steinmetz Symposium, in addition to other requirements to be determined by individual research advisors. To receive Pass/Fail credit equivalent to one course, the student must earn 3 terms (normally in a row) of passing grades for the practicum experience. Not open to students currently enrolled in CHM-491, CHM-492, CHM-493 or in a sophomore scholars project in the Chemistry Department.

CHM-295H/296H. Chemistry Honors Ind Project 1 and 2 (Fall, Winter, Spring; Staff). Two-term sophomore independent study project on a chemistry- or biochemistry-related project under the direction of a member of the chemistry faculty, for students in the Union Scholars Program. Expectations include a minimum of six hours per week of lab work, attendance at the weekly Chemistry Department seminar, presentation of research results at the Steinmetz Symposium, and a final report, in addition to other requirements to be determined by individual research advisors. Student receives a Pass/Fail grade in the first term of the project, and a letter grade and one course credit upon completion of the second term of the project. Not open to students currently enrolled in CHM-491, CHM-492, or CHM-493.

CHM-330. Medicinal Chemistry (Fall; Kehlbeck). This course focuses on medicinal chemistry and the underlying principles of organic chemistry. Topics to be covered might include drug discovery, lead modification, drug-receptor interactions, structure-activity relationships (SAR), pro-drugs and biomimetics. Physicochemical properties and synthetic approaches to drug families will be especially emphasized. Prerequisite: CHM-232.

CHM-332. Synthetic Methods (Not offered 2010-11). This course focuses on developing the common laboratory techniques used in modern synthetic organic chemistry and the underlying principles of organic chemistry covered. Topics to be covered will be in the form of three synthetic projects. Six lab hours each week plus additional instrumentation time outside of lab. Prerequisite: CHM-232.

CHM-335. Survey of Biochemistry (Same as BIO-335 and BCH-335) (Spring; Paulick). A survey of topics in biochemistry including buffers, protein structure, lipid structure, carbohydrate structure, enzyme mechanism, and enzyme kinetics. The pathways by which biomolecules are synthesized and degraded will be investigated. Specifically we will look at carbohydrate, lipid and nitrogen metabolism. Medical applications will be emphasized throughout the course. Prerequisites: BIO-225 and CHM-231. Not open to students who have completed either BIO/BCH 380 or BCH/BIO/CHM 382 or students in the 8-year medical program whose science emphasis is in chemistry.

CHM-340. Chemical Instrumentation (Fall; MacManus-Spencer, Kohler). Theory and practice of modern methods of analysis with emphasis on spectroscopic, chromatographic, electrochemical, and surface science techniques, as well as electronic measurements. Four lab hours each week. Prerequisite: CHM-231, CHM-240, and one course in physics or permission of the instructor.

CHM-351. Kinetics and Thermodynamics (Winter; Kohler, Anderson). Properties of gases; chemical kinetics; fundamentals of thermodynamics including heats of reactions and phase and chemical equilibria. Four lab hours each week. Prerequisites: CHM-240, PHY-110 or PHY-120 and MTH-115

CHM-352. Quantum Chemistry (Spring; Anderson). Fundamentals of quantum mechanics and its application to chemical bonding and spectroscopy. Four lab hours each week. Prerequisites: CHM-351 and PHY-111 or PHY-121.

CHM-354. Chemical Applications of Group Theory (Not offered 2010-11). A course on the role of molecular symmetry in chemistry. Topics include symmetry point groups, bonding in organic, inorganic, and organometallic compounds, orbital symmetry control of chemical reactions, and spectroscopy. Prerequisites: CHM-232 and CHM-352, MTH-115, and PHY-111 or PHY-121. CHM-352 may be taken concurrently.

CHM-360. Advanced Inorganic Chemistry: Materials (Not offered 2010-11). Structure/property relationships in solids, organometallics, homogeneous and heterogeneous catalysis, materials chemistry and inorganic nanomaterials. Prerequisites: CHM-260 and CHM-351 or permission of the instructor.

CHM-365. Advanced Inorganic Chemistry: Bioinorganic Chemistry (Winter; Tyler). Introduces and emphasizes the importance of metals in biological systems such as Metalloproteins and enzymes. Important metal containing synthetic compounds, including drugs and biomimetic complexes, will also be presented. Prerequisites: CHM-260 and CHM-351 or permission of the instructor.

CHM-382. Biochemistry: Structure and Catalysis (Same as BCH-382 and BIO-382) (Winter; Fox, Anderson). Structure and function of proteins/enzymes including purification, mechanism, kinetics, regulation, metabolism and a detailed analysis of several classic protein systems. Four lab hours each week. Prerequisite: CHM-232. Not open to students who have completed CHM-335, BIO-335 or BCH-335.

CHM-491, -492, -493. Chemical Research (Fall, Winter, Spring; Staff). Chemical research under the direction of a member of the faculty. Thesis required. Twelve lab hours each week. Prerequisites: CHM-232, CHM-240 (CHM-340 and CHM-351 are recommended), third-term junior standing, and/or permission of the department chair.

Chinese (see Modern Languages and Literatures)

Civic Engagement

Union College Civic Engagement Project supports faculty in the development of courses and terms abroad that have a service learning component. It also will support student initiated projects for senior theses or individual study. Union has developed many courses that now offer students an opportunity to apply the knowledge they are learning in the classroom in the real world and at the same time provide a service to the community. These include experiences within the mini-term in New Orleans and the National Health Systems terms abroad, along with courses in sociology, economics, modern languages, political science and engineering that have significant community service components.

Classics

Chair: H.-F. Mueller

Faculty: Professors H.-F. Mueller, M. Toher (on leave 2010-11); Assistant Professors S. Raucci, T. Wareh; Visiting Assistant Professors R. Childree, T. Gazzarri

Staff: M. Snowden (Administrative Assistant)

Requirements for the Major: At least 12 courses in the department following one of these patterns:

1. Eight courses in Latin; four courses in Classics, including Classics 126, 129; and 134; courses in Greek may be substituted for two of the courses in Latin and one of the courses in Classics;
2. Nine courses in Greek and three courses in classics, including Classics 121 and 134; two courses in Latin may be substituted for two of the Greek courses;
3. At least four courses in one of the ancient languages and eight courses in classics, including Classics 121; 126, 129; 134; and 143 or 278.

All patterns include either a senior thesis (two terms) and an oral examination based on the thesis; or a senior project on a major author or special topic (one term) and a comprehensive field examination. Students are strongly advised to take Philosophy 150 for options 2 and 3. Those students who intend to do graduate work in Classics should consult the department chair for additional requirements.

Requirements for Interdepartmental Major: At least eight courses in the department, including at least four courses in one of the ancient languages. All majors must have their program approved by the chair.

Requirements for Honors: To be eligible for departmental honors, the student must fulfill the following requirements:

1. a minimum index of 3.35 in departmental courses;
2. completion of one language course at the 230-level or higher with a grade of "B plus" or better. The student must achieve a grade of at least "A minus" on the senior thesis and present a distinctive performance in an oral examination based on the senior thesis. In addition, the student must satisfy College requirements for departmental honors.

Requirements for the Minor in Greek or Latin: Four courses in either Greek or Latin and two additional courses, one of which must be Classics 121 if the language courses are in Greek, or CLS-126 or CLS-129 if the language courses are in Latin. The remaining courses may be either a language or a classics-in-translation course.

Requirements for the Minor in Classical Civilization: Six courses in classics; language courses may be counted.

Course Registration Guidelines

Courses in ancient history, classical literature in translation, and ancient civilization have the prefix "CLS." These courses, including all reading assignments, are conducted entirely in English, and have no pre-requisites. These courses serve as excellent options for students interested in exploring the ancient world, satisfying GenEd requirements (HUL, LCC, WAC), or building clusters, minors, and majors.

Language Placement: Language courses have their own prefixes: Greek: GRK; and Latin: LAT. Because secondary programs vary, the department is happy to assist students find the proper course level. The department grants AP Latin credit if the student has scored a "4" or better. This credit may be counted toward the major or minor. We also consider IB and other transfer credits on a case-by-case basis.

Courses in Classics

CLS-110. Ancient Egypt: History and Religion. (Not offered 2010-11) This course offers an overview of the history of ancient Egypt from the rise of the state under the first pharaohs (3200 BC) to its incorporation into the Hellenistic and Roman empires. Attention is given to political and social organization, foreign relations, and religion based on a study of relevant ancient texts (in translation) and archaeological evidence. *GenEd: LCC*

CLS-111. Ancient Iraq: History and Religion. (Winter; Bedford) Ancient Iraq is often termed ‘the cradle of civilization’ since it is here that agriculture, urbanism, and writing first occurred. This course examines the early history of Iraq (ancient Mesopotamia) from the development of agriculture and permanent settlements through to the establishment of the first cities and states, down to about 1600 BCE. The class examines the social and economic contexts in which early Mesopotamian culture emerged, and it also gives attention to religious and religio-political ideas. *GenEd: LCC*

CLS-121. The History of Greece to the Death of Alexander the Great. (Not offered 2010-11) Investigation of the circumstances that led to history’s first democracy, the buildings on the Acropolis and the development of Greek literature from Homer to Sophocles and Plato; the invention of the “Western way” of war; the evolution of the Greek *poleis* and the confrontation with the emerging nation-state of Macedonia; the epochal wars of the Greek states with Persia and the disastrous conflict of Athens and Sparta in the Peloponnesian War; and Alexander’s conquest of the “world” from the Mediterranean Sea to the rivers of India in a little over ten years. Readings include Homer’s *Odyssey*, selected lives of Plutarch, and Thucydides. *GenEd: LCC*

CLS-125. History of Rome. (Not offered 2010-11) The history of Rome, its rise from earliest times through the Republic and its decline under the Empire to disaster in A.D. 410. *GenEd: LCC*

CLS-126. The Rise of the Roman Republic. (Winter; Mueller) The rise of Rome from its foundation (traditionally 753 BC) to the assassination of Caesar in 44 BC and the rise of his adopted son Octavian. How did a remote backwater of the Mediterranean rise to imperial power? Why did its constitutional machinery collapse? Was military dictatorship unavoidable? *GenEd: LCC*

CLS-129. History of the Roman Empire. (Not offered 2010-11) The Roman Empire from the rise of Octavian (later called Augustus) to decline, conversion, and final collapse circa AD 476. Augustus established Roman rule on the basis of his legions, a monarchy cloaked as republican government, and religious innovations that included formal worship of the emperor as a god on Earth. This system endured for centuries, but faced increasingly violent threats both from outside (Germanic tribes, Persians, Parthians) and from within (revolts, rebellions, Christians). How did Rome manage to endure as long as it did and why did Rome fail? *GenEd: LCC*

CLS-134. Classical Art and Architecture. (Cross-listed with AAH-200) (Not offered 2010-11). An introductory survey of the arts of Greece and Rome, including painting, sculpture, architecture, and decorative arts. Emphasis will be placed upon learning art historical and archaeological terminology and methods, the place of art and architecture in ancient society and culture, and contacts with other cultures, in addition to becoming familiar with the most important monuments, artists, and patrons. *GenEd: LCC*

CLS-141T. Classical Greek Archaeology. (Fall) An introduction to the study of archaeology with field trips to various sites in and near Athens. Four hours per week. Offered only as part of the Term Abroad in Greece. *GenEd: LCC*

CLS-142. Special Topics in Classics: Rome in Ruins. (Spring; Raucci) This course examines the topography and monuments of the city of Rome. It will address the monuments in their cultural and historical contexts. We will trace the evolution of the city from its founding to post-classical representations. All readings in English. No prior knowledge required. *GenEd: LCC*

CLS-143. Classical Mythology. (Fall; Gazzarri, Spring; Childree) Greek and Roman myths, with emphasis on the ancient sources. All readings will be in English. *GenEd: LCC*

CLS-146. Sex and Gender in Classical Antiquity. (Not offered 2010-11) The representations and realities of sexuality and gender in classical Greece and Rome. Primary focus on how ancient writers formulated the categories of “feminine” and “masculine” in discussions of ethics, nationality, education, politics, and science. This will enable students to think critically about some of the central literary works in the Western tradition through the socially charged categories of gender. Attention will also be directed

to how literary representations compare with the actual social experience of ancient women, insofar as we may reconstruct it through the reading of literary, archaeological, and artistic evidence in social, familial, legal, and religious contexts. *GenEd: LCC*

CLS-160. The Individual in Ancient Society. (Not offered 2010-11) A study of the evolving concept of the individual in antiquity and the changing relationship of the individual and the family, state, and nature. Readings in English of major ancient authors. *GenEd: LCC*

CLS-161. The Heroic Journey: Survey of Ancient Epic. (Fall; Childree) An examination of four great epics of classical antiquity: Homer’s *Iliad* and *Odyssey*, Virgil’s *Aeneid*, and Ovid’s *Metamorphoses*. All readings in English. *GenEd: LCC*

CLS-162. Greek and Roman Tragedy in Translation. (Winter; Gazzarri) Readings in classical Greek tragedy and the tragedies of Seneca and selections from other Roman works. *GenEd: LCC*

CLS-163. Greek and Roman Comedy in Translation. (Winter; Staff) Readings from the Greek comedies of Aristophanes and Menander, the Roman comedies of Plautus and Terence. *GenEd: LCC*

CLS-168. Ancient Novel. (Not offered 2010-11) A survey of the novel and its development in antiquity. Readings include a selection of complete and fragmentary Greek romances by Chariton, Xenophon of Ephesus, Achilles Tatius, Longus, Heliodorus, and Lucian. The Roman comic novels will be Petronius’s *Satyricon* and Apuleius’s *Metamorphoses*. All readings in English. *GenEd: LCC*

CLS-186. Roman Law and Society. (Not offered 2010-11) A survey of Roman law with special attention to constitutional history in the context of the conceptual development of civil law. Basic concepts of Rome’s civil law include “person” (who qualified and under what conditions?), “property” (at the end of the day, what else was there?), “succession” (i.e., who inherited property when the owner died?), “contract” (the fine print has been important for a long time!), and “delict” (wrong-doing, damages, and remedies or, failing that, punishments). We will look, in other words, at the Roman constitution and its intersections with basic civil rights and the procedures for conducting one’s affairs legally. Crimes and their punishments will hold our interest too, as will the influence of Roman legal thinking on European and American jurisprudence. *GenEd: LCC*

CLS-190. Science and Technology in the Ancient World. (Not offered 2010-11) This course is an introduction to the scientific and technological developments during the Greek and Roman periods. Students will deepen their understanding of the scientific method, acquire skills in its application in the evaluation of evidence, and learn about the impact of science and technology on ancient civilization. The time periods covered in this class will stretch from Bronze Age of Greece to the Late Roman Empire. This course will discuss a broad range of scientific and technological topics. Students will learn about this crucial aspect of antiquity predominantly through the reading of original sources in translation. Because of the diverse nature of the topics, the authors will range greatly, including such authors as Hesiod, Pliny the Elder, and Frontinus. Students will be expected to draw conclusions from the primary source material as well as connect the ancient texts to other scholarly readings. The secondary reading will be drawn from a variety of academic disciplines, including classics and history of science. Ultimately, students will gain a better understanding of the role that ancient technological and scientific developments have had in their own world.

CLS-227. Entrepreneurship in the Ancient World. (Not offered 2010-11) “Entrepreneurship” (or seizing upon and exploiting opportunity) is a mindset that has existed at various times and places. Through a variety of ancient sources, including legal, historical, and literary works, students will use the ancient world as a laboratory in which to observe and to assess what may or may not have constituted opportunity in the past and to examine strategies employed (as well as opportunities missed) for taking advantage of available resources in a variety of situations: economic, political, and religious. *GenEd: LCC*

CLS-231. The Ancient World in Film and Literature. (Spring; Raucci) Greco-Roman antiquity has been a favorite topic of Hollywood for years. This fascination continues today, with the recent appearance of major blockbusters as well as TV productions. Why do the Greeks and Romans appeal to a modern audience? This course will consider ancient texts in translation alongside their modern film representations. Our goal will not be to consider where the films went “wrong.” Instead, we will question how these films recast and reinterpret classical texts to reflect modern interests. This course will include an “entrepreneurship module.” We will question what is entrepreneurship and if Hollywood’s commodification of the ancient world is entrepreneurial. *GenEd: LCC*

CLS-232. Religion in the Pagan World. (Not offered 2010-11) An examination of particular cults and the performance of cult in ancient Greek and Roman societies, and consideration of the relationship of the individual and the state to deity in the pre-Christian world. Emphasis on ancient sources. *GenEd: LCC*

CLS-235. In Search of the Past: Greek and Roman Historiography. (Spring; Wareh) An introduction to the origins, purpose, and methodology of the writing of history in the classical world. *GenEd: LCC*

CLS-237. Greek and Roman Biography. (Not offered 2010-11) A study of the origin and development of the genre of biography from the fourth century B.C. to the second century A.D., with extensive readings (all in English) of Nepos, Suetonius, and Plutarch. *GenEd: LCC*

CLS-242. The Philosophy of Aristotle. (Cross-listed with PHL-242) (Fall; Wareh) Students explore the philosophical ideas of Aristotle, perhaps the most celebrated and influential thinker in the history of philosophy. Particular attention will be paid to Aristotle's theory of being, which addresses the organic structure of both living things (plants and animals) and entities whose complex articulation is similarly "organic" (human political communities, works of art and other human artifacts). Readings will be from a variety of Aristotle's writings and may include *Physics, Metaphysics, On the Soul, On the Parts of Animals, Politics, Poetics*, and Aristotle's writings on logic, ethics, and rhetoric.

CLS-244. Poetry and the Cosmos. (Not offered 2010-11) An examination of Greek and Roman poets' attempts to understand the origin and development of the universe, and of human beings' place in it. Readings (all in English) will include Hesiod, the pre-Socratic philosophers, and Lucretius. *GenEd: LCC*

CLS-248. The Ancient "Other": Greeks, Romans, and Barbarians. (Not offered 2010-11) Investigates the concept of the barbarian in ancient Greek and Roman culture, how the image of the barbarian was "constructed" by the Greeks and Romans and in turn defined their identity. The course will look at depictions both literary and visual of the peoples living on the edges of the Greco-Roman world and discuss the ways in which the barbarian came to invert, reflect, and criticize the Greeks and Romans themselves. Readings in English translation from historians, geographers, poets, philosophers, ancient novelists, and medical writers. *GenEd: LCC*

CLS-250. Death in the West. (Not offered 2010-11) An introduction to the "history of death" that has emerged from the fields of anthropology, archaeology, sociology, and history in the last 25 years. Through readings that present the death rituals of such different societies as eighth century B.C. Greece, the South Pacific islands, medieval Europe, and modern America, the course will examine the problems associated with composing a coherent account of how and why cultures respond to the threat that death presents to the social order, why that response can change over time, and the problems involved in a "history of death" and how this relates to the areas and methods of "traditional" history. *GenEd: LCC*

CLS-278. Ancient World Mythology. (Not offered 2010-11) The myths of Greece, Rome, and the Ancient Near East, Egypt, Sumer, Babylonia, India, et al. reveal surprising similarities and startling differences. A comparative approach illuminates the peculiar characteristics of the various traditions. No culture exists in isolation. These societies were all subject to manifold political (and sometimes even violent) "multicultural" pressures. Rome itself, whose poet Ovid composed the "Bible" of the Western mythological tradition, stood at the head of a vast amalgam of peoples from the cold forests of Northern Europe across the god-infested lands of Greece to the ancient sands of Egypt and beyond. Everywhere we look we will find the interactions and conflicts of differing peoples, traditions, gods. We will listen to their sacred stories, their myths, and, through active comparison and investigation, strive to gain a general overview of the facts, a general understanding of their differing religious conceptions, and perhaps, we may hope, a glimpse into their ancient wisdom.

The course will cover broad mythical themes: creation, gods, the underworld, and heroes. Other topics will include the nature of sacrifice and ritual, ancestor-worship, the afterlife, divine kingship, the role of myth in political propaganda, the role of politics and religion in myth, gender issues, and related themes. Given the vast range of the material, our journey will of necessity be selective. Lectures will range, for example, from general presentations of one cultural system to detailed examination of one particular type of god across several cultures. Although much of the focus will be on the ancient myths of Greece, Rome, Egypt, the Near East, and India, we will examine some (relatively) more recent myths from Africa and the Americas as well. *GenEd: LCC*

CLS-295H-296H. Classics Honors Independent Project 1 & 2.

CLS-361. Seminar in Classical Studies. (Not offered 2010-11)

CLS-490-492. Classics Independent Study. (Fall, Winter, Spring). Advanced individual study for qualified students. Periodic reports on a period of Greek or Roman history or a problem in Greco-Roman civilization. Prerequisite: Permission of the chair.

CLS-497. Classics Senior Project.

CLS-498-499. Classics Senior Thesis. (Fall-Winter or Winter-Spring). Independent reading and thesis in a subject in the field of Greek or Roman history or Greco-Roman civilization. Prerequisite: Permission of the chair.

Courses in Greek

GRK-101. Beginning Ancient Greek I. (Fall; Childree). Study of elementary Greek grammar with selected readings from classical authors.

GRK-102. Beginning Ancient Greek II. (Winter; Childree). Continuation of GRK-101.

Prerequisite: GRK-101 or one year of secondary school Greek.

GRK-103. Greek Reading. (Spring; Wareh). Selected readings from the works of a variety of Greek authors. Prerequisite: GRK-102 or equivalent.

GRK-230. Homer: The *Iliad*. (Not offered 2010-11) Readings in the *Iliad*, with relevant secondary readings on Greek epic, its place in the development of Greek literature, and its influence. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-231. Homer: The *Odyssey*. (Winter; Raucci) A study of several books of the *Odyssey*, with relevant secondary readings on Greek epic, its place in the development of Greek literature, and its influence. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-235. Plato. (Not offered 2010-11) A study of several of the early dialogues in the original together with readings of others in translation. May be repeated with change in texts. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-243. New Testament Greek. (Not offered 2010-11) The foundational text of Christianity, the *New Testament* also represents a fascinating social and historical document, and, as such, offers an unparalleled glimpse into provincial life under the early Roman empire. A survey of the gospels, Acts, and the letters of Paul in light of these contexts. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-320. Attic Prose. (Not offered 2010-11) Readings from the major prose authors of Athens.

May be repeated with change in author. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-331. Herodotus and Thucydides. (Fall; Wareh) A study of several books of Herodotus and Thucydides with relevant secondary readings. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-333. Greek Tragedy. (Not offered 2010-11) Tragedies chosen from the works of the three great tragic poets of Athens, with relevant secondary readings. May be repeated with change in author or texts. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-337. Greek Oratory. (Not offered 2010-11) Readings of various Athenian orators, with secondary reading on Greek legal practice and rhetorical style. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-338. Greek Lyric and Elegiac Poetry. (Not offered 2010-11) Readings from Sappho, Archilochus, Solon, Pindar, and others. The traditions, evolution of the genre, social context and role of the poet will be considered. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-339. Greek Comedy. (Spring; Gazzarri) Readings in the plays of Aristophanes. The criticism and theory, history, and social context of the comedies will be studied. Prerequisite: GRK-103 or equivalent. *GenEd: LCC*

GRK-490-492. Greek Independent Study. (Fall, Winter, Spring) Advanced individual study of a special author or subject, or of Greek prose composition. Prerequisite: Six courses in Greek or the equivalent.

GRK-498-499. Greek Senior Thesis. (Fall-Winter or Winter-Spring) Independent reading and thesis in the field of Greek language and/or literature. Prerequisite: Permission of the chair.

Courses in Latin

LAT-101. Beginning Latin I. (Fall; Raucci) An elementary course introducing all major forms and syntax, with some easy reading from classical authors.

LAT-102. Beginning Latin II. (Winter; Raucci) Continuation of Latin 101. Prerequisite: LAT-101 or one year of secondary school Latin.

LAT-103. Latin Reading. (Spring; Raucci) Reading in a wide variety of classical Latin poetry and prose. Prerequisite: LAT-102 or its equivalent.

LAT-230. Catullus and Horace. (Fall; Childree) Readings in Catullus and Horace, emphasizing vocabulary and syntax review. Traditions and social context of lyric poetry are also studied. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-237. Latin Epic. (Not offered 2010-11) Readings in Ovid's *Metamorphoses*, Lucan, and others. May be repeated with change in author. The genre, its development and history will be studied. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-240 Vergil's Aeneid. (Winter; Wareh) The purpose of this course is twofold. Our first objective will be to obtain greater proficiency in reading Latin. Through primary readings in their original Latin, students will increase their knowledge of vocabulary, grammar, and syntax. Our second objective will be to read Vergil's Aeneid with a critical eye. What is epic? What is Rome's answer to Homer trying to accomplish? We will consider the political implications of the Aeneid. In addition to close study of selections in Latin, we will read the entire work in English. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-338. Lyric and Elegiac Poetry. (Winter; Toher) Extensive readings from the poems of Catullus, Horace, Propertius, Tibullus, and Ovid. May be repeated with change in author. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-339. Roman Satire. (Not offered 2010-11) Readings in Horace, Petronius, and Juvenal. The origins and development of the genre will also be studied. May be repeated with change in author. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-341. Roman Historiography. (Spring; Mueller) Readings in Sallust, Livy, Tacitus, and others. to accompany study of the origins and development of Roman historiographical literature. May be repeated with change in author. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-343. Roman Drama. (Not offered 2010-11) Readings in Plautus and Terence along with selections from Seneca. May be repeated with change in author or texts. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-345. Cicero. (Not offered 2010-11) A selection from Cicero's massive literary output, with emphasis on his speeches and letters. May be repeated with changes in texts. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-358. Mediaeval Latin Literature and Culture. (Not offered 2010-11) Latin in the Middle Ages was Western Europe's international language of ideas, politics, and literature. It was the language not only of the Bible and the Church, but also of satirists and historians, heretics and mystics, poets and storytellers. Their writings are the vital link between Classical antiquity and the modern literatures of Europe. Students sample this vast literature through readings in the original and become acquainted with the social, intellectual, and cultural climate that produced it. Throughout the course, students develop their Latin reading skills (with attention to the differences between Classical and later Latin). Readings cover a range of authors from St. Augustine to the Arch-poet and may include autobiography, letters, history, visionary literature, philosophy, lyric poetry, hymns, drinking songs, Bible texts and interpretations, legends, encyclopedias, allegorical poetry, and political theory. Prerequisite: LAT-103 or two years of secondary school Latin. *GenEd: LCC*

LAT-371. Reading Rome: Textual Approaches to the City. (Not offered 2010-11) The purpose of this course is twofold. Our first objective will be to obtain greater proficiency in reading Latin. Through primary readings in their original Latin, you will increase your knowledge of vocabulary, grammar, and syntax. The second objective will be to study the literary topography of ancient Rome. We will consider Rome as a palimpsest, tracing the city's changes. Through our examination of sites-in-ink, we will consider how Roman identity and power relations are constructed through the city and its monuments. *GenEd: LCC*

LAT-447. Latin Prose Composition. (Not offered 2010-11) Practice in composing Latin prose, based on classical authors, and the study of prose style through a wide variety of texts from archaic to vulgar Latin. Prerequisite: At least one Latin course above 103, four years of secondary school Latin, or permission of the instructor. *GenEd: LCC*

LAT-490-492. Latin Independent Study. (Fall, Winter, Spring) Advanced individual study of a special author or subject, or of Latin prose composition. Prerequisite: Six courses in Latin or the equivalent.

LAT-498-499. Latin Senior Thesis. (Fall-Winter or Winter-Spring) Independent reading and thesis in the field of Latin language and/or literature. Prerequisite: Permission of the chair.

Computational Methods

Director: Professor V. Barr (Computer Science)

The department of Computer Science offers a minor in Computational Methods, in which students learn how to leverage computer science techniques in the service of computationally intensive tasks that are often found in the natural and social sciences, though not exclusively there. The minor will help students understand the importance of computation within their major field and develop the ability to apply computational techniques and tools to solve discipline-specific problems.

Requirements for the Minor : Six courses including an introductory course in computational methods (CSC-103 recommended); 2-3 intermediate level applications oriented courses offered in the computer science department, chosen in consultation with the major and minor advisor; 2-3 additional courses with computational focus from cognate departments, chosen in consultation with the major and minor advisor. Students pursuing the computational methods minor are also encouraged to incorporate a significant computation component into their senior project.

Computer Engineering

Director: Professor V. Barr

Faculty: Refer to listings under Electrical Engineering and Computer Science

The Computer Engineering program provides students with a solid basis in computer engineering and its underlying mathematics and science within the framework of a liberal arts education. We prepare students for immediate professional employment, graduate study, and entry into related professions. We believe that the rigor and depth of a computer engineering education combined with a broad study of the liberal arts provides an excellent background for students who wish to enter professions such as medicine, law, and business administration as well as engineering itself. Through our required international component, our emphasis on undergraduate research, and the personal attention that we give to each student, we educate well-rounded members of society who are prepared to excel in an increasingly multicultural and technological world.

The Computer Engineering program is offered jointly by the Department of Electrical and Computer Engineering and the Department of Computer Science. The major is accredited by ABET (www.abet.org). Educational objectives and program outcomes are listed on the department website: ece.union.edu

Requirements for the Major: a total of 40 courses including the following:

1. Math and Science: (Math 113*, 115, Physics 120, 121) or (IMP 111, 112, 113); Math 130, (Math 197 or 199); one math elective from (Math 117**, 127, 138, 221, 235, or 340); one science elective numbered 100 or higher (Chemistry 101, Physics 122, or Physics 123 are recommended);
*Other calculus sequences are possible depending upon a student's background.
** Math 117 may be taken only by students who did not take IMP 113.
2. Engineering Science: ESC-100;
3. Computer Engineering Core: ECE 118, 225, 240, 241, 248, 351; one from (CSC 103-109), CSC 150, 250, 260, 270, (333 or 335); ECE/CSC 318, (336/236 or 337/237), 352;
4. Computer Engineering Electives: 3 additional CSC or ECE courses numbered 300 or higher. Students may also enroll in graduate engineering courses offered through Union Graduate College. Please see the Union Graduate College catalog for course descriptions and joint degree program options.
5. Capstone Design: ECE 497 (1/2), 498 (1/2), 499.
6. Electives and General Education: 11 courses should be chosen in consultation with the student's advisor to enhance one or more of the program objectives and meet remaining general education requirements.

Sample schedule starting with Math 113: Students with different math backgrounds will have slightly different math sequences. ECE and CSC courses should be taken in the indicated terms to meet program prerequisites.

First Year

Fall: Elective*, ESC-100, MTH-113

Winter: Elective*, MTH-115, PHY-120, CSC 103-109**

Spring: Elective*, MTH-130, PHY 121

Second Year

Fall: ECE-118, ECE-225, MTH-197 or MTH-199**

Winter: Elective*, CSC-150, ECE-240, Science elective

Spring: Elective*, CSC-250, ECE-241

Third Year

Fall: Term abroad option*** or Electives*

Winter: CSC-260, CSC-270, ECE/CSC-318

Spring: ECE/CSC 352, Elective, CSC-335, ECE-497 (1/2)

Fourth Year

Fall: Elective*, ECE-351, ECE-336/CSC 236 or 337/237, ECE-498 (1/2)

Winter: ECE or CSC elective, ECE or CSC elective, ECE-499

Spring: Elective*, ECE or CSC elective, ECE-248, Math elective

* Electives should be chosen to enhance one or more of the program objectives and meet remaining general education requirements. Students should work with their academic advisor to develop an appropriate plan of study.

** One course from CSC 103-109 and either MTH 197 or 199 should be taken **before** the winter term of the second year.

*** The fall term of the third year is the recommended term for going on a full term abroad.

Requirements for Honors: In addition to meeting all of the general college requirements for honors, candidates for honors in computer engineering must present their senior project at the Steinmetz Symposium.

Requirements for the Minor: The following six courses — ECE 118, 225; one from (CSC 103-109), CSC 150; one from (ECE/CSC 318, 352) and one other from (ECE/CSC 318, 336/236, 337/237, 352, CSC 250, 270).

Requirements for the Five-Year Combined BS in Computer Engineering and MS in Electrical Engineering: Union undergraduate students may apply to this program offered in conjunction with Union Graduate College of Union University where both a B.S. and an M.S. degree are earned in five years. Students are encouraged to apply during sophomore year but no later than the end of the fall term of their senior year. A 3.0 overall GPA is expected for admission. Students enrolled in the program may count up to three Electrical or Computer Engineering courses toward both degrees. A petition requesting overlapping degree credit must be approved by the undergraduate and graduate advisors and filed with the graduate office. The Master of Science program is described in the catalog of the Union Graduate College at www.uniongraduatecollege.edu.

Computer Engineering Course Listings

See the course listings in the Electrical Engineering section for ECE courses and in the Computer Science section for CSC courses.

Computer Science

Chair: Professor V. Barr

Faculty: Professor D. Hannay; Associate Professors A. Cass, C. Fernandes, J. Spinelli; Assistant Professors J. Rieffel, K. Striegnitz (on leave winter and spring); Visiting Instructor A. Tartaro

Administration: L. Spallholz (Lab Manager)

Staff: L. Quirk (Administrative Assistant)

The department offers a B. S. in computer science, and collaborates with the Electrical and Computer Engineering Department to offer a B. S. in computer engineering, and with the Visual Arts department to offer a program in digital art.

The department also participates in offering three minors: a traditional minor in computer science (described below), a minor in Computational Methods, and a minor in Digital Media. The latter two are described in their own entries in this catalog.

Requirements for the Major in Computer Science: Ten computer science courses including one 100-level introductory course, 150, 250, 260, 270, five electives numbered 110 or higher; plus the project sequence 497-499. Of the five electives, four must be at the 300-level, with one from the Theory group and one from the Systems group. Also required: Math 197; Math 110-112 or 113; one Math elective numbered above 113, chosen in consultation with the advisor; one major-level lab science course in a natural science department and one non-CS course meeting the Core Curriculum science and technology requirement (courses cross-listed with CSC are not acceptable). A typical first year major program includes a 100-level introductory course and CSC-150 (140), Math 197, and first year Core Curriculum courses.

The Theory group: CSC-350 Theory of Computing; CSC-370 Programming Languages.

The Systems group: CSC-333 Introduction to Parallel Computing, CSC-335 Operating Systems, CSC-483 Topic: Compilers

Requirements for the Major in Computer Engineering: Refer to the Computer Engineering section.

Requirements for the Interdepartmental Major: the following eight courses in the department: a 100-level introductory course, CSC 150, 250, 260, 497, one course above introductory level (above 110), one course of at least 300-level, and one other CSC course. Only one CSC course numbered below 100 may be included, and only one 100-level introductory CSC course may be included. Also required: MTH-197 and the project sequence IDM-498 and IDM-499. The ID senior project must be designed to integrate the fields composing the major.

Requirements for Honors in Computer Science: Candidates for honors in computer science must have a minimum overall grade point average of 3.3, a minimum grade point average of 3.3 in the major with at least 3 grades of A- or better in full credit CS courses numbered 100 or above, a grade of at least A- for CSC-499 or IDM-499, and must present the senior project at the Steinmetz Symposium.

Requirements for the Minor in Computer Science: Six computer science courses including a 100-level introductory course, CSC-150 and four additional CSC courses chosen with the approval of an advisor from computer science; Math 197. Only one course numbered below 100 may be included, and only one 100-level introductory course may be included.

Course Registration Guidelines

Advanced Placement: A score of 4 or 5 on the AP Computer Science “A” exam will count as having satisfied one of the introductory courses (CSC 103-109).

For prerequisite structure of all courses in the CS major, please visit cs.union.edu/media/csmajorgraph.pdf

General Interest Courses

CSC-050. Computers and Computing (not offered, 2010-2011). Introduction to spreadsheet and database applications, computer hardware and programming. Not open to computer science or engineering majors, or to students with credit for a computer science course numbered 100 or higher.

CSC-055. Working with the Web (Fall, Fernandes). Design, writing, and publishing of WWW pages; creation of graphical images; study of the underlying Web technologies such as communication protocols, digital encoding and compression; programming of Web pages.

CSC-080. History of Computing (Winter, Tartaro). A survey of tools for computation, from number systems and the abacus to contemporary digital computers. The course focuses on the development of modern electronic computers from ENIAC to the present. Study of hardware, software, and the societal effects of computing.

Introductory Courses

Each CS major or minor program includes one course from the following list. Each course focuses on a distinct application area. The courses all cover the same basic computer science concepts and programming skills and only one may be counted toward a major or minor. These courses are open to non-majors and are prerequisite to certain intermediate courses that are also available to and suitable for non-majors. A grade of C- or better is required in order to take any course that requires an introductory course as prerequisite.

CSC-103. Computational Science: Introduction to Computer Science (Fall, Barr). Introduction to the field of computer science with the theme of natural and social science applications. Introduces students to algorithms, basic data structures, and programming techniques. Includes development of programs and use of existing applications and tools for computational applications including simulation, data analysis, visualization, and other computational experiments. Includes a laboratory. GenEd:

CSC-104. Robots Rule! Introduction to Computer Science (Spring, Rieffel). Introduction to the field of computer science with a robotics theme. Introduces students to algorithms, basic data structures, and programming techniques. Students will build and program robots, exploring mobility, navigation, sensing, and inter-robot communication. Additional class topics include: history of robotics, social and ethical issues, emotionally intelligent behavior and other current topics in robotics. Includes a laboratory.

CSC-105. Game Development: Introduction to Computer Science (Fall, Striegnitz). Introduction to the field of computer science with a computer games theme. Introduces students to algorithms, basic data structures, and programming techniques. Computer game development is used as an example application area and students implement their own games throughout the course. Includes a laboratory.

CSC-106. Can Computers Think? Introduction to Computer Science (Winter, Fernandes). Introduction to the field of computer science with an artificial intelligence theme. Introduces algorithms, basic data structures, programming techniques, and basic methods from artificial intelligence. Includes discussion of questions in the philosophy of artificial intelligence. Includes a laboratory.

CSC-107. Creative Computing: Introduction to Computer Science (Winter, Tartaro). Introduction to the field of computer science with a media computation theme. Introduces students to algorithms, basic data structures, and programming techniques. Media computation is used as an application area, focusing on image manipulation, sound splicing, animations, HTML generation and automated reading of web pages. Includes a laboratory.

CSC-109. (070) Computer Programming for Engineers (Fall, Hannay, Rieffel; Winter, Almstead; Spring, Hannay). Introduction to the field of computer science with an engineering applications theme. Topics include math and logical operations, data types, matrices, conditions and decisions, looping, subroutines, numerical methods, and plotting.

Intermediate and Advanced Courses

CSC-118. Introduction to Computer and Logic Design (Fall, Cotter). See ECE-118.

CSC-150 (140). Data Structures (Winter, Cass; Spring, Fernandes). Basic concepts of data organization and abstraction, software design, stacks, queues, trees Java. Prerequisites: one course from CSC-103 to CSC-109. Prerequisite or co-requisite: MTH-197 or permission of the instructor. Includes a laboratory. A grade of C- or better is required in order to continue with any course that requires CSC-150 (140) as a prerequisite.

CSC-206. Natural Language Processing (Fall, Striegnitz). This course studies computational techniques for processing human languages. It will introduce data structures and algorithms for various natural language processing tasks and applications, presenting statistically motivated as well as linguistically and psycholinguistically motivated methods. Prerequisite: one course from CSC-103 to CSC-109.

CSC-236. Computer Network Protocols (Winter, Hedrick). Design, analysis, and operation of communication protocols for computer networks; TCP/IP, addressing, switching, routing, congestion control, application protocols. Prerequisite: one course from CSC-103 to CSC-109.

CSC-237. Data Communications and Networks (not offered 2010-2011). (See ECE-337).

CSC-240. Web Programming (to be offered 2011-2012). This course addresses the standards in programming applications for the Web. Covers the client-side technologies XHTML, CSS, JavaScript and Dynamic HTML as well as server-side technologies PHP, MySQL, and CGI programming in Perl or Python. Prerequisite: one course from CSC-103 to CSC-109.

CSC-243 (283). Bioinformatics: Information Technology in the Life Sciences. (Cross-listed as BIO 243) (Winter; Horton and Fernandes). Biology and computer science students will gain a working knowledge of the basic principles of the others' discipline, and will collaborate together on bioinformatics projects. Topics include pairwise and multiple sequence alignments, phylogenetic trees, gene expression analysis, and protein structure prediction. Additional topics will be presented by invited speakers. Prerequisites: BIO-225 or one course from CSC-103 to CSC-109.

CSC-245. The Computer Science of Computer Games (to be offered 2011-2012). This course surveys the field of computer science from the perspective of computer games. Topics explored include: rendering of graphics to a screen, implementation of realistic simulation, use of artificial intelligence in games, handling user input, game physics, collaborative development. Final course project is a complete computer game. Prerequisite: one course from CSC-103 to CSC-109.

CSC-250. Algorithm Design and Analysis (Spring, Cass). Fundamental algorithms used in a variety of applications. Includes algorithms on list processing, string processing, geometric algorithms, and graph algorithms. Prerequisites: CSC-150 (140), MTH-197 or permission of the instructor. A grade of C- or better is required in order to continue with any course that requires CSC-250 as a prerequisite.

CSC-260. Large-Scale Software Development (Winter, Cass). Strategies for the systematic design, implementation, and testing of large software systems. Design notations, tools, and techniques. Design patterns and implementation idioms. Implementation, debugging, and testing. Includes team and individual software development projects. Prerequisites: CSC-150 (140), MTH-197 or permission of the instructor.

CSC-270 (210). Computer Organization (Winter; Rieffel). The architecture and operation of the digital computer. CPU design, input/output, computer arithmetic, assembly language. Prerequisite: CSC-150 (140). Includes a laboratory.

CSC-280. User Interfaces (Fall, Tartaro). Introduction to the field of human-computer interaction (HCI) through the study of user interfaces. Theory and application of what makes an interface usable. Design principles, empirical studies, and statistical analyses will be employed in team-based projects. Students will make extensive use of equipment for recording and analyzing participants in both laboratory and field settings. Prerequisite: CSC-150 (140).

CSC-318. Digital Design (Winter, Cotter). (See ECE-318).

CSC-320. Artificial Intelligence (to be offered 2011-2012). Fundamental concepts used in creating “intelligent” computer systems; semantic representation, logical deduction, natural language processing, and game playing; expert systems, knowledge-based systems, and elementary robotics. Prerequisite: CSC-250.

CSC-325. Robotics (Spring, Rieffel). This course will provide an introduction to robotics. The course will cover basic algorithms necessary for motor control. Building on these methods we will discuss higher level navigation for mobile robots, as well as the sensing necessary for localization of the robot in its environment. Finally we will also examine the challenges of motion planning for jointed robots with many degrees of freedom. Prerequisite: CSC-150 (140).

CSC-329. Neural Networks (not offered 2010-2011). (See ECE-329), and their implementation with linked structures. Programming in

CSC-333. Introduction to Parallel Computing (to be offered 2011-2012). Synchronization and communication in concurrent programs. Parallel computing with libraries for shared-memory programming and for cluster computing. Introduction to algorithms for parallel scientific computing. Prerequisite: CSC-250.

CSC-335. Operating Systems (Spring, Cass). Selected topics in operating system development including process and thread management, concurrency, memory and file system management, resource allocation, job scheduling, and security. Prerequisites: CSC-270 (210) and junior standing.

CSC-340. Introduction to Databases (Winter, Hannay). Introduction to data models and database design. Coverage of network, hierarchical, and relational architectures with emphasis on the latter. Study of relational algebra, entity-relationship modeling, and data normalization. Study of fourth generation query languages including SQL. Introduction to centralized, distributed, federated, and mediated systems. Prerequisite: CSC-150 (140) and MTH- 197.

CSC-350. Theory of Computing (to be offered 2011-2012). A discussion of the fundamental ideas and models underlying computing: properties of formal languages, finite automata, regular expressions, pushdown automata, context-free languages, Turing machines, and undecidability. Prerequisite: CSC-150 (140).

CSC-352. Embedded Microcontroller Systems (Spring, Cotter). See ECE 352.

CSC-360. Software Engineering (to be offered 2011-2012). Strategies for the specification, design, production, testing, and support of computer programs; software development models; programming team structures; documentation; and maintenance. Prerequisite: CSC-260.

CSC-370. Programming Languages (Fall, Barr). An introduction to issues in programming language design and implementation. Major programming language paradigms: functional, logic, and object-oriented, and their use. Prerequisite: CSC-150 (140) and junior standing.

CSC-385. Computer Graphics (to be offered 2011-2012). Implementation and use of algorithms for computer graphics. Rendering and representation of 3D objects. Lighting, shading and texture mapping surfaces of 3D objects. Programming interactive graphics applications. Constructing 3D models of real-world objects. Prerequisites: CSC-150 (140).

CSC-483. Selected Topics in Computer Science (not offered 2010-2011).

CSC-490, 491, 492. Independent Study (Fall, Winter, Spring; Staff). Prerequisite: Permission of department chair.

CSC-497. Computer Science Capstone Seminar (Spring; 0.5 credit, Tartaro) Development of the skills necessary for independent research: Reading scholarly works, designing experiments and empirically evaluating their results. Development of a comprehensive senior capstone project proposal. Investigation of professional ethics, skills and responsibilities. Prerequisite: CSC-260. Normally taken in spring of the junior year.

CSC-498, 499. Computer Science Capstone Project (Fall, Winter, Spring; .75 credit, Staff). Design, implementation, and evaluation of the capstone project. Normally taken during the senior year.

Dance (see Theater and Dance)

Digital Media

Directors: Professors V. Barr (Computer Science), D. Ogawa (Visual Arts)

Requirements for the Minor: The digital media minor allows students to synthesize introductory and intermediate classes from computer science and visual arts that explore the interaction between creative and computational processes. These include basic courses in digital art, traditional studio art, web programming and programming for image and sound processing. Students will explore a range of visual and electronic applications, and learn the basic tools necessary to incorporate visualization mechanisms into work within other fields of study. Requires a minimum of six approved courses from computer science and visual arts as follows:

Computer Science

- An introductory CS course (CSC-107 strongly recommended)
- CSC-240 Web Programming
- Additional CS course numbered above 110, chosen in consultation with the minor advisor

Visual Arts

- AVA-160 Introduction to Digital Art
- Additional Digital Art course (AVA 262, 270, 280, 363, 370)
- One more Digital Art OR other Visual Arts studio course, chosen in consultation with the minor advisor.

Economics

Chair: Professor Stephen J. Schmidt

Faculty: Professors H. Fried, J. Kenney, J. Klein (Dean of Interdisciplinary Studies & Special Programs), B. Lewis, T. McCarty (Dean of the Faculty), Shelton S. Schmidt, S. Yaisawarng; Associate Professors T. Dvorak, E. Motahar, M. Sener, Y. Song; Assistant Professor L. Davis; Lecturer E. Foster

Staff: M. Bielecki (Administrative Assistant)

Requirements for the Major and Interdepartmental Major in Economics: Twelve courses in the department: Economics 101, 241, 242, 243, 498-499, and six others. Majors are required to take a minimum of three 300- or 400-level courses in the department (in addition to Economics 498 and 499). Completion of Math 101, 110, or 113 (or equivalent advanced placement credit) is required prior to enrolling in Economics 241 or 242.

Interdepartmental majors in economics and another field are required to take at least eight courses in economics, including Economics 101, 241, 242, 243, at least one 300 or 400-level course (in addition to Economics 498 and 499) in the department, and either Economics 498-499 or a senior thesis drawing on both economics and the other discipline.

Majors and Interdepartmental majors should normally complete the core sequence of 241, 242, and 243 by the beginning of the junior year. This will allow sufficient time to take upper-level courses prior to the senior thesis. Majors who have reached the junior year may not enroll in courses numbered below 240. Students may not count toward the major more than one elective that does not list Economics 101 as a prerequisite. Also, students may not count toward the major more than one internship-related course.

Majors, and Interdepartmental majors taking Economics 498-499, or IDM 498-499 with Economics as one component, must pass an oral defense of their senior thesis proposal.

Students interested in economics might also consider the Quantitative Economics track or a major in Managerial Economics. Students planning graduate study in economics or business are advised to take additional courses in mathematics or consider the Quantitative Economics track as their advisors recommend.

Requirements for the Quantitative Economics Track: Quantitative Economics permits students who have a strong interest in mathematics to enhance their understanding of economic theory by concentrating on course work where the use of mathematics is especially productive. It is designed primarily for those who expect to go to graduate school, particularly in economics. Advisors: Professors Stephen J. Schmidt, Shelton S. Schmidt, and D. Klein

Economics 101, 241, 242, 243, and 498-499; three courses from among Economics 338, 341, 352, 353; two additional economics courses; and three mathematics courses above the level of Math 110. Mathematics courses should be selected in consultation with your economics advisor. The senior thesis, Economics 498-499, should make use of the quantitative nature of the track.

Requirements for the Major in Managerial Economics: Refer to the Managerial Economics section

Requirements for Honors: To earn departmental honors in economics, participants in the program must (1) have a minimum grade average of 3.3 or higher in Economics 241, 242, and 243; (2) be nominated for honors by the department at the end of the first term of work; (3) pass an honors oral examination on their senior thesis in the second term of work; (4) earn a minimum of "A minus" on the senior thesis; (5) receive approval of the final thesis from the honors oral examination committee; and (6) participate in the department's honors seminar. In addition, the student must satisfy all College requirements for departmental honors.

Requirements for the Minor: Six economics courses including Economics 101, 241, 242, and 243 (unless waived by the department chair based on an equivalent course in the student's major), and at least one course at the 300 or 400-level. Economics 390 may not be used to satisfy these requirements.

Course Registration Guidelines

Students intending to major in economics should take Economics 101 in the first year, and complete Math 101 or Math 110 in the first year if possible, early in the sophomore year if not. In the sophomore year they should take the core 241-242-243 sequence; the sequence need not be taken in numerical order but Economics 243 should normally not be taken first. Majors should complete several 300-level elective courses prior to enrolling in senior thesis, where possible in the area of economics in which the thesis will be written; Interdepartmental majors should complete at least one. The economics department gives credit for Economics 101 to students receiving a score of 4 or 5 on both the AP Microeconomics and Macroeconomics exam, but does not give credit for Economics 101 to students who have taken only one of the two AP exams, regardless of the score received.

Prerequisites: Economics 101 is a prerequisite for all courses in the department, unless otherwise indicated.

ECO-101. Introduction to Economics (Fall, Winter, Spring; Staff). Basic microeconomic model of price determination; impact of market structure on price and output decisions by firms; role of the public sector in an economy; basic macroeconomic model of national income determination; impact of fiscal and monetary policies on employment levels, price stability, and economic growth; international economic relationships.

ECO-222. History of Economic Thought (Not offered 2010-11). A survey of the history of economic thought from 1600 to 1950, focusing on primary works and discussion of their historical context. Major authors covered include Smith, Marx, Marshall, and Keynes. Prerequisite: ECO-101.

ECO-224. Competing Philosophies in United States Economic Policy (Not offered 2010-11). A survey of the economic and political philosophies that influenced U.S. economic policy from the American Revolution to the Great Depression. Specific policy areas surveyed include internal improvements, money and banking, tariffs, trade, antitrust and regulation. Prerequisites: HST-101 and ECO-101.

ECO-225. Economics of Sin (Spring; Davis). Uses the tools of economic analysis to examine the markets for goods and services the sale of which is subject to public condemnation. Considers the impact and unintended consequences of economic policies toward these goods on market and social outcomes. Topics include the economics of transplantable organs, crime, addiction, intoxicants, marriage and sex. Prerequisite: ECO-101.

ECO-226. Financial Markets (Winter; Lewis). Study of the historical evolution, economic functions, and efficiency of financial institutions and markets, with an emphasis on the United States. Prerequisite: ECO-101.

ECO-228. Environmental and Natural Resource Economics (Fall, Spring; Kenney). Economic causes of environmental degradation and natural resource depletion; benefit-cost analyses of public policies for environmental protection and natural resource preservation; specific issues in energy and wilderness resource management, air and water pollution abatement, and solid waste management. Prerequisite: ECO-101 or permission of instructor.

ECO-230. Mind of the Entrepreneur (Winter; Fried). Examines three perspectives on the role of the entrepreneur in guiding resource allocation in a market economy. The traditional perspective focuses on resource allocation changing over time as the entrepreneur responds to opportunities for economic profit. The psychological perspective examines the personality characteristics of entrepreneurs. The non-traditional perspective explores the implications of the entrepreneur as a creator of demand as well as a supplier of new products. Includes the role of the social entrepreneur and some ethical issues. Prerequisite: ECO-101.

ECO-231 Urban Redevelopment (Winter; Lewis). An examination of why the economic fortunes of cities rise and fall and what can be done to redevelop urban areas and improve their long-term vitality. Varied perspectives are considered and recent revitalization efforts in Schenectady, Saratoga Springs, and the Capital Region are analyzed.

ECO-233. Public Policy and American Industry (Not offered 2010-11). The structure, conduct, and performance of American industry; oligopoly theory and the applied theory of the firm; government policy toward business including antitrust and regulation. Prerequisite: ECO-101.

ECO-234. Japanese-American Finance and Trade Relations (Spring; Lewis). Are Japan and the U.S. financially separate but inseparable? This course covers the evolution, institutional structure, cultural context, and efficiency of these two financial systems with special emphasis on their interdependence via institutions, trade, and capital movements. Prerequisite: ECO-101. *GenEd:* LCC

ECO-236. Comparative Economies (Not offered 2010-11). Why are some countries rich and others poor? Geography, economic systems, investment, culture and institutions will be explored as possible explanations. The channels through which these factors affect economic performance will be examined, and their importance will be assessed using relevant data. Prerequisite: ECO-101.

ECO-237. Women, Men, Work and Family (Fall; Foster). A critical analysis of gender issues in economics; changing roles of men and women in labor markets; human capital theory; radical-feminist perspectives; earnings differentials and occupational segregation by gender; economics of family; public policy. Prerequisite: ECO-101.

ECO-241. Microeconomic Analysis (Fall, Winter, Spring; Staff). Theory of consumer choice; principles of production and analysis of cost phenomena; pricing and output decisions in competitive and noncompetitive markets; theory of distribution; general equilibrium analysis; introduction to welfare economics. Prerequisites: ECO-101; MTH-101, MTH-110, or MTH-113.

ECO-242. Macroeconomic Theory and Policy (Fall, Winter, Spring; Staff). Aggregate demand theory. Foundations of aggregate consumption, investment, money demand and money supply. Aggregate supply theory. Keynesian, monetarist, and rational expectations models. Economic growth theory. Unemployment, inflation and stabilization policy. Prerequisites: ECO-101; MTH-101, MTH-110, or MTH-113.

ECO-243. Introduction to Econometrics (Fall, Winter, Spring; Staff). Descriptive statistics, probability, random variables and their distributions, sampling, statistical inference including confidence interval estimation, hypothesis testing, and regression analysis. Introduction to economic research using statistical methods to test theories. Prerequisite: ECO-101.

ECO-295H-296H. Economics Honors Independent Project 1 and 2 (Fall, Winter, Spring; Staff).

Note on 300 and 400-level courses: 300 and 400-level courses carry one or more of the core courses Economics 241, 242, or 243 as prerequisites.

ECO-331. E-Commerce Economics (Not offered 2010-11) This course applies economic concepts to analyze the new economy where sellers are able to transfer rights for use of goods and services to buyers through network-communication links. Theories of firm conduct and performance, efficiency and productivity, the role of information, intellectual property rights of digital products, ethical aspects and policy implications of E-commerce are discussed. Prerequisite: ECO-241.

ECO-332 Economics of Technological Change. (Spring; Sener). The course will cover both macro and micro aspects of technological change. Topics include: Exogenous growth models, innovation-driven Schumpeterian growth models, creative destruction and the economy, competition and market structure, valuation of Research and Development (R&D) and patents, patent litigation and enforcement of Intellectual Property Rights (IPRs), innovation, technology diffusion in the global economy, and design of IPR regimes and R&D policies. Prerequisites: ECO-241 or ECO-242.

ECO-333. Industrial Organization (Not offered 2010-11). Selected topics in the theory and empirical analysis of U.S. industry performance; industry strategy; research and development; the theory and practice of competition policy and regulation. Prerequisites: ECO-241 and ECO-243.

ECO-334. Introduction to Financial Analysis (Winter; Kenney). Fundamental concepts of finance (time value of money, risk, and rates of return); analysis of financial statements; bond and stock valuation; capital budgeting; cost of capital, leverage, and optimal capital structure; long-term debt management; dividend policy; mergers and acquisitions; case study of the performance of an enterprise which seeks to maximize shareholder wealth. Prerequisite: At least one of ECO-241, ECO-242, or ECO-243.

ECO-335. The Economics of Health (Not offered 2010-11). Examination of demand and supply for medical personnel; analysis of hospital cost, inflation, and health insurance. Discussion of issues in cost benefit analysis of public health and regulation of health care markets. Prerequisite: ECO-241 and ECO-243, or permission of the instructor.

ECO-338. Quantitative Methods in Economics (Not offered 2010-11). Application of mathematical models in economics. The use of matrix algebra, dynamic analysis, and optimization techniques in economic model building. Topics covered include theories of the consumer and of the firm, economic growth, international trade and finance, optimal timing, linear programming, and macroeconomic models. Prerequisite: ECO-241.

ECO-339. Public Finance (Fall; O'Keeffe). Analysis of public sector expenditure and tax policy; efficiency and equity consequences of government spending and taxation; the nature of the public sector in the U.S., especially Social Security, education and the personal income tax; intergovernmental fiscal relationships. Prerequisite: ECO-241.

ECO-340. Competing Philosophies in Political Economy (Not offered 2010-11). Selected topics in social choice. Individual and group value systems. Applications of general equilibrium theory to problems of social welfare analysis. Benefit/cost theory. Prerequisite: ECO-241.

ECO-341. Current Topics in Microeconomics (Not offered 2010-11). A variety of microeconomic models and their applications to economic problems, including game theory, general equilibrium models, time and uncertainty, information economics, structure and behavior of firms, and public choice. Prerequisite: ECO-241.

ECO-344. Economics of Education (Not offered 2010-11). The economics of the education industry and education policy, and the relationship between education and economic performance. Topics include human capital investment, the production of education, the returns to education, financing education (using public or private resources), and school choice and education outcomes (student achievement, completion rates, lifetime achievement). Prerequisites: ECO-241 and ECO-243.

ECO-345. Nonprofits, Cooperatives, and Other Non-Traditional Firms (Not offered 2010-11). A theoretical and empirical examination of production which does not fit the standard neoclassical model of profit maximization. Examples include credit unions, the kibbutz, law firms, sports production, hospitals, the Japanese firm, educational institutions, slavery, government agencies, and much more. Prerequisite: ECO-241.

ECO-352. Contemporary Problems in Macroeconomics (Winter; Motahar). A detailed analysis of some fundamental current macroeconomic issues: growth and productivity, the roots of the current economic and financial crisis, and an examination of policy options designed to address the crisis. We will also conduct some relevant macroeconomic modeling and simulation exercises. Prerequisites: ECO-241, ECO-242, and ECO-243.

ECO-353. Seminar in Econometrics (Not offered 2010-11). Application of econometric methods to economic problems, plus additional topics in econometrics selected from multicollinearity, serially correlated and heteroskedastic disturbance terms, systems of simultaneous equations, seasonal adjustment, distributed lag models, other time series topics. Prerequisites: ECO-243, and ECO-241 or ECO-242.

ECO-354. International Economics (Spring; Motahar). Foreign trade and international finance, protectionism, international migration of capital and labor, political economy of trade policy, strategic trade policy, international coordination of macroeconomic policies. Prerequisites: ECO-241, ECO-242, and ECO-243. GenEd: LCC

ECO-355. Monetary Economics (Not offered 2010-11). What money has been and is, including study of the U.S. institutions which supply and control it; the bond market and term structure of interest rates; asset demand for domestic and foreign currencies; money in monetarist, Keynesian, and rational expectations approaches to macroeconomics. Prerequisites: ECO-241, ECO-242, and ECO-243; ECO-241 may be taken concurrently.

ECO-374. Sports Economics (Not offered 2010-11). Combines the application of economics to issues in sports. Sports topics include player salaries, free agency, discrimination, gambling, the Olympics, the Super Bowl, and the impact of stadiums on local economies. Prerequisites: ECO-241 and ECO-243.

ECO-375. Efficient Management of Technology (Spring; Yaisawarng). Economic models of the firm; efficiency and productivity concepts; Data Envelopment Analysis (DEA); ethics in management; DEA guide and ethical procedures for improving efficiency and allocating resources; empirical applications to specific industries. Prerequisite: ECO-241 and ECO-243.

ECO-376. Seminar in Global Economic Issues (Winter; Sener). This seminar explores different perspectives on current global economic issues. A review of the recent debate on globalization provides a framework for discussion of a variety of issues related to international trade and the international financial system. Topics covered may include: international trade and the environment, international trade and labor standards, regionalism vs. world trade, international financial crises, reforming the global financial architecture, and international capital flows and developing countries. Prerequisites: ECO-241, ECO-242 and ECO-243.

ECO-377. Modeling and Simulation of Economic Policies (Not offered 2010-11). The use of theoretical models and computer simulations to evaluate public policies under partial and general equilibrium specifications. Prerequisites: ECO-241 or ECO-242, and ECO-243.

ECO-378. Labor Economics (Not offered 2010-11). Determinants of wages and terms of employment, wage and employment theories and the impact of unions, wage structures, unemployment, poverty, wage legislation. Prerequisite: ECO-241.

ECO-379. Economic Growth and Income Distribution (Not offered 2010-11). An overview of the theory, measurement, and history of economic growth, which presents Classical, Keynesian, and neoclassical approaches in parallel. Topics include the theory of optimal saving, endogenous technical change, growth accounting, natural resource limits on growth, money and growth, and the impact of government debt and social security systems on long-term economic growth. Prerequisites: ECO-241 and ECO-242.

ECO-380. Seminar in Economic Growth and Development (Fall: Davis). Reviews the empirical record on economic growth and the resulting division of the world into rich and poor countries; considers the role of accumulation, innovation and institutions in the theory and experience of economic growth; investigates selected topics in the economics and political economy of growth, potentially including international trade, income inequality, international aid, democracy, social conflict, and corruption. Prerequisites: ECO-241, 242 and ECO-243.

ECO-382. Seminar in Finance (Spring: Lewis). Study of important topics in finance, such as capital structure, risk, uncertainty, and portfolio theory; agency costs; market efficiency; options theory, and the effects of financial crises on markets. Prerequisites: ECO-241 and ECO-334.

ECO-383. Seminar in International Finance (Spring; Dvorak). This course is about the financial markets that facilitate trade and investment in today's global economy. We will learn about the balance of payments, exchange rate determination and exchange rate regimes. Emphasis in the course will be placed on understanding the events currently happening around us: including the widening U.S. current account deficit, dollar depreciation against the euro, China's reluctance to float its exchange rate, and the financial crises in Asia and Argentina. Prerequisites: ECO-241 and ECO-242.

ECO-386. Seminar in Public Policy (Not offered 2010-11). An upper level seminar on the use of economic methodology to evaluate public policy. Particular topics covered vary with instructor and student interest. Topics covered in the past include education finance reform, health care, welfare, illegal drugs, and labor market discrimination. Prerequisites: ECO-241 and ECO-243.

ECO-387. Seminar in Labor (Fall: Song). Labor topics including, but not limited to, the public sector, wage determination, and the relationship between micro theory and the operation of American labor markets as they exist today. Critical issues in labor that affect the free market system. Prerequisites: ECO-241 and ECO-243.

ECO-390. Economics Internships (Winter; Fried). Designed to involve students in the operation of various economic agencies, commissions in New York State government and private firms. Interns apply skills to practical problems in economic analysis and gain exposure to the functioning of the agency or firm. Prerequisites: ECO-241, ECO-242, and ECO-243.

ECO-391. The Income Tax: Policy and Practice (Winter; O'Keeffe). This course integrates theory and practice in addressing income tax policy issues. Students run a Volunteer Income Tax Assistance Site at the College's Kenney Community Center at which income tax forms are filled out for low-income tax payers. Students undergo training and pass an IRS certification test. Students participate in all aspects of running the site, including publicity, electronic filing, and site management. Class sessions are used for training and for study of the economics literature on income tax policy issues, including the Earned Income Tax Credit, policy towards subsidization of child care, tax compliance issues, and tax incentives for saving. Prerequisites: ECO-241 and ECO-243, and a minimum GPA of 2.9.

ECO-445. Managerial Economics (Fall; Kenney). Use of economic and statistical analysis in management decision making and practical problem solving; demand evaluation and sales forecasting; cost and profitability analysis; pricing policy; extensive use of case studies. Prerequisites: ECO-241 and ECO-243 and senior standing.

ECO-490-493. Independent Study (Fall, Winter, Spring; Staff).

ECO-498-499. Senior Thesis, Parts I and II (Fall, Winter, Spring; Staff). Independent research thesis. Prerequisites: ECO-241, ECO-242, ECO-243, at least one course in the area of the thesis and senior standing; ECO-498 is prerequisite to ECO-499.

Electrical Engineering

Chair: Associate Professor P. Catravas (Fall), Associate Professor J. Spinelli (Winter & Spring)

Faculty: Professors Y. Chang, E. Hassib (on leave Winter), M. Rudko (on leave Spring), C. Traver (Dean of Engineering); Associate Professor P. Catravas; Assistant Professors S. Cotter and H. Hanson (on leave Winter & Spring); Senior Lecturer J. Hedrick

Staff: G. Davison (Engineering Assistant), L. Quirk (Administrative Assistant)

The Electrical Engineering program provides students with a solid basis in electrical engineering and its underlying mathematics and science within the framework of a liberal arts education. We prepare students for immediate professional employment, graduate study, and entry into related professions. We believe that the rigor and depth of an electrical engineering education combined with a broad study of the liberal arts provides an excellent background for students who wish to enter professions such as medicine, law, and business administration as well as engineering itself. Through our required international component, our emphasis on undergraduate research, our flexible curriculum, and the personal attention that we give to each student, we educate well-rounded members of society who are prepared to excel in an increasingly multicultural and technological world.

The Electrical Engineering major is accredited by ABET (www.abet.org). Educational objectives and program outcomes are listed on the department website: ece.union.edu

Requirements for the Major: a total of 40 courses including the following:

1. Math and Science: (Math 113*, 115, 117, Physics 120, 121) or (IMP 111, 112, 113), Math 130; one science elective numbered 100 or higher (Chemistry 101, Physics 122, or Physics 123 are recommended); one Math or Science elective numbered 100 or higher. *Other calculus sequences are possible depending upon a student's background
2. Engineering and Computer Science: ESc 100; one from (CSC 103-109); one engineering elective (MER 101, 201, or 231 are recommended)
3. Electrical Engineering Core: ECE 118, 225, 240, 241, 248, 343, 350, 351, 363, 366
4. Electrical Engineering Electives: 3 additional ECE courses numbered 300 or higher. Students may also enroll in graduate engineering courses offered through Union Graduate College. Please see the Union Graduate College catalog for course descriptions and joint degree program options.
5. Capstone Design: ECE 497 (1/2), 498 (1/2), 499
6. Electives and General Education: 14 courses should be chosen in consultation with the student's advisor to enhance one or more of the program objectives and meet remaining general education requirements.

Sample schedule starting with Math 113: Students with different math backgrounds will have slightly different math sequences. ECE courses should be taken in the indicated terms to meet program prerequisites.

First Year

Fall: Elective*, ESC-100, MTH-113

Winter: Elective*, MTH-115, PHY-120, CSC-103 to CSC-109**

Spring: Elective*, MTH-117, PHY-121

Second Year

Fall: Elective*, ECE-118, ECE-225

Winter: ECE-240, MTH-130, Engineering Elective

Spring: Electives(2)*, ECE-241, ECE-248

Third Year

Fall: Term abroad option*** or Electives*

Winter: Elective*, ECE-343, ECE-366, Science elective

Spring: Elective*, ECE-350, ECE-497(1/2), Math/Science elective

Fourth Year

Fall: ECE-351, ECE-363, ECE elective 1, ECE-498(1/2)

Winter: ECE elective 2, ECE-499, Elective*

Spring: ECE elective 3, Elective*, Elective*

* Electives should be chosen to enhance one or more of the program objectives and meet remaining general education requirements. Students should work with their academic advisor to develop an appropriate plan of study.

** One course from CSC-103 to CSC-109 should be taken during the first year.

*** The fall term of the third year is the recommended term for going on a full term abroad. Students who do not go on a fall term abroad may take ECE 351 and ECE 363 or electives.

Requirements for the Minor: ECE 118, 225, 240, 248; Electives: one from (ECE 241, 318, 341, 363, 366), and one from (ECE 333, 348, 350, 352, 360).

Requirements for Honors: In addition to meeting all of the general college requirements for honors, candidates for honors in electrical engineering must present their senior project at the Steinmetz Symposium.

Requirements for the Five-Year Combined BS/MS in Electrical Engineering: Union undergraduate students may apply to this program offered in conjunction with Union Graduate College of Union University where both a B.S. and an M.S. degree in electrical engineering are earned in five years. Students are encouraged to apply during sophomore year but no later than the end of the fall term of their senior year. A 3.0 overall GPA is expected for admission. Students enrolled in the program may count up to three Electrical Engineering courses toward both degrees. A petition requesting overlapping degree credit must be approved by the undergraduate and graduate advisors and filed with the graduate office. The Master of Science program is described in the catalog of the Union Graduate College at www.uniongraduatecollege.edu

Electrical and Computer Engineering Course Listings

ECE-118. Introduction to Computer and Logic Design (Fall). Cross listed with CSC-118. Fundamental material in the area of digital circuit analysis and synthesis, computer organization, and microprocessor programming. The components of digital computers are studied at the gate level, the machine organization level, and the assembly language programming level. Weekly team-based laboratory exercises and a course portfolio are required.

ECE-222. Introduction to Circuits and Electronics (Winter, Spring). Electrical quantities, circuit principles, analysis and response of basic circuits, semiconductor physics, diodes, transistors, and operational amplifiers. Includes a weekly lab. Not open to Electrical or Computer Engineering majors, or to students who have taken ECE-225. Prerequisites: PHY-121 or IMP-113.

ECE-225. Electric Circuits (Fall). Basic electrical circuit concepts and devices such as Ohm's law, Kirchhoff's laws, Thevenin and Norton equivalents, operational amplifiers, analysis methods, capacitors, inductors, ideal transformers, phasors, AC steady state analysis, complex power, frequency response and filters. Includes a weekly lab. Prerequisite: MTH-102 or MTH-112 or MTH-113 or IMP-112.

ECE-240. Circuits and Systems (Winter). Transient analysis of RLC circuits; modeling of circuits using differential equations; system models and properties; Laplace transforms applied to circuit and system design and analysis; system functions; complex frequency; poles and zeros; stability; frequency response; filter design. Includes a weekly lab. Prerequisite: ECE 225; Corequisite or Prerequisite MTH-130 or MTH-234.

ECE-241. Discrete Systems (Spring). Discrete signals and systems; classification and properties of systems; difference equations; Z-transform; Fourier series, Fourier transforms, the DFT and FFT; filters and filter design; A/D and D/A converters; applications to audio signal processing. Includes a weekly lab. Prerequisite: ECE-240.

ECE-244. Introduction to Bioengineering (Same as MER/BIO 240) (Winter). Students explore the application of engineering principles and analyses to the study of biological systems and seek to understand the potential benefits and constraints of engineered materials and devices in medical and environmental applications. Covers principles of solid mechanics, fluid mechanics, and neural information processing and control. Topics include the mechanics of support and locomotion, circulatory transport, mass transfer in organisms, sensory information processing and biorobotics. One lab per week. Prerequisites: MTH-110 and one major's course in biology, chemistry, or physics; PHY-110 recommended.

ECE-248. Introduction to Semiconductor Devices and Circuits (Spring). Semiconductors: theory of operation of diodes and transistors; circuit models; basic electronic circuits and amplifiers: transfer characteristics and inverters. Includes a weekly lab. Prerequisite: ECE-225.

ECE-281/282/283. ECE Practicum (Fall, Winter, Spring). Under the supervision of an ECE faculty member, students may participate in undergraduate research or a design project. To receive pass/fail credit equivalent to one elective course, a student must receive a passing grade in three terms of the practicum course. Up to two credits may be earned in this way. Pre-requisite: Permission of the faculty supervisor and the department chair is required.

ECE-295H, 296H. Electrical and Computer Engineering Honors Independent Project I & II (Fall, Winter, Spring). Sophomore project in Electrical and Computer Engineering for students participating in a scholars program. Prerequisite: permission of the instructor.

ECE-310. Electronic Devices (not offered 2010-11). Terminal characteristics and theory of electronic devices; band theory, photo and electronic effects, PN junctions; bipolar and field effect transistors, discrete and integrated electronics. Prerequisite: ECE 248.

ECE-312. Application of Integrated Circuits (not offered 2010-11). Electronic processing of signals; properties of linear and hybrid integrated circuits; design of linear, nonlinear and hybrid electronic systems, active filter networks. Design projects required. Prerequisite: ECE-363, ECE-366, or permission of the instructor.

ECE-318. Digital Design (Winter). Cross listed with CSC-318. The design of digital hardware systems at the module level using modern approaches. Datapath and control unit design, hardware description languages, programmable device implementations. Laboratory exercises using electronic design automation tools and a design project are required. Prerequisite: ECE-118.

ECE-325. Acoustics of Speech Communication (not offered 2010-11). Acoustics, circuit theory, and signal processing applied to analysis of speech signals; Physiology of speech production; Articulatory phonetics; Acoustical and articulatory description of phonetic features and of prosodic aspects of speech; Perception of speech; Models of speech production and planning; Some applications to recognition and generation of speech by machine, and to the study of speech disorders. Prerequisite: ECE-241

ECE-329. Neural Networks (not offered 2010-11). Same as CSC-329. Topics include the biological basis of artificial neural networks, neuron models and architectures, backpropagation, associative and competitive learning. Weekly computer laboratories and a final project required. Prerequisite: MTH-130 or MTH-234, CSC-150 for CS students.

ECE-330. Fuzzy Logic (not offered 2010-11). Cross listed with CSC-330. Topics include fuzzy sets and relations, membership functions, defuzzification, classical logic and fuzzy logic, fuzzy rule-based systems, nonlinear simulation, decision making, pattern recognition and control systems. Prerequisite: Calculus and Linear Algebra, CSC-150 for CS students.

ECE-333. Wireless Communication Circuits (not offered 2010-11). Communication circuits, including coupling networks, electrical noise, high-frequency amplifiers, mixers, phase locked loops, high efficiency and broadband amplifiers, modulators and demodulators, pulse modulation techniques. Includes a weekly lab. Design projects required. Prerequisite: ECE-350, ECE-363 or permission of the instructor.

ECE-336. Computer Network Protocols (Winter) Same as CSC-236. Design, analysis, and operation of communication protocols for computer networks; TCP/IP, addressing, switching, routing, congestion control, application protocols. Prerequisite: one of CSC-103 to CSC-109, or equivalent programming ability.

ECE-337. Data Communications and Networks (not offered 2010-11). Same as CSC-237. An introduction to the physical and data link layers of data communication networks, including error detection, and local area networks. Prerequisites: ECE-118 or one of CSC-103 to CSC-109.

ECE-341. Energy Conversion (not offered 2010-11). Theory of electromechanical energy conversion; characteristics of transformers and DC induction; and synchronous machines. Prerequisite: ECE-225.

ECE-342. Power Electronics (not offered 2010-11). Rectifying devices and rectifier circuits: device characteristics, waveforms, harmonic content filtering. Controlled rectifiers (thyristors, triacs): device characteristics, single phase and multiphase systems. Snubber circuits and divide limitations. DC-DC converters: design, application, topologies. Energy storage element selection and design: capacitors and inductors. Prerequisites: ECE-248, ECE-350.

ECE-343. Introduction to Electromagnetic Engineering (Winter). Traveling waves: transmission lines; electrostatics; magnetostatics; applications to engineering problems; solutions by analytical and numerical techniques. Prerequisites: ECE-240, (MTH-117 and PHY-121) or IMP-113.

ECE-347. Image Processing (not offered 2010-11). The course covers the basic operations performed on digital images. These include digitization, image enhancement and restoration, color image processing, and image compression using the discrete cosine transform and wavelets. Prerequisite: ECE-241

ECE-348. Digital Circuits (not offered 2010-11). Special circuitry of digital systems; transistors as switches, logic gate families (RTL, DTL, TTL, ECL, MOS, CMOS, etc.), digital ICs semiconductor memories. Design projects required. Prerequisite: ECE-118, ECE-248, or permission of the instructor.

ECE-350. Communication Systems (Spring). Frequency domain analysis, signal space representations, and their application to wireless communications; quality measures; performance in the presence of noise. Includes a weekly laboratory. Prerequisite: ECE-241

ECE-351. Probability and Digital Communications (Fall). An introduction to probability with an emphasis on applications in digital communications. Digital signaling, coding, probability of error, matched filters, optimum receiver design, source entropy, channel capacity. Prerequisite: ECE-118, ECE-240.

ECE-352. Embedded Microcontroller Systems (Spring). Same as CSC-352. Hardware and architecture with emphasis on 8051 microcontroller; programming in assembly and higher-level languages, microcontroller applications, and inter- facing. Includes an integrated lab. Design projects required. Prerequisites: ECE-118 and one from CSC-103 to CSC-109.

ECE-354. VLSI System Design (not offered 2010-11). Same as CSC-354. Design of very large scale integrated systems including structured design, stick diagrams, and delay time estimation. Design from logic to physical levels; CAD tools for layout and simulation. Design projects required. Prerequisites: ECE-118 and CSC-248.

ECE-358. Waves in Communication (Spring). This course will cover the basic concepts needed to develop electromagnetic devices in wireless communication. These include transmission line theory and circuits, wave propagation and transmission, elements of guided waves and resonators, and basic antenna concepts. Prerequisite: ECE-343 or equivalent.

ECE-360. Power System Analysis I (not offered 2010-11). Power and energy in AC circuits; single phase, three-phase, and polyphase circuits in balanced and unbalanced regimes; measurement of three-phase power; determination of three-phase sequence; single-line diagrams; per-unit method of representation and computations; transformers and synchronous machines in power systems; parameters of transmission lines. Prerequisite: ECE-225.

ECE-361. Power System Analysis II (not offered 2010-11). Wave-propagation in transmission lines; analysis of power networks, load-flow solutions, and control; three-phase faults and symmetrical components; power system protection; stability of power systems. Prerequisites: ECE-225 or ECE-360.

ECE-363. Analysis and Design of Electronic Circuits (Fall). Multiple-stage amplifiers; Differential amplifiers; Frequency response of amplifiers; Feedback amplifier; Stability of electronic circuits; Analysis and design of operational amplifiers. Includes a weekly lab. Prerequisite: ECE-248.

ECE-366. Control Systems (Winter). Modeling of control systems by block diagrams and flow graphs. Analysis of control systems response, error and stability by Routh's criterion, Root-Locus method, and frequency domain methods (Nyquist, Bode, and Nichols). Laboratory and design project. Prerequisite: ECE-240.

ECE-368. Introduction to Antenna Theory (not offered 2010-11). This course will cover the basic concepts in antenna engineering. These include radiation and radiating systems, fundamental parameters of antennas, wire antennas, antenna arrays, aperture antennas, microstrip antennas, antenna synthesis, integral equation and the method of moments. Prerequisite: ECE-343 or equivalent.

ECE-370. Engineering Acoustics (Fall). Course topics will include principles of acoustics, electromagnetics, circuit theory and signal processing applied to the analysis of musical instruments, experimental characterization techniques, digital instruments, MIDI. The symbiosis between music and the hard sciences will be surveyed. Attendance at some out-of-class events is required. Please contact the instructor in advance for a list of dates. Prerequisite: ECE-241; Co-requisite or Prerequisite ECE-343.

ECE-377. Biometrics (Fall). Signal processing applied to create technologies which measure and analyze human body characteristics such as voice, face, and fingerprint biometrics which may be used in security and forensic applications. The societal and ethical issues involved will be addressed. Includes a weekly laboratory Prerequisites: ECE-241, CSC-10X.

ECE-463. Fundamentals of Wireless Electronics (Winter). Review of phasor analysis; inductance and coupling networks; resonance; complex power and power transfer; transmission line theory and applications; introduction to matching network design. Includes a weekly studio/lab session. Prerequisite: ECE225 or equivalent

ECE-481, 482, 483. Special Topics in Electrical and Computer Engineering. Topics chosen from the current literature according to faculty and student interest. Each of these special topics courses has variable content addressing specific current areas of interest to students. They will be offered whenever the need arises.

ECE-490-496. Independent Study (Fall, Winter, Spring)

ECE-497, 498, 499. Electrical and Computer Engineering Capstone Design Project (Spring 1/2, Fall 1/2, Winter 1). Two course equivalent. Students begin this sequence of courses in the spring of their third year with a seminar component. In the fall and winter terms, students complete the design, implementation, and evaluation of a system under the supervision of one or more faculty members. Topics in the seminar include professional and ethical responsibilities; the historical and societal context of electrical and computer engineering; contemporary issues, and the specification, analysis, design, implementation, and testing phases of a design project. Research papers, project reports, and oral presentations are required.

Energy Studies

Director: Professor A. Anderson (Mechanical Engineering)

This program of study is only available to students as a minor and requires a minimum of 6 courses. The minor is designed to be accessible to all students on campus (non-science, science and engineering). Students completing this minor will gain both a technical and policy background which will allow them to understand the technical, economic, sociological and policy issues surrounding energy and energy usage. Students take two core technical courses, two core policy courses and then choose two additional courses from a list of electives. Students are encouraged to participate in the New Zealand mini-term abroad as part of this program.

Requirements for the Minor: The course requirements are organized around a technical core (2 courses), a policy core (2 courses) and upper level electives (2 courses). No more than two courses may count towards a major in another discipline.

Required Technical Core Course (2):

1. CHM-101 Introductory Chemistry I (offered every term, multiple sections) Prerequisites: See course listing in Chemistry Section.
2. One of the following:
 - a. MER-231 Thermodynamics (offered Fall, Winter) Prerequisites: PHY-120, MTH-112 or MTH-113 or IMP-112. Co-Requisite: CHM-101, OR
 - b. PHY 123 Heat, Light, and Astronomy (offered Fall) Prerequisites: PHY-121 or IMP-113.

Required Policy Core Course: 2 courses from the following list, alternative courses must be approved by minor advisor:

1. ANT-241 Environmental Anthropology. Prerequisites: None
2. ECO-228 Environmental and Natural Resource Economics (offered every year). Prerequisites: ECO-101 or permission of instructor.
3. HST-225 American Environmental History. Prerequisites: None
4. PHL-273 Environmental Ethics. Prerequisites: None
5. PHL-274. Environmental History and Literature, Prerequisites: None
6. PSC-272 The Environment, Energy, and U.S. Politics. Prerequisites: Sophomore standing or PSC-111, PSC-112
7. SOC-270 Social Movements, the Environment, and Society. Prerequisites: None
8. SOC-359. Environmental Policy and Resource Management. Prerequisites: None

Elective Courses: pick any 2 in consultation with minor advisor, alternative courses must be approved by minor advisor:

Engineering Courses:

ECE-341 Energy Conversion (offered occasionally)

ENS-209 Renewable Energy Systems

ENS-253 Environmentally Friendly Buildings

MER-232 Thermodynamics II (offered every year, Winter, Spring)

MER-471 Solar Energy Analysis and Design

Science Courses:

GEO-101 The Earth and Life Through time

GEO-102 Environmental Geology

GEO-104 Global Perspectives on Energy

GEO-108 Earth Resources

Social Science Courses:

ANT-241 Environmental Anthropology. Prerequisites: None

ECO-228 Environmental and Natural Resource Economics (offered every year).

Prerequisites: ECO-101 or permission of instructor.

HST-225 American Environmental History. Prerequisites: None

PHL-273 Environmental Ethics. Prerequisites: None

PHL-274. Environmental History and Literature, Prerequisites: None

PSC-272 The Environment, Energy, and U.S. Politics.

Prerequisites: Sophomore standing or PSC-111, PSC-112

SOC-270 Social Movements, the Environment, and Society. Prerequisites: None

SOC-359. Environmental Policy and Resource Management. Prerequisites: None

TAB-333T New Zealand Mini-Term Abroad (offered every year)

Engineering

Bachelor of Science degrees are offered in bioengineering, computer engineering, electrical engineering, and mechanical engineering. The computer, electrical and mechanical engineering programs are accredited by ABET, Inc. The bioengineering program is new and cannot be accredited by ABET until the first students graduate from it. Once attained, bioengineering accreditation will apply retroactively to all graduates of the program. Major and minor programs that include engineering components include bioengineering, energy studies, environmental science, environmental engineering, and nanotechnology. Please see the relevant sections of the catalog for descriptions of these areas of study.

The first year in engineering begins with ESC-100 (Exploring Engineering), a course that introduces students to the engineering discipline through interdisciplinary design projects, presentations by engineering professionals, and a hands-on team design challenge. Students are encouraged to choose an engineering major early in the freshman year since program curricula begin to diverge in the winter term. Engineering students complete the College's General Education curriculum and are strongly encouraged to satisfy their cultural and linguistic competency requirement by going abroad. Details of these requirements can be found in the section of the *Academic Register* that describes the General Education curriculum.

First year engineering students take three terms of calculus and two terms of physics (PHY-120, PHY-121). There are different calculus sequences that can be taken, based on the high school math background of the student. Students take a placement exam in the summer before their first year to determine their calculus sequence. Students who have had an introduction to differential and integral calculus in high school may be placed into an Integrated Math-Physics course sequence (IMP-111, IMP-112, IMP-113) that combines mathematics and physics into a set of courses that are equivalent to MTH-113, MTH-115, MTH-117, and PHY-120, PHY-121.

Engineering Science Courses

Courses listed in this section are general engineering courses common to more than one program.

ESC-008. Engineering Term-in-Industry. A non-credit, pass/fail registration for engineering students undertaking a term-in-industry or a cooperative work assignment.

ESC-009. International Engineering Term-in-Industry. A non-credit, pass/fail registration for engineering students undertaking an international term in industry or cooperative work assignment in partial fulfillment of the General Education curriculum.

ESC-100. Exploring Engineering (Fall). An introduction to engineering including fundamental topics such as problem solving, energy principles, mechanical systems, electrical circuits, controls, computers and logic. The course includes a weekly design studio that emphasizes engineering design, teamwork, technical writing, and ethics through several individual and team design projects. Not available to junior or senior engineering students.

ESC-224. Frontiers of Nanotechnology and Nanomaterials (Same as CHM 224) (Winter;) An overview of nanotechnology and nanomaterials including interdisciplinary perspectives from engineering, materials science, chemistry, physics, and biology with emphases in sensors and actuators, nanoelectronics, alternative energy, nanocomposites, polymers, biomaterials and drug delivery. Prerequisites: PHY111 or PHY121 or IMP113, MTH115, CHM101 or CHM110, or permission of instructor.

ESC-370. Engineering Economics (Not offered in 2010-2011). This course develops and applies analytical and computer tools for the evaluation of economic feasibility and desirability or practical engineering projects. Topics include the time value of money; present, annual, and rate of return analysis; benefit/cost analysis; breakeven analysis; depreciation; and the effects of inflation.

International Programs for Engineering Students

Engineering is a global profession and Union College is a national leader in engaging engineering students in international experiences. As a graduate you will likely find yourself working on an international team in a global company, working for an organization with international clients, or being dispatched to international locations to negotiate or oversee work. Thus it is critically important that you understand the nuances of other cultures, and how to communicate effectively. One of the best ways to accomplish this is through an international experience as a student. Therefore, engineering students, except under extraordinary conditions (as approved by the student's academic advisor and department chair), are expected to meet the Linguistic and Cultural Competency requirements of the General Education Curriculum by participating in some type of international experience. For engineering students, possible experiences include: 1) terms abroad, 2) international internships, 3) mini-terms abroad, 4) international design projects, and 5) summer international experiences. For more information on these programs, please visit our website at www.union.edu/academic_depts/engineering/eta/index.php or email Professor Jewell, Director of International Programs for Engineering Students, at jewellt@union.edu.

English

Chair: Professor J. Smith (Fall), Professor K. Doyle (Winter, Spring)

Faculty: Professors P. Heinegg (on leave Winter and Spring), H. Marten (on leave Winter and Spring), J. McCord (Term Abroad Fall), J. Smith (on leave Winter and Spring) R. Stevenson (on leave Fall and Winter), B. Wineapple (on leave); Associate Professors K. Doyle (Term Abroad Fall), H. Jenkins, B. Kuhn, J. Lewin; Assistant Professors C. Bracken (on leave Fall), B. Hauser, K. Lynes (on leave Winter and Spring), J. Murphy, B. Tuon, P. Wareh; Senior Lecturer A. Selley (on leave Spring); Visiting Assistant Professors, A. Pease, J. Sargent

Staff: D. Nebolini (Administrative Assistant)

Requirements for the Major:

12-course requirement, consisting of the following:

1. Two Introductory Courses required of all students:

- EGL-100 Introduction to Literary Studies: Poetry
- EGL-101 Introduction to Literary Studies: Fiction

The emphasis of these two courses is on close reading of primary texts and the acquisition of a vocabulary to speak and write clearly and intelligently about them. The specific texts and approaches to them are decided by each teacher. Each section will include works by writers from at least three cultural traditions. Possible traditions include African-American, American, Asian, African, Latin American, English, Postcolonial, Western European. Both Introductory Courses are to be completed by winter term of the junior year. Detailed descriptions of the various sections of EGL-100 and EGL-101 are available in the English department office, Humanities 212, the week before pre-enrollment each term.

2. Seven Intermediate Courses required of all students:

Intermediate Courses may be taken after at least one of the Introductory Courses has been completed. The second Introductory Course must be taken no later than the winter term of the junior year. In this group, students must complete the following courses:

- One course on Shakespeare. (EGL-223 or EG-224)
- Two Historical Studies courses, one before 1700 (EGL-203 to EGL-209), one before 1900 (EGL-210 to EGL-216)
- Four others (with faculty guidance) that reflect each student's interests, intentions, and plans after Union College

There are four Intermediate Course categories:

- **Historical Studies** courses that focus on literature viewed particularly (though not exclusively) in historical perspectives. There is often a focus on a particular literary period, with representation of a variety of appropriate genres. (EGL-203 to EGL-219)
- **Cultural Studies** courses that focus on literature viewed particularly (though not exclusively) in cultural perspectives. Culture Studies courses may focus on the literature of a particular culture, or literature in relation to several cultures together, or may view literature in relation to particular cultural issues or problems. (EGL-225 to EGL-254)
- **Genre Studies** courses that focus on literature viewed in relation to a particular form of writing. Examples: prose fiction, poetry, drama, satire, tragedy. (EGL-256 to EGL-287)
- **Author Studies** courses that focus on the writing of a particular author or group of authors. (EGL-292 to EGL-292)

3. Three Advanced Courses required of all students

Courses in this category are comprised of Junior Seminars and Senior Seminars. The seminars in both categories are writing intensive, typically research oriented, organized around the work of particular authors or topics. Students must complete three advanced courses, including one Junior Seminar, one Senior Seminar, and one seminar of choice, either 300 level or 400 level. Students must take at least two Intermediate Courses before enrolling in a Junior Seminar. Students must take at least four Intermediate Courses and both Intro Courses before enrolling in a Senior Seminar.

Junior Seminars: EGL-300 to EGL-306

Senior Seminars: EGL-400 to EGL-406

Requirements for the Interdisciplinary Major: English interdisciplinary majors have a 7 course requirement: one Introductory Course, and six others, including at least one pre-1700 Historical Studies Course and Shakespeare.

Requirements for Honors: Fourteen courses are required for honors, the additional two being a two-term honors thesis seminar. In this seminar, students are expected to learn research methods, discuss their subjects and approaches to them, share ideas and writing, as they work toward completing their individual theses under the direction of the seminar instructor. Honors students are also required to take the Literary Theory Seminar in Winter of their Junior year.

Interested students should discuss possible thesis subjects with various faculty members who can guide them to an appropriate thesis topic. Prospective Honors students are required to submit a two- to three-page thesis proposal by May of their junior year, for review by the department's Honors selection committee.

Students seeking interdisciplinary honors in English, have a 9 course requirement, the additional two beyond the requirements for the English interdisciplinary major being the two-term thesis seminar.

Requirements for the Minor: English minors have a seven-course requirement: one Introductory Course, and six others, including at least one pre-1700 Historical Studies Course and Shakespeare.

Course Registration Guidelines

Advanced Placement: AP or IB credit does not count toward the major nor does it fulfill the general education requirement.

Senior writing requirements: fulfilled by taking a senior seminar.

General Education: General Education students may take Intermediate Courses after taking one Introductory Course. For most Intermediate Courses, either of the Introductory Courses will suffice to meet the requirement. However, a student wanting to enroll in a genre specific Intermediate Course (a course dealing only with poetry or a course dealing only with fiction) is expected to have first taken the appropriate Introductory Course (that is, either Introduction to Poetry or Introduction to Fiction).

Enrollment Limits: Enrollment limits for the three categories of courses are as follows:

- 20 for Introductory Courses
- 25 for Intermediate Courses
- 15 for Advanced Junior and Senior Seminars.

For further information about English department courses and activities, consult handouts available in the English department office, or see the department's webpage.

Introductory Courses

EGL-100. Introduction to the Study of Literature: Poetry (Fall, Lynes, Murphy, Smith; Winter, McCord, Wareh; Spring, Jenkins, McCord, Stevenson). Students will explore the art of poetry by examining a selection of poems from at least three cultures and by considering how poetry conveys its complex meanings through voice, image, rhythm, formal and experimental structures. Particular attention will be given to developing reading and writing skills. *GenEd: HUL*

EGL-101. Introduction to the Study of Literature: Fiction (Fall, Heinegg, Lewin, Marten, Pease, Sargent, Selley Tuon.; Winter, Hauser, Kuhn, Pease, Selley, Tuon; Spring, Bracken, Hauser, Kuhn, Lewin, Pease, Tuon). Students will explore fictional works from at least three cultures. Emphasis will be placed on exploring the art of narrative—on considering the ways stories get told and the reasons for telling them. Attention may be paid to such concerns as narrative point of view, storytelling strategies and character development, the relationship between oral and written narrative traditions, and narrative theory. Particular attention will be given to developing reading and writing skills. *GenEd: HUL*

Intermediate Courses

EGL-100 or 101 is required for all upper level courses

Writing Workshop Courses

EGL-200. Workshop in Poetry (Not offered 2010-11). A first course in the writing of poetry, emphasizing workshop critiques of student work. Class time will be divided between instruction in literary technique, workshop sessions, and consideration of the work of several contemporary poets. Students will be asked to complete and revise several writing assignments, to keep a journal, and to prepare a final portfolio. *GenEd: HUL*

EGL-201. Workshop in Fiction (Fall, Selley). A first course in the writing of fiction, emphasizing workshop critiques of student work. *GenEd: HUL*

EGL-202. Workshop in Non-fiction Prose (Not offered 2010-11). A course in the writing of non-fiction, emphasizing workshop critiques of student work. *GenEd: HUL*

Historical Studies Courses

Courses Before 1700

EGL-203. British Literature in Historical Context: Medieval Literature I: Literature of Early England (Not offered 2010-11). This course examines the literature of early England as it reflects, shapes, and critiques its social context, from the Anglo-Saxon era up to just before the time of Chaucer. *GenEd: HUL*

EGL-204. British Literature in Historical Context: Medieval Literature II: Literature of Fourteenth-Century England (Not offered 2010-11). This course explores English literature as it reflects, shapes, and critiques society from the onset of the Hundred Years' War to the overthrow of Richard II, a turbulent period that includes the Peasants' Revolt, the Black Plague, the rise of English as the language of literature and government, and the proto-Protestant movement known as Lollardy. *GenEd: HUL*

EGL-205. British Literature in Historical Context: The Renaissance (Spring, Stevenson). Attention to selected literary texts from ancient Greece and Rome, consideration of their "rebirth" and influence on aesthetic and intellectual work produced in western Europe from the 14th century to the 17th, and consequent close attention to the achievements of one or more major literary figures of the English Renaissance. *GenEd: HUL*

EGL-206. British Literature in Historical Context: The 1590s (Fall, Wareh). What did it mean to be a poet in England at the end of the sixteenth century? How did the writers of Renaissance love poetry, narrative poetry, prose, and drama conceive of their relationships with readers and patrons, including Queen Elizabeth? Could reading a good poem make one virtuous? Could writing a great poem make one famous? These are the kinds of questions we will explore together as we read texts such as Marlowe's *Doctor Faustus*, in which a scholar makes a deal with the devil, Spenser's sprawling and action-packed allegorical poem *The Faerie Queene*, in which the redemption of humanity is linked to the slaying of a

dragon, Sidney's sonnets of desire and transgression, and Shakespeare's reworking of the myth of Venus and Adonis into a "lamentable comedy." Examining these and other texts from the 1590s in their historical context, we will consider how writers expressed devotion to their God, their queen, and their beloved as well as how they conceived of their own role and place in history

EGL-207. British Literature in Historical Context: 17th Century (Winter, Jenkins). This course will look at seventeenth-century literature and culture through the idea of revenge, which became a dominant form in an age of turmoil, injury, and change. We will begin with the early revenge plays of Shakespeare, Tourneur, Marston, Ford, and Webster, proceed through the cosmic revenge of Satan in *Paradise Lost*, and end with the ironic revenge exacted on moral goodness by the Restoration poets, playwrights, and philosophers. *GenEd: HUL*

EGL-208. British Literature in Historical Context: The Restoration (Spring, Jenkins). This course will closely examine the culture that produced both the first official poet laureate of England, John Dryden, and the most notoriously libertine poet in English, the Earl of Rochester. Also appearing will be the first English woman to make a living from literature, Aphra Behn; the wittiest playwrights in English dramatic history (Wycherley, Etherege, Congreve); John Milton; some very early English novels; and some pretty good philosophers, including Thomas Hobbes, John Locke, and maybe even Sir Isaac Newton. All that and the Great Fire of London, outbreaks of the plague, several wars, and major revolutions in politics and science. *GenEd: HUL*

EGL-209. American Literature in Historical Context: Beginnings to 1800 (Fall, Murphy). This course focuses on beginnings of American literature and culture, with an emphasis on writings prior to 1700. Selections will vary according to instructor, but may include early exploration literature; early Spanish, French and British texts; Native American traditions; Puritan and Pilgrim poetry and essays; writings on witchcraft; the Great Awakening; the rise of science, discovery and invention; the Declaration and the Constitution; and the early sentimental novel. *GenEd: HUL*

Courses Before 1900

EGL-210. British Literature in Historical Context: The 18th Century (Fall, Heinegg). A survey of some crucial—and hotly contested—ideas that emerge in the work of six major 18th-century writers: Jonathan Swift, Alexander Pope, Daniel Defoe, David Hume, Edward Gibbon, and Mary Wollstonecraft. These will include the definition of human nature, the western world's view of itself, the "noble savage" and colonialism, the classical tradition vs. "modern" Europe, deism, attacks on Christianity, the empirical challenge to the old order, the legacy of the French Revolution, and feminism.

EGL-211. British Literature in Historical Context: Romanticism (Winter, McCord). The poetry and prose of William Blake, William Wordsworth, Samuel Taylor Coleridge, John Keats with focus on their lives and times, art and thought, in the late 18th and early 19th centuries. *GenEd: HUL*

EGL-212. British Literature in Historical Context: 19th-Century Victorian Literature (Not offered 2010-11) The Victorian period has been called the age of energy, invention, and speed because of the industrial revolution it spear-headed; the age of doubt because of evolutionary science's challenge to traditional religious belief; the age of reform because political and social life modernized themselves somehow without breaking down into anarchy; and the age of Empire because the metropolis's military, commercial, and administrative power stretched around the globe. It was also an age when gender roles were seriously challenged, new sexual identities were explored, and rebels from all quarters spoke up against repression. To quote Charles Dickens, it "was so much like the present period that some of its noisiest authorities insisted on its being received, for good or for evil, in the superlative degree of comparison only." Indeed, the Victorians wrote very emphatically (and beautifully) about how they saw themselves and their own place in world history. We can learn a lot about the challenges of our own time by revisiting questions the Victorians raised, and we will do this by studying examples of their most compelling literature. *GenEd: HUL*

EGL-213. British and Irish Literature in Historical Context: Literature of the 1890s (Not offered 2010-11). The last decade of Victoria's reign is a miniature cultural period unto itself, a *fin de siècle* in which writers employed literary innovation to interrogate an outdated social, sexual, and imperial order. The Empire was at its height, but cracks were starting to show at the seams. In this period therefore, alongside celebrations of the Queen's Imperial Jubilee we find "art for art's sake" aestheticism, new forms

of the gothic, a reinvention of English drama, the New Woman in literature, Naturalism, the beginnings of an Irish cultural revival, Sherlock Holmes, anti-imperialist writing, and homoerotic poetry. The best literature of this period initiated a series of questions that modernist, postmodern, and postcolonial writers have continued to ask after two world wars, the collapse of the British Empire, and its replacement by an American one. We will read works by Oscar Wilde, Bram Stoker, Arthur Conan Doyle, George Bernard Shaw, Thomas Hardy, Somerville and Ross, and "Michael Field." *GenEd: HUL*

EGL-214. European Literature in Historical Context: Enlightenment and Romanticism (Fall, Kuhn). Consideration of the relationships between two major currents in modern European thought and culture: Enlightenment and Romanticism. Authors will range from Descartes to Nietzsche and may include Voltaire, Rousseau, Goethe, and Kant. *GenEd: HUL*

EGL-215. American Literature in Historical Context: The 19th Century (Spring, Pease). This course focuses on 19th century literature and its relation to historical events and issues. Selected authors will vary according to instructor, but may include Cooper, Irving, Emerson, Fuller, Thoreau, Douglass, Melville, Whitman, Dickinson, Twain and Wharton. Historical issues may include early national culture, the sentimental novel, Western expansion, Indians, industrialism and individualism, the Civil War and Reconstruction, journalism, and the rise of commercial culture. *GenEd: HUL*

EGL-216. African-American Literature in Historical Context: Beginnings to 1900: Vision and Re-Vision (Not offered 2010-11). The course will trace African-American movement towards literary and aesthetic mastery beginning with what Henry Louis Gates, Jr., calls "oral writing." Readings begin with music and the first known written poems and progress from slave narratives and autobiography to essays and fiction. Authors include Phillis Wheatley, Harriet Jacobs, Frederick Douglass, Charles Chesnut, and W.E.B. DuBois, among others. *GenEd: HUL, LCC*

Courses After 1900

EGL-217. American Literature in Historical Context: 1900-1960 (Not offered 2010-11). This course will focus on how urbanism, psychology, science, secularism, "The Great War" and World War II, consumerism and feminism influenced poets and fiction writers of the pre-Modern and Modern periods. Writers might include: Henry James, Henry Adams, Ernest Hemingway, T.S. Eliot, Robert Frost, Wallace Stevens, W.C. Williams, F. Scott Fitzgerald, William Faulkner, Langston Hughes, Ralph Ellison, Flannery O'Connor, Tennessee Williams, Allen Ginsberg, and/or Adrienne Rich. Poetry of the period will be generously represented in the syllabus. Assignments will include several papers and a final exam. *GenEd: HUL*

EGL-218. American Literature in Historical Context: 1960-Present (Not offered 2010-11). The class surveys developments in American fiction, poetry, and drama beginning with the Vietnam era and ending in the first decade of the 21st century. Literary movements in black American, women's, and multi-cultural writing will sit along side so-called "mainstream" post-modernism in juxtaposition and elucidation of major social and historical realities. The authors such as Thomas Pynchon, Don DeLillo, Frank Stanford, Adrienne Rich, Amiri Baraka, Joan Didion, Richard Hugo, Audre Lorde, Richard Powers, Alfredo Vea, Susan Straight, Tony Kushner, Yusef Komunyakaa and Judy Jordan will appear on the syllabus. *GenEd: HUL*

EGL-219. African-American Literature in Historical Context: 1900-Present (Not offered 2010-11). Introductory survey of African-American Literature from 1930 to the present. The involvement of African-American writers in various artistic, social, and political schools of American thought and activism. Readings include novels, short fiction, poetry, short criticism, theory and drama by Zora Neale Hurston, Richard Wright, Sterling Brown, Langston Hughes, Gwendolyn Brooks, James Baldwin, Robert Hayden, Margaret Walker, Leroi Jones/Amiri Baraka, Sonia Sanchez, Ethridge Knight, Ed Bullins, June Jordan, Audre Lorde, Toni Morrison, Louis Edwards, and Yusef Komunyakaa. *GenEd: HUL, LCC*

Shakespeare Courses

EGL-223. Shakespeare to 1600 (Winter, Wareh). The early plays and poems considered as forms of aesthetic experimentation and development within the framework of Elizabethan culture. *GenEd: HUL*

EGL-224. Shakespeare after 1600 (Fall, Jenkins; Spring, Doyle). Close readings of the later plays, including the four great tragedies, as both poems and dramas. *GenEd: HUL*

Cultural Studies Courses

EGL-225. Humanities: The Origins (Not offered 2010-11). Readings of selected masterworks from Hebrew, Greek, and Latin literature. *GenEd: HUL*

EGL-226. The World of the Bible (Fall, Heinegg). The civilization of ancient Israel from Abraham and Moses to Jesus and Paul as well as the contributions of the Bible to the Western imagination.

Though secular in its approach, the course aims at presenting basic information about the structure and development of both Judaism and Christianity. *GenEd: HUL*

EGL-228. The American Renaissance (Not offered 2010-11). This course will examine the major writers who flourished in the pre-Civil War era. Writers will vary by instructor, but may include: Emerson, Thoreau, Fuller, Whitman, Poe, Douglass, Dickinson, Hawthorne and Melville. Topics will include Transcendentalism, the rise of an American literary voice, New England politics and culture, American Romanticism and the place of letters in mid-century America. *GenEd: HUL*

EGL-229. American Realism and Naturalism (Not offered 2010-11). Major literary movements — local color, realism, and naturalism — and the competing literary theories of the decades between the Civil War and World War I. Topics include the rise of the city, the growth of technology, and the moral consequences of material expansion. Authors include Howells, Chopin, Norris, Garland, Crane, and Dreiser. *GenEd: HUL*

EGL-233. New York Modern (Not offered 2010-11). An exploration of 20th-century New York and the New York scene, primarily in fiction and poetry, but also in the visual arts, dance, classical music, jazz and rock, theater, film, TV. We will consider among others, Henry Roth, Hart Crane, William Carlos Williams, Allen Ginsberg, James Baldwin, Arthur Miller; visual artists from Charles Sheeler to Jackson Pollock, Alice Neel and Diane Arbus to Andy Warhol; musicians/composers including Thelonious Monk and Lou Reed, The Weavers and Bob Dylan, Leonard Bernstein and John Cage; dancers/choreographers including George Balanchine, Lincoln Kirstein, Martha Graham and Merce Cunningham; film makers and actors from Marlon Brando and Jackie Gleason to Woody Allen. *GenEd: HUL*

EGL-234. The Beats and Contemporary Culture (Not offered 2010-11). An examination of the writers of the Beat Generation (including Allen Ginsberg, Jack Kerouac, Gary Snyder, Edward Sanders) and of their lasting influence on American popular culture. *GenEd: HUL*

EGL-236. Women Writers to 1700 (Not offered 2010-11). We will explore the female side of the medieval and early modern literary traditions in England and Europe, examining women's writing as a reaction to male constructions of gender, literary authority, and subjectivity. *GenEd: HUL*

EGL-237. Women Writers, 18th to 20th Century (Not offered 2010-11). Tracing the tradition of literary writing by "thinking back through our mothers." Authors may include Behn, Burney, Austen, Radcliffe, Shelley, Brontë, Rossetti, Eliot, and Woolf. We may consider European contemporaries (LaRoche, Sand) and transatlantic connections (Fuller, Alcott). *GenEd: HUL*

EGL-238. Jewish Women Writers (Spring, Lewin). A study of Jewish women's writing. We will be particularly concerned with how the question of religion complicates female representations of gender, nationality, class, sexual orientation, and ethnicity. Texts range from the first autobiography by a Jewish woman (17th-century Glikl of Hameln) to novels and short stories of the 21st century in English and translation. *GenEd: HUL*

EGL-240. Black Women Writers (Not offered 2010-11). This course provides an introduction to the major themes and concerns of twentieth-century African American women writers. Using novels, poetry, essays, and music we will examine the ways in which black womanhood is characterized through intersecting categories of race, gender, class, sexuality, and empire. We will explore how selected authors wrestle with stereotypical images of African American women, examine the connections between black womanhood, community, and empire, and discuss the benefits and limitations of the concept of "black women's writing." Possible writers include Zora Neale Hurston, Gwendolyn Brooks, Toni Morrison, Audre Lorde, Gloria Naylor, Octavia Butler, and others. *GenEd: HUL, LCC*

EGL-241. Classics of Feminism (Not offered 2010-11). A reading of the foundational texts of modern feminism by Mary Wollstonecraft, John Stuart Mill, Virginia Woolf, Simone de Beauvoir, and others. The course will also explore the historical roots of women's emancipation, its philosophy and rhetoric, and its echoes in 21st-century life. *GenEd: HUL*

EGL-244. Asian American Literature and Film (Spring, Tuon). The reading list includes 20th-century authors, such as Maxine Hong Kingston, David Henry Hwang, Carlos Bulosan, Chitra Divakruni, and Karen Tei Yamashita. Themes include inter-generational conflict, responses to assimilation pressure, gender and class differences, pan-Asian vs. distinct ethnicities, the significance of "color" to the Asian American experience, and political representation within America. *GenEd: HUL, LCC*

EGL-247. Irish Literature and Film (Not offered 2010-11). The aim of this course is to introduce you to the field of Irish Studies, examining how issues relating to language, identity and nationhood are intimately connected in Irish literature and film. In this course we will be studying Irish literary texts from the beginning of the 19th century to the late 20th century, examined alongside a selection of contemporary films. This course will ask you to consider the ways in which cultural concerns of the Irish past continue to haunt the landscape of the present day, paying attention to issues of gender, class, race and sexuality. Texts will include Lady Morgan's *Wild Irish Girl*, Bram Stoker's *Dracula*, Samuel Beckett's *Waiting for Godot* and Neil Jordan's film *Michael Collins*. *GenEd: HUL, LCC*

EGL-248. Yiddish Literature in Translation (Not offered 2010-11). Secular Yiddish literature did not emerge until the late 19th century, and it may have been given its death blow by the Holocaust, but, while it lasted, it produced a rich flowering of prose and poetry. This course will examine major authors such as Mendele Moykher-Sforim, Sholem Aleichem, I.L. Peretz, and the Singer brothers, Israel Joshua and Isaac Bashevis, along with interesting minor figures such as Kadya Molodowsky and Rokhl Korn. *GenEd: HUL*

EGL-249. Literature of the Holocaust (Not offered 2010-11). In theory the events of the Holocaust are too terrible for art; in practice the Holocaust has given rise to a vast and valuable body of art, especially works of literature. A survey of the variety of responses, some of them astonishingly bold. Perhaps inevitably the course stresses the survivor's perspective; memory as a redemptive power, the uses of the imagination to condemn and triumph over the horrors of Nazism. The presence of such bright lights only intensifies our awareness of the surrounding darkness. *GenEd: HUL*

EGL-250. Literature and Science (Not offered 2010-11). An interdisciplinary examination of the interactions between literature and science. Topics will vary from year to year and may include science writing, the representation of science and scientists in literature, literature inspired by science, literature and science as competing ways of knowing the world, the figurative dimension of scientific writing, and speculative fiction. *Gen Ed: HUL*

EGL-251. Nature and Environmental Writing (Not offered 2010-11). A course examining the major figures in nature and environmental writing from the 18th through the 20th centuries, including Audubon, Bartram, Emerson, Thoreau, Powell, Muir, Leopold, Carson, and E.O. Wilson, as well as contemporary writers. *GenEd: HUL*

EGL-252. Changing Ireland (Spring, Bracken). This course will be looking at the changing nature of Irish society since the economic boom of Celtic Tiger Ireland in the 1990's. EU membership, US investment and the effects of global internationalism have brought about radical culture transformations in the country which in turn are altering conventional meanings of Irishness and Irish identity. We will be looking at representations of this changing Ireland in literature and film, paying attention to issues such as new technologies, post-feminism, sexualities, race and ethnicity. Texts will include Kirsten Sheridan's *Disco Pigs*, Pat McCabe's *Breakfast on Pluto* and the poetry of Cathal O Searcaigh. *GenEd: HUL, LCC*

EGL-253. Desire, Incest, Cross-dressing, and Homo-erotica: Identity Politics I the Early American Sentimental Novel (Winter, Murphy). In her seminal study, *Revolution and the Word: The Rise of the Novel in America*, Cathy N. Davidson states that “literature is not simply words upon a page but a complex social, political, and material process of cultural production” (viii). Thus, the eighteenth-century sentimental novel serves to highlight a moment in history lodged among judgments, anxieties, and controversies about the direction the newly formed American Republic would take at the end of the Revolution. Embedded within these narratives are questions about both men’s and women’s power and authority in the public and private spheres, the negation of the female self, the social function of romance and courtship, and the nature of women as moral, social, and biologic commodities. This course seeks to explore disjunctions between the sentimental structure of the early American novel and its contradictory attitudes toward liberty and self-expression. Questions that will guide our discussion include: How and why does the seduction plot of earlier novels reinforce American values and ideals distinct from European standards of morality? In what ways does the cult of “true womanhood” prominent during the first few decades of the nineteenth century suppress the plea for women’s equality? How are these texts concerned with defining the new nation, its citizens, and boundaries? In what ways do these texts consolidate nationhood through the formation of a national literature and the narrative construction of a national history, culture, and consciousness? Do these novels construct, conserve, or subvert American cultural institutions?

EGL-254. Narratives of Haunting in U.S. Ethnic Literature (Winter, Tuon) This course examines the theme of haunting in contemporary US ethnic literature. With this theme in mind, we will investigate the following questions throughout the trimester: Why is haunting such a prevalent theme in ethnic writing? What do we mean when we say that a text is haunted? What are the causes of haunting? What is possession? What are some ways to dispossess or exorcise ghosts? What are the functions of ghosts? Is there such a thing as a good haunting? What are their messages to us? How do we listen to ghosts? Authors include Lan Cao, Nora Okja Keller, Maxine Hong Kingston, Cynthia Ozick, Toni Morrison, Sandra Cisneros, and Leslie Marmon Silko. GenEd: HUL

Genre Studies Courses

EGL-255. Discourses on the Vietnam War (Fall, Tuon). This class will examine various perspectives on “The Vietnam War,” or, as the people of Viet Nam call it, “The American War.” In our archeological exploration into the nature of knowledge about this period in Viet Nam/U.S. history, we will not privilege one perspective over another. Rather, we will examine the diverse political, ideological, and moral positions from which various groups, such as the U.S. government, U.S. soldiers, U.S. citizens, the North Vietnamese people, and the South Vietnamese people, perceive this historic conflict. *GenEd: HUL*

EGL-257. 19th- Century Novel (Not offered 2010-11). The golden age of the novel examined in its historical, intellectual, and literary contexts. Topics will include satire and the novel, realism vs. gothicism, fiction and the visual arts (especially book illustration), the impact of Darwin, fiction and the role of women, the city vs. the country, the individual vs. society, the novel and commerce, fiction and imperialism. *GenEd: HUL*

EGL-258. Modern British Fiction (Not offered 2010-11). The class will read novels and short stories by modern masters Joseph Conrad (*Lord Jim*, *The Secret Agent*), Ford Madox Ford (*The Good Soldier*), E.M. Forster (*Howard’s End*), Virginia Woolf (*Mrs. Dalloway*), D.H. Lawrence (*Women in Love*), and James Joyce (portions of *Ulysses*). We will explore the developments in narrative form and technique and the influences that brought them about. We will consider such issues as the impact of science and technology on fiction writing, the influence of the psychological theories of Freud and Jung, the impact of World War I on society, the loss of faith, the weakening of the British Empire, the changing roles of men and women. Considerable attention will be paid to relationship of fiction writing to art, in particular to the works of Cezanne, Monet, Van Gogh, Picasso, Munch, Nolde, Duchamp, Boccioni, other post-impressionists, cubists, expressionists, realists and surrealists. *GenEd: HUL*

EGL-259. British Fiction Since WWII (Not offered 2010-11). Novels and short stories since World War II by such writers as Amis, Atwood, Barker, Gordimer, Lodge, Ondaatje, Sillitoe, Graham Swift, Weldon. Discussion of political-sociological ideologies in fiction; redefinitions of realism; emigration and immigration; race relations; satire and class critiques; post-modernist narrative forms; film and fiction; history and fiction; humor and the grotesque. *GenEd: HUL*

EGL-260. Modern American Novel (Not offered 2010-11). This course examines major developments in the American novel from the turn of the twentieth century to 1960, including such subjects as traditional and experimental fictive forms; the relationships of science, technology, and religion to the literary imagination; the experience and aftermath of war; the impact of psychology and psychological thinking; the rise of urbanism; the rise of feminism; and the impact of racism. Included may be novels and short story collections by Henry James, Anderson, Wharton, Cather, Faulkner, Fitzgerald, Hemingway, Flannery O’Connor, Wright, Salinger, and/or others. *GenEd: HUL*

EGL-261. American Fiction Since 1960 (Not offered 2010-11). A consideration of a variety of issues in the development of the American novel after World War II, with emphasis on the fiction of the last three decades. Novelists read will include Saul Bellow, Vladimir Nabokov, Don DeLillo, Tim O’Brien, Louise Erdrich, Toni Morrison, Chang-rae Lee, Mona Simpson, Michael Chabon, and Robert Gold. Topics will include the novel and the American sense of place, representations of the immigrant experience, American pop culture and American fiction, the novel in the “nuclear age,” definitions of the self, fiction and war, the novel and the sense of the past, the novel as experiment, and film and fiction. *GenEd: HUL*

EGL-262. American Regionalism (Not offered 2010-11). This course examines authors and works of fiction that pay particular attention to region and place as sources of identity. We will examine writers from various distinct American regions — New England, the South, the Midwest, the Plains, the Southwest, California. Writers will include Thoreau, Twain, Hamlin Garland, Willa Cather, Mary Austin, Sherwood Anderson, Flannery O Connor, Rudolpho Anaya, and Joan Didion and others. *GenEd: HUL*

EGL-263. European Novel in Translation (Not offered 2010-11). Readings of selected masterpieces from 19th- and early 20th-century Continental fiction — works by Stendhal, Flaubert, Dostoyevsky, Tolstoy, Kafka, Mann, Proust. Explores the authors’ social, political, and philosophical environments. *GenEd: HUL*

EGL-264. Novels of Education (Not offered 2010-11). The growth of a young person’s mind provided the subject for many great works of nineteenth century fiction. In this course we will examine how and why the novel of education (otherwise known as the *Bildungsroman*) evolved in British and Irish fiction over the course of the Victorian period. Why did they begin to appear when they did, and what cultural issues were the writers and their audiences interested in thinking through? How were novels of female education different from those of young men? What contradictions did they lay bare about the structure of British society? We will see that this dynamic literary form allowed the novelist to articulate new social roles and forms of identity in a changing, though highly rule-bound, society. *GenEd: HUL*

EGL-265. Governess Tales (Not offered 2010-11). Social upheaval and unrest in the early decades of Victoria’s reign (1830s and 1840s) gave way to greater national confidence and stability in the 1850s and 1860s. We will consider England’s internal concerns of class mobility, industrialization, professions for women, and working class conditions, as well as international questions of empire and nationalism. Our special focus will be “Governess Tales,” specifically three published virtually simultaneously in 1847-8: Charlotte Brontë’s *Jane Eyre*, W. M. Thackeray’s *Vanity Fair*, and Anne Brontë’s *Agnes Grey*. Precursors (*Emma*) and parodies (*Behind a Mask*, *Turn of the Screw*) may round out the syllabus. *GenEd: HUL*

EGL-266. Detective Fiction (Not offered 2010-11). This course investigates detective fiction’s emergence and popularity in late nineteenth-century English literature and places the birth of the genre in its social and cultural contexts. We read prominent Victorian writers such as Dickens and Collins as well as canonical detective fiction writers such as Conan Doyle and Poe. How does the rise of the detective novel intersect with historical conditions of Empire, gender relations, and social policy? Does the spread of detective fiction signal late Victorian England’s need to patrol destabilizing forces, both domestic and foreign? *GenEd: HUL*

EGL-267. Philosophical Fiction (Spring, Kuhn). This course will deal with works of fiction in which philosophy or philosophical concepts play a significant role. A key issue is the relationship between ideas and (literary) form. Authors will come from a wide range of traditions and may include Descartes, Rousseau, Wordsworth, Nietzsche, Camus, Dostoevsky, Borges, Calvino, Lem, and Le Guin. *GenEd: HUL*

EGL-269. Poetry in the Renaissance (Not offered 2010-11). A study of selected classical poets followed by close attention to their intellectual and aesthetic impact, placed in historical context, on English poets in the sixteenth and seventeenth centuries. *GenEd: HUL*

EGL-270. Modern Poetry (Not offered 2010-11). Selected poetry from the high modern period (from the turn of the twentieth century to circa 1945) in relation to changing views of the poet's role in culture and the poet's contradictory posture as prophet, exile, romantic, outcast. Authors will include W.B. Yeats, T.S. Eliot, Ezra Pound, Robert Frost, Wallace Stevens, William Carlos Williams, Marianne Moore, Langston Hughes, W. H. Auden, others. *Gen Ed: HUL*

EGL-271. British Poetry Since WWII (Not offered 2010-11). Selected poetry written since World War II by poets in England, Scotland, or Ireland, including Philip Larkin, Charles Tomlinson, Thom Gunn, Jon Stallworthy, Ted Hughes, Anne Stevenson, Seamus Heaney, Eavan Boland, John Montague. Topics of discussion may include poetry and politics, poetry and the visual arts, the poet's relation to the past, the poet's sense of place, poetic formalism and poetic experiment, the poet, and the natural world. *GenEd: HUL*

EGL-272. American Poetry Since 1960 (Not offered 2010-11). A course in the development of American poetry from the confessional breakthrough of the Vietnam era to more contemporary experiments with language, narrative, and the nature of the poet's authority. *GenEd: HUL*

EGL-274. Introduction to Black Poetry (Fall, Lynes). We will explore the development of African-American poetic voices in North America. Spanning eras, we will nonetheless focus on the work of modern and contemporary poets. We will look at poems and poets as they constitute a hybrid and composite tradition. We will read poetry in anthologies; we will also read several full books by individual authors, and will listen to performance poetry on CD and DVD. Readings and recordings may include poetry from Wheatley, Harper, Horton, Dunbar, H. Johnson, Hughes, Brooks, Sanchez, Baraka, Mullen, Komunyakaa, Morris, Mullen, among others. *GenEd: HUL, LCC*

EGL-275. Renaissance Drama (Not offered 2010-11). How various Renaissance playwrights represented those on the margins of the dominant culture, particularly the malcontent or madman (Marlowe's *Jew of Malta*; Kyd's *The Spanish Tragedy*; Marston's *The Malcontent*), women (Middleton and Dekker's *The Roaring Girl*, Webster's *The Duchess of Malfi*, Ford's *'Tis a Pity She's a Whore*), the criminal (the anonymous *Arden of Faversham*), and sometimes the intersection of all three (Jonson's *Bartholomew Fair*). *GenEd: HUL*

EGL-276. Modern Drama (Not offered 2010-11). A reading of the work of four master playwrights from the late 19th to mid-20th century: Henrik Ibsen, Anton Chekhov, Bertolt Brecht, and Samuel Beckett, who revolutionized stagecraft with their radical vision of tragedy, comedy, and the human condition. *GenEd: HUL*

EGL-277. Tragedy (Not offered 2010-11). Selected tragic masterworks from ancient Greece, Elizabethan-Jacobean England, and modern Europe. Focus on tragedy as a grappling with the critical problems of human existence, as a celebration of human greatness, and as a painful meditation on the power of evil. *GenEd: HUL*

EGL-278. Comedy (Not offered 2010-11). The nature of comedy, as shown in prose fiction and drama. Includes works by Aristophanes, Boccaccio, Rabelais, Shakespeare, Twain, and Kafka. Draws upon the work of various students of comedy (Bergson, Freud, and others) to get some philosophical-psychological understanding of humor. *GenEd: HUL*

EGL-279. Epic (Not offered 2010-11). An introduction to epic literature from a comparative perspective. Epics have a value that is essentially, not accidentally, historical. Though they come down to us from the ancient world, their orientation is retrospective to begin with (since they take, for their subject, the distant past of their "original" audience). Readings will include *Gilgamesh*, *Exodus*, *The Odyssey*, and *Njal's Saga*. *GenEd: HUL*

EGL-280. Satire (Not offered 2010-11). Satire is a paradoxical art, a form of social chemotherapy: it mocks and scorns in order to correct and improve. And since humanity provides a constant supply of follies and pretensions, it is an enduring and universal art as well. This course will study satire through time and various cultures, from Aristophanes and Horace to Swift and Pope and up through *Slaughterhouse Five* and *The Simpsons*. *GenEd: HUL*

EGL-281. Romance: Medieval to Modern (Not offered 2010-11). This course follows the development of the romance, from its coming of age in twelfth-century France to its twentieth-century descendants. *GenEd: HUL*

EGL-282. Gothic (Not offered 2010-11). How shall we define the term "Gothic?" Combining elements of tribal "barbarism" (the Goths) and medievalism (or the "Dark Ages"), Gothic fiction was a very prominent fixture of 18th- and 19th-century literature whose popularity continues to this day. Its pleasure derives from fear or terror, mystery, the irrational or supernatural, and the unconscious; haunted castles, dark villains, ghosts, monsters, and terrorized victims characterize its fictions. This course will explore traditional Gothic literature, its parodies, its heirs and some filmic adaptations. *GenEd: HUL*

EGL-283. Autobiography (Not offered 2010-11). "Who am I and how did I get this way?" This course is a study in the development of autobiography as literary genre from St. Augustine's *Confessions* to Frank McCourt's *Angela's Ashes*. We will focus on autobiography as a space for exploring, expressing, and constructing the self as well as an inquiry into the developing relationship between mind and world. We will also examine the various motives behind writing one's life-story from the existential and religious to the political and historical. Related issues to be discussed include the role of imagination, memory, and language in narrating the self, and the particular impact of minority, marginalized, and forbidden voices. We will also talk about the recent scandals involving fabricated autobiographies. Does an autobiography have to be true? Readings may include Montaigne's *Essays*, Rousseau's *Confessions*, Woolf's *A Sketch of the Past*, Styron's *Darkness Visible*, Wurtzel's *Prozac Nation*, Spiegelman's *Maus*, and Satrapi's *Persopolis*. *GenEd: HUL*

EGL-284. Gender and Genre (Not offered 2010-11). How do conventions of gender difference inflect the way stories are told and interpreted? We will explore a variety of historical contexts as well as the concepts of "gender" and "genre" while investigating basic narrational elements such as the contract between narrator and addressee, framing devices, closure and delay and how these elements contribute to a construction of gender categories. *GenEd: HUL*

EGL-285. Film as Fictive Art (Spring, Hauser). A study of the formal, technical, and ideological elements of selected American films. *GenEd: HUL*

EGL-287. Science Fiction (Not offered 2010-11). A survey of science fiction, focusing primarily on novels written after World War II. Topics covered may include: visions of dystopia, alternate histories, models of gender, fears of technology, and new views of race and sexuality. Likely authors include Asimov, Clarke, Lem, Dick, Herbert, LeGuin, Delany, Butler, and Gibson. Film may also be a significant component of the course. Possible directors include Kubrick, Spielberg, Cronenberg, Gilliam, and Scott. *GenEd: HUL*

Author Studies Courses

EGL-292. Milton (Not offered 2010-11). The two sides of Milton – the high humanist poet, author of the greatest epic in English and one of the greatest religious poems in any language, and the Puritan revolutionary, defender of regicide and champion of the English commonwealth. The goal of the course will be to see if the two sides can be held separate, or if they must be seen as complementary. We will read *Paradise Lost* at the rate of one book per week, always trying to relate the two sides of the poet. *GenEd: HUL*

EGL-293. Studies in a Major Film Director: David Lynch (Winter, Hauser). This course provides a close viewing of a variety of films from across a single director's career, paying particular attention to continuities of theme, style, and structure. Each incarnation of the course will feature a different director (e.g., Howard Hawks, Alfred Hitchcock, Francis Ford Coppola, David Lynch, Steven Spielberg, etc.).

Advanced Courses

Junior Seminars

EGL-300. Poetry Workshop (Not offered 2010-11). A workshop course for students with some experience and a serious interest in the writing of poetry.

EGL-301. Fiction Workshop (Not offered 2010-11). A workshop course for students with some experience and a serious interest in the writing of fiction.

EGL-302. Literary Theory (Winter, Kuhn). Developments in modern theoretical approaches to language literature, and culture. Focus on the relationship between various formalist approaches to texts (new criticism, structuralism, and post-structuralism) and more historical or cultural approaches (Marxism, new historicism, and “cultural studies”). Reading will range from Plato and Aristotle to contemporary critics. *GenEd: HUL*

EGL- 304. Junior Seminar (Topic Courses):

Fall: Workshop in Screenwriting (Hauser). A first course in the writing of screenplays and teleplays, emphasizing workshop critiques of student work. Class time will be divided between instruction in the techniques of writing for the screen and workshop sessions. Classroom instruction will be based on both the classic foundations of dramatic writing (Aristotle and Egri) as well as contemporary industry practice (Field, McKee, Dancyger, etc.). Students will be asked to complete and revise several writing assignments, including log lines, treatments, and a final formatted screenplay of 20 – 25 pages (a short film, a 22-minute television episode, or the first act of a feature screenplay). *GenEd: HUL*

Winter: Beatles (Jenkins). Before there was a youth market, there was a youth movement, and leading it was the Beatles. Almost indisputably the greatest rock band ever, they helped change not just Western music, but Western culture. This seminar will look at the Beatles in the cultural context of the youth movement, without neglecting the music and lyrics that appealed even to those who rejected the changes they helped bring about. No in-depth musical knowledge will be necessary, but if you have a guitar and a voice, bring them along.

Spring: Charles Brockden Brown (Murphy). Charles Brockden Brown was born into an intellectually minded Quaker family in 1771 five years before the start of the American Revolution, in Philadelphia. His childhood intersected with the newly formed nation’s most distressing, but also exciting, times. Although he was trained to be a lawyer, he quickly abandoned that profession in pursuit of a literary career that brought him fame as the very first professional novelist in the newly formed American Republic. His natural curiosity exposed him not only to the thoughts and ideas of late Enlightenment thinkers but propelled him toward a desire to publicize his knowledge and his extensive and insightful observations of politics, culture, women’s rights, slavery, and American foreign policy. He was an author of both gothic fiction and a definer of that genre; he wrote novels on captivity and disease, and authored numerous political pamphlets discussing the debates of his day. Brown also wrote two sentimental novels in epistolary form, which perplexed his many friends and even repelled some readers. At the time of his death in 1810, he had started a new magazine called *The American Register, or General Repository of History, Politics and Science*, and he was at work on *A Complete System of Geography*. In this course we will examine several of Brown novels and letters as well as his famous dialogue *Alcuin; or the Rights of Women*, alongside Mary Wollstonecraft’s *Vindication of the Rights of Women*, Mary Shelley’s *Mathilda*, and Nathaniel Hawthorne’s *The Blithedale Romance*. We will consider Brown’s trans-Atlantic inspirations, his influence on early 19th century American sensibilities, his use of the corpse as a literary trope, and the way in which he integrates the seduction tale into his writing. The class will also take a field trip (possibly overnight) to Philadelphia to visit Brown’s birthplace and the setting for much of his fiction.

Senior Seminars

EGL-400. Poetry Workshop (Fall, Smith). An advanced workshop course in the writing of poetry.

EGL-401. Fiction Workshop (Not offered 2010-11). An advanced workshop course in the writing of fiction.

EGL-402, 403. Honors Thesis Seminar I & II (Fall, Lewin; Winter, Lewin). A two-term course required for all English majors who are writing an honors senior thesis. The course is conducted mainly as a writing workshop to guide students through the process of writing a thesis. Workshops focus on developing the research and writing skills needed to complete a successful thesis. There will be weekly individual meetings with the instructor as well as weekly group meetings. The course instructor will direct your thesis.

EGL-404. Senior Seminars (Topic Courses):

Winter: James Joyce (Bracken) This course will examine the work of Irish writer James Joyce (1882-1941). Texts to be considered will include *Dubliners*, *A Portrait of an Artist as a Young Man*, *Exiles*, in addition to selections from *Ulysses* and *Finnegans Wake*. Joyce’s work will be analyzed from a number of different critical perspectives, including postcolonialism, modernism and feminism. We will also watch a number of films relating to Joyce and his work, such as *Nora*, *The Dead* and *Bloom*, so as to consider the way in which his literary and biographical legacy is inscribed in the late 20th and early 21st century. At the end of the course, attention will also be paid to this legacy in contemporary Irish culture and the commodification of Joyce as the ‘Great Irish Writer’, through an analysis of the yearly Bloomsday celebrations of June 16th in Dublin.

Spring: Bob Dylan (McCord). This seminar will focus on the prophetic and contemporary, rebellious and conventional, provocative and sentimental, enigmatic and crystal clear lyrics and music of Bob Dylan. Our attention will be on the songs themselves—what they say as poetry and how they express what they say through music. Subjects for discussion will include: Dylan’s use of recurrent diction, images, themes to elucidate (or confuse); his consistent (or inconsistent) messages; the significance (or not) of literary references; the significance (or not) of musical influences; the extent to which he is traditional (or original); the relationships in his songs between personal experience, politics, social reform, and spirituality; his apparent (or not) changes in direction and possible reasons for them; helpful (or unhelpful) biographical influences; his creative process as calculated and methodical (or free-wheeling). Attendance and regular participation are required. Students will give in pairs two or three presentations throughout the term and write a final creative, critical and/or research paper of 12 to 15 pages.

EGL-405. Senior Seminar . TBA

Independent Study – English Honors

EGL-295H-296H. English Honors Independent Project I & II

Independent Study & Senior Thesis (non-Honors)

EGL-490-491. Independent Studies Directed reading and research on arranged topics. By permission of department chair, after a petition submitted in the fifth week of the previous term.

EGL-496-497. Senior Thesis Two-term senior thesis.

Entrepreneurship

Director: Professor H. Fried (Economics)

Courses in a variety of departments at Union examine ways in which entrepreneurs think and act. As students identify how people, in many times and places, have succeeded in attaining their visions for change, they will develop an ability to do the same themselves. In addition to department-based courses, several interdepartmental courses described below provide multidisciplinary approaches to skills including critical analysis and communication that will enable students to put their own ideas and inspiration into action in their chosen fields and areas of interest.

The courses listed below adopt an entrepreneurial lens to understand the world.

Visual Arts

AAH-207 Artists, Art and Entrepreneurship in Western Europe

AAH-208 The Business of Visual Art

Anthropology

ANT-232T Fiji Culture & Entrepreneurship

Classics

CLS-142 Special Topics in Classics

CLS-227 Entrepreneurship in the Ancient World

Economics

ECO 230 The Mind of the Entrepreneur

History

HST-143 Entrepreneurship in Medieval and Renaissance Europe

Mechanical Engineering

MER-439 Thermal/Fluid Sys Design w/Lab

Courses that take multidisciplinary approaches to entrepreneurship

IDM-260. Social Entrepreneurship. Entrepreneurs identify opportunities, mobilize resources and make things happen. This course applies the active mindset of the entrepreneur to social organizations. The measure of success is not profit, but change. Passion and mission are the motivators. Examples include feeding the hungry, improving the environment, educating the destitute, housing the poor, training the unskilled, caring for the disenfranchised sick, and much more. Jerro Billimoria founded Child line in Mumbai, India that provides services to street children. Veronica Khosa founded Tateni that works with aids victims in South Africa. Jacob Schramm founded College Summit to make college accessible to low-income students in the U.S. And the list goes on. In the course, we will study many examples of social entrepreneurship, identify best and worst practices, work with local social entrepreneurial organizations and identify opportunities to make the world a better place.

IDM-299. Developing a Vision. Throughout history, leaders in many contexts have used “vision” as a means to not only communicate their desires for the future but also to motivate their followers and supporters to great achievements. This course focuses on developing skills in creating, articulating and planning a vision that will inspire the students (and their supporters) to achieve their goals. This class is intended for mature students who want to learn skills that will help them understand and shape the world around them.

IDM-325. Entrepreneurship Seminar. The object of the course is to develop business/marketing plans for senior projects in engineering that will explore the potential for commercialization. Interdisciplinary teams are organized around each senior project. In order to be successful, the engineers have to communicate the value of their innovative project to liberal arts students; liberal arts students have to communicate the marketing and business strategy to engineers. Engineering senior projects with elements of social responsibility are preferred. This course is about interdisciplinary communication, teamwork, social responsibility, creativity and entrepreneurship.

Environmental Science, Policy and Engineering

Director: Professor T. Jewell (Engineering)

Faculty: Professors J. Kenney (Economics), J. Garver, K. Hollocher, D. Rodbell, G. Shaw (Geology), A. Ghaly, T. Jewell, M. Mafi (Engineering), R. Wilk (Mechanical Engineering), I. Kaplan (Sociology); Associate Professors K. LoGiudice, S. Rice (Biological Sciences); M. Hagerman (Chemistry), A. Morris (History); Assistant Professors J. Corbin (Biological Sciences), E. Garland (Anthropology), D. Gillikin (Geology), K. Lynes (English), L. Macmanus-Spencer (Chemistry), H. Frey (Geology); Visiting Assistant Professor E. Shever (Anthropology); Senior Lecturer J. Grigsby (Sociology).

The Environmental Science, Policy and Engineering (ESPE) program is focused on students with an interest in the science behind the myriad environmental problems that face our world, the political policy mechanisms that may provide solutions to these issues, and the interface between the environment and the human condition. Students in the ESP program choose either a BS degree in Environmental Science or a BA degree in Environmental Policy. The BS degree emphasizes the biological, chemical, geological sciences, and also physics and engineering. The BA degree emphasizes the social sciences and humanities, and there is considerable overlap between these two tracks. All students take a common introductory course, a core of between 8 and 11 required courses, and 4-6 courses that define an area of concentration. During the senior year, students complete 2 terms of independent research, and participate in a senior seminar.

Requirements for the Major in Environmental Science

Includes ENS-100, between 11 and 13 science courses; 2 math/statistics courses; 2 policy courses; senior seminar, and 2 thesis credits, for a total of 18-21 courses. Specific requirements include completion of A-D below:

- A. 8-10 required core courses (ENS-100; BIO-102; BIO-101 recommended; BIO-315 or BIO-320 or BIO-324 or BIO-350T; CHM-101, CHM-102 or CHM-110; GEO-101, GEO-102, or GEO-107; GEO-203 or GEO-204; MTH-110; MTH-104 or MTH112)
- B. 2 environmental policy courses (ANT-241, ECO-228, ENS-222 HST-225, PHL-273, PHL-274, PSC 260, SOC-270, SOC-271, SOC-358T, SOC-359; SOC-450.)
- C. 6 upper level science courses in one of five areas of concentration (no more than 4 courses from any one department except for Environmental Engineering and Technology students; no double counting from A-C, above):
 - Ecology (BIO-203, BIO-256T, BIO-257, BIO-315, BIO-320, BIO-322, BIO-324, BIO-325, BIO-328, BIO-350, BIO-350T, BIO-352T; GEO-202, GEO-254, GEO-300, GEO-301)
 - Water Lakes and Oceans (BIO-328, BIO-352T, CHM-231, CHM-240, CHM-340; ENS-250, GEO-207, GEO-301, GEO-302, GEO-304)
 - Global Climate Change (BIO-203, BIO-257, BIO-315, BIO-320, BIO-324, BIO-328, BIO-350T; CHM-231, CHM-240; GEO-109, GEO-254, GEO-300, GEO-301, GEO-302, GEO-304)
 - Energy and Environmental Physics (PHY-110 and PHY-111; or PHY-120 and PHY-121; or IMP-111-113; and 4 from the following: ENS-200, MER-471; PHY-122, PHY-123, PHY-220, PHY-300, PHY-310)
 - Environmental Engineering and Technology (PHY-120; and 5 from the following: ENS-200, ENS-208, ENS-209, ENS-247, ENS-250, ENS-252, ENS-253, ENS-307, ENS-310, ESC-370, GEO-203, GEO-204; MER-231, MER-471).
- D. Senior Seminar (ENS-460)
- E. 2 terms of thesis research (ENS-498 and ENS-499)

Requirements for the Major in Environmental Policy

Includes ENS-100, 4 core policy courses, 1 quantitative method spatial analysis; 3 required science courses; 4 upper level policy courses; 1 environmental seminar; 1 senior seminar; 2 thesis credits for a total of 17 courses. Specific requirements include completion of A-G below:

- A. Introductory course (ENS-100);
- B. 4 required policy courses (ECO-228; and 3 from: ANT-241; HST-225; PHL-273, PHL-274, PSC-260, PSC-272, SOC-260, SOC-271, SOC-358T, SOC-359)
- C. 1 quantitative methods and spatial analysis course (one course from ECO-243; MTH-104; PSY-200, SOC-300; or GEO-203 or GEO-204)
- D. 3 required science courses (BIO-102; and BIO-320 or BIO-324 or BIO-350T; and GEO-100 or GEO-102)
- E. 4 upper level policy courses in one of four areas of concentration (no double counting from A-D, above; up to 2 internships may be counted toward any of the tracks below, provided the subject of the internship is selected with that track in mind and approved in writing by both the relevant internship director and the Director of the Environmental Science and Policy Program; specific internships include: ANT-232T, ANT-490T; ECO-390; PSC-277; PSC-279T; SOC-385):
 - Environmental Law and Management (ENS-208, HST-335; PHL-273, PHL-274; PSC-264, PSC-273; SOC-240, SOC-270, SOC-358T, SOC-359)
 - Environmental Problems and Response (ANT-241; EGL-251; ENS-208, ENS-222, ENS-247; HST-335; PHL-273, PHL-274; SOC-202, SOC-270, SOC-271, SOC-359, SOC-370; TAB-355T)
 - Marine Studies (BIO-256T, BIO-328, BIO-352T; SOC-358T, SOC-359, TAB-355T)
 - Energy and Sustainability (BIO-322; CHM-101; ENS-200, ENS-208, ENS-209, ENS-222, ENS-247, ENS-253; PSC-272; SOC-359; TAB-333T)
- F. Environmental Seminar (SOC-450)
- G. Senior Seminar (ENS-460)
- H. 2 terms of thesis research (ENS-498 and ENS-499)

Requirements for Honors: The major requirements as specified above are required, as are the GPA requirements of Union College described elsewhere in this catalogue.

Requirements for the Minor in Environmental Science and Policy:

1. ENS-100
2. Two science courses. Science courses must be selected from the following list. No more than 2 courses may be taken from any one Department and no more than one course may be taken at the 100 level.

Biology: BIO-320, BIO-322, BIO-324, BIO-328

Chemistry: CHM-101

Envir Science: ENS-200, ENS-208, ENS-209, ENS-247, ENS-250, ENS-252, ENS-253, ENS-307, ENS-310

Geology: GEO-102, GEO-104, GEO-107, GEO-108, GEO-109, GEO-202, GEO-203, GEO-204, GEO-207, GEO-252, GEO 300, GEO-301, GEO-302, GEO-304, GEO-355T

3. Three policy courses. Policy courses must be selected from the following list. No more than 2 courses may be taken from any one Department.

Anthropology: ANT-241

Economics: ECO-228

Envir. Science.: ENS-208

History: HST-335

Philosophy: PHL 273, PHL-274

Political Science: PSC-272

Sociology: SOC-271, SOC-358T, SOC-359, SOC-450

Requirements for the Minor in Environmental Engineering:

This program of study is only available to students as a minor and requires a minimum of six courses, including one core course and five elective courses. This minor is for students who are interested in the engineering and technical aspects of environmental issues. Completion of this minor will introduce the students to the environmental issues involved in several aspects of human endeavor (energy, water, waste, shelter, etc.), and will prepare them to contribute to design teams working to assess and mitigate environmental impacts.

1. Students must complete MTH-102, MTH-112, or MTH-113 and PHY-110 or PHY-120 for this minor.
2. ENS100: Introduction to Environmental Science and Policy
3. Five courses from the following list of electives. Refer to the Environmental Science and Policy section for a description of these courses.
 - ENS-200 Energy
 - ENS-208: Waste Management and Recycling
 - ENS-209: Renewable Energy Systems
 - ENS-250: Water Resources and the Environment
 - ENS-252: Environmental Geotechniques
 - ENS-253: Environmentally Friendly Buildings
 - ENS-307: Hydrology
 - ENS-310: Environmental Engineering

Courses in Environmental Studies - Other courses are listed under their individual departments

ENS-100. Introduction to Environmental Studies. (Fall, Winter, Spring, Staff) An introduction to the study of environmental studies from both a policy and a scientific perspective. Topics include human population dynamics, pollution and remediation, global warming, acid rain, and biodiversity. Fieldwork during lab periods involves the investigation of local environmental problems. This course is intended for sophomores in the environmental studies program, but it is open to all students.

ENS-200. Energy. (Fall, Winter, Staff) Designed to acquaint the student with the many societal and technological problems facing the United States and the world due to the ever increasing demand for energy. Weekly Lab sessions.

ENS-208. Waste Management and Recycling. Waste Management. (Spring, Ghaly). This course will introduce students to various sources of solid waste materials including hazardous and non-hazardous waste, and biodegradable and non-biodegradable waste. Focus areas are overview of landfill systems, geosynthetics, geotextiles, geomembranes, geonets, single clay liner, single geomembrane liner, composite liner systems, leak detection and leachate collection, removal and treatment of leachate, and capping and closure systems. The recycling segment will explore natural resources of raw materials including origin and use. It will also investigate the potential and limitation for recycling of materials. The focus area will be various applications of recycling recyclable and non-recyclable materials especially non-biodegradable

waste. Discussion of methods of manufacture and compositions of such materials will concentrate on advanced industrial applications for the reuse of non-recyclable waste materials. Application areas include production of new materials, materials with superior qualities for special purposes, and materials with high level of resistance against certain environmental conditions. The course will also touch on the political aspect of recycling including consumer attitude and government incentives to encourage recycling. Prerequisites: ENS-100 or GEO-100.

ENS-209. Renewable Energy Systems. (Spring, Wilk) The study of renewable energy resources and the conversion technologies available to utilize them to meet society's energy needs. Topics include forms of energy; First and Second Laws of Thermodynamics; energy conversion and efficiency; sustainability; energy storage. Historical perspective on world and U.S. energy usage, conversion technologies, and energy resources. Fundamentals of the conversion processes and systems involved in the use of solar thermal and photovoltaic, wind, bioenergy, geothermal, thermoelectric, hydro and ocean technologies. The use of hydrogen as a fuel and technologies to produce and use it. Economic and environmental issues relevant to renewable energy resources. Class will be supplemented with laboratory demonstrations and field trips to visit existing renewable energy systems. Prerequisites: MER-231 or PHY-122.

ENS-222. The New Wall of China (Same as MLT-209)

ENS-247. Sustainable Infrastructure. (Fall, Ghaly) Infrastructure is the backbone of nations. It is a society's inventory of systems and facilities that allow it to function properly and smoothly. This includes, but is not limited to, roads, bridges, tunnels, dams, transit, waterways, ports, aviation, pipelines, transmission lines, rail, parks, and public buildings such as schools, courts, hospitals, and recreational and sport facilities. Infrastructure involves also services such as energy, water supply, wastewater treatment, power and gas distribution grids, waste collection, and sewer disposal. Major advances in technology resulted in digital infrastructure that includes communication networks, signal transmission towers, data centers, information repositories, servers/computers, and the Internet. This course explores the progress humanity achieved in developing infrastructure facilities and the present move towards sustainability. Methods, materials, processes, technologies, practices, and operations required to maintain a healthy environment and efficient infrastructure will be examined. The intersection between policies necessary for sustainable infrastructure and political, economical, social, societal, and cultural factors will be emphasized. Four class hours weekly. No prerequisite.

ENS-250. Water Resources and the Environment. (Winter, Jewell) Fluid mechanics as applied to water resources and environmental engineering. Study of pollution in streams, lakes, and reservoirs from point and non-point sources. Introduction to hydrology, water supply development and treatment, and wastewater collection and treatment. Prerequisites: MTH-112 or MTH-113, and PHY-120.

ENS-252. Environmental Geotechniques. (Fall, Ghaly) Environmental Geotechniques: This course explores the natural characteristics, techniques of coring, methods of classification, and testing of soils as a material impacted by the surrounding environment. The utilized methods of testing are those standardized by the American Society for Testing and Materials (ASTM). Basic topics covered are soil exploration, composition, flow and permeability, compaction, compressibility, strength, slope stability, and environmental geotechnology with focus on the Environmental Protection Agency's (EPA) testing and design specifications. Three class hours and a weekly lab. Prerequisite ENS100 (Introduction to Environmental Studies) or GEO102 (Environmental Geology).

ENS-253. Environmentally Friendly Buildings. (Fall, Spring, Mafi) A large percentage of energy consumption and negative effect on environment is attributable to buildings and their use. In this course, through hands-on experience, computer simulation and research, the students will become acquainted with the inner-workings of the subsystems in buildings, such as: Structures, lighting and appliances, heating/air-conditioning, plumbing, basement/crawl space/attic, water and moisture management; enclosure, interior, exterior. The students will become aware of indoor and outdoor environmental and life cycle costs of the existing systems and will learn the latest science and technology to reduce the negative effect of these subsystems on the environment. Laboratory: hands-on experience with the above subsystems, site visits, Computer simulations, research, projects, presentations. Prerequisite: open to sophomores and up.

ENS-307. Hydrology. (not offered 2010-11) The study of the processes of surface water hydrology; including the rainfall/runoff process, river and stream routing, and reservoir analysis and design. Introduction to drainage system design, culvert design, and groundwater hydrology. Spreadsheets and computer software are used to assist in analysis and design. Four lecture hours per week. Prerequisite: ENS-250 or MER-331.

ENS-460. Senior Seminar in Environmental Studies. (Winter) This capstone course for the environmental science and policy seniors program brings together the expertise and experience of all environmental science and policy seniors to study contemporary environmental issues, usually related to a single topic or small number of topics. Issues may include legal cases, legislation and regulation, application of technology to social problems, and national and global environmental policy. Class time may include discussion, debate, field trips, class presentations, and outside speakers. Research and presentation of findings will be stressed. Prerequisite: Senior standing (open to all seniors).

Independent Studies and Thesis

ENS 295H-296H Two-Term Environmental Science Honors Independent Project 1 & 2.
Prerequisite: Union Scholar.

ENS-490-491. Independent Study in Environmental Studies. Independent work on an environmental topic of particular interest under the direction of a faculty advisor. Prerequisite: Permission of the instructor.

498-499. Research in Environmental Studies. Senior-level research on an environmentally-related topic. Work may take the form of two independent study term projects, or as a two-term senior thesis. Substantial writing is required for ENS 499 (must satisfy WAC-WS requirements, for which WS credit is awarded). Topics are chosen in consultation with and conducted under the direction of the student's advisor. Thesis research must follow the guidelines of the host department. The results of senior research are presented in the senior seminar. Prerequisite: Senior standing in the environmental studies program and permission of the instructor.

Ethics Across the Curriculum

Director: Professor B. Baker (Philosophy)

Ethics Across the Curriculum, funded by alumnus Michael Rapaport ('59), is a college-wide initiative, that provides support for faculty to incorporate teaching about everyday ethics into their current course curricula. Everyday ethics is about integrity and cheating, honesty and dishonesty, justice and injustice. Courses incorporating an Ethics Across the Curriculum segment help students learn what everyday ethics is and how its principles are incorporated into many disciplines that deal with substantive issues other than ethics, such as anthropology, chemistry, engineering, and literature. After completing an Ethics Across the Curriculum course listed below, students will be prepared to face the world of tough decisions and will be empowered to exercise moral leadership.

Chemistry

CHM-260: Inorganic Chemistry

Classics

CLS-146: Sex and Gender in Classical Antiquity;

CLS-278: Ancient World Mythology; GRK-333 Euripides Bacchae

GRK-333: Euripides Bacchae

Computer Science

CSC-106: Can Computers Think? Introduction to Computer Science ;

CSC-280: User Interfaces

Economics

ECO-101: Introduction to Economics

ECO-225: Economics of Sin;

ECO-226: Financial Markets

Engineering

BNG-371: Cell Tissue Material Interactions

English

EGL-101: Introduction to the Study of Literature: Fiction;

EGL-215: Survey of American Literature: 19th Century;

Environmental Science

ENS-100: Introduction to Environmental Science

History

HST-224: Introduction to Public History

Psychology

PSY-300: Research Methods in Psychology

Sociology

SOC-360: Domestic Violence

Film Studies

Program Directors: Professors M. Chilcoat (Modern Languages and Literatures), A. Feffer (History)

The Film Studies Minor develops a conscious awareness of film as a basic and widespread medium of cultural communication. The Film Studies Minor provides students with the critical tools necessary for analyzing and evaluating film texts, and for beginning to understand film technologies. It prepares students to pursue academic and/or creative paths for advanced study and/or professional interests in film.

Requirements for the Minor: A minimum of six approved courses from at least two of the following categories: I. Film History and Culture, II. Film: Disciplines, Theory, Criticism, and III. Film Technologies (see listings below; then consult home department or program catalogue listings for course descriptions). In some cases, film courses entail prerequisite requirements; please consult catalogue for prerequisite information. Most Film Studies courses are taught in English, though not all. Consult catalogue for prerequisites for Film Studies courses not conducted in English. All courses for the Film Studies Minor must be approved by the Film Studies Program Directors. If you think a course should count for the Film Studies Minor but is not listed below, contact the Program Directors.

Courses

I. Film History and Cultures

- AAH 222 History of Photography (Ogawa, Winter)
- EGL 244 Asian American Literature and Film
- EGL 247 Irish Literature and Film
- EGL 252 Changing Ireland (Bracken, Spring)
- EGL 286 Film: The American Western
- GER 402 German Film Studies (Ricci-Bell, Fall)
- HST 333 Hollywood Film: An American History
- HST 364: British Cinema: From Music Hall to Multiplexes
- MLT 201 Chinese Cinema (Also EAS 201)
- MLT 203 Asian American Film and Performance (Also EAS 203 and WGS 268, Ferry, Fall)
- MLT 215 What is French Cinema? (Also FRN 312, Chilcoat, Winter)
- MLT 265 Soviet and Russian Film Revolutions: Political, Social, Cultural.
- MLT 273 Re-Viewing Spanish Cinema: From Dictators, Bullfighters and Flamenco to Nationalisms and Globalization
- MLT 281 Screening Identities in Latin American Cinema
- MLT 286T Gender and Identity in Contemporary Brazilian Cinema
- SPN 302 Open Your Eyes: Spanish Culture through Film since 1929

II. Film: Disciplines, Theory, Criticism

- ANT 111 Ethnographic Film
- ANT 160 Photographing Culture
- ANT 240 Culture and Technology
- CLS 231 The Ancient World in Film and Literature.
- EGL 285 Film as Fictive Art: American and European Films (Hauser, Winter)
- EGL 293 Studies in a Major Director (Hauser, Spring)
- HST 331 Representing America: United States History in Film (Feffer, Winter)
- MLT 212 Sex Lives and Videotape: Casting Sexuality in French and Francophone Film
- MLT 261 Cinema, Crimes, and Punishment
- MLT 287 Filming Margins: Cinema Verité and Social Realism in Latin America
- MLT 339 The Shoah in Film (also GER 339, Ricci-Bell, Winter)
- PHL 135 Philosophy in Film
- PSC 247 Politics and Film

- SPN 402 Dressing Up the Canon: Cross-Dressing in Hispanic Literature and Film
- SPN 433 Latin American Colonial Crossroads at the Movies
- WGS 495 Capstone Course on Women and Gender Theory: Feminist Film (Also PSC 434)

III. Film Technologies

- AVA 120 Photography I (Benjamin, Fall, Winter)
- AVA 220 Photography II (Benjamin, Winter)
- AVA 320 Photography III (Benjamin, Fall, Spring)
- AVA 160 Digital Art (Orellana, Fall, Winter)
- AVA 262 Real and Recorded Time
- CSC 385 Computer Graphics
- ECE 347 Image Processing
- ECE 370 Engineering Acoustics
- EGL 304 Junior Seminar in Screenwriting (Hauser, Fall)
- IDM 201 Documentary Filmmaking (De Sève, Fall)
- IDM 202 Digital Filmmaking
- IDM 203 Cinematic Montage (De Sève, Spring)

IV. Film Project or Internship

- IDM 490-492. Interdepartmental Independent Study. May take form of independent film project.

Prerequisite: Four other film courses from the lists above and project proposal approved by the Program Directors. Also, upon consultation with Program Directors, a Film Studies-related internship may be arranged for credit toward the minor.

French and Francophone Studies (see Modern Languages and Literatures)

Geology

Chair: Professor D. Rodbell

Faculty: Professors J. Garver, K. Hollocher, D. Rodbell, G. Shaw; Assistant Professors H. Frey; D. Gillikin

Staff: W. Neubeck (Technician), D. Klein (Administrative Assistant)

Requirements for the Major: Twelve courses in the department including: one of Geology 100, 102, 105, 106, 107, 108; one of 101, 103, 104, 208; one of 303, 300, or 301, each of 200, 201, 202, 250, 253, and 405, 495, and two elective geology courses. Also required are two terms each of: mathematics (or equivalent such as Math 113); chemistry; and biology or physics. Advanced work or a minor is encouraged in chemistry, physics, biology, mathematics, economics, or engineering. All Geology courses at the 100 level are introductory and have no prerequisites. Senior Geology majors may not take these introductory courses for major credit. A senior thesis is the final product of 405, which may be a research thesis (required for honors) if accompanied by senior level research (495-498). Only one senior level research credit may count toward the three geology electives. Students who intend on going to graduate school are strongly encouraged to do a research thesis and to take two courses in physics rather than biology, unless specifically interested in paleontology or geobiology, because most graduate programs require physics. A summer field course in the junior year is strongly recommended, particularly for those going on to graduate school or geological consulting work.

Requirements for Interdepartmental Majors: Interdepartmental majors will follow the guidelines described elsewhere in this catalog. Students taking geology as part of an interdepartmental major should take any introductory level course at the 100 level, plus any other geology courses needed to complete the geology segment of their major (all prerequisites apply). All courses should be chosen in consultation with a geology advisor as part of a coherent plan of study.

Requirements for Honors: The major requirements as specified above are required, as are the GPA requirements of Union College described elsewhere in this catalog. A senior research thesis is required, consisting of at least one term of 495-498 (independent research with a faculty member). Only one 495-498 credit may count toward the three geology electives.

Requirements for the Minor: A minor in geology requires six courses including any introductory level course at the 100 level, GEO-200, and any four electives numbered higher than 200. All prerequisites apply.

Requirements for Secondary School Certification: Students seeking certification in earth science should complete the normal Geology major described above, except that astronomy, planetary science, and meteorology may substitute for any Geology elective or physics/biology ancillary science course. For other requirements consult the Educational Studies Program elsewhere in this catalog.

Course Registration Guidelines: None of the introductory courses in the Geosciences have prerequisites and all serve as an entry point into upper level courses. Preference for the introductory courses is given to freshman and sophomores. We recommend that students take Geo 200, 201, and 202 after taking an introductory course, ideally in the second year. All Geology majors are required to take Geo 405 in the senior year, which satisfies the senior writing requirement (WS).

Courses

GEO-100. Physical Geology (Fall; Hollocher). Examination of how our dynamic planet works including plate tectonics, geologic age determination, the processes that form the variety of rocks we see at the Earth's surface, the development of the stunning variety of landscapes we see, and many topics of contemporary interest including floods, the nature of underground water resources, coastal erosion, earthquakes, interpreting topographic maps for land use purposes, and climate change. No prerequisites, GenEd: SCLB.

GEO-101. The Earth and Life Through Time (Spring; Staff). The Earth's dynamic history and evolutionary changes over the last 4.5 billion years. Includes the geologic evidence for the evolution of life, for major changes in the nature of Earth's atmosphere and oceans, and for major mountain building events that have affected the continents as well as the evolutionary development of plant and animal life as recorded in the geologic record. Specific topics include the development of basins, sedimentology and depositional environments, and the occurrence and use of coal, oil and gas. No prerequisites, GenEd: SCLB.

GEO-102. Environmental Geology (Fall; Frey). Basic geologic concepts are used for understanding a variety of natural and human-induced geologic hazards that directly affect people. This course examines the nature of various natural hazards including earthquakes, volcanoes, landslides, floods, and coastal erosion. Also examines the interplay between human activities and the environment, such as soil and groundwater contamination, solid-waste disposal, resource development; the geologic record of global change, and the debate over global warming. No prerequisites, GenEd: SCLB.

GEO-103. Great Moments in The History of Life (Not offered 2010-11). This course examines major events in the development of life on Earth including the origin of the chemical elements that make up our solar system, coalescence of the solar system, pre-biotic synthesis of organic chemicals, origin and consequences of photosynthesis, the explosion of multicellular life, colonization of land, and the cause and effects of major extinctions (Ordovician, Permian, Cretaceous and Holocene). Geologic evidence related to these events will be central to the course. No prerequisites, GenEd: SET

GEO-104. Global perspectives on Energy. (Not offered 2010-11) This course addresses the

geologic factors important in energy supply and the impacts associated with energy use. In addition to discussing the various non-renewable and renewable energy resources, constraints on energy production (including physical laws, environmental effects, political and economic factors) will be examined for each. Students will learn how to access data related to energy resources and incorporate it into an analysis of a particular problem associated with energy use. No prerequisites, GenEd: SET.

GEO-106. Restless Oceans (Winter, Staff). A survey of the physical, chemical, and biological. Involves an examination of the present ocean basins including important sea floor features, plate tectonic concepts, ocean currents and the forces driving them, oceanic sedimentation and the climate records they hold, the role of the oceans in climate change including the Ice Ages, coastal processes and sea level change, biological productivity, and the ocean fishing and minerals industries. No prerequisites, GenEd: SET.

GEO-107. Natural Disasters. (Spring; Garver). Geology as it specifically relates to geologic hazards affecting people and society. An introduction to the geologic processes causing floods, earthquakes, volcanoes, landslides and other natural hazards. The course will include discussion of major events in the geologic and historical record as well as future hazard potential. We will assess the risks humans face in different regions, including local hazards, our contribution to geologic hazards, and how we can minimize and cope with future events. No prerequisites, GenEd: SCLB.

GEO 108. Earth Resources. (Not offered 2010-11) The goal of this course is to provide students an appreciation of the importance of mineral and fuel resources for modern society, and insight into the geology of economically valuable deposits. Issues concerning the discovery, development, environmental impacts, and estimates of amounts of resources available will be discussed in a geological, economic, and technological context. No prerequisites, GenEd: SCLB.

GEO-109. Global Climate Dynamics (Winter; Rodbell). Climate change has become one of the key scientific issues of our time. This course examines climate change on different time scales (years to millions of years), and focuses on the causes of climate change, both natural and anthropogenic. We also explore the role media has played in shaping public opinion on climate change. Lectures explore the principle scientific aspects of climate dynamics, and the laboratories investigate some of the major scientific findings that support the conclusions presented in consensus scientific reports that shape the geopolitical dialogue. No prerequisites, GenEd: SCLB.

GEO-200. Mineral Science (Winter; Staff). Study of the diverse solid materials that make up most of our planet, many of our industrial resources and materials, and most of our precious gems. We will examine the nature of the external and internal symmetry of crystals, chemical bonding and substitution in crystal lattices, mineral properties, crystal optics, and the identification of minerals by physical, chemical, optical, and X-ray diffraction techniques. Prerequisite: CHM-101; weekly lab.

GEO-201. Stratigraphy and Depositional Environments of New York (Not offered 2010-11). Tectonic events revealed through the stratigraphy and inferred depositional environments of the lower Paleozoic sedimentary rock sequences in eastern New York. Stratigraphic and sedimentologic concepts are explored through weekly field studies and comparison with modern depositional systems. Prerequisites: Any introductory geology course; weekly lab.

GEO-202. Origin and Evolution of Landscapes (Fall; Rodbell). The processes operating on and near the Earth's surface are responsible for the development of landforms, and the evolution of these landforms through time. This course covers erosional and depositional processes of river, lake, wind, and limestone cave systems, the processes of chemical and physical weathering, and the relationships between landforms and tectonic and climatic controls. Prerequisites: Any introductory Geology course; weekly lab.

GEO-203. Introduction to Remote Sensing (Not offered 2010-11). An introduction to the techniques of observing the Earth's land, ocean, and atmosphere from air- and space-borne sensors. The course focuses on the application of remote sensing to geology, biology, land use, and the environment, and also covers technical issues affecting the acquisition, processing, and analysis of images, the properties of Earth's surface materials affecting remote sensing, and the range of instruments used to observe the Earth and other planets. Prerequisites: Any introductory geology course or permission of the instructor; weekly lab.

GEO-204. Geographic Information Systems (Winter; Ghaly). An introduction to Geographic Information Systems (GIS) technology and its practical uses. Topics include history of GIS, geographic data types, primary data structures, system design, map coordinate systems, data sources, metadata, census data, geographic coding and address matching, digitizing, remote sensing imagery, measures of data quality, and needs assessment. An emphasis will be on hands-on instruction using GIS software (ArcView). Students

will work with ArcView throughout the term to complete assignments and a class project. Focus areas include archaeology, electric and gas utilities, surveying, health and human services, insurance, law enforcement and criminal justice, media and telecommunications, transportation, water and wastewater, and natural resources. The ultimate goal is to use the spatial component of data in conducting analysis and making decisions. Two class hours and two lab hours weekly. Prerequisites: A good background in the use of modern computer software.

GEO-206. Watershed Hydrology (Not offered 2010-11). This course is a practical discussion of the physical processes of surface water formation and the fluvial environment with emphasis on mid-latitude, northern and other cold region examples. Watershed hydrology will be presented as a basis for studying the spatial and temporal characteristics of surface water environments through lectures, field work and laboratory data analysis. A significant portion of the coursework focuses on examples and field work in the Mohawk Watershed. Upon completion of this course students will have gained an understanding of the theories and concepts behind water as it occurs at or near the Earth's surface, including: its circulation and use in the environment; physical principles of water and the hydrologic cycle; meteorology of precipitation; water movement and storage; stream response to water-input events; sediment transfer and yield; field and laboratory experience using tools of hydrology.

GEO-207. Ground and Surface Water Geology (Not offered 2010-11). Hydrologic and engineering aspects of ground and surface water, including an introduction to the analysis of water quality. Course addresses characteristics of water movement, engineering applications of the basic equations of the mechanics of water flow, and the transport of contaminants in water. The course emphasizes quantitative approaches to groundwater production and management and practical applications in water supply and remediation of contaminated aquifers. Prerequisite: A good background in math, science, or engineering, or any introductory geology course; weekly lab.

GEO-209. Field Geology (Not offered 2010-11). Study of the geology of a selected area will be followed by an extended field trip to the area to examine the important geologic features. Areas will vary from year to year and may include the Grand Canyon, Colorado Plateau, southern Appalachians, Canadian mineral districts, Cascade volcanoes, glaciated Rocky Mountains, and others. There may be additional costs associated with field trip expenses. Prerequisite: Any introductory geology course and permission of the instructor.

GEO-250. Origin of Igneous and Metamorphic Rocks (Spring; Hollocher). How the processes of melting, crystallization, heat, pressure, and strain create some of the most abundant minerals and rocks in the Earth's crust and upper mantle. Emphasis will be on the examination of rock thin sections using polarizing microscopes, interpretation of rock mineralogy and textures, and use of rock and mineral chemistry to understand igneous and metamorphic processes. Prerequisite: GEO-200; weekly lab and three all-day trips.

GEO-252. Environmental Geotechniques. (Fall, Ghaly). This course explores the natural characteristics, techniques of coring, methods of classification, and testing of soils as a material impacted by the surrounding environment. The utilized methods of testing are those standardized by the American Society for Testing and Materials (ASTM). Basic topics covered are soil exploration, composition, flow and permeability, compaction, compressibility, strength, slope stability, and environmental geotechnology with focus on the Environmental Protection Agency's (EPA) testing and design specifications. Prerequisite: ENS-100 or GEO-102. Three class hours; weekly lab.

GEO-253. Structural Geology (Spring; Staff). The geometry and dynamics of deformed rocks involving detailed description and kinematic analysis of field sites. Topics include stress and strain, folding, faulting, cleavage formation, map interpretation, and the relationships between plate tectonic settings and crustal structure. Course focuses on the structural evolution of eastern New York as seen in field projects. Prerequisite: Any geology course numbered 200 or higher, or permission of the instructor; weekly lab.

GEO-254. Global Climate Change (Not offered 2010-11). Climate is fundamentally relevant to modern and ancient societies. Global warming is occurring today, and whether it is driven by human activities (e.g., CO₂, CH₄ emissions) or by natural climate cycles can only be determined by understanding natural climatic variability. Fortunately, there are many tools, natural climatic records, that can provide us with information on past climate (e.g. tree rings, ice cores from glaciers, and sediment cores from lakes and oceans). Obtaining, documenting and interpreting these records is the field of paleoclimatology, and it is the focus of this course.

Lectures will be punctuated by numerous class meetings with discussion of current climate literature, and specific issues relevant to global climate change. Prerequisite: Any introductory level geology course.

GEO-255. Volcanology (Not offered 2010-11). Overview of the geological, chemical, and physical processes that generate volcanoes and the implications of volcanism and what they tell us about Earth's internal processes; properties, generation, and evolution of magmas and magma chambers; eruptive mechanisms; classification of volcanic deposits; climate effects; and volcanic hazards, including their prediction and mitigation. Labs include case studies of classic volcanic eruptions. Prerequisite: any introductory geology course. Weekly lab.

GEO-300. Glacial and Quaternary Geology (Not offered 2010-11). The transformation of snow to ice, the mass balance of glaciers, types of glaciers, and the processes that control glacier sliding, erosion, and deposition. Includes techniques commonly employed to date Quaternary deposits and an examination of the geologic record of the Ice Ages as recorded in glaciers, glacial deposits, and marine and lake sediments of the Quaternary Period. Weekly labs document the geologic record of the last glaciation in exposures in the southern Adirondacks, central Hudson Valley, eastern Mohawk Valley, and northern Schoharie Valley. Prerequisite: GEO-202.

GEO-301. Lakes and Environmental Change (Not offered 2010-11). Modern limnology and the record of environmental change as recorded in lake sediments. Includes records from proglacial lakes in North America, and interpretation of proxy paleoenvironmental indicators preserved in lake sediments from North America, Europe, and the Southern Hemisphere. Prerequisites: any introductory geology course and BIO-110, BIO-112 or BIO-320; or permission of the instructor; weekly lab.

GEO-302. Geochemical Systems and Modeling (Winter; Hollocher). This course investigates the Earth as a chemical system and the use of chemical tools to understand geologic processes. Topics include origin of the elements, formation and differentiation of the earth, igneous processes, stable and radioactive isotopes, and geochemistry of near-surface waters and the oceans. Work includes theory, sample collection, sample preparation, chemical analysis using in-house equipment, and computer modeling of the analyzed geochemical system using the acquired data. Clear scientific writing is an important component of this course. Prerequisites: CHM-101; weekly lab.

GEO-303. Introduction to Geophysics (Not offered 2010-11). Gravity and magnetic fields of the earth, gravity and magnetic anomalies, magnetic properties of rocks and paleomagnetism, earthquakes and seismology, precession of the Earth's spin axis, density distribution and models for the Earth's interior; wave propagation in rocks, seismic reflection and refraction, geophysical field methods, data processing and interpretation, electrical methods, radioactivity, heat flow, thermal history of the Earth, global dynamics and plate tectonics, comparative planetology. Labs emphasize hands-on use of modern geophysical equipment. Prerequisite: PHY-100 or PHY-120; weekly lab and field exercises.

GEO-304. Carbonate Sedimentology (Not offered 2010-11). Examination of carbonate rocks, carbonate environments, animal-sediment interactions, and the oceanographic and climatic factors that affect deposition including sea level change, catastrophic storms, and groundwater. Field studies include examples of modern and ancient coral reefs, lagoons, tidal inlets, beaches, hypersaline lakes, and tidal flats. Course includes a required week field trip to the Bahamian Field station on San Salvador Island. Prerequisites: Option 1: i) Any Geology course at 100 level; and ii) Geology 201 or 202 (may be concurrent) or permission of instructor. Option 2: i) Any Geology course at 100 level; and ii) declared major in biology (esp. helpful is Ecology), and permission of the instructor. For either option, students must meet basic term abroad requirements and must submit an application.

GEO-355T. Living on the Edge (Offered June 2011 – Alaska; Garver). The field study of earthquakes, volcanoes, glaciers, and other hazards where tectonic plates collide and mountains form. Field studies focus on understanding the science behind geologic hazards that lead to catastrophic events and subsequent loss of life. Fieldwork is aimed at recognizing hazards, understanding the processes behind the hazards, and to see the role that society plays in mitigating these hazards. The study area alternates around the Pacific Rim between locations that include Peru (June), Alaska (June), and New Zealand (December). Fieldwork is preceded by organizational sessions on campus to prepare for field projects. Prerequisites: Any introductory geology course. Mini-term abroad

GEO-356T. Volcanoes and Society (Not offered 2010-11). A close look at powerful volcanic eruptions and how those eruptions affect society and culture. This field course focuses on sites that have an

excellent archeological record of volcanism or where modern society faces a serious volcanic threat. Course will include study of dating methods and the effects of major volcanic eruptions on global climate. This research-oriented course is conducted largely in the field and projects include mapping and interpreting volcanic deposits. Prerequisites: Any introductory level geology course and permission of the instructor. Mini-term abroad

GEO-405. Geology Senior Seminar (Winter; Frey). Senior writing course required of all majors, for which a senior thesis the final product. The senior thesis associated with this course may be a research thesis (required for honors) if combined with senior level research (495-498). Prerequisites: Geology major and senior standing.

GEO-490-494. Independent Study in Geology (Fall, Winter, Spring; Staff). A program of independent study in a particular area of geology, not available through regular courses, under the supervision of a faculty member. Prerequisite: Permission of the instructor.

GEO-495-498. Research in Geology (Fall, Winter, Spring; Staff). Geological research under the direction of a faculty member. One term required for honors. Only one term can be counted toward the three geology electives. Prerequisite: Permission of the instructor.

German Studies (see Modern Languages and Literatures)

Greek (see Classics)

Hebrew (see Modern Languages and Literatures)

History

Chair: Professor M. Walker

Faculty: Professors S. Berk, T. Meade, S. Sargent, R. Wells; Associate Professors J. Cramsie, A. Feffer, A. Foroughi, J. Madancy, A. Morris; Assistant Professors K. Aslakson, B. Peterson; Lecturers D. Brennan, M. Lawson

Staff: J. Earley (Administrative Assistant)

Requirements for the Major: Twelve courses including a five-course core; at least one course on the period before 1700; at least one course each in US and European history; at least one course from the following areas: Africa/Middle East, Asia, Latin America; two-300 level courses, a seminar, and a two-term senior project.

Students will choose a five-course core in Africa/Middle East, Asia, Europe, Latin America, or US, or in a thematic concentration. Examples of thematic concentrations include "Africana," "Women and Gender," "Revolution," "Empires," etc. In close cooperation with their advisors, history majors will select the courses for a thematic concentration and submit their proposal to the Department Chair for written approval no later than the start of Winter Term of the Junior year. Students may also choose a five course Public History core, consisting of HST 224; a department-approved Public History internship (with HST 224 as a prerequisite); HST 265, HST 324, HST 331, HST 481, or an approved Public History miniterm; and two other relevant history courses chosen from the previous list or in cooperation with Melinda Lawson.

Seminars are normally limited to 15 students and are designed to teach research skills. The 300-level courses are specifically designed for history majors and include bibliographical and historiographical components. Seminars and 300-level courses may be used to meet the core requirements. Senior projects normally must pertain to a topic in the core, but cannot count toward courses in the core. Students must complete a seminar before beginning the thesis. Classics 121 and 125 may be counted toward the history major, but not toward a core.

Requirements for the Interdepartmental Major: Eight courses, including the core requirement or thematic concentration for majors, the seminar, one 300-level course, and the senior thesis. Students must complete a seminar before beginning the thesis. Interdepartmental majors may count one term of the senior thesis toward the field requirements.

Requirements for Honors: To be eligible for departmental honors, a student must fulfill the following requirements: (1) a minimum index of 3.30 in history; (2) completion of one history seminar with a grade of “B+” or better; (3) a grade of “A minus” or higher on the senior project; and (4) a grade of “distinction” or “high pass” in an oral examination based on the senior project. In addition, the student must satisfy College requirements for departmental honors.

Requirements for the History Minor: Six history courses, including at least one 300-level course; at least three of the six must belong to one of the following core areas: Africa/Middle East, Asia, Europe, Latin America, or US.

Requirements for the Public History Minor: Seven courses, including at least one 300-level course; HST 224; a department-approved Public History internship (with HST 224 as a prerequisite); HST 265, HST 324, HST 331, HST 481, or an approved public history miniterm; and either an additional course drawn from the previous list or one course drawn from the following: Art History 101,102 or 103, 250T, 260, 263, 294, 390; Anthropology 111, 115, 188; Studio Fine Arts 262, Computer Science 055; Modern Language in Translation 263, Political Science 247, 260 (R) . For information about approved public history internships, contact Melinda Lawson at X8041 or lawsonm@union.edu.

Requirements for Secondary School Certification in Social Studies: The College recommends that any undergraduate seeking New York State secondary teacher certification should consider attending the five-year Master of Arts in Teaching program at Union Graduate College in their fifth year. To prepare for that program, students are required to take PSY 246 and EDS 500A, B (Field Experiences) in their junior or senior year. Students must complete the history major, including at least one course each in United States history, European history, Latin American, Asian, or Africa/Middle East. In addition, students must take at least one course from each of the Departments of Economics, Political Science, and Sociology or Anthropology (see your departmental advisor for recommended courses from each of these disciplines).

Interdepartmental Majors in History Seeking Secondary School Certification: The College recommends that any undergraduate seeking New York State secondary teacher certification should consider attending the five-year Master of Arts in Teaching program at Union Graduate College in their fifth year. To prepare for that program, students are required to take PSY 246 and EDS 500 A, B (Field Experiences). Students must take eight courses from the Department of History and must meet the field, seminar, and project requirements in history. They must complete the other half of their interdepartmental major with the Department of Economics, Political Science, Sociology, or Anthropology, and they must take at least one course from two of the social science departments in which they are not majoring.

Courses in African and Middle Eastern History

HST-107. Africa to 1800 (Not offered 2010-11). This course explores the history of Africa from the beginnings of humanity through the period of the trans-Atlantic slave trade. In it, we will examine political, social, economic and cultural changes in Africa, with particular focus on the relationships between local

communities and the political elites who sought to rule them. This perspective will enable us to focus on the social dynamics of African communities and the daily activities of ordinary Africans, as well as on the political intrigues and roles of kings, chiefs, and merchants. *GenEd: LCC*

HST-108. Africa since 1800 (Winter; Peterson). This course is a survey of the African continent from 1800 to present. In this course, we will examine the political, social, economic and cultural changes in Africa during the nineteenth and twentieth centuries. Focus will be on key themes that span much of African history during this period including: slavery and the slave trade, European conquest and African resistance, the expansion of world religions (Islam and Christianity) in Africa, colonialism, the growth of nationalism, decolonization and the emergence of independent post-colonial states, and the challenges facing contemporary African states related to political instability and economic development. Given the enormous breadth and diversity of Africa, this course explores these themes by focusing on certain case study regions and countries, such as Francophone West Africa, Nigeria, the Congo region (Zaire), the East African coast and Arabic-speaking North Africa. *GenEd: LCC*

HST-194. The Modern History of the Middle East (Not offered 2010-11). Problems in the political, social, and economic history of the Middle East in modern times; the demise of the Ottoman Empire; impact of the West upon the Arab world; relations among the new Arab states; and the coming of modernization.

HST-195. The Early History of the Jews (Not offered 2010-11). History of the Jewish people in its first 1600 years from tribal beginnings to the destruction of the second Commonwealth.

HST-201. Contemporary Africa (Winter; Peterson). This course examines the history of Africa since 1950 with an emphasis on politics and culture. Through readings of novels, memoirs and historical accounts, combined with lectures, discussions and films, this course will explore the last fifty years of African history. Much of the course will focus on case studies in such countries or regions as West Africa, East Africa, the Congo, Nigeria, Algeria and Egypt. *LCC*

HST-302. Comparing Muslim Cultures (Spring; Peterson). This course explores the history of Islam in diverse regional and temporal settings. It explores the unity of Islam, through an examination of the early history of the religion and its founding texts and tenets. However, the main emphasis of this course will be Islam’s remarkable heterogeneity over time and space; the foci will be case studies drawn from across the Muslim world — in Africa, the Middle East Asia and Europe. Through readings and discussions, the course examines the following ten topics: The foundation of Islam, the expansion of Islam and conversion processes, Muslim travelers and trade, religious tolerance, women and gender in Islam, Islamic Education, religious revivalism and reform, Muslim lands under European colonial rule, Islam in the West, and the challenge of modernity. *GenEd: LCC*

HST-401. Seminar in Africa/Middle East: Islam in Africa (Not offered 2010-11). This course will examine the social, cultural and political history of Islam in Africa during the nineteenth and twentieth centuries. More particularly, we will explore the relationship between Islam and colonialism, Sufism and ‘modernist reformers,’ Muslim states and slavery, political Islamism and democracy, and the intersection of local and global forces in the constitution of Muslim societies in Africa. How ‘African’ is Islam? What are the particular itineraries and modes of entry of Islam into the region? How has Islam’s political role changed over the past two centuries? How has Islam influenced or transformed social and cultural life? The geographic focus is West, North and East Africa with case studies drawn from particular countries. The course will begin by examining the initial spread of Islam into Africa, exploring the trans-Saharan trading system, and medieval Islamic towns and states in Africa. After looking at the role of Muslim states and holy wars during the nineteenth century, we will shift our focus to the colonial period. The course will end with discussions focused on post-colonial and contemporary Africa. *GenEd: LCC*

HST-402. Seminar in Africa/Middle East: French Empire (Fall; Peterson). This course examines the history of the French empire in West Africa, North Africa and Southeast Asia. The aim of the course is to introduce students to the history of the wider Francophone world. Three main phases in the long history are explored: colonialism, decolonization and immigration. The course moves chronological through these phases exploring each in diverse geographical settings, and drawing on readings pertaining to particular themes such as the culture of empire, political economy of colonialism, women and gender, literature and expressive culture, colonial violence, and resistance. *GenEd: LCC*

Courses in Asian History

HST-181. East Asian Tradition (Not offered 2010-11). An overview of the traditional civilizations of China, Japan, and Korea, focusing on the emergence and development of ideologies, institutions, and social patterns up to 1800. Special emphasis on fostering an appreciation for the richness and complexity of each individual society. *GenEd: LCC*

HST-182. Modern East Asia (Fall; Madancy). An analytical overview of the major themes and historical processes that shaped China, Japan, and Korea from the nineteenth century to the present. *GenEd: LCC*

HST-183. Introduction to South Asian Civilizations (Not offered 2010-11). In this course we shall investigate the area of South Asia by focusing on important historical debates surrounding themes such as history, religion, nationalism, colonialism and family life. We will seek to explore these themes for two to three weeks through Movies and Documentaries: Gandhi, Jinnah, Ambedkar, India Untouched, Jodha Akbar. *GenEd: LCC*

HST-184. Making Modern India 1800-1947 (Not offered 2010-11). We will concentrate on the impact of colonialism on the Indian subcontinent and on the formation of the modern South Asian States of India and Pakistan through historically-based films. We will study the representation of Indian society and history in the booming Bollywood film industry. The culture of colonialism, the nature of the colonial state and the emergence of nationalism, are themes which are explored. Chronologically, we will survey the history of Indian subcontinent from the inception of colonial rule in the late eighteenth century to the establishment of independent nation states of India and Pakistan in the middle of the twentieth century (1800-1947). Since this is a survey course there are no prerequisites.

HST-281. Modern Japanese History (Not offered 2010-11). Analysis of the social, economic and political changes that have characterized Japan's emergence as a world power from the Meiji restoration to the present. *GenEd: LCC*

HST-283. The Mao Years (Not offered 2010-11). This course explores the phenomenal changes and catastrophic consequences of Mao Zedong's domination of China. Although the bulk of the class focuses on events following the founding of the People's Republic of China in 1949 to Mao's death in 1976, we will begin by looking at the China into which Mao was born in 1893 and trace his rise to power. We will also examine the legacy of the Mao years on contemporary Chinese politics and society. Students will analyze Mao's China through memoirs, films, visual propaganda, secondary analyses, and of course, Mao's Little Red Book. *GenEd: LCC*

HST-284. Women in China and Japan: Power and Limitations (Fall; Madancy). A comparative look at how the societies of China and Japan shaped the various roles assumed by women in these two cultures, as well as the evolution of those roles over time. *GenEd: LCC*

HST-285. The Samurai: Lives, Loves, and Legacies (Not offered 2010-11). This course explores the evolution of the *samurai* as a caste, their military and family lives, their passions, and their symbolic meaning to Japanese and to others. We will be reading first-hand accounts written by *samurai* men and women, viewing a number of well-known and lesser-known samurai films, and looking at how the realities of *samurai* life compare with the many meanings the samurai have acquired over the centuries. *GenEd; LCC*

HST-286. Women in South Asia: (Not offered 2010-11). To explore women in the South Asia, particularly in India, Pakistan, and Bangladesh. We will study traditional topics like patriarchy, marriage and family, gender and sexuality, but also explore women as political actors, intellectuals, and professionals. The perspective will enable us to focus on the social and political dynamics of South Asia, as well as the daily activities of ordinary Asian women. We shall move from there to a discussion of the position of women in South Asia, and particularly India, looking at a diverse and wide array of texts. *GenEd; LCC*

HST-380. Special Topics in East Asian History (Not offered 2010-11). Prerequisite: any 100-level or 200-level history course or permission of the instructor. *Gen-Ed: LCC*

HST-381. Asian Encounters with the West: Commerce, Conquest, and Conversion (Not offered 2010-11). Examines the motivations behind the western presence in China and Japan from the seventeenth century to the recent past, and analyzes the impact of the West on the economy, society, politics, and ideology of East Asia. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: LCC*

HST-383. The Last Dynasty: The Glory and Fall of the Qing Empire, 1644-1911 (Not offered 2010-11). For 250 years, the Qing Dynasty ruled China, but when it fell in the dramatic 1911 Revolution, the entire imperial system fell with it. This course will focus on the enormous social, political, and economic changes that shaped China during the reign of the Manchu dynasty and changed China forever. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: LCC*

HST-384. Historical Foundations of South Asian Religions. (Not offered 2010-11). South Asia is garnering intense interest in the 21st century. This course is designed to open our eyes to the region of South Asia; to learn more about this developing region in terms of its society, culture, economy, religion, and politics. Did you know that Buddhism and Islam are the fastest growing religions in the world? There are more Muslims in South Asia than any other region of the world. Buddhism, Hinduism, and Islam have remained religious forces that have continued to exert a strong influence on political, social, and economic life. Contrary to their 'spiritualistic' image, violence and conflict have been an integral aspect of these religions. We will examine how South Asian traditions have commonly been an important element in sectarian politics, nationalism and war. We will assess their adaptations in light of the problems in the modern world using media and literary sources. *GenEd: LCC*

HST-481. Seminar in East Asian History: World War II in Asia (Not offered 2010-11). World War II was the most destructive conflict of the twentieth century, but many students in America are unfamiliar with the toll it took on Asia and why residual tensions between Japan, China, and Korea remain so real and so raw today. This course examines how the war came about, how it is remembered, and how its complex legacy still affects the region. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: LCC*

Courses in European History

HST-141. Medieval Europe (Fall; Sargent). The emergence of western European civilization after the fall of the Roman Empire. The period 300-1350 is surveyed with special attention to factors that influenced later European civilization.

HST-142. Renaissance and Reformation Europe (Not offered 2010-11). The beginnings of modern Europe in the period 1350-1650 with emphasis on Italian humanism, Renaissance Florence, the Protestant Reformation, and the rise and fall of Spain.

HST-143. Entrepreneurship in Medieval and Renaissance Europe (Winter; Sargent). Examines the meaning and impact of entrepreneurship during the 500 years (or so) prior to the rise of modern capitalism in the early modern era. Takes a broad view of entrepreneurship as the ability to perceive opportunities that others cannot see and to exploit those opportunities by combining resources and expertise to achieve a particular end. Economic entrepreneurs get most, but not all, of the attention.

HST-145. Early Modern Europe (Not offered 2010-11). European society from the seventeenth century through the Enlightenment, stressing social, economic, institutional, and intellectual developments.

HST-147. Revolutionary History. (Spring; Berk). This course will survey major themes in modern European history, including: the Enlightenment and the Industrial Revolution; the French Revolution; the Russian Revolution and Soviet Communism; and the National Socialist Revolution, World War II, and the Holocaust.

HST-148. Europe Between Two Wars (Not offered 2010-11). An analysis of major socio-economic and political developments in western Europe from the end of the First World War to the beginning of the Second World War.

HST-149. The Second World War Era (Not offered 2010-11). Authoritarian movements in Europe and Asia during the Depression decade, the origins of World War II, the alliance against the Axis, the consequences of the war, and the emergence of new social and political structures during the postwar era.

HST-152. The Great War (Spring; Berk). This course will cover World War I, at the time called the "Great War," beginning before 1914 with the run-up to war and ending after the war, including the postwar settlement, the early period of the Russian Revolution, and the origins of fascism in Italy and Germany. This is an international history, including the conflict on the western and eastern fronts as well as conditions on the home fronts of the various countries. The course lectures and readings will be accompanied by several films.

HST-154. Russia in the Imperial Age (Not offered 2010-11). Major institutional and ideological developments from the time of the first Romanov to the February Revolution of 1917.

HST-155. The Rise and Fall of the Soviet Union (Not offered 2010-11). Russia on the eve of the Revolution. Political, economic, and social developments during the periods of revolution, war, communism, NEP, rapid industrialization, and the postwar years, including the post-Soviet period.

HST-156. History of Poland (Not offered 2010-11). A history of Poland from the formation of the first Polish state to the present. Poland under foreign occupation, independent Poland, communist, and post communist Poland are the focal points in this course.

HST-157. Modern Jewish History (Not offered 2010-11). European, American & Middle Eastern Jewish communities from the fifteenth century, their origins and function within Christian Europe; response of the European Jewry to the Enlightenment and the growth of anti-Semitism and Zionism.

HST-158. The Holocaust (Spring; Berk). European and American Jewry in the period 1933-1945, focusing on modern anti-Semitism, the Nazi world view, German extermination policies, the response of Europe and the United States, and Jewish behavior in a time of crisis.

HST-161. The Making of Ireland (Not offered 2010-11). The social, religious and political forces that have shaped the history of Ireland from its origins to the present. Course topics include changing Irish identities, including those of modern Irish women, the global movement of the Irish people, the struggle for independent Ireland and the Troubles, and the challenges facing Ireland following the peace accords of the 1990s. It examines these questions through historical, literary, and artistic sources.

HST-162. Modern Scotland (Not offered 2010-11). Kilts, haggis, heather, and Highlands: all things that come to mind when we think of Scotland. Yet few of us probably appreciate just how much the people of that rugged country contributed to modern history: radical Protestantism and the King James Bible, Highland regiments and Enlightenment thinkers, links golf and Robbie Burns, the steam engine (James Watt) and the “invisible hand” (Adam Smith), *Trainspotting* (Irvine Welsh) and the Edinburgh Arts Festival. This course studies Scotland’s history and its people’s search for a modern identity.

HST-163. Hanes Cymru: Wales & the Welsh. (Winter; Cramsie). A mythic past of Trojans and giants? A people fierce in defense of liberty? A wild, romantic, undiscovered country? A conquered people without a nation or name of its own? Gwyn Williams neatly summed up these issues with his 1991 book, *When Was Wales?* This course explores Wales and its people with a strong focus on such questions of national identity. Our foundation is John Davies’ classic *History of Wales*, an English translation of his history first written in Welsh for a Welsh-speaking readership. In the long sweep of that history we will pause now and then to study moments and markers crucial for how the Welsh understand themselves and their nation: the great medieval legends of the *Mabinogion*, the famous revolt of Owain Glyn Dwr and Wales’ subsequent incorporation within the English state, the romanticization of Wales and its past in the eighteenth century, the Welsh Diaspora, the iconic Welsh identity associated with the coal pits and Labour, Wales in film, and the challenges of modernity seen through the lives of Welsh women and ethnic communities in Wales.

HST-240. The Crusades: Christianity and Islam in Conflict (Not offered 2010-11). The conquest of Jerusalem and the Holy Land by knights from western Europe and the response of the region’s Muslims, 1096-1291. Special attention is given to the development of a crusading spirit and its corruption under the influence of religious, political, and economic expediency and personal greed.

HST-241. Mystics, Magic, and Witchcraft in Medieval and Early Modern Europe (Spring; Sargent). A survey of learned and popular beliefs about the influence of supernatural and occult powers on individuals and society.

HST-242. The Scientific Revolution, 1400-1700 (Not offered 2010-11). An examination of the fundamental reorientation in the study of nature that gave rise to modern science. Special attention is given to the contributions of Copernicus, Galileo, Descartes, and Newton.

HST-245. Occult Sciences and Societies (Winter; Sargent). Surveys the rise of occult sciences, such as ritual magic, astrology, and alchemy, and the influence of real and imagined secret societies dedicated to the preservation and transmission of such esoteric knowledge. Examines the legends associated with the suppression of the Templars in fourteenth-century France, and the revival of Platonism, Jewish Kabbalah, and pseudo-Egyptian Hermeticism in Renaissance Italy. Considers the dissemination of such ideas throughout early-modern Europe, the alchemical theories of Paracelsus and Isaac Newton, and

the imagined societies of esoteric utopias. Concludes with the rise of Rosicrucianism, Freemasonry, and the Bavarian Illuminati and their possible influence on the French Revolution.

HST-260. Medieval Britain 1000-1509. (Not offered 2010-11). In 1000, Britain was part of a Norse-Viking Empire which dominated the peoples living around the North Sea. Within Britain itself, England was divided and the Anglo-Saxons were in a fight for survival with the Norse, the kingdom of Scots was an ill-formed hodgepodge of Gaels, Celts, Picts, Saxons, and Norse, and in the West the *Cymry*, the peoples of Wales, clung fiercely to their identity as the original Celtic inhabitants of Britain. In the decades after the famous Norman conquest of 1066, Britain became part of a vast French-speaking Empire. After five centuries of political conflict and war, which rulers and which nations would survive, thrive, and achieve supremacy on the island of Britain? This question is examined in this course and particular topics for analysis include the creation of the so-called ‘first English empire’ within Britain itself between 1093 and 1343, the Scottish wars of independence, the Hundred Years War with France, the great dynastic struggles of the English Wars of the Roses, the notorious reputation of Richard III and the rise of the Tudors, and the triumph of the Stewart kings in Scotland.

HST-266. The Age of Henry VIII. (Fall; Cramsie). Remarkable women and men made history in Britain during the Age of Henry VIII: six wives (Catherine, Anne, Jane, Anne, Catherine and Katherine), faithful and far from saintly servants like Cardinal Wolsey, Thomas More, and Thomas Cromwell, and an evangelical boy destined to become Edward VI. This was an age of personal monarchy, patriarchy, and the rule of wealthy elites, but these figures traveled paths and pursued policies that changed the way every person lived. They nurtured and unleashed religious passions that divided generations and whole peoples from one another, and hundreds – eventually thousands – died at the hands of those who believed they had a monopoly on spiritual truth. This course analyzes the imperial ambitions of Henry VIII and Edward VI in Britain and Ireland, the brutal dynastic and religious politics of the period, and the all-out assault on the traditional faith in the Tudor dominions.

HST-267. The Tudor and Stewart Queens. (Winter; Cramsie). The radical Protestant John Knox published a tract in 1558 denouncing what he called the ‘monstrous regiment of women.’ He had in mind three women who dominated the political scene: Queen Mary I of England (Henry VIII’s Catholic daughter) Marie of Guise (widow and queen regent of the deceased James V of Scotland); and young Mary Queen of Scots, betrothed to the future king of Catholic France. Knox had the spectacularly bad luck to publish his attack on queenship at the moment when Mary I died and her Protestant sister Elizabeth ascended the throne, a queen mighty in defense of her authority and with a temper to match her illustrious father Henry VIII. These women defined British History after 1550. Looking back on these years, Francis Bacon wrote of the ‘strange perturbations’ of England, having been ruled by a boy king (Edward VI) and two women before finally again seeing on the throne a proper adult male, James VI of Scotland – with nice irony, Mary Queen of Scots’ son. This course explores the lives of these Tudor and Stewart queens and analyzes the intersections of gender, authority, and religious zeal that defined their age.

HST-268. British Revolutions 1603-1660. (Not offered 2010-11). In 1603, James VI of Scotland became the first king to rule all of Britain and Ireland, when he added Elizabeth I’s crown to his own. This was the first in a series of remarkable revolutions. James successfully consolidated this new Stuart *imperium* in England, Wales, and Scotland. The Protestant plantations in Ulster created the origins of the modern-day troubles in Northern Ireland. Settlements in the Americas inaugurated a British Atlantic Empire built on sugar and tobacco, slavery and a British diaspora. James passed to his successor Charles I a dangerous ideology of imperial kingship that asserted the crown’s unchallenged authority over all matters spiritual and temporal. When Charles attempted to make good on that ideology in his religiously and ethnically diverse kingdoms, the result was war, wars that eventually cost the king his head. For the first and only time, a British king was tried and executed for committing tyranny, the monarchy abolished, and a republic created. Inspired by the message of radical social justice in the Bible, English men and women demanded freedom and equality in these years. This course examines these revolutions and their lasting impact at the restoration of monarchical government in 1660.

HST-269. The British Imperial Isles 1660-1800. (Not offered 2010-11). Between 1660 and the end of the Napoleonic Wars, Great Britain became a global superpower. Major transformations came with these events. The ejection of the Catholic James VII & II and the revolution settlements in England, Scotland, and Ireland established a Protestant Ascendancy. Political economy and empire came to dominate

political thinking and Scotland was formally incorporated within a United Kingdom of Great Britain in 1707. Not everyone welcomed these changes and supporters of the ejected Stuarts, the Jacobites, looked to undo the Union. However, the peoples of Britain and Ireland were increasingly entwined with the Empire, politically, commercially, and culturally. There was no going back it seemed, despite the revolution in North America. The end of this ‘first’ British Empire in 1783 did not change the trajectory of British imperial power. With the defeat of France in 1815, the new United Kingdom of Great Britain and Ireland – created by the formal incorporation of Ireland in 1800 – emerged as the dominant European power. This course studies the creation of the British Imperial Isles and how the peoples of Britain became ‘imperial’ peoples who were transformed by the experiences of empire.

HST 340. Special Topics in European History: Men, Women, and Gender in Early Modern Europe (Winter; Ellis). This course is an upper-division exploration of the creation, operation, and interaction of masculinities and femininities (in the plural) in Europe between roughly 1400 and 1700. “Gender history” is not simply another way of saying “women’s history.” Instead, we also will employ gender as a lens through which to consider the experiences of both men and women during the period. Learning objectives for the term include critiquing the use of gender as a category of historical analysis; investigating the gap between prevailing early modern notions about manhood and womanhood and the lived experiences of early modern men and women; and teasing apart the intersection of gender with other factors, especially class, age, and marital status.

HST-353. Modern European Ideas (Spring; Walker). This course will survey important ideas in modern European history, including the writings of Jean Jacques Rousseau, Karl Marx, Charles Darwin, Friedrich Nietzsche, Sigmund Freud, Albert Einstein, Jean-Paul Sartre, Simone de Beauvoir, and Michel Foucault. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-361. The British Empire: (Not offered 2010-11). How did the peoples of two windswept, rainy islands – Britain and Ireland – off the northwest corner of Europe create the world’s greatest modern empire? This course analyzes the process of empire-building in the eighteenth and nineteenth centuries, the interaction with and impact on the colonial peoples of North America, Asia, and Africa, and the “end” of empire in the twentieth century. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-362. “Black Britain:” Race and Ethnicity in British History (Spring; Cramsie). With the collapse of the British Empire, the rise of nationalist parties in Scotland and Wales, and post-war migration, Britain suffers from an identity crisis. What is British history and what does it mean to be British? Through an analysis of history, literature, sit-coms, and film, this course explores the multi-ethnic British past and how widespread ignorance of that past fuels racism in Britain today and shapes the struggles that define Britishness. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-363. Women in British History (Not offered 2010-11). This course is built around a changing collection of case studies that examine women’s lives in Britain, Ireland, and the Empire. It studies traditional topics like patriarchy, marriage and family, and sexuality, but also explores women as political actors, intellectuals, spiritual beings, workers, and professionals. The course format emphasizes the creative and critical examination of topics through active reading and discussion. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-364. British Cinema: From Music Halls to Multiplexes. (Not offered 2010-11). What films come to mind when you see the words “British Cinema”? Alfred Hitchcock’s *39 Steps* or Carol Reed’s classic film noir *The Third Man*? Fabulous historical epics like *Zulu*, *Elizabeth*, or *Braveheart*? Comedies from *The Ladykillers* to the unclothed Sheffield steelworkers of *The Full Monty*? The tale of football of multicultural Britain that is *Bend It Like Beckham*? This course will study the historical development of British cinema, tracing its roots from music halls at the turn of century to the multiplexes of a globalized culture dominated by Hollywood. We will also explore the different types and genres of film to be found in British cinema: realism and expressionism, cinema as national popular culture, humor and horror, constructions of Britishness, film as an ideological medium, films that pushed the boundaries of sex and orientation, epics, and imperial and post-colonial themes that played out on the screen. By the end of this course you will understand the complex and diverse character of British cinema through the analysis of actual films and engagement with critical studies of them. This is a course for advanced students taught in an intensive seminar format; you will be expected to view films outside of class time.

HST-431. Seminar in European History (Not offered 2010-11)

Courses in Latin American and Caribbean History:

HST-171. Europe and the Americas in the Era of Columbus (Not offered 2010-11). A study of the relationship of Spain and Portugal with Africa, Asia, and the Americas from the early fifteenth through the late eighteenth centuries. The course examines the early civilizations of Africa, Europe, and the Americas in the era before the voyage of Columbus and the interaction among these three worlds in the centuries after the Encounter. It concludes with an examination of the cultural legacy of Africa and Europe on the indigenous societies of the Americas and the subsequent development of multicultural and multiracial independent nations. The central role of gender relations between the civilizations, the gendered conflict that characterized the era of exploration, and the role of masculinity are all examined. *GenEd: LCC*

HST-172. Reform and Revolution in Latin America and the Caribbean (Not offered 2010-11). Examines the political and social changes in Latin America as a result of the nineteenth and twentieth century reform and revolutionary movements, including the Unidad Popular government in Chile under Salvador Allende and its overthrow by General Pinochet and the subsequent dictatorial rule. The effect of the 1959 Cuban Revolution on Latin America; the revolutionary uprisings in Central America, in Chiapas, Mexico, and against the military government of Argentina form other key areas of examination. The course places special emphasis on the intersection of gender, race and class conflicts and movements, with particular attention to the role of emerging feminist movements. *GenEd: LCC*

HST-270. History of Latin American Popular Culture (Not offered 2010-11). This course examines the history of Latin America and the Caribbean in the 19th and 20th centuries. Our “texts” for this course are novels, political cartoons, movies, TV shows and music, along with traditional history books. The course seeks to examine the way that Latin American societies have depicted themselves in the popular media, the way that the United States has viewed and absorbed Latin American culture, and the ways that historians have sought to explain the transformations in various countries by examining popular culture. Since Latin American and Caribbean cultures are so closely linked to the United States, and because an increasing number of U.S. citizens are of Latino descent, this course offers valuable insights into the transformations occurring in US culture. *GenEd: LCC*

HST-271. History of Mexico (Fall; Meade). Mexican civilization from its origins to the present — ancient Maya and Aztec cultures; the Spanish conquest; colonial society; the independence wars; Mexico in the nineteenth and twentieth centuries, especially the Mexican Revolution; and current cultural, social, and economic issues, including the Zapatista rebellion, NAFTA, and the changing nature of the borderlands region between Mexico and the USA. *GenEd: LCC*

HST-272. History of Brazil (Winter; Meade). A general survey course covering the history of Brazil from the period of the Portuguese conquest, approximately 1500 to the present. *GenEd: LCC*

HST-273. The History of the Caribbean and Central America (Not offered 2010-11). Study of the people and cultures of the Caribbean and Central American regions from the fifteenth century to the present. Includes English, French, Spanish, and Dutch settlements. *GenEd: LCC*

HST-274. Social and Political Movements in Latin America (Not offered 2010-11). This course examines the history of recent social movements in Latin America. We will explore a variety of issues including democracy, racism, class, gender and ethnic divisions, human rights, globalization and popular movements. Rather than viewing Latin America from a North American point of view, we will examine how Latin Americans see themselves and how their culture, economics, and politics have developed in different directions than other parts of the world, especially the United States and Europe. While social movements have at times erupted into full fledged revolutionary upheavals, more often Latin American struggles have been ongoing, such as factory occupations, land seizures, and demonstrations for gender equality, workers’ rights, indigenous autonomy, protection of the environment, and students’ rights. *GenEd: LCC*

HST-370. Special Topics in Latin American History (Not offered 2010-11). Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: LCC*

HST-372. History of Latin American Women (Not offered 2010-11). The changing roles of women in Latin America from the colonial period to the present. The course aims to understand the transformations that have occurred in women’s history and the impact of colonialism, imperialism, economic development, and political change on women’s work, the sexual division of labor, and male-female relations. The course also seeks to understand the intersection of gender with race, class, and

national divisions within societies. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: LCC*

HST-471. Seminar in Latin America: Individual in Latin America (Spring; Meade). This seminar examines the role of the individual in the making of Latin American history. The intention of this course is to study both the individual and the historical context that produced the individual and the actions she or he chose to make. Some of these women and men are well-known, while others are ordinary people who distinguished themselves and made their way into the recorded account. Students will produce a seminar paper examining the life and historical background of an individual. *GenEd: LCC*

Courses in United States History

HST-101. History of the United States to the Civil War (Not offered 2010-11). Political, economic, and social developments in the colonial and early national periods.

HST-102. History of the United States Since the Civil War (Not offered 2010-11). Political, economic, and social developments: continuity and change in modern America.

HST-113. The Origins of American Society (Not offered 2010-11). The evolution of American society from its 17th-century origins through the aftermath of the Revolution.

HST-114. The American Revolution (Spring; Wells). The causes and consequences of the American Revolution (1763-1815).

HST 116. Age of Jackson (Winter; Brennan). An examination of the United States in the turbulent period from 1815-1845, surveying the second party system, various utopian and reform movements, the cult of domesticity, and other wrenching transformations instigated by the market revolution.

HST-118. Civil War and Reconstruction (Not offered 2010-11). An examination of the causes of the deepening sectional crisis; the political, economic, and social reasons for Southern secession; the move toward emancipation as a Northern war aim; the impact of the war on women and men, with special attention to geographic location, race, and class; and the experience of Reconstruction in the South.

HST-120. The Progressive Era and the Great War, 1890-1920 (Not offered 2010-11). The impact of urbanization and industrialization on the creation of the modern United States, 1890-1920.

HST-121. The Depression and New Deal (Fall; Morris). The years between the end of World War I and the beginning of World War II witnessed not only a dramatic contrast between the prosperity of the 1920s and the Great Depression of the 1930s, but also a fundamental reordering of America's political system forged during Franklin D. Roosevelt's New Deal. This course will examine the crisis and transformation of the American economy and political system during the 1920s and 1930s, and their impact on Americans of all walks of life.

HST-123. Postwar America and the Origins of the Cold War (Winter; Morris). The stand-off between the United States and the Soviet Union permeated the politics and culture of the United States from the end of the Second World War through the early 1960s. This course will explore the origins of the Cold War, the terms on which it was fought, and the degree to which it imposed a political and cultural "consensus" on the United States.

HST-125. Coming Apart?: America in the Sixties (Not offered 2010-11). A study of the breakdown of political and cultural consensus between 1956 and 1974. We will examine the degree to which counter-cultural and racial politics of the period successfully challenged the dominant political culture on issues of war, race, and gender.

HST-126. Since Yesterday: United States History, 1974-2000 (Spring; Feffer). If the United States "came apart" in the 1960s, did it come back together in the 1970s and 1980s, or something else? This course looks at the emergence of new social movements (e.g., the women's and environmentalist movements), the rise of the "new right," the Reagan "revolution" in domestic policy, and American foreign policy from the fall of Saigon to the collapse of the Soviet Bloc.

HST-127. America in the Vietnam War (Not offered 2010-11). This course examines America's involvement in what would become the Vietnam War from 1945 to 1975. It explains why Americans tried so hard for so long to stop the spread of Communism in Indochina and why they ultimately failed. As the

course progresses, its focus moves from the "high policy" of diplomatic and military strategy to the experiences of ordinary people on all sides of the conflict.

HST-128. The American Jewish Experience (Not offered 2010-11). Jews arrived in Britain's American colonies in 1654. In the space of 350 years their numbers increased dramatically and they made significant contributions to a plethora of areas in American society. Jews and Judaism also experienced significant changes through the encounter with the United States. But for all the gains in status and achievement, there are those who speak of a problematic future for American Jewry.

HST-129. History of Sports in America (Fall; Brennan). Fields of battle (military, political, economic, and social) generally characterize the teaching of American history. Throughout times of conflict, however, it has often been the fields of American sport which have provided distraction, respite, and relief from these struggles. Meanwhile during times of peace, the fields of sport have contributed more than leisure and entertainment; they have reflected the American people's lives, hopes and dreams. Sport, in other words, has been and continues to be an active mediator in America's life, and a lens through which we can examine the broader contexts of American history.

HST-131. African-American History I (Fall; Aslakson). The purpose of this course is to help you better understand both the role of race and slavery in early American history and the contributions of African-Americans to society and culture in America before 1877. The course will examine the lives of black Americans, enslaved and free, from the arrival of the first Africans in the New World through Reconstruction. It will also address more abstract ideas about cultural and "racial" differences. Throughout this course, you will be asked to consider the question "which came first, racism or slavery?" *GenEd: LCC*

HST-132. African-American History II (Not offered 2010-11). This course covers the Black experience in America from the end of the Civil War until the present day. It will generally proceed chronologically, but there may be some overlap as it tries to cover certain themes, such as culture, oppression, resistance, and identity. Throughout the course students will be asked to consider the question to what extent is the African-American experience unique and to what extent is it representative of the "American" experience. *GenEd: LCC*

HST-135. Latinos(as) in U.S. History (Spring; Meade). The Spanish exploration of the Southwest and West; the changes in all areas of the U.S. through major waves of immigration from Latin America and the Caribbean. *GenEd: LCC*

HST-211. American Indian History (Not offered 2010-11). An overview of the diverse experiences and histories of the native peoples of North America in the last five centuries. Particular attention will be paid to native peoples' various strategies to respond to change and challenges to native autonomy and communities.

HST-212. Women in Colonial and Victorian America (Spring; Foroughi). An examination of changing gender roles from 1600 to 1890. Topics include work, family, civil and legal identity, and the impact of race, class, and geographic location on women's experiences.

HST-213. Women in Modern America (Not offered 2010-11). An examination of changing gender roles from 1890 to the present. Topics include the evolution of feminism, and the impact of race and class on women's experiences.

HST-215. Revolutions in Americans' Lives (Not offered 2010-11). Major changes in American population patterns will be examined. The effect of these changes on individuals, their families, and American society and history will also be explored.

HST-216. The Writing and Ratification of the Constitution (Not offered 2010-11). A study of the major influences on the US Constitution, how it was written, and how it was adopted.

HST-217. American Folk Music/American History (Spring; Wells). From "Amazing Grace" to "Blowin' in the Wind," Americans have composed and sung songs about what matters in their lives. The course will examine folk songs, both famous and obscure, to show their history and historical meaning.

HST-218. Death in America (Fall; Wells). The history of American attitudes, experiences, and practices concerning death from the Puritans to the present.

HST-222. Other Voices: Women in the History of American Ideas (Spring; Feffer). The contribution of women to the development of American intellectual and cultural life, from Charlotte Perkins Gilman to Angela Davis.

HST-223. Twentieth Century American Intellectual History (Not offered 2010-11). An overview of the major social and political issues that shaped and unshaped American liberal thought from John Dewey to Andrea Dworkin.

HST-225. American Environmental History (Fall; Morris). This course aims to give students the knowledge and the tools to think critically about how history has shaped the present state of the earth and human relationships with it. It focuses on the history of man's interaction with nature on the North American continent, with a particular focus on the area that would become the United States, from pre-colonial times until the present. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-226. A Novel View of US History (Spring; Brennan). This course will examine the broad scope of American history from colonial times to the present as it has been revealed in American literature and novels. Employing principally primary source literature, the course will introduce students not only to American history but to an understanding of important events and developments as comprehended by those who experienced those events or who were contemporary interpreters of those events. Supplemented by lectures on the facts of historical events, primary source works will be used to re-introduce personality and complexity to the historical context in order to stimulate student understanding of the American experience. Students will be encouraged to analyze and examine the variety of outlooks that propel history, while also learning an appreciation for the value and potential of personal scrutiny, insight, and perspective. Primarily driven by readings and discussion, lectures will be used to supplement and place the readings in historical context; however, the focus will be on reading, analysis, comprehension, and communication.

HST-231. The Civil Rights Movement (Winter; Lawson). A survey of the civil rights movement, assessing the early campaigns of the 1940s, the development of black grassroots organizations in the 1950s and 1960s, and the impact of black nationalist consciousness in the late 1960s and early 70s. *GenEd: LCC*

HST-310. Special Topics in United States History (Not offered 2010-11). Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-311. Frontiers in the Americas (Winter; Foroughi). Analyzes the concept of "frontier" as it applies to Canada, Latin America, and the United States prior to 1900. Examines the geographic context of frontier, as well as how various groups of people experience the frontier process. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: LCC*

HST-312. History of Women's Rights in the United States (Not offered 2010-11). This course examines major themes in the study of women's rights in the United States. Topics include constitutional and legal rights changes over time; the interplay of gender with race, class, and sexuality involved in "rights" movements since the nineteenth century; and current controversies over women's rights. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-315. Race and Constitution (Not offered 2010-11). One purpose of this course is to help you better understand the role of race in the legal, constitutional, and political history of the United States. Issues regarding race and slavery have been a constant source of constitutional debate (in one way or another) from the drafting of the Constitution until the present day. Focusing on racial issues, this course examines the historical context in which the Constitution of the United States was drafted and ratified and explores the various methods by which its meaning has changed since 1787. Therefore, it is course about both race in America as well as the Constitution and Constitutional interpretation.

HST-322. Slavery and Freedom (Not offered 2010-11). Examines major themes in the historiography of American slavery. Topics include the relationship between racism and the growth of slave labor; the development of African American slave culture, the nature of the enslaved family, and the transition from slavery to freedom. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: LCC*

HST-323. Race and Revolution (Fall; Aslakson). This course examines the American Revolution and the Haitian Revolution. With regard to the former, it addresses the "Jefferson question" – that is, how could the author of the Declaration of Independence be the owner of over 200 slaves. Therefore, it deals with competing interpretations in the Early American Republic of the Ideology of "liberty" and "equality." Next, the course delves into the far more radical Haitian Revolution, the only successful slave revolution in history. It will deal with the influences of the American and French revolutions on the French New World colony of St. Domingue that made the Haitian revolution possible. Finally, the course examines the impact of the Haitian Revolution on slavery and the anti-slavery movement in the United States. *GenEd: LCC*

HST-324. Race in American Memory (Not offered 2010-11). "The struggle of man against power," wrote Milan Kundera, "is the struggle of memory against forgetting." This course will examine that struggle as it has taken place in the United States around the issue of race. How have Americans as a nation chosen to remember events that involved race? How and by whom were these collective memories constructed? In what ways were they contested? How have they changed over time? We will explore these issues focusing on such phenomena as Indian removal, slavery, the Civil War, Jim Crow, Japanese internment and World War II, and the Civil Rights movement, examining depictions in public history and popular cultural forms, including memorials, museums, battlefields, literature, and film. *Gen Ed: LCC*

HST-331. Representing America: United States History in Film (Winter; Feffer). This course compares the representation of American history in Hollywood film with the reconstruction of our past by scholars. Each week students will critically examine the historically-based films of D. W. Griffith, John Ford, Frank Capra, and others. Prerequisite: any 100-level or 200-level history course or permission of the instructor

HST-332. Transnational America (Not offered 2010-11). The United States is now the center of global production, yet it is also swept by the forces of international cultural change. How did we reach that position and what consequences does it have for our national integrity, our identity as Americans, our way of life, and our relationship to other nations and peoples? Students read recent literature on the history of transnationality and globalism as it has affected the economy, ethnic identity, cultural production (in literature and film), and international relations of the United States in the twentieth century. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-333. Hollywood Film (Not offered 2010-11). In studying the history of Hollywood film, then, we will study one of the most important elements of American culture as seen at home and from abroad. Our objectives in this course will be to get behind the clichés and platitudes about the Hollywood experience to its more complex and substantive history. We will learn the basic chronology of American dramatic film history, the tools of historical film research and some of the methods of technical film analysis. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-336. The Roosevelt Era (Not offered 2010-11). This course will focus on major interpretive issues that surround the presidency of Franklin Delano Roosevelt. We will study how historians have disagreed, over time, on issues such as: Was FDR a raving radical or the best friend of big business? Was the New Deal a good deal or a raw deal for African Americans? Was World War Two a "good war"? Could FDR's administration have done more to prevent the Holocaust? This is a reading-intensive, discussion-centered class that requires active student engagement.

HST-411. Seminar in US History: Manifest Destiny/American Empire. (Not offered 2010-11). This seminar examines the expansion of the United States' geographic borders, economic interests, and political power, as well as its racialized, gendered, and religious worldview from the Louisiana Purchase through the Plains Indian Wars. Possible topics include: Jeffersonian republican ideology; American Indian policy; voluntary and involuntary relocation in the West; the Gold Rush(es); Protestant missionary efforts; and the Mexican War.

HST-412. Seminar in US History: The Origins of the United States' Constitution (Winter; Wells). The roots and writing of the U.S. Constitution from Magna Charta to the Bill of Rights. The main focus is on the Constitutional Convention and ratification.

HST-413. Seminar in US History: American Disasters (Spring; Morris). This research seminar will examine the American experience with disasters over the course of the past three centuries. We will study how natural and technological disasters have impacted American society in different eras; how explanations for the cause of disasters have changed over time; how factors such as race and class have influenced vulnerability to disaster; and how charitable and governmental responses to disaster have evolved over the course of American history.

Special Topics

HST-105. History and Society: The Emergence and Character of Traditional Civilization (Not offered 2010-11). The Eurasian, African, and American civilizations from their origins to the eighteenth century. The course stresses ecological, political, economic, ideological, and social factors.

HST 138. Big History (Fall; Walker). An exploration of the past from the big bang to the present, dividing the history of the universe, earth, life, and humanity into periods using very large scales of time.

HST-192. Construction for Humanity (Not offered 2010-11). An interdisciplinary introduction to the technology of construction and the social uses of building by humans. The course considers types of building materials and their application to domestic housing, castles, cathedrals, palaces, monuments, dams, bridges, tunnels, and skyscrapers.

HST-193. Science, Medicine, and Technology in Culture (Spring; Richmond). A foundation course based on case studies ordered chronologically from prehistory to the present. Each of the sciences (biology, chemistry, computer science, geology, mathematics and physics) and branches of engineering (computer, electrical, and mechanical engineering) will be represented.

HST-203. Judaism/Christianity/Islam (Same as REL-203) (Not offered 2010-11). This course offers a comparative approach to Judaism, Christianity and Islam, three closely related religious traditions. It attempts to draw out commonalities among and differences between these traditions by focusing on their histories, their understandings of God, revelation and tradition, religion and society, and responses to social and political change.

HST-224. Introduction to Public History (Fall; Lawson). This course will provide an overview of public history, defined as the presentation of history to a general public audience. Students will learn the theory, methods, and practice of public history in its various dimensions, including museums, monuments, historic sites, and films; they will explore the controversies that emerge in public history settings, including the battle over the Enola Gay, the Holocaust Museum, and commemorations of September 11th; and they will engage in a public history project in the Schenectady area.

HST-253. Physics and Politics (Same as PHY-053). (Not offered 2010-11). An introduction to some of the most important developments during the twentieth century in modern physics, the theory of relativity, quantum mechanics, and nuclear physics, set in a comparative context of the capitalist democratic United States, fascist National Socialist Germany, and the communist Soviet Union. Along with explanations of how the science works, this course will examine how the political, social, and ideological context can influence science and scientists. *GenEd: SCIE*

HST-265. The Museum: Theory and Practice (Same as ANT-265) (Spring; Witsoe). The historical and contemporary role of the museum is examined through course work and a student internship at the Schenectady Museum. Seminar and essay topics include issues in interpretation and the representation of culture, public history debates, intellectual property rights, and exhibit design. Field trips to local museums included.

HST 292. History of Computing. (Same as CSC-080) (Not offered 2010-11). A survey of tools for computation, from number systems and the abacus to contemporary digital computers. The course focuses on the development of modern electronic computers from ENIAC to the present. Study of hardware, software, and the societal effects of computing.

Independent Study and Senior Projects

HST-295H-296H. History Honors Independent Project 1 & 2 (Fall, Winter, Spring).

HST-490-493 . Independent Study in History (Fall, Winter, Spring).

HST-498-499 . Senior Project in History (Fall, Winter, Spring).

Interdepartmental Courses

IDM-123 Ethics, Technology & Society. In today's technologically advanced society, professionals are faced with situations that require more than technical knowledge, common sense, and good judgment. Many of the issues borne by the complexity of modern day life are not only interwoven but are also multidimensional. One of these dimensions is ethics. To illustrate how ethics, technology, and society intersect, this course offers case-based situations where students will learn from well-documented cases how to engage ethics principles in the decision making process, and how to put into practice the experience gained in the classroom from discussing various scenarios and from making one's own arguments.

IDM-201 Documentary Film Making: Filtering Your World. This class introduces students to the basics of documentary filmmaking. While covering enough technical know-how to successfully complete class projects, the class will keep its focus on documentary form and storytelling techniques. Students will practice storyboarding, writing synopses and treatments, and deconstructing well-respected documentaries to analyze how they were made. The primary course activity is the production of a short documentary (around 20 minutes) which can be done individually or in groups of two. Besides his or her own work, the student will be expected to participate in screening nights in which students will share each other's work for peer evaluation and discussion. There is also the option of organizing screenings open to the whole student body.

IDM-202 Digital Filmmaking: From Story to Screen. This intensive hands-on class guides students from concept to finished film. Students practice the essentials of filmmaking technique, including storytelling, camera work, lighting, sound and editing. Students must be up for a challenging schedule and will make a film each week as they explore the nuts and bolts of moviemaking.

IDM-203 Cinematic Montage. Learn and practice cinematic montage in this fun, hands-on course. From Dziga Vertov's *Man with a Movie Camera* to modern movie chase scenes, montage takes the basic building blocks of film and combines them to evoke the condensation of space, time, and information. The course will review the history of montage as a starting point to help you practice shooting, editing, sound and effects to create your own montages.

IDM-260. Social Entrepreneurship. Entrepreneurs identify opportunities, mobilize resources and make things happen. This course applies the active mindset of the entrepreneur to social organizations. The measure of success is not profit, but change. Passion and mission are the motivators. Examples include feeding the hungry, improving the environment, educating the destitute, housing the poor, training the unskilled, caring for the disenfranchised sick, and much more. Jerroo Billimoria founded Child line in Mumbai, India that provides services to street children. Veronica Khosa founded Tateni that works with aids victims in South Africa. Jacob Schramm founded College Summit to make college accessible to low-income students in the U.S. And the list goes on. In the course, we will study many examples of social entrepreneurship, identify best and worst practices, work with local social entrepreneurial organizations and identify opportunities to make the world a better place.

IDM-299. Developing a Vision. Throughout history, leaders in many contexts have used "vision" as a means to not only communicate their desires for the future but also to motivate their followers and supporters to great achievements. This course focuses on developing skills in creating, articulating and planning a vision that will inspire the students (and their supporters) to achieve their goals. This class is intended for mature students who want to learn skills that will help them understand and shape the world around them.

IDM-325. Entrepreneurship Seminar. The object of the course is to develop business/marketing plans for senior projects in engineering that will explore the potential for commercialization. Interdisciplinary teams are organized around each senior project. In order to be successful, the engineers have to communicate the value of their innovative project to liberal arts students; liberal arts students have to communicate the marketing and business strategy to engineers. Engineering senior projects with elements of social responsibility are preferred. This course is about interdisciplinary communication, teamwork, social responsibility, creativity and entrepreneurship.

International Programs

Director: Lara Atkins

Staff: Assistant to the Director/Program Coordinator

Union College considers its commitment to international programs to be a central part of its identity. In addition to broadening a student's perspective and deepening their knowledge of other cultures, international programs often energize and challenge a student to a higher level of commitment to the enterprise of learning. Students wishing to study away from Union College may do so through the following international programs:

- Terms Abroad
- Exchanges
- Independent Study Abroad
- Non-Union Programs
- Mini-Term Programs

Updated information on the timing, details, and course descriptions for each international program listed below, along with application instructions, policies, and waiver and liability forms are available from the International Programs office and on its website.

Please refer to the "Costs, Fees" section for charges related to International Programs.

Requirements for Participation in International Programs

Eligibility for international programs is contingent upon:

1. A cumulative index of at least 2.5 (3.0 for Japan and Ireland) at the time of application and for the term preceding study abroad
2. Good academic standing for the term preceding and up to the date of going abroad.
3. Successfully have completed at least two courses at Union College the term prior to the term abroad.
4. Certification by the Dean of Students that the student is well prepared to participate in foreign study
5. Meet the minimum language requirement (if any) as specified in the program description.
6. Have a clear account balance, as verified by the Office of Financial Services. Please consult the General Education section on how international programs relate to various requirements. Study away courses may not be taken pass/fail or dropped.

Students seeking to study away must demonstrate that they are well-prepared to do so, academically and in terms of overall maturity. Participation in the programs is limited and competitive. Students should apply for particular opportunities that are well-integrated with the student's academic work at Union. Attendance at a program's informational meeting is essential. Selection criteria include the student's essay, GPA, faculty recommendations, course of study, certification by the Dean of Students, and the selection committee's assessment of the student's capability of adapting to the program's social and academic environment. Should there be additional selection criteria, they will be announced at the informational meeting. In addition, some international programs have academic prerequisites.

Academic Policy Regarding Early Departure, Early Exams, Pass/Fail and Incomplete Grades While on an International Program

Students on Union College international programs are prohibited from requesting early departure, early exams, pass/fail or incomplete grades. In extraordinary circumstances, a request for special arrangements such as early departure, early exams or incomplete grades must be submitted in writing to the study abroad office at the host institution, the Dean of Studies at Union College and the International Programs Office at Union College. If the host institution approves the request, the matter will be reviewed by the Director of International Programs Office and the Dean of Studies at Union College, who will advise the study abroad office at the host institution and the student of its decision. If the request is approved, the study abroad office at the host institution will advise the student whether it will make the arrangements on behalf of the student or whether the student is expected to make the arrangements.

Any special arrangements agreed upon, including remaining work and deadlines, should be documented in writing by instructors and by the study abroad office at the host institution. Copies of these arrangements must be sent to the Dean of Studies and the Director of International Programs at Union College.

Failure to follow these procedures may result in the student receiving no credit or a failing grade. A student may appeal Union College's decision by contacting the Dean of Studies at Union College to find out about the process.

Changes to Courses for Independent Study Abroad or Non-Union Programs Made after Student's Arrival at Site Abroad

Union College students must request in writing changes to course selections and equivalencies directly through the Dean of Studies at Union College by the end of the first full week of classes. Copies of all changes will be sent by the Dean of Studies' office to the Director of the International Programs office to ensure that the course equivalencies are posted correctly upon the student's return. Failure to follow these procedures may result in the student receiving no credit or a failing grade.

Grades Earned Abroad

Grades received from any of Union College's international programs will be entered into student's academic record and calculated into his/her GPA.

Terms Abroad Programs

The most extensive of the College's formal arrangements for foreign study are the terms abroad programs. Most programs involve credit in General Education and language study, as well as regular course credit for additional study performed abroad. Currently, terms abroad are offered through a variety of programs designed by Union College faculty. The College is also part of the Partnership for Global Education, a consortium with Hobart & William Smith Colleges, whereby students can study abroad in Australia, Brazil, Ireland and Vietnam.

Unless otherwise noted, students take three courses while on a term abroad; normally, these are the official program courses, unless the Director of International Programs grants permission to substitute one non-program course. Please consult the General Education section on how international programs relate to various requirements.

The following term abroad programs are offered at Union College:

Argentina (Buenos Aires): Winter. Faculty Member in Residence

Australia (Brisbane): Fall, 4 courses. Offered as part of the Partnership in Global Education. Faculty Member in Residence

Brazil (Sao Paolo): Fall, Offered odd years, 4 courses. Offered as part of the Partnership in Global Education. Faculty Member in Residence

China (Shanghai): Fall, On-site Director in Residence and Faculty Member in Residence

Czech Republic (Prague): Fall, 4 courses.

England (York): Fall. Faculty Member in Residence

Fiji: Fall. Offered in even years. Faculty Member in residence. (Fiji will be substituted with Palau in Fall 2010.)

France (Rennes): Fall, 4 courses. Faculty Member in Residence

Germany (Freiburg & Berlin): Spring. Faculty Member in Residence

Greece (Athens): Fall, 4 courses. Faculty Member in Residence

Ireland (Galway): Fall, 4 courses. Offered as part of the Partnership in Global Education. Faculty Member in Residence

Italy (Florence): Spring. Faculty Member in Residence

Italy (Sicily): Spring. Offered odd years. Faculty Member in Residence

Japan (Osaka): Fall, 4 courses.

Mexico: Winter. Offered odd years. Faculty in Residence (Mexico will be substituted with Argentina in Winter 2011)

National Health Systems (Canada, Denmark, & England): Spring & Summer. Faculty Member in Residence

Spain (Seville): Winter. Offered even years. Faculty Member in Residence

Tasmania: Winter. Offered even years. Faculty Member in Residence

Exchange Programs

The College has four formal exchange programs:

Belgium (Antwerp): 4 courses, at the University of Antwerp in Belgium, for Economics majors.

Czech Republic (Prague): 4 courses, at the Czech Technical University in Prague, for Engineering majors only.

France (Lille): 4 courses, at the Catholic University of Lille in France, for Economics majors.

Japan (Osaka): 4 courses, at the Kansai Gaidai University of Foreign Studies in Japan.

Independent Study Abroad

Independent Study Abroad programs allow students, working closely with a faculty member, the opportunity to design their own program of study that can occur anywhere in the world. Examples of an ISA include internships, service learning, language study, or research on a subject of interest to the student. An ISA must take place during the winter and/or spring term. Detailed proposals for ISAs must be submitted no later than the fifth week of winter term the year before ISA study would take place. Students should refer to the International Programs website for deadlines. The Liaison Committee on Study Abroad approves ISA proposals. The student must demonstrate readiness and preparation to undertake the proposed course of study and provide details of a feasible plan of study that is well-integrated with the student's academic work at Union. An interview is required. Students will typically take 1-2 courses at a host institution and complete the above-mentioned internship, independent study, project, or research in order to obtain the three course equivalent of a full trimester at Union College. The Dean of Studies must give prior approval for the academic credit to be granted for the research or independent study. Other course work for credit will be approved by the Dean of Studies in consultation with the ISA Director.

Non-Union Study Abroad

Non-Union Study Abroad programs allow students the opportunity to participate in study abroad programs through other colleges and universities, provided that the program addresses a curricular need that cannot be met by a Union program. Normally these programs take place in countries where Union does not have an existing term abroad or exchange program.

Detailed proposals for non-Union programs must be submitted no later than the third week of spring term the year prior to the time when the study abroad would take place. Students should refer to the International Programs website for deadlines. The Liaison Committee on Study Abroad

approves non-Union proposals. The student must demonstrate readiness and preparation to undertake the proposed course of study and provide details of a feasible plan of study that is well-integrated with the student's academic work at Union. An interview is required.

There are two options for non-Union study abroad programs: winter/spring non-union study abroad and the full year William Cady Stone Fellowship.

Winter/Spring Non-Union Study Abroad

The more common non-Union study abroad option, this opportunity takes place during winter and spring terms with the student enrolling in Spring semester course offerings from other colleges and universities.

Students are billed Union College's comprehensive fee for the winter and spring terms and Union College will pay the tuition, room, and board to the host institution. The total amount paid to the other institution, including course waivers or any fees for additional courses as described below, shall not exceed the cost of the Union comprehensive fee. Students are responsible for paying any amount that exceeds the total Union comprehensive fee.

Non-Union programs are generally semester programs that give credit for four or five courses. There are a number of ways to complete the additional winter-spring.

- If the host institution will allow a fifth course for an additional fee, Union College will pay that fee
- If a student is ahead in credits, then he/she may count one or two of these credit towards graduation at no cost.
- The student may take one or two fourth courses without charge upon returning to Union College.
- Students may take one or two summer school courses, whether at Union or another institution. Union will pay the tuition for the course, but not room and board. Courses may not be taken at a community college unless approved by the Dean of Studies.
- Participation in a Union Mini-Term program, with the mini-term fee being waived. Students who are eligible for a free mini-term should not be excluded because of prior participation in mini-terms or other terms abroad. Students need to be advised that they may not get their first choice of mini-term and they will be asked to apply for at least three mini-terms. You are guaranteed entry into one.
- Additional methods to obtain a free fourth course may be discussed with the Dean of Studies.

Full Year William Cady Stone Fellowship

The William Cady Stone Fellowship allows only one student per year to participate in a full year abroad. Students applying for this fellowship should be able to explain the benefits of a full year study abroad program at an accredited institution of his or her choice over a semester/trimester program. Additional information can be obtained from the International Programs office and on its website. Students are billed Union College's comprehensive fee for fall, winter and spring terms and Union College will pay the tuition, room, and board to the host institution.

Mini-Term Programs

Every year Union College offers a variety of mini-terms. A mini-term is a three week program running either over winter break or at the beginning of summer break. Mini-terms have been offered in Argentina, Brazil, China, Egypt, England, France, Iceland, India, Martinique, Marine Studies, Peru, South Africa, Spain, Thailand, New Zealand, and domestic locations such as New Orleans and Alaska. Mini-terms carry an additional tuition charge. They cannot be combined with two courses in another term as one term's tuition. The course credit earned can be used to get caught up if the student is behind in credits; otherwise, the course credit earned will be above and beyond those used for graduation. It cannot be combined with other credits to graduate early.

Japanese (see Modern Languages and Literatures)

Latin (see Classics)

Latin American and Caribbean Studies

Director: Professor D. Mosquera (Modern Languages)

Faculty: Professors L. Fleishman (Biological Sciences), T. Meade (History), V. Martínez, P. Moyano (Modern Languages), T. Olsen (Music); Associate Professors A. Foroughi (History), C. Batson, M. Chilcoat, W. García, C. Henseler, C. Ndiaye (Modern Languages), L. Cox (Visual Arts); Assistant Professors E. Garland (Anthropology), G. Seri (Political Science); Senior Lecturer M. Osuna (Modern Languages), Visiting Assistant Professor E. Shever (Anthropology)

This program offers a major, an interdepartmental major, and a minor in the study of the history, culture, language, and politics of the countries of the Latin American and Caribbean region. In addition, students may focus their study on the Atlantic world, on the interaction between the Americas and Africa, and on the experiences of people of Latin American descent in the United States. Latin American and Caribbean Studies courses are a part of the General Education curriculum, fulfilling literature/civilization, diversity, and writing requirements.

Requirements for the Major: Fourteen courses, including five in Latin American history, politics, society and culture that are listed below under “Courses in Latin American and Caribbean Studies”; one of the following courses that contribute to an understanding of Latin American problems – AAH 460, ANT 110, ANT 282, ECO 354, ECO 376, EGL 254, HST 311, HST 332, PSC 239, or SOC 265; six courses in Spanish or French language and literatures; and, a two-term senior thesis. No course from languages and humanities/social science lists can be counted twice to meet these requirements. Students must participate in a Term Abroad program where at least one course is in the French, Spanish or Portuguese language, or in Latin American history, politics, society, literature and culture, and counts toward fulfilling any of the requirements for the major. There are full-length study abroad programs in Argentina (Buenos Aires), Brazil (São Paulo), Mexico (Veracruz), France (Rennes) and Spain (Seville), and mini-terms in Argentina and Martinique.

Requirements for the Interdepartmental Major: Eight courses including three in Latin American history, politics, society and culture; four courses in Spanish, French or Portuguese, and a one-term senior project. No course can be counted twice. ID majors take one of the following courses contributing to the strengthening of the students’ critical or theoretical knowledge in any of the disciplines linked to the program: AAH 460, ANT 110, ANT 282, ECO 354, ECO 376, EGL 254, HST 311, HST 332, PSC 239, or SOC 265.

Requirements for Honors: To be eligible for honors, a student must (1) attain a minimum index of 3.50 in courses counted toward the major; (2) a cumulative index of 3.30 or better; (3) a grade of “A minus” or higher on the senior project; (4) distinctive performance in an oral exam based on the senior project.

Requirements for the Minor: Six courses including three in Latin American history, politics, society and culture; three in French, Portuguese* or Spanish above the introductory level. No course can be counted twice.

* The Portuguese option for the minor in LACS is only available to students participating in the full-length term abroad program in Brazil.

Five-Year Cooperative Degree Program with Georgetown: Union has entered into an agreement with Georgetown University that enables qualified undergraduate students majoring in Latin American & Caribbean Studies to receive a master’s degree from Georgetown’s Latin American Studies program in one academic year and a summer, rather than in the normal three or four semesters. Students interested in this option should contact Prof. Mosquera, Director of LACS, for more information.

Course Registration Guidelines: Students seeking to double major in LACS and another subject that also requires a two-term thesis must present a proposal and obtain written permission from LACS director and the other department chair.

Courses in Latin American and Caribbean Studies

Art History

AAH-263 Latin American & Caribbean Art: A Cultural Survey of the Modern Era
AAH-460 Visual Culture, Race & Gender

Anthropology

ANT 183 Peoples and Cultures of Latin America
ANT 260 Tourists and Tourism

Biology

BIO-257 Tropical Biology

History

HST-135 Latinos(as) in U.S. History
HST-171 Europe and the Americas in the Era of Columbus
HST-172 Reform and Revolution in Latin America and the Caribbean
HST-270 History of Latin American Popular Culture
HST-271 History of Mexico
HST-272 History of Brazil
HST-273 The History of the Caribbean and Central America
HST-274 Social Movements in Latin America
HST-370 Special Topics in Latin American History
HST-372 History of Latin American Women
HST-471 Seminar in Latin American History

Modern Languages and Literatures:

French

FRN-304 Studies in the French Caribbean
FRN-305T Mini-term in Martinique
FRN-307 Negritude Movement: Point of Departure in Black African and Afro-Caribbean Literatures in French

Spanish

SPN-209T Mexican Civilization
SPN-325(T) Staging Conflict: Studies in One-Act Mexican Theater
SPN-326 Women Weaving Histories: Short Narratives by Latin American Female Writers
SPN-327 The Nation at Home: Family and Nationhood in Spanish American Theater
SPN-328 Inquiring Identities in Latin America
SPN-329 The Paradox of Tradition in Spanish American Poetry
SPN-330T Mexican Women’s Contemporary Short Fiction

SPN-332 Introduction to Afro-Hispanic Literatures and Cultures
 SPN-350 Visions and Voices: Chicana Icons from Myth to Matter
 SPN-375 Smoke and Mirrors: Dreams, Mirages and Delusions in Peninsular and Latin American Fiction
 SPN-376 Down to Earth: Cross-Cultural Explorations of the Hispanic World
 SPN-378 Short Fictions From Naturalism to Neoliberalism
 SPN-380 What's Love Got to Do with It? Gender and Nation in Hispanic Literatures
 SPN-400 Crossing Borders: A Study in Mexican and Chicano Literatures
 SPN-401 Bodies and Power in Latin American Narrative
 SPN-402 Dressing Up the Canon: Cross-dressing in Hispanic Literature and Film
 SPN-416 "Testimonio" and Resistance Writings in Central America as Literary Discourse
 SPN-417 Death and Revenge in the Southern Cone
 SPN-418 Of Cock Fights and Crowded Elevators: Readings in Contemporary Mexican Theater
 SPN-431 Colonial Latin America 1492-1800
 SPN-432 Islands Adrift: Race, Politics, and Diasporas in the Hispanic Caribbean
 SPN-433 Latin American Colonial Crossroads at the Movies

Modern Languages in Translation

MLT-280. The Nobel Laureates of Latin America
 MLT-281 Screening Identities in Latin American Cinema
 MLT-282 North/South Relations and Diasporic Politics
 MLT-283 Beyond the Sunny Paradise: Literature and Politics in the Caribbean
 MLT-284 Popular Religion and Politics in Latin America
 MLT-285 From Virgin to Sex Goddess: Re-Envisioning the Chicana Experience Through Art and Literature
 MLT-286T Gender and Identity in Contemporary Brazilian Cinema
 MLT-287 Cinema Verité in Latin America
 MLT-288 Torture & Dictatorship in Latin American Literature
 MLT-289 Literature of the Mexican-American Border
 MLT-293 Made in New York: Puerto Rican and Dominican Transnational Identity in American Literature and Cinema

Music

AMU-133 Music of Latin America

Political Science

PSC-242 Challenges to Democratization in Latin America
 PSC-335 Police, Security and Biopower

Terms Abroad & Mini-Terms (2010-11)

FRN-305T. Mini-term in Martinique
 TAB 321T. Mini-term in Buenos Aires, Argentina, Winter Break (With approval of Director, this course can count toward the WGS major)

LAS-490-491. Independent Study (Fall, Winter, Spring).

LAS-497. Senior Project (Fall, Winter, Spring).

LAS-498-499. Senior Thesis (Fall, Winter, Spring).



Law and Public Policy

Advisor: Assistant Professor B. Hays (Political Science)

Union and Albany Law School have established a six-year program that leads to the B.A. and J.D. degrees. Ten freshmen each year are admitted jointly by the two institutions and major in law and public policy at Union. If at the end of three years a student has maintained a cumulative average of at least 3.00 and has comported themselves in a manner consistent with the standards of the legal profession, the student will automatically be accepted into Albany Law School. After successful completion of the first year at Albany Law School, Union confers a B.A. degree for the formal Law and Public Policy major. Because of the timing of events, the Union College degree may not be awarded until the year following the completion of the first year of law school.

By choosing appropriately from the allowable courses listed below, Law and Public Policy majors can emphasize either the political science or economics aspects of public policy.

Requirements for the Major: Fourteen courses from among the following:

Political Science 111, 112, 113, 238, 260, 261, 263, 264, 267, 270, 272, 273, 281, 282, 287, 333, 369, 371, 385;

Economics 101, 228, 234, 242, 243, 339, 352, 354, 355, 378, 391.

In addition, Political Science 220, 222 or 223 and a fundamental course in computer science are suggested.

Alternatively, the pursuit for three years of any major will qualify for this program, subject to the approval of the College, and provided that it is of a kind which develops analytical and writing skills.

Importantly, admission into Albany Law School is conditional. Prior to admission to law school students must take the Law School Admissions Test (LSAT) and receive a score that is no lower than the median LSAT score for students enrolled at Albany Law School in the prior year. Also, students must have a cumulative GPA 3.3 or better in the three years of study at Union College. Failure to satisfy the LSAT or GPA requirement means students will not be eligible for the program and will have to complete a fourth year to receive a B.A. from Union College.

Leadership in Medicine/ Health Care Management Program

Director: Professor C. Weisse (Psychology)

Staff: Rhona Beaton (Asst. Director), Jennifer Clifford (Program Assistant), Ann Nolte (Assistant Director, Union Graduate College Center for Bioethics)

The Leadership in Medicine/Health Systems Program is offered jointly by Union College, Union Graduate College, and Albany Medical College. The goal of the Leadership in Medicine/Health Systems Program is to prepare physicians who will be leaders capable of addressing the managerial, ethical, multicultural, and international challenges facing American medicine in the 21st century. Students complete an enriched curriculum of coursework to attain the B.S., M.S. or M.B.A., and M.D. degrees in eight calendar years, bypassing the requirement of the Medical College Admission Test. Admission into the program leads automatically to entrance into Albany Medical College after four calendar years of study at Union and Union Graduate College, provided that the student maintains satisfactory standards of academic achievement as defined below and that the Union College-Union Graduate College-Albany Medical College Policy and Promotions Committee determines that the student has demonstrated sufficient personal and professional development for the profession of medicine.

The curriculum at Union stresses thorough preparation in the sciences, humanities, and social sciences. When combined with coursework in health-care management at Union Graduate College, students are provided with a breadth of knowledge and understanding not typically found in premedical programs. Each year, about 20 highly-qualified secondary school seniors are enrolled in the program.

Program Requirements: Over four full 3-term academic years and two summers (possibly three for students who opt for the M.B.A.), students take 31 courses that count towards a B.S. degree at Union College (roughly half in the sciences and half in the social sciences and humanities) and another 12 graduate courses at Union Graduate College to earn an M.S. degree or 20 graduate courses to earn the M.B.A. degree. (Note: 11 of the courses count towards both degrees.)

Important curricular requirements include:

- an interdepartmental major, one part of which is either biology or chemistry and the other part of which is in the social sciences or humanities;
- a special program in bioethics
- an international experience
- the program in health care management through the UGC Center for Bioethics and Clinical Leadership (either the M.S. or the M.B.A.).

All students enrolled in the program will take 16 Union College Math/Science courses and 15 Social Science and Humanities courses (LIM 544 and LIM 545 count toward the 15 Social Science and Humanities courses). All students will complete the First-Year Preceptorial (FPR 100) but are not required to complete the full general education curriculum, the sophomore research seminar, or Writing Across the Curriculum (WAC) requirements unless they leave the program. Students take the following courses toward the M.S. and M.B.A. degree:

M.S.: LIM 500, 503, 544, 545, 553, 571, MBA 510, 512, PHL-574, HCM: 617, 674, 684

MBA students will take the following additional courses: HCM 526, 1/2 course in 645 & 646, 680, MBA 506, 520, 531, an elective (instead of LIM 571), and an MBA internship (plus two courses at AMC in their first year.)

For course descriptions, consult the graduate course catalog of Union Graduate College.

Students who enter the program with advanced placement credit have greater flexibility of course selection, but AP credits do not reduce the number of required courses or allow a student to take a term off. When advanced placement credit is given for a course specifically designated in the curriculum, students can take elective courses. Union will grant advanced placement and course credit in accordance with its normal procedures.

Students must maintain minimum cumulative grade point averages of 3.50 both in overall course work (including graduate courses) and in their mathematics and science courses. Students falling below the required overall and mathematics/science grade point averages at the end of any term may be put on formal probation or asked to leave the program by the Policy and Promotions Committee, which oversees the program and reviews student records regularly. A grade of "D" or "F" in any course can lead to dismissal from the program. Required course work may not be taken on a pass/fail basis and must normally be taken at the home institution. Grades of "I" (Incomplete) or "W" (withdrawal) will not be acceptable without justification involving illness or extenuating circumstances.

As long as a student is enrolled in the Leadership in Medicine program, the Health Professions Advisory Committee at Union College will not support his or her application to other medical schools. Students may transfer into the regular four-year undergraduate program at any time during the premedical portion of the combined degree programs. Once withdrawn from the eight-year combined degree program, students may request the support of the Health Professions Advisory Committee if they choose to apply to medical school in the traditional manner.

Managerial Economics

Director: Professor J. Kenney

Faculty: Professors H. Fried, J. Kenney, J. Klein (Dean of Interdisciplinary Studies & Special Programs), B. Lewis, Shelton S. Schmidt, Stephen J. Schmidt, S. Yaisawarnng; Associate Professors T. Dvorak, E. Motahar, M. Sener, Y. Song; Assistant Professor L. Davis; Lecturer E. Foster

The Managerial Economics major focuses on the tools and techniques of financial and quantitative analysis essential to the modern manager. In addition to the standard intermediate economic theory courses, students must complete courses in managerial economics, financial analysis, accounting, computer science, mathematics, and an internship with a local organization.

Requirements for the Major in Managerial Economics: Economics 101, 241, 242, 243, 334, 390, 445, and 498-499; Computer Science 103 (or other versions of Introduction to Computer Science with advisor's consent); Accounting 100; Mathematics 101, 110, or 113; and two other courses in economics. Majors should consider taking additional courses in computer science, especially CSC-150. Majors are also encouraged to participate in a term abroad. Majors and interdisciplinary majors should normally complete the core sequence of 241, 242, and 243 by the beginning of the junior year. Majors who have reached the junior year may not enroll in courses numbered below 240.

Requirements for Honors: See Economics honors requirements.

Course Registration Guidelines: See guidelines under Economics.

Master of Arts in Teaching (MAT)

Dean: Patrick Allen, Union Graduate College

Students at Union College can become certified to teach at the secondary school level through a five-year, combined degree graduate program in cooperation with The School of Education of Union Graduate College. Students can be certified to teach grades 7-12 in the following academic areas: English, languages (French, German, Greek, Latin, and Spanish), mathematics, science (biology, chemistry, earth science, physics, and general science), and social studies.

Admission to the MAT Program

Students should declare their interest in applying to this program by completing an application to the degree program listed below.

1. M.A.T. Combined Degree Program graduate degree option: This option is for Union College undergraduates who have an overall GPA of 3.25 or above who wish to obtain Initial NYS certification, grades 7-12 in English, foreign language, mathematics, science (biology, chemistry, earth science [geology], or physics), or social studies. These students are permitted to have two upper division undergraduate courses count as part of the sixteen course M.A.T. program as well as for their bachelor's degree. Students should complete a graduate application form obtained from either the Union Graduate College Admission's office or the School of Education office at UGC, 80 Nott Terrace, Schenectady, NY 12308. Applicants should complete their application no later than the end of the fall term of their senior year.

2. M.A.T. Five Year Certification: This option is for Union College undergraduates who have a GPA below 3.25. Students can apply to the M.A.T. program and, if accepted, complete the work for Initial NYS certification, grades 7-12 in English, foreign language, mathematics, science, or social studies.
3. Undergraduate Certification: Given certification requirements that became effective on Feb. 2, 2004, the School of Education strongly recommends that any Union undergraduate seek certification through either the combined degree program listed above or by pursuing a Master's degree in the M.A.T. program at Union Graduate College subsequent to completing their undergraduate degree at Union College. In our professional estimation, since all New York State teachers must attain a master's degree within five years of receiving initial certification, there is little time for most teachers working full-time to also complete a master's degree.

Courses to be Completed During the Undergraduate Program:

Students complete the regular requirements for their college academic major in addition to courses related to education. Specific courses that are required for each major are listed within the departmental listings of biology, chemistry, classics, economics, English, geology, history, mathematics, modern languages, physics, political science, and sociology.

Required prerequisite courses related to education include:

- Educational Psychology (PSY-246) (In order to take PSY-246, Union undergraduates must take the pre-requisite PSY-100);
- Structured Field Experiences (EDS-500A and EDS-500B, each a non-credit course) before graduating from the undergraduate college. Students spend five consecutive school days on each of two site visits observing classes and meeting with secondary school teachers in the discipline for which they seek certification. At least one experience must be in a junior high or middle school and at least one must be a high school experience. One visit must be either in an urban or rural high-needs district. Visitations will be arranged during term breaks in the student's sophomore and junior years, but must be completed prior to enrollment in the summer term's Psychology of Teaching and Curriculum and Methods courses. EDS-500C is completed during the first two weeks of the student's internship in the fall term. Students must pick up packets of information and arrangement forms at the School of Education Office prior to arrangement of these experiences.
- At least three terms of one foreign language or its equivalent is required of all teachers seeking NYS certification.

Grades 7-12 Certification

To be considered for a recommendation for certification, students must submit a final portfolio as part of the M.A.T. program that describes how they have met each of the certification criteria listed below.

- a concentration of coursework in the area appropriate to their teaching certificate (specific requirements for each major are listed under each academic department);
- at least one year of college-level study in a language other than English or its equivalent (usually 3 levels of secondary foreign language or more with a B average or above);
- an internship at both the middle level (7-8) and high school grades (9-12). (*Not to be confused with structured field experiences*).
- an edited videotape illustrating teaching effectiveness.
- a two-hour SAVE workshop on preventing school violence;
- an official fingerprint application for clearance to work in a school.

Students must also provide evidence that they can:

- create a productive learning environment;
- demonstrate mastery of subject matter and the ability to communicate it effectively to students;
- plan and execute effective instructional activities;
- teach effectively using multiple methods of instruction;
- monitor and design effective formal and informal assessments of student learning;
- manage student behavior effectively;
- establish a classroom culture of mutual respect;
- recognize students as individuals;
- encourage discussion as a learning tool;
- address the special developmental and educational needs of middle level and high school students;
- work effectively with students from minority cultures;
- work effectively with students from homes where English is not spoken;
- work effectively with students with handicapping conditions;
- work effectively with gifted and talented students;
- work cooperatively and effectively with other faculty and staff members;
- work effectively with parents and community members to enhance the education of students;
- communicate clearly and accurately with students, administrators, parents, and the public;
- integrate technology in the service of effective learning;
- strive continuously for improvement by seeking advice from mentors, supervisors, and faculty while implementing that advice effectively.

Five-Year Combined Degree Program

Students may choose to remain at Union for an additional year and complete a Master of Arts in Teaching (M.A.T.) degree from The School of Education of Union Graduate College. The cost of the fifth year is significantly lower than the cost of each year in the undergraduate school.

Undergraduate Component: Students complete the traditional undergraduate major, Educational Psychology (Psychology 246), three terms of a foreign language, and the structured field experiences (EDS 500A and EDS 500B).

Graduate Component: In the summer between their senior and graduate year, students will complete Psychology of Teaching (EDS 540), Curriculum and Methods (EDS 511 - 516), a Micro teaching Lab (EDS 540L), and EDS 541 Literacy for Secondary Teachers. In the fall, term students will complete the Special Needs Seminar (550A) and begin a year-long teaching internship (551-553). In the winter and spring terms, students will complete the teaching internship, and the Seminars in Instruction and Evaluation (EDS 550B and 550C), and a second course in literacy (EDS 544). Those who complete the two-term Master's Research and Thesis also complete one additional course in their core area. Those who undertake a one-term M.A.T. Project (EDS 580) must complete two additional courses in their core area. (See the Graduate Studies catalogue of Union Graduate College for further description of the Master of Arts in Teaching M.A.T.). Students must also take a minimum of three graduate courses in their area of certification.

Criteria for Admission to the Fifth Year: To be eligible for graduate study, students must meet the criteria outlined for the M.A.T. degree. To be eligible for an internship, students must obtain favorable recommendations from:

- school personnel who have worked with them in prerequisite field experiences,
- UGC faculty teaching the summer professional coursework, and
- college faculty in the student's major area of concentration. Entrance into the internship portion of the program is contingent upon completion of Psychology of Teaching, Literacy for the Secondary Teacher, and the appropriate Curriculum and Methods course with a minimum grade of B. Students should apply for the fifth-year program no later than the winter of their senior year.

Applications and additional information about the MAT program may be obtained from the School of Education office at UGC, 80 Nott Terrace, Schenectady, NY 12308

New York State Certification

Program and faculty advisors will meet with students throughout their program to plan how to best meet these criteria through a variety of courses and experiences. Upon successful completion of the M.A.T. program and verification of meeting the criteria for certification, students will be recommended by Union Graduate College for New York State certification (many other states have reciprocity agreements with New York).

Each applicant for an initial teaching certificate must also achieve a satisfactory level of performance on the:

LAST (Liberal Arts and Sciences), the Assessment of Teaching Skills-Written (ATS-W), and the Content Specialty Test (CST);
satisfactorily complete a supervised internship.

Applicants for a professional certificate are required to satisfy all requirements for initial certification and also:

1. Have a master's degree functionally related to the field of teaching;
2. Have two years of full-time teaching experience.

UGC's M.A.T. degree provides graduates with the master's degree functionally related to their field of teaching and qualifies them for Professional Certification once they have completed two years of successful teaching (which does NOT have to be in New York State or in a public school).

Master of Business Administration and Master of Business Administration in Health Care Management

Dean: Eric Lewis, Union Graduate College

Union Graduate College offers accelerated M.B.A. programs for Union College students. Union College undergraduates are able to take selected graduate courses through the School of Management at Union Graduate College. These courses count for credit toward the MBA programs and count toward the bachelor's degree. Students are expected to complete all of the requirements for an undergraduate major at Union College. All Union College academic majors provide a suitable foundation for the Union Graduate College M.B.A. program. The M.B.A. degree is typically awarded at the end of the fifth year of study. Students may earn an M.B.A. or an M.B.A. in Health Care Management.

Requirements: Students should consult their advisor during their sophomore year and apply for graduate admission to the Union Graduate College in their sophomore, junior, or the first term of their senior year. Generally, an undergraduate grade point average of 3.0 is required for the application to be considered. The GMAT is required of all School of Management combined degree program applicants with a grade point average of less than 3.4. Scores must be sent to the School of Management before applicants can be considered for admission. The student must submit three letters of recommendation and must present a written statement explaining her/his motivation for accelerated education and interest in the field. Mathematics 110 and 112 are recommended during the freshman, sophomore, or junior years. Applicants are required to have a personal interview with the combined program advisor as part of the application process.

Students are required to complete 20 graduate courses, three of which will count toward the bachelor's degree. Undergraduate students who are considering the accelerated program should be aware that up to three School of Management courses can double-count for both graduate and undergraduate degrees. Union Graduate College will waive the MBA Calculus and Statistics requirements for students who achieve a B- or better in these courses at Union College. Students who have completed at least

two courses in Economics and achieved a B- or better can waive an MBA Economics course (See the Graduate College Waiver Policy, available through Erin Wheeler, Union Graduate College, wheelere@uniongraduatecollege.edu). Accelerated students may commence taking courses in their junior year; however, the bulk of graduate course work is typically completed in the senior and fifth years. Additional program and contact information for the School of Management at Union Graduate College can be found on the Graduate College website at uniongraduatecollege.edu.

The following course, taught by School of Management faculty, is a Union College course taught regularly for all undergraduates. This course does not substitute for MBA-510, a graduate level accounting course.

ACC-100. Survey of Accounting. A survey of selected topics within various areas of accounting, such as managerial accounting, financial accounting, and tax accounting. Emphasis will be on concepts and not on record-keeping.

School of Management Courses Open to Undergraduates

Undergraduates who are not in the accelerated M.B.A. program are allowed to take only two graduate courses. The courses listed below are open to undergraduates; however Union Graduate College maintains the right to limit the number of undergraduate students in each class to no more than five students. For a complete description of these and other School of Management courses, see the catalog of the Union Graduate College.

MBA-500. Managing Ethically in a Global Environment

MBA-510. Financial Accounting

MBA-512. Financial Analysis and Decision Making

MBA-551. Managing People and Teams in Organizations

HCM-500. Introduction to Health Systems

Master of Science in Electrical Engineering, and Master of Science in Mechanical Engineering

Dean: Robert Kozik, Union Graduate College

Union College undergraduate students with a strong academic record may apply for a combined degree program with the Masters in Electrical Engineering, and Masters in Mechanical Engineering. A cumulative average of 3.0 in undergraduate course work is expected (cumulative average less than 3.0 should be discussed with the Dean, School of Engineering and Computer Science). Acceptance into the program enables students to apply up to three graduate college courses for credit (depending on the major) in fulfillment of both undergraduate Union College and Union Graduate College graduate degree requirements. All program applicants are encouraged to apply during their sophomore or junior year but no later than the end of the fall term of their senior year at Union College. Students are required to notify both Registrars that they are in a joint program. All Union College students are encouraged to contact the Union Graduate College School of Engineering and Computer Science, Dean Robert Kozik, for information regarding these programs and additional opportunities as noted below:

Union Graduate College School of Engineering and Computer Science courses are available as Union College electives subject to Union College student advisor and Union Graduate College Dean, School of Engineering and Computer Science approval.

Union Graduate College School of Engineering and Computer Science is currently developing a Master of Science in Emerging Energy Systems which will be included in these joint programs.

Union College undergraduate students interested in graduate school should discuss Union Graduate College opportunities regarding these programs, the Master of Science in Engineering and Management Systems, and scholarship opportunities for Union College Graduates.

Mathematics

Chair: Professor A. Taylor

Faculty: Professors: J. Barbanel, B. Johnson, K. Lesh, S. Niefeld, K. Rosenthal, K. Zimmermann, W. Zwicker; Associate Professors: D. Cervone, C. Tønnesen-Friedman; Senior Lecturer: P. Friedman; Visiting Assistant Professors: C. Hardin, H. Noussi, K. Plofker, J. Wang

Staff: L. Jorgensen (Administrative Assistant)

Requirements for the Major: Twelve courses in the mathematics department including Math 113 (or both 110 and 112), 115, 117, 199, 332, 336, 340, 497 or 498–99; at least one course chosen from 219, 221, 224, 234, and 235; and Physics 120. It is also recommended that two courses with substantial mathematical content be taken outside the department and that majors considering graduate work take one of French, German, or Russian as a foreign language. Advanced placement credit may be used to satisfy at most two of the twelve required math courses.

Mathematics Requirements for any Interdepartmental Major having Mathematics as a Component: Eight mathematics courses, including Math 113 (or both 110 and 112), 115, 199, and either two courses from List 1 or one from List 1 and one from List 2 below. Advanced placement credit may be used to satisfy at most two of the eight required courses.

- List 1: Math 325, 330, 332, 336, 340, 432, 436, 448, 480.
- List 2: Math 127, 219, 221, 224, 234, 235

Requirements for Honors: Candidates for honors in mathematics must fulfill the college-wide criteria for honors. In addition, they must have a grade point average of at least 3.5 in mathematics courses numbered 199 and above, complete a two-term honors thesis with a grade of A or A-, and take at least two of the following courses: 330, 432, 436, 448, 480.

Requirements for a Minor in Mathematics: Six courses in the department including (1) calculus through Math 115; (2) Math 199; (3) at least one course having Math 199 as a prerequisite; (4) at least one additional course chosen from Math 117, 119, 127, 128, 130, 138, or any 200, 300, or 400-level course. Advanced placement credit may be used to satisfy at most one of the six required courses.

Requirements for Students Seeking Secondary School Certification as Part of a Four-Year Bachelor's Program: PSY-246, EDS-500A, EDS-500B, and two terms of a foreign language. Mathematics majors must take 12 mathematics department courses including Math 113 (or both 110 and 112), 115, 117, 128, 199, 224, 332, 336, 340, and 497 or 498–99. They must also take MBA 506, Computer Science 105, and Physics 120.

The College recommends that any undergraduate seeking New York State secondary teacher certification should consider attending the Master of Arts in Teaching program in their fifth year. Mathematics majors who wish to apply to a master's program in teaching are advised to incorporate Math 128, 224, 332, 336 and Computer Science into their undergraduate program.

General Education Courses

Calculus continues to be the most common way for both science and non-science majors to meet the Quantitative and Mathematical Reasoning requirement at Union. The following courses (051 through 061) represent alternatives that also fulfill that requirement. These courses normally are not open to students who have passed calculus courses. Note that there also are courses in computer science and philosophy that can be used to fulfill the QMR requirement.

MTH-051. Cryptology: The Mathematics of Secrecy (Not offered 2010–11). The course will focus on the mathematical aspects of public-key cryptography, the modern science of creating secret ciphers (codes), which is largely based on number theory. Additional topics will be taken from cryptanalysis (the science of breaking secret ciphers) and from contributions that mathematics can make to data security and privacy.

MTH-053. Visualizing the Fourth Dimension (Fall). An investigation of the idea of higher dimensions and some of the ways of understanding them. The classic novel, *Flatland*, is the starting point; discussions, writing, projects and interactive computer graphics are used to extrapolate ideas from two and three dimensions to their analogues in four dimensions and higher.

MTH-054. Number Theory: From Clock Arithmetic to Unbreakable Codes (Fall, Spring). An introduction to the beauty and use of numbers. Topics chosen from divisibility tests, prime numbers, perfect numbers, unbreakable codes, Fermat's theorem, the golden section, calendars, magic squares, quadratic reciprocity, and others.

MTH-055. Ancient Greek Mathematics (Not offered 2010–11). Ancient Greek mathematicians invented the notion of abstraction (in mathematics and other fields), absolute precision, and proof. The approach to mathematics that we take today can be traced back to these Greek mathematicians. After examining some pre-Greek mathematical traditions, we study Greek mathematics, beginning with Thales and Pythagoras. Topics include the intellectual crisis caused by the discovery that not all magnitudes are commensurable; Plato and his academy; Euclid and his Elements; the three special construction problems (trisecting an angle, squaring a circle, doubling a cube); and the greatest of the Greek mathematicians, Archimedes.

MTH-057. Game Theory and its Applications in the Humanities and Social Sciences (Not offered 2010–11). A self-contained introduction to the mathematical theory of conflict. Examples and applications include parlor games, auctions, games from the Bible and games commenting on the existence of superior beings, game-theoretic analyses in literature, philosophical questions and paradoxes arising from game theory, and game-theoretic models of international conflict. Not open to students who have passed Math 199.

MTH-058. Applications of Mathematics to Economics I (Not offered 2010–11). Linear and exponential functions, matrix algebra and linear programming with applications to the social sciences. Some sections include the use of computer spread-sheets for computations and graphical analysis. Not open to students who have passed a college calculus course.

MTH-059. Applications of Mathematics to Economics II (Not offered 2010–11). Differential and integral calculus with applications in the social sciences. Students who wish to continue the calculus after Math 059 should enroll in Math 112. Prerequisite: Math 058. Not open to students who have passed a college calculus course.

MTH-060. Mathematics and Politics (Winter) (Same as Political Science 123). A mathematical treatment (not involving calculus or statistics) of escalation, political power, social choice, and international conflict. No previous study of political science is necessary, but PSC 111 or 112 would be relevant.

Courses

MTH-100, 101, 102. Calculus with Precalculus (100 – Fall; 101 – Winter; 102 – Spring). This sequence covers the same material as Math 110 and Math 112, but it is spread out over three terms. There is an additional emphasis placed on review of fundamental precalculus concepts. Math 100 alone does not fulfill the Quantitative and Mathematical Reasoning requirement.

MTH-104. Introduction to Statistics: Analysis of Data (Not offered 2010–11). An introductory course on the concepts and application of probability and the analysis of sampling data. Topics include an introduction to numerical and graphical descriptions of data, probability, random variables, linear regression, sampling theory, and inference. Applicable for Environmental Studies, not open to students who received credit for MTH-052 or PSY-200.

MTH-110. Calculus I: Differential Calculus (Fall, Winter). Calculus of one real variable. Differentiation of algebraic functions, and applications. Not intended for students who have passed a calculus course or MTH-059.

MTH-112. Calculus II: Integral Calculus (Winter, Spring). Integral calculus of functions of a single variable, the fundamental theorem, formal integration and applications, calculus of logarithmic, exponential, and inverse trigonometric functions. Prerequisite: MTH-110.

MTH-113. AP Calculus (Fall, Winter). Self-contained treatment of the main topics in MTH-110 and MTH-112. Intended for freshmen who have been introduced to (but have not yet mastered) the basics of differential and integral calculus.

MTH-115. Calculus III: Differential Vector Calculus and Matrix Theory (Fall, Winter, Spring). Geometry of 3-space, differential calculus of functions of several variables, linear systems, matrices. Prerequisite: MTH-102, MTH-112, or MTH-113.

MTH-117. Calculus IV: Integral Vector Calculus (Fall, Winter, Spring). Double and triple integrals, line integrals and Green's theorem, divergence and curl, divergence theorem and Stokes' theorem. Prerequisite: MTH-115.

MTH-127. Numerical Methods (Not offered 2010–11). Newton's method, numerical differentiation and integration, solution of ordinary differential equations, error estimates. Prerequisites: Math 115 and fluency in some mathematical programming language.

MTH-128. Probability (Spring). Probability theory and applications. Prerequisite: MTH-102, MTH-112, or MTH-113.

MTH-130. Ordinary Differential Equations (Winter, Spring). Linear differential equations and power series. Not open to students who have passed MTH-234. Prerequisite: MTH-115.

MTH-138. Methods of Applied Mathematics I (Winter) An introduction to the mathematical techniques and analysis of ordinary differential equations, partial differential equations, and complex variables. The emphasis is on the equations arising from physical, biological, and economic phenomena. Prerequisite: MTH-130 or MTH-234.

MTH-180. Linear Algebra and Matrix Theory (Not offered 2010–11). Vector spaces, matrices, and solutions of linear systems of equations, linear transformations, eigenvectors, and eigenvalues. Not open to students who have passed MTH-340. Prerequisite: MTH-115 or equivalent.

MTH-197. Discrete Mathematics for Computer Science (Winter). An introduction to fundamental concepts and methods of proof in mathematics and computer science. Topics include elementary logic, functions, relations, sets, and basic combinatorics.

MTH-199. Introduction to Logic and Set Theory (Fall, Winter, Spring). Designed to enable the student to develop the ability to understand and communicate mathematical arguments. Logic and set theory form the core. Selected topics are covered at the discretion of the instructor. For those considering any form of mathematics major, the department recommends that Math 199 be taken by fall term of the sophomore year, if possible. Prerequisite: MTH-102, MTH-112, or MTH-113.

MTH-219. Topics in Discrete Mathematics (Fall). Topics may include graph theory, partially ordered sets, algebraic coding theory, computational complexity, number theory. Prerequisite: MTH-199 or permission of the instructor.

MTH-221. Mathematical Cryptology (Not offered 2010–11). An in-depth look at the mathematical theory underlying modern methods to accomplish the secret transmission of messages, as well as other tasks related to data security, privacy, and authentication. MTH-221 normally is closed to students who have passed MTH-235 or MTH-051. Prerequisite: MTH-199 or permission of the instructor.

MTH-224. Geometry (Winter). Topics in Projective, Affine, Euclidean, and/or non-Euclidean geometries. Prerequisite: MTH-199 or permission of the instructor.

MTH-234. Differential Equations (Spring). Topics include systems of ordinary differential equation, series solutions, asymptotic solutions, integral equations. Not open to students who have passed MTH-130. Prerequisite: MTH-115 and MTH-199, or permission of the instructor.

MTH-235. Number Theory (Fall). Properties of natural numbers including divisibility, prime numbers, congruences, special number theoretic functions and quadratic reciprocity. Math 235 normally is closed to students who have passed MTH-221. Prerequisite: MTH-199 or permission of the instructor.

MTH-238. Methods of Applied Mathematics II (Not offered 2010–11). Provides a more rigorous development of the mathematical techniques and analysis of ordinary differential equations, partial differential equations, and calculus of variations. The emphasis is on the equations arising from physical, biological, and economic phenomena. Prerequisite: MTH-138.

MTH-325. Knot Theory (Fall). An introduction to the mathematical study of knots, including colorability, chirality, genus, and the Jones polynomial. Course will also explore the relationship between mathematical knots and structures in molecular chemistry and biology, and physics. Not open to students who have passed MTH-225. Prerequisite: MTH-221, MTH-235, MTH-332, or MTH-340, or permission of the instructor.

MTH-330. Complex Analysis (Not offered 2010–11). An introduction to analytic functions of a complex variable. Prerequisite: One 200-level course having MTH-199 as a prerequisite or permission of the instructor.

MTH-332. Abstract Algebra I (Spring). Algebraic structures including groups, rings and fields. Prerequisite: One 200-level course having MTH-199 as a prerequisite or permission of the instructor.

MTH-336. Real Variable Theory (Fall). A study of point sets on the real line and of real functions defined on these sets. Prerequisite: MTH-332 or MTH-340 or permission of the instructor.

MTH-340. Linear Algebra (Winter). Vector spaces, linear transformations, inner product and dual spaces, eigenvalues and eigenvectors, special topics. Prerequisite: MTH-115 and one 200-level course having MTH-199 as a prerequisite, or permission of the instructor.

MTH-432. Abstract Algebra II (Not offered 2010–11). Continuation of MTH-332. Certain topics will be selected for more intensive study. Prerequisite: MTH-332.

MTH-436. Topology (Fall). Topological spaces, connectedness, compactness, continuous mappings and homeomorphisms. Prerequisite: One 300-level course or permission of the instructor.

MTH-448. Differential Geometry (Winter). A study of curves and surfaces in 3-space. Topics include arc length, curvature, torsion, the Frenet trihedron, the first and second fundamental forms, normal curvature, and Gaussian curvature. Prerequisite: MTH-117 and MTH-340, or permission of the instructor.

MTH-480. Foundations of Mathematics (Not offered 2010–11). (Same as Philosophy 480). Propositional and predicate logic, Gödel completeness theorem, introduction to recursion theory. Prerequisite: MTH-332 or permission of the instructor.

Independent Studies and Thesis

MTH-295H-96H. Two-Term Math Honors Independent Project 1 & 2

MTH-490-96. Independent Study in Mathematics (Fall, Winter, Spring). Independent study in a particular area of mathematics under the supervision of a faculty member.

MTH-497. One-Term Senior Thesis (Fall, Winter)

MTH-498-99. Two-Term Senior Thesis (Fall-Winter)

Mechanical Engineering

Chair: Associate Professor W. Keat

Faculty: Professors A. Anderson, R. Wilk; Associate Professors B. Bruno, R. Bucinell, A. Rapoff, F. Wicks; Assistant Professors R. Cortez, D. Hodgson, A. Ramasubramanian, Visiting Lecturer A. Tchako

Staff: S. Gorski (Laboratory Assistant), R. Becker (Administrative Assistant)

Mission Statement for Mechanical Engineering at Union College: The Mechanical Engineering Department at Union College is committed to thoroughly preparing students in the fundamentals of mechanical engineering and instilling a passion for life-long learning by building on the values of a liberal arts education. For further information, see www.union.edu/academic_depts/mechanical_eng/department/mission.php

Requirements for the Major: Freshman, sophomore, junior, and senior requirements are given for the Class of 2014 below. Students should consult their academic advisor about scheduling courses.

Freshman Year

ESC100 (Exploring Engineering), MER101 (Engineering Graphics), MTH113 (AP Calculus)*, MTH115 (Calculus III), MTH117 (Calculus IV), PHY120, PHY121, CHM101, First Year Preceptorial, Elective**

Sophomore Year

MER201 (Particle Mechanics), MER212⁺ (Rigid Body Mechanics), MER213 (Material Science), MER214⁺(Strength of Materials), MER231 (Thermodynamics I), MER232⁺ (Thermodynamics II), MER301 (Engineering Reliability), MTH130 (Differential Equations), Sophomore Research Seminar, Elective**

Junior Year***

CSC109 (Computer Programming for Engineers), ECE222 (Circuits), MER311⁺ (Advanced Mechanics), MER312⁺ (Dynamics and Kinematics), MER322⁺ (Dynamics of Physical Systems), MER331⁺ (Fluid Mechanics), MER333⁺ (Heat Transfer), Elective**, Elective**, Elective**

Senior Year

MER419⁺ (Design of Mechanical Systems), MER439⁺ (Design of Thermal/Fluid Systems), MER497 (Senior Project I), MER498 (Senior Project II), Elective**, Elective**, Elective**, Elective**, Elective**, Elective**

⁺ A minimum grade of C- must be earned in the prerequisite mechanical engineering course(s) in order for a student to enroll in this course.

^{*} An alternate mathematics sequence in the first year is possible depending on the math preparation of the student. Consult with your academic advisor.

^{**} The 11 electives must be satisfied as follows: General Education Curriculum (1 Social Science, 2 Humanities, 2 Linguistic and Cultural Competency), 1 Math/Science Elective (this course must count towards its respective major to qualify), 3 Free Electives, and 2 Engineering Depth Electives defined as any course in mechanical engineering, electrical engineering, computer engineering or bioengineering (or any offered by the ME division of UGC) that has at least one 200 level engineering course pre-requisite from any of the aforementioned engineering programs. At least one of the engineering depth electives must be an ME course. Note that mechanical engineers automatically satisfy the cluster requirement of the General Education Curriculum by way of the design cluster.

^{***} The fall term of junior year is the recommended term for satisfying the Linguistic and Cultural Competency component of the General Education Curriculum through a term abroad. Students may complete this requirement in other terms as well. Students should determine as early as possible how they will satisfy the requirements of the Linguistic and Cultural Competency General Education Curriculum and should work closely with their academic advisor to develop the appropriate plan of study that will allow them to pursue the desired option.

Requirements for the Minor: There are two ME department minors. The solid mechanics minor requires MER201, MER212, MER214, MER231, MER311, MER312. The thermal energy minor requires MER 201, MER212; MER231, MER232, MER331, MER333.

Selected graduate courses in engineering mathematics, solid mechanics, and the thermal fluid sciences offered by the School of Engineering and Computer Science of the Graduate College of Union University are available to qualified undergraduates. For further information, please consult the catalog of the Union Graduate College, MS in Mechanical Engineering Courses.

Requirements for the Five-Year Combined BS/MS in Mechanical Engineering: Union undergraduate students may apply to this program offered in conjunction with Union Graduate College of Union University where both a B.S. and an M.S. degree in mechanical engineering are earned in five years. Students are encouraged to apply during sophomore year but no later than the end of the fall term of their senior year. A 3.0 overall GPA is expected for admission. Students enrolled in the program may count up to three Mechanical Engineering courses toward both degrees. A petition requesting overlapping degree credit must be approved by the undergraduate and graduate advisors and filed with the graduate office. The Master of Science program is described in the catalog of the Union Graduate College at www.uniongraduatecollege.edu

Requirements for Honors: To qualify for departmental honors, candidates must (1) conduct themselves in a manner consistent with the Professional Engineers code of ethics and the Union College Academic Honesty Policy; (2) maintain a cumulative index of 3.3 or better for all courses taken at Union College; (3) maintain an index of at least 3.3 in mechanical engineering courses with grades of at least “A-“ in four of these courses; (4) obtain a grade of at least “B+“ in MER497 and a grade of at least “A-“ in MER498; (5) write a senior thesis that conforms to Schaffer library specifications that is submitted to the Library through the Mechanical Engineering Department Secretary; (6) participate in the ASME student chapter’s oral presentation competition; (7) complete the final 6 terms at Union College unless enrolled elsewhere in an approved study program; and (8) be nominated and have a majority vote of approval by the Mechanical Engineering faculty.

Major Courses

(Prerequisites and co-requisites are listed for each of the major courses below. Under extraordinary circumstances, a student may petition the instructor and department chairman to take a prerequisite as a co-requisite for a major course.)

MER-010. Senior Seminar (Fall, Winter, Spring). Discussion of special topics in mechanical engineering important to professional development such as current engineering practices, engineering ethics, codes and standards and intellectual property. Oral presentations by each senior on his/her senior project.

MER-101. Engineering Graphics (Winter, Spring). Engineering graphics with emphasis on engineering drawings, introduction to solid modeling, and manufacturing. Topics include sketching, descriptive geometry, tolerances, sectioning, auxiliary views, assembly drawings, CAD, and manufacturing techniques.

MER-201. Particle Mechanics (Fall, Winter). A basic engineering science course concerned with the kinematics and kinetics of particles. The course material includes both Newtonian and energy approaches to problem solutions. Students are introduced to the use of free body and mass-acceleration diagrams in the solution of problems. The approach taken to the solution of problems relies heavily on vectors and calculus. This course is taught in a studio format that combines lectures with laboratory exercises. Prerequisites: PHY120, MTH115 or IMP 112.

MER-212. Rigid Body Mechanics (Winter, Spring). A basic engineering science course concerned with the kinematics and kinetics of rigid bodies. The course material includes both Newtonian and energy approaches to problem solutions. Free body and mass-acceleration diagrams are used throughout the course. Vectors and calculus approaches are used in the solution of problems. This course is taught in a studio format that combines lectures with laboratory exercises and includes a design project. Prerequisite: MER201.

MER-213. Material Science (Fall, Winter). A basic engineering science course required in several of the engineering curricula. The principles formulated in the science of materials allow engineers to understand the nature and behavior of a wide variety of engineering materials. This course provides the information for engineers to anticipate the properties of materials not yet studied or developed. Includes a laboratory where students build an intuitive appreciation for the phenomenon being discussed in lecture. Prerequisite: CHM101

MER-214. Strength of Materials (Fall, Spring). A basic engineering course required in the mechanical engineering curricula. Strength of materials is a branch of applied mechanics that deals with the behavior of solid bodies subjected to various types of loading. The solid bodies considered in this course include axially-loaded members, shafts in torsion, thin shells, beams, columns, and structures that are assemblies of these components. Strength of materials analysis determines the stresses, strains, and displacements produced by the loads. Classroom lectures are supplemented with demonstrations. Includes a laboratory where students build an appreciation for the phenomenon being discussed in lecture. Prerequisites: MER212, MER213 (this new prerequisite does not apply to students taking MER214 in Fall 2010)

MER-231. Thermodynamics (Fall, Winter). Basic thermodynamic principles, properties of simple substances, energy and the first law of thermodynamics, entropy and the second law of thermodynamics. Applications include basic vapor power cycles, ideal gas cycles, refrigeration and heat pump cycles. Elementary environmental economic and sustainability considerations related to thermodynamic processes. Prerequisites: PHY120, MTH112 or 113 or IMP112. Co-Requisite: CHM101.

MER-232. Thermodynamics II (Winter, Spring). Application of the fundamental laws of thermodynamics to the analysis of energy conversion devices, systems, and processes. The course moves beyond MER231 through the analyses of more realistic power-producing and refrigeration systems, systems in which there are more than one substance present, and reactive systems. Factors that govern energy conversion processes and impact on the efficiency of those processes are studied with particular attention given to environmental and sustainability implications. Prerequisites: MER231, CHM101.

MER-301. Engineering Reliability (Fall, Spring). Engineering statistics; uncertainty analysis, data collection, computational statistics, probability, statistical inference, confidence limits, tolerance intervals, analysis of variance, least squares regression, introduction to design of experiments. Prerequisite: MTH115 or IMP112.

MER-311. Advanced Mechanics (Fall, Winter, Spring). Advanced topics in stress analysis, deflection and stiffness, energy methods, failure analysis, fracture mechanics, statistical considerations, impact, fatigue, introduction to finite element methods. Two-hour design laboratory each week. Prerequisite: MER213 and MER214.

MER-312. Dynamics and Kinematics (Fall, Winter). Linkage analysis and synthesis, cam design, machine dynamics, computer aided kinematic design, kinetics and balancing. Two-hour design laboratory each week. Prerequisite: MER212.

MER-322. Dynamics of Physical Systems (Fall, Spring). Time and frequency response of lumped-parameter mechanical, electrical, and fluid systems. Three lab hours each week. Prerequisites: CSC070 (or equivalent), MER212, ECE222 or ECE225; MTH130 or MTH131.

MER-331. Fluid Mechanics I (Fall, Winter). Analysis of fluid systems according to the control volume formulations of Newton’s second law and the conservation laws of mass and energy. Applications. Three lab hours each week. Prerequisites: MER212, MER231, MTH117 or IMP113.

MER-333. Heat Transfer Analysis and Design (Winter, Spring). Introduction to the physical mechanisms that govern heat transfer processes and the relevance of these processes to industrial and environmental problems. Extends classical thermodynamic analysis by studying the modes of heat transfer and through the development of rate equations for calculating conduction, convection and radiation heat transfer. Three lab hours each week. Prerequisites: MER331.

MER-419. Design of Mechanical Systems (Winter, Spring). A capstone design experience for the mechanics area of mechanical engineering program. Students work in teams on challenging design projects with special focus on the design of mechanical devices and systems. Prerequisites: MER311, MER312.

MER-439. Design of Thermal/Fluid Systems (Fall, Winter). A capstone, project-oriented course in the thermal-fluids area of mechanical engineering that applies design techniques to the design of thermal/fluid processes and systems. Students work in teams on projects that involve the design of piping systems, heat exchangers, thermodynamic cycles, and other thermal/fluid systems. Prerequisites: MER232, MER333.

MER-497. Mechanical Engineering Senior Project (Fall, Winter, Spring). Capstone design project or research project, performed either independently or in a team under the supervision of one or more of the department faculty. Minimum requirements include one oral report, one written progress report, and development of a web page for the project. Consult the Mechanical Engineering department for additional minimum requirements. Prerequisites: MER311, MER333, or permission of the faculty advisor, and concurrent registration and participation in senior seminar MER010.

MER-498. Mechanical Engineering Senior Project Continuation (Fall, Winter, Spring). Continuation of MER 497. Minimum requirements include one oral report, one written final project report, and development of a web page for the project. Consult the Mechanical Engineering department for additional minimum requirements. Prerequisites: MER 497 and concurrent registration and participation in senior seminar MER010.

MER-499. Mechanical Engineering Senior Project Continuation (Spring). Optional follow-on to MER497, MER498, for students who wish to go above and beyond their completed objectives for MER497, MER498. Can be counted as a free elective in the Mechanical Engineering curriculum. Prerequisites: MER498, permission of the MER498 project advisor and the department chair. Consult the Mechanical Engineering Department Chairman for additional requirements.

Elective Courses

These may be taken to satisfy the engineering depth or free elective requirements. Consult Mechanical Engineering Department chair and course listing for additional MER, BNG, ESC, CSC, ECE, and GCUU courses that satisfy the engineering elective requirement.)

MER-344. Biomechanics. (Winter) This course is designed to acquaint the student with basic applications of mechanics to biological systems and devices. Prerequisites: MTH112, PHY120, MER212. (Cross listed with BIO234 and BNG334)

MER-354. Advanced Materials (Winter) Advanced materials for engineers are introduced with a focus on the properties and applications of the materials. Several advanced materials currently in the research and development stage will also be introduced with a discussion of the needed infrastructure to bring the materials to production. Topics include composites, engineering alloys, microelectromechanical systems (MEMS) devices, nanomaterials, semiconductors and microelectronic fabrication, and superconductors. Prerequisite: MER213 or by permission of the instructor.

MER-371. Internal Combustion Engines. (Spring) This course provides a basic introduction to reciprocating Internal Combustion (IC) Engines. Idealized underlying thermodynamic cycles (Otto, Diesel, Miller, etc.) and the mechanisms used to produce them will be covered. Deviations from the ideal cycles will be discussed in depth. Introductory coverage of petroleum based fuel chemistry, combustion, and emissions is included. Prerequisites: MER231, MER 232.

MER-471. Solar Energy Analysis and Design. (Fall) Analysis and design techniques applicable to the use of solar energy for heating, cooling, and electric power generation. Prerequisites: MER333 or permission of the instructor.

MER-490. Independent Study. (Fall, Winter, Spring) Offered with department approval only.

MER-491-493. Mechanical Engineering Practicum. (Fall, Winter, Spring) Any mechanical engineering undergraduate can practice their profession during their senior year of study on a part-time basis, for credit, through participation in either (1) undergraduate research or (2) a design project sanctioned by the department. To receive Pass/Fail credit equivalent to one free elective course, the student must earn 3 terms worth of passing grades for the practicum experience. Credit for up to two free elective courses may be earned in this way.



Modern Languages and Literatures

Chair: Associate Professor C. Ndiaye

Faculty: Professors V. Martinez, P. Moyano, W. Thomas; Associate Professors C. Batson, K. Bidoshi (Dean of Studies), M. Chilcoat, M. Ferry, W. Garcia, C. Henseler, D. Mosquera, J. Ueno; Assistant Professors E. Nelson, M. Ricci Bell, Z. Zhang; Senior Lecturer M. Osuna; Visiting Assistant Professors C. Arndt, G. Ignizio, S. Silvestre

Administration: A. Sartiaux (Director of Language Center)

Staff: L. Carroll (Administrative Assistant)

All students who begin the study of a new foreign language at Union are encouraged to pursue it for at least three terms. Students who take 100-level courses in more than one foreign language will receive credit for the second 100-level course only upon completion of the 101-level course in at least one of the two languages. Students continuing a foreign language previously studied will be assigned to the proper course level by the department. Placement will be made on the basis of secondary school record and testing scores. Students may construct full majors or interdepartmental majors in French, German, and Spanish. Students in Chinese, Japanese, and Russian have the option of an interdepartmental major with any other field. Minors are possible in Chinese, French, German, Japanese, Russian, and Spanish. Students of Chinese and Japanese have the option of the major or interdepartmental major in East Asian Studies.

Requirements in All Languages

Requirements for Honors: A candidate for Honors in the Department shall achieve an index in departmental courses of not less than 3.5 and an overall index of not less than 3.3. The candidate shall have achieved a grade of a full “A” in three courses in the department. (For complete details concerning the specific requirements for the candidate’s specific degree, the candidate should consult with a departmental advisor). For the full majors in French, German, and Spanish, for example, we require at least one of the “A’s to be achieved in a course above the Intermediate Language Sequence, with at least an “A-minus” achieved in two 400-level courses. For the interdepartmental majors in Chinese, Japanese, and Russian, the candidate shall have achieved an “A-minus” in no fewer than three courses above the Intermediate Language Sequence, and one in an MLT course. For the full major, the honors candidate shall complete, in the language studied, a project of a literary and/or cultural nature which achieves a grade no lower than “A-minus.” For the interdisciplinary major, the project should be written in the language deemed appropriate by the faculty advisor and normally should reflect the candidate’s chosen disciplines. When declaring candidacy for honors, a student shall present to the faculty member chosen to supervise the honors project, as well as to the chair of the department, a written statement outlining the nature and scope of the project. The candidate’s proposal must meet with the approval of both faculty members.

Requirements for Secondary School Certification: PSY-246, and “Structured Field Experiences” (EDS-500A, and EDS-500B each a non-credit course). Requirements within the major include:

1. Twelve courses in the same language sequence (French, German, Spanish), including FRN 303, GER 202 or SPN 203, a civilization/culture course, a survey course, three courses at the 400 level, and 450.
2. Participation in at least one of Union’s Terms Abroad in an appropriate country as required. Additional experiences in foreign cultures, intensive language programs, and/or terms abroad are highly recommended.
3. Interdepartmental, interdisciplinary, and dual majors must complete all requirements listed for the individual major to qualify for the program.
4. MLL majors are encouraged to take courses in more than one language and also to seek certification in more than one language. A student must complete a full major in each language in which certification is sought. Students seeking certification in more than one language are recommended to complete the combined degree program which will allow for greater flexibility in course selection as well as the possibility for two terms abroad.

French Requirements

Requirements for the Major in French: A minimum of 10 courses beyond the 101-level, including two 300-level courses, three 400-level courses, and 489 (Senior Project). Participation in a Union Term Abroad program is normally expected. Courses listed under “Literature in Translation” may or may not count toward the major, interdepartmental major, or minor. One term of related history, one term of philosophy, and one term of English literature are strongly recommended, as well as relevant courses in art history in the major.

Requirements for the Interdepartmental Major in French: A minimum of seven courses beyond the 101-level, including two 400-level courses and either 489 or a project that integrates the two disciplines.

Requirements for the Minor in French: A minimum of six courses, including two 300-level courses.

German Requirements

Requirements for the Major in German: A minimum of ten courses beyond the 101-level, including three 300 level, and two 400 level, and 489 (Senior Project). Majors are normally expected to take one Term Abroad and are encouraged to improve their language skills by living in the German House, attending the weekly German Table, and participating in other extracurricular activities. Students have the option of taking one MLT course (Literature in Translation) for German credit. In addition, majors are urged to take other courses related to German culture and history in other academic fields such as English, history, philosophy, music, art history, and political science.

Requirements for the Interdepartmental Major in German: A minimum of seven courses beyond the 101-level, including two courses at the 300 level and one course at the 400 level if the senior project course 489 in German is chosen; or it can include, in addition to two 300 level courses, two courses at the 400 level if the thesis (with a considerable German component) is written in the second field. Students have the option of taking one MLT course (Literature in Translation) for German credit. Interdepartmental majors are urged to take the Term Abroad and are encouraged to improve their language skills by living in the German House, attending the weekly German Table, and participating in other extracurricular activities.

Requirements for the Minor in German: A minimum of six courses, including at least two 300-level courses. Minors have the option of taking one MLT for German credit if they have participated in the German Term Abroad.

Spanish Requirements

Requirements for the Major in Spanish: A minimum of ten courses beyond the 101-level, including two 300-level courses (from different clusters; see listing of clusters below), and four 400-level courses, one of which must be taken with WS designation in the Spring term of the senior year. Students who seek and qualify for departmental honors must take SPN-489 (Honors Senior Seminar), which will count as one 400-level course with WS designation. Courses listed under “Literature, Culture, and Cinema in Translation” do not count toward the major, interdepartmental major, or minor. Majors are expected to participate in a Term Abroad program. Elective courses pertinent to the major/minor in Spanish from other humanities and social sciences areas such as history, philosophy, literature, political science and art history, etc. are strongly recommended.

Requirements for the Interdepartmental Major in Spanish: A minimum of seven courses beyond the 101-level, including two 300-level courses (from different clusters; see listing of clusters below) and two 400-level courses; one of the 400-level courses must be taken with WS designation in the Spring term of the senior year unless the student writes a thesis in the other department that integrates the two disciplines. Students who seek and qualify for departmental honors must take SPN-489 (Honors Senior Project), which will count as one 400-level course with WS designation. ID majors seeking honors must fulfill honors requirements in both departments/programs.

Requirements for the Minor in Spanish: A minimum of six courses, including two 300-level courses (from different clusters; see listing of clusters below). No more than three 300-level courses can be counted for the minor. In place of one of the 300-level courses, one MLT course (on Peninsular Spanish or Latin American literatures and cultures) can be counted towards the minor.

Chinese, Japanese, and Russian Requirements

Requirements for the Interdepartmental Major in Chinese, Japanese, or Russian: A minimum of seven courses beyond the 101-level, including two courses on the 300-level and one MLT course, or a third course at the 300-level. 4 courses beyond the 101-level are required if combined with participation in a Union Term Abroad to China or Japan, or a study abroad in Russia.

Requirements for the Minor in Chinese, Japanese, or Russian: A minimum of 6 courses at the 101-level or above. For students not participating in the Term Abroad in China, Japan, or study abroad in Russia, one of those six courses should be an MLT course. For students participating in the Term Abroad in China, Japan or study abroad in Russia, students may complete their minor in Chinese, Japanese or Russian with 3 additional courses (which can include 100). When selecting courses for the term abroad, students should select courses directly related to the host culture, with the approval of the department chair.

Course Registration Guidelines

Students should be aware that all of the courses in Modern Languages and Literatures carry HUM and LCC credit for General Education Requirements, and many of our MLT courses and upper-level literature and culture courses count towards the Humanities Literature requirement.

Students should also be aware that many of our language programs offer the 100 class (Basic 1) only in the Fall term. French is the only exception, offering FRN 100 in both Fall and Winter terms.

Students with previous experience in a language should come to the Department office to make an appointment to see a professor in the appropriate language for proper placement. Our MLT courses do not require such placement, as they are taught in English.

Courses in Modern Literature, Culture, and Cinema in Translation (Taught in English)

Chinese

MLT-200. Modern Chinese Literature (Not offered 2010-11). An introduction to a wide variety of Chinese literature. Students will study aspects of the function of history, memory, and the global/local in the Chinese context. *GenEd: HuL, LCC*

MLT-201. Chinese Cinema From the glitzy production studios of 1930s Shanghai to the contemporary hinterlands of China, the backstreets of Hong Kong, and the towns of Taiwan, this course examines the development and transformation of Chinese cinema. It will explore questions of aesthetics, Chinese identity, transnationalism, and representation. *GenEd: LCC*

MLT-202. Gender and Sexuality in Modern China (Not offered 2010-11). An examination of representations by and about women in 20th-century China through and understanding of the concepts Woman and Modernity. We will take into account women's and men's relationship to literature, selected genres, opinions on literary creativity, character representation, and social engagement to explore short stories, essays, diaries, poetry, and film. *GenEd: HuL, LCC*

MLT-203. Asian American Film and Performance (Fall; Ferry). An examination of topics in Asian American studies through film and performance by and about Asian Americans. Class material will draw from feature and documentary films by well-known and independent filmmakers, theatrical and artistic performance, as well as theoretical and critical texts on culture and diversity, the diaspora, and ethnicity. *GenEd: LCC*

MLT-204. Literary Traditions in East Asia (Spring; Zhang). Literary developments in East Asia, looking closely at the aesthetic and philosophic foundations of its varied literature through poetic genres, story forms, oral storytelling, travel literature, and drama. *GenEd: HuL, LCC*

MLT-205. Perspectives in Modern East Asian Literature (Not offered 2010-11). The literary and artistic developments in East Asia since the mid-19th century. It will consider questions of tradition, culture, modernity, globalism, and technology by examining cultural artifacts — novels, short stories, plays, paintings, architecture, music, and film. *GenEd: HuL, LCC*

MLT-207. China's Cultural Revolution (Not offered 2010-11). An interdisciplinary approach to examine the historical, political, and artistic preconditions and ramifications of the Chinese Cultural Revolution (1966-1976). *HuL, LCC*

MLT-209. The New Wall of China (Winter; Ferry). An interdisciplinary overview of the cultural, historical, and artistic attributes of a region in China whose geo-political landscape has been dramatically impacted by the construction of the Three Gorges Dam. In providing a context to the construction, students will be introduced to the intricate connections between all the above factors and engineering, technology, and the environment. *GenEd: LCC*

French

MLT-210. The Artist as Hero (Fall; Thomas). The reaction of the artistic temperament to its times, and of the times to the artistic temperament, as expressed in the works of Goethe, Balzac, Flaubert, Zola, Mann, Joyce, and Gide. *GenEd: HuL, LCC*

MLT-211. Histoire de la danse, Danse de l'histoire / History of Dance, Dance of History (Also FRN 421, ADA-053) (Not offered 2010-11). Examination of Western European dance and dance texts as revelatory of broader historical and cultural patterns, with special analyses of dance as a key tool of nation-building (as with the court of Louis XIV) and/or a central medium of artistic creation (as in 1920s Paris). Primary focus on France as creator, user, and potential abuser of dance's power, but some attention given other European models (Berlin, St. Petersburg, London). Readings from theoreticians, historians, and dance litterateurs (Molière, Gautier, Cocteau). *GenEd: HuL, LCC*

MLT-212. Sex Lives and Videotape: Casting Sexuality in French and Francophone Film (Also FRN-402) (Not offered 2010-11). Analysis and critique of films whose focus is the "sexual orientation" of its characters. Films may include *La Cage aux folles*, *Les Diaboliques*, *French Twist*, *Sitcom*, *Ma Vie en rose*, *Woubi Chéri*. Theoretical and critical works by authors such as Michel Foucault, Monique Wittig, Simone de Beauvoir, Susan Hayward, Laura Mulvey, Sigmund Freud, and Kate Bornstein will inform our study of these films. Readings in both French and English. All films subtitled. *GenEd: LCC*

MLT-213. West African Oral Literature (Also FRN 430) (Not offered 2010-11). West-African oral genres with a focus on tales and epics in their form and ideologies. Through a study of the oral literature of the region, we will explore the socio-cultural structures of ancient West Africa, their collapse through religious and colonial implications, and their vestiges in today's Africa. *GenEd: HuL, LCC*

MLT-215. What is French Cinéma?/Qu'est-ce que le cinéma français? (Also FRN-312) (Winter; Chilcoat). This course moves from an introduction to the earliest examples of French and world cinema, to an in-depth study of widely recognized classics of French cinema, considered in chronological order from 1933 to 1985, so as to develop an appreciation for the history, genre, and particular theme(s) of each film, as well as its originality. Students will learn how to talk about and write analytical papers on the films according to critical, cultural, and technological considerations, in order to determine what, if anything, is particularly "French" about French cinema. The course is taught in English, but students taking the course for French credit will read all materials in French, and assignments will be written in French. *GenEd: LCC*

German

Open to all students; no knowledge of the German language required, unless the course is taken for German credit. Students seeking language credit for the German Major should register for the corresponding German course number (see GER-330-334) and must complete a considerable part of their course-work in German. Prerequisite for German credit in the MLT-courses is the completion of at least GER-201.

MLT-233. Metropolis Berlin: Cultural Representations of Germany's Capital (Also GER-333) (Not offered 2010-11). An exploration of how the city Berlin has been constructed and contested as a political and cultural as well as physical site. *GenEd: HuL, LCC*

MLT-234. Femmes fatales? Women in 19th- and 20th-Century German Culture and Society (Also GER-334) (Not offered 2010-11). An examination of female sexuality as one of the central controversies of modern German culture. In addition to analyzing cultural artifacts (plays, films, paintings), we will discuss such diverse social phenomena as the Women's movement, morality crusades, psychoanalysis, and sexology. *GenEd: HuL, LCC*

MLT-235. Voices from Abroad: German Exile Culture, 1933-1990 (Also GER-335) (Not offered 2010-11). This course, taught in translation, is designed for both Germanists and other students of literature interested in exploring notions of exile and the particular cultural artifacts, including novels, films, essays and poetry, that bear witness to the struggle of artists exiled from WWII Germany and Austria. The class additionally examines texts by current émigrés to Germany and incorporates theoretical assessments of exile, considering works by Said, Milosz and others. *GenEd: HuL, LCC*

MLT-336. The Thrill of Victory: Reading German Sports (and) Culture (Also GER-336) (Not offered 2010-11). This course traces the ways that Sports have reflected and influenced German culture through the 20th century, analyzing links between athleticism and conceptions of gender, nationhood, individuality and race set out in literary texts, films, and visual arts. Exploring notions of victory, physical perfection, and spectatorship, we will consider works by some of Germany's greatest authors and artists, including Kafka, Schnitzler, Brecht, Riefenstahl, Kirschner and Handke. *GenEd: HuL, LCC*

MLT-339. The Shoah in Film: Cinematic Treatments of Holocaust Trauma and Memory (Also Ger-339)(Winter; Ricci Bell). The course examines cinematic representations of the Holocaust in the films of German, German-Jewish, and other European filmmakers. Comparing and contrasting a variety of film genres and cinematic techniques, we explore fundamental questions about the relationships between art and history, representation and experience and memory and responsibility. By considering theoretical and historical readings as well, we situate the films within significant intellectual and historical contexts. *GenEd: LCC*

Japanese

MLT-250. Japanese Sociolinguistics (Spring; Ueno). This course will focus on societal aspects which are represented in the characteristics of language. Discussions will include gender differences, formality, and communication strategies. This course will be taught in English and no prior Japanese language knowledge is required. *GenEd: LCC*

Russian

MLT-260. The Vampire as Other in East European and American Culture (Fall; Arndt). We will discuss the present distribution of the East European peoples, their prehistory, and their relation to other peoples of Europe and Asia. We will also survey their early culture, including pagan, animistic, and dualistic religious beliefs, and Christianization. Our focus will be the myth of the vampire, which has had enduring power not only in Eastern European folk belief but also in American popular culture right up to the present day. *Gen Ed: HuL, LCC*

MLT-261. Cinema, Crimes, and Punishment. (Not offered 2010-11). Investigates the irrational in our human psyche and inquires into the problems of desire, suffering, violence, and death. Films by Truffaut, Bergman, Hitchcock, Balabanov, and Mikhalkov are studied. *Gen Ed: LCC*

MLT-262. Russia: Magnificence, Mayhem, and Mafia (Not offered 2010-11). Through analysis of literature, film, and visual arts we will discuss the Russian impact on the world with all its manifestations, constructive and destructive, and we will also attempt to "imagine" Russia in the future. Do you want to know more about Dostoevsky, communist and post-communist Russia, and, most importantly, the Russian Mafia? *GenEd: HuL LCC*

MLT-263. Nationalism and Empire: Russian Music and Art of the 19th Century (Not offered 2010-11). The philosophical tenets of Romanticism and Nationalism as depicted in Russian music and art of the mid-19th century. We will concentrate on the interaction between music and art to explore methods by which Russian artists and composers manipulated canvases and scores to express issues of Nationalism. The course is thematically organized to explore such topics as identity politics, ethnicity, and nation and empire. Class material will draw from documentary films, and theoretical and critical texts on culture, identity, nationalism and romanticism. *GenEd: LCC*

MLT-264. Illness and Its Representation: Madness, Disease and Death in 19th- and 20th-Century Russian Culture (Not offered 2010-11). In this course we will investigate illness and its various representations in 19th and 20th century Russian culture. Specific emphasis will be placed on madness, disease and death in our discussion of various literary and historical madmen. The course will be conducted as a combination of lectures and class discussion. An occasional film will be shown. *GenEd: HuL, LCC*

MLT-265. Soviet and Russian Film Revolutions: Political, Social, Cultural. (Not offered 2010-11). At its inception, Soviet film was intertwined with political revolution. In masterpieces such as Eisenstein's *The Battleship Potemkin* and Pudovkin's *Mother*, film directors sought to portray the Bolshevik take-over as a legitimate and inevitable response to oppression. Who could imagine that the same country would produce *Little Vera*, a film about the sexual revolution of the 1980s or *Brother*, a hero-story about assassins? This course will follow the trajectory of Soviet and Russian cinema from the 1917 Revolution to the present day, as it was used to chronicle social and cultural upheavals. *GenEd: LCC*

Spanish

MLT-270. The Way of St. James: An Interdisciplinary Study (Also AAH-212) (Not offered 2010-11). Prerequisite to the course "Hiking the Trail in Spain." Teaches the history, literature, art, and architecture of the route to Santiago de Compostela in northern Spain. Readings include selections from Berceo, the *Songs of Mary*, and various texts on Romanesque art and architecture. *GenEd: HuL, LCC*

MLT-271T. Hiking the Trail in Spain (Also AAH-213T) (Not offered 2010-11). Students who take this "mini-term" abroad must have taken MLT-270 on campus. The course takes place in Spain, where students will walk a portion of the actual route to Santiago de Compostela. *GenEd: LCC*

MLT-272. Art and Politics in Spain: From the Civil War to Postfrancoism and Postmodernity (Not offered 2010-11). The impact that political events of this century in Spain have had on Spanish society and culture, as manifested in the arts in general and in literature in particular. *GenEd: HuL, LCC*

MLT-273. Re-Viewing Spanish Cinema: From Dictators, Bullfighters and Flamenco to Nationalisms and Globalization (Not offered 2010-11). This course examines the works of such well known artists/filmmakers as Medem, Almodóvar, Bigas Luna, de la Iglesia, Aménabar, among others, who often directly engage with questions of "Spanishness," of the nature of regional and ethnic diversity and identities within Spain, and the place of these identities in the wider framework of filmmaking in Europe. Furthermore, it will also study popular cinema which has been successful in a national context under the Franco regime and since the coming of democracy in the 1970s. *GenEd: LCC*

MLT-274. Trash and Transgression: Spanish Surrealism and Popular Culture in Dalí, Lorca and Buñuel (Not offered 2010-11). This course studies the work of a group of young Spanish poets, playwrights, filmmakers and painters, generally known as the Group of '27, who constituted the most important Spanish renaissance of the last centuries, and which was broken abruptly by the Civil War of 1936. We will examine the popular roots of some of their works as well as some of their most distinct contributions to Surrealism, as exemplified by Buñuel's cinematic innovation and its religious confictions and repressed sexual longings. *Gen.Ed. HuL, LCC*

MLT-280. The Nobel Laureates of Latin America. (Not offered 2010-11). An analysis of aesthetic, philosophical, and political problems in Latin American literature as expressed in the writings of five laureates — Gabriela Mistral, Pablo Neruda, Miguel Angel Asturias, and Gabriel Garcia Marquez, and Octavio Paz. *GenEd: HuL, LCC*

MLT-281. Screening Identities in Latin American Cinema (Not offered 2010-11). A survey of the main trends in film production in Latin America since the 1950s (Mexican Golden Age Cinema, Brazilian Cinema Novo, Cuban Imperfect Cinema, Mexican New Wave, the 1990's and beyond). Readings and discussions on issues of film history, aesthetics, representation and reception will frame our critical reflection on the construction of identities (inner-city youth, gender roles, masculinities, race and ethnicity, and US Latinos). *GenEd: LCC*

MLT-282. North/South Relations and Diasporic Politics (Not offered 2010-11). This course explores the cultural and political interaction between North and South that historically has helped to define the geography of the Americas. As an interdisciplinary course, North/South will draw students into ongoing debates about linguistic and intercultural exchange and conflict within hemispheric politics. *GenEd: HuL, LCC*

MLT-283. Beyond the Sunny Paradise: Literature and Politics in the Caribbean (Not offered 2010-11). An interdisciplinary study of Caribbean literature focusing on the political history of the region from 1898 to the present. Pan-Caribbean literary survey (Alvarez, Arenas, Bosch, Cartagena-Portalatin, Zobel, Danticat, Ferre, Kincaid, Naipaul, Santos-Febres, Ana Lydia Vega, among others). Besides the literary texts, films and substantive readings will contribute to an examination of five main topics: Legacies of Colonialism; Race and Ethnicity; Constructed Identities; U.S. Dominance and Interventionism; and Caribbean Diaspora. *GenEd: HuL, LCC*

MLT-284. Popular Religion and Politics in Latin America (Not offered 2010-11). In this course we will examine the connection between politics and popular religions in Latin America, taking a critical view of several of their manifestations without losing track of the language and “sciences” historically used to describe them. We will engage biblical, anthropological, videographic, ethno-historical and cultural theory texts as well as oral histories and collective memories. The final goal is to tease out those ideas that have traditionally defined the terms in which we understand and explain the “popular” in religious behavior; to understand better the conflicted relationship between “popular” cultural and institutional spaces; and finally to understand why the evolution of popular religions in Latin America cannot be examined without also taking into account their political economy. *GenEd: LCC*

MLT-285. From Virgin to Sex Goddess: Re-Envisioning the Chicana Experience Through Art and Literature (Not offered 2010-11). In “Guadalupe the Sex Goddess,” Sandra Cisneros gives the Virgin of Guadalupe an “extreme makeover.” She undresses the sacred image and envelops her in a cloak of contemporary sexual politics. In the same vein, other Chicana artists and writers re-examine, re-present, and re-write traditional practices to define the experience of the Mexican-American woman in the late 20th century. This course presents students with the resisting and affirming powers of Chicana works of art. It introduces them to the Mexican-American civil rights movement and to myths and archetypes in order to allow for a reevaluation of gender identities through installation art, muralism, poster art, and painting. Issues of sexuality, language, ethnicity, race, and class will be examined through these visual art forms as well as in narratives and essays by authors as influential as Ana Castillo, Gloria Anzaldúa, Tey Diana Rebolledo, and, of course, the creator of the sex goddess herself, Sandra Cisneros. *GenEd: HuL, LCC*

MLT-286T. Gender and Identity in Contemporary Brazilian Cinema (Not offered 2010-11). This course offers an interdisciplinary study of contemporary Brazilian cinema focusing on issues of representation, reception and spectatorship, and construction of (national, cultural, gender, and racial) identity. Besides the films, reviews and substantive readings will contribute to an examination of five main topics: 1) Constructions of Gender; 2) Representations of National Identity; 3) Race and Class; 4) Queer Images; and, 5) Imagining Marginality. All films studied in class will link two or more of these topics. *GenEd: LCC*

MLT-287. Filming Margins: Cinema Verité and Social Realism in Latin America (Spring; Mosquera). This course studies different styles of documentary and realist film making from Latin America. It looks critically and with a “film-eye” at the aesthetics and socio-political meanings of conventional and experimental documentary films dealing with marginalized peoples and their representation, such as Buñuel's *Los Olvidados* (1950), Hector Babenco's *Pixote* (1981) and Fernando Meirelles' *City of God* (2002), and others. *GenEd: LCC*

MLT-288. Torture and Dictatorship in Latin American Literature (Not offered 2010-11). This course is an exploration of Latin-American literature in the twentieth century with a particular focus on the Dirty War in Argentina (1976-1983) and the early years after the military coups in Uruguay and Chile during the same time period. Readings include texts by writers who stayed in Argentina and Chile and who wrote under the confines of censorship, texts by exiled writers and essays theories of violence, torture and censorship. The class will also include viewings and analysis of films related to the events in those countries. We will also discuss the gendering of nation, the government and the victims—and will study the phenomenon of nation and people as the feminine “body” on which the male government exacts its control and punishment. We will also analyze the contrasts between literature written under the constraints of censorship, and that of exile. *GenEd: HuL, LCC*

MLT-289. Literature of the Mexican-American Border (Not offered 2010-11). This is a class in literature, film and essays from both sides of the Mexican-American border. This course is designed to give students an under-standing of the complexities of the history, culture and sense of identity of residents from both sides. The class will be discussion based and will focus on the close readings of novels, poems, short stories and plays. *GenEd: HuL, LCC*

Course Offerings in Individual Languages

Arabic Language Sequence

ARB-100. Basic Arabic I (Fall). Basic skills for students who begin with no knowledge of Arabic.

ARB-101. Basic Arabic II (Winter). A continuation of ARB-100. Prerequisite: ARB-100 or permission of instructor.

ARB-102. Basic Arabic III (Spring). A continuation of ARB-101. Prerequisite: ARB-101 or permission of instructor.

ARB-200: Intermediate Arabic I (Not offered 2010-11). Review and continued development of all skills in Arabic. Prerequisite: ARB-102 or permission of the instructor.

Chinese Language Sequence

CHN-100. Basic Chinese I (Fall). Basic skills for students who begin with no knowledge of Mandarin.

CHN-101. Basic Chinese II (Winter). A continuation of CHN-100. Prerequisite: CHN-100 or permission of instructor.

CHN-102. Basic Chinese III (Spring). A continuation of CHN-101. Prerequisite: CHN-101 or permission of the instructor.

CHN-103. Chinese for the Term Abroad (Not offered 2010-11). An introduction to Chinese language, combining Basic Chinese I and culture components. Open to students going on the term abroad or those with general interest in learning Chinese. Students who took CHN-100-102 sequence cannot take this course.

CHN-200. Intermediate Chinese I (Fall). Review, and continued development of all skills in Mandarin.

CHN-201. Intermediate Chinese II (Winter). Continuation of CHN-200. Prerequisite: CHN-200 or permission of instructor.

CHN-202. Intermediate Chinese III (Spring). Continuation of CHN-201. Prerequisite: CHN-201 or permission of instructor.

CHN-204T, 205T. The Chinese Language Studied Abroad (Fall term in Shanghai). See International Programs.

CHN-250T, 251T. The Chinese Language Studied Independently Abroad.

CHN-300. Advanced Chinese I. Continued formal study of the Chinese language. Prerequisite: CHN-202 or equivalent.

CHN-301. Advanced Chinese II. A continuation of CHN-300. Prerequisite: CHN-300 or permission of instructor.

CHN-302. Advanced Chinese III. A continuation of CHN-301. Prerequisite: CHN-301 or permission of instructor.

French: Language Sequence

FRN-100. Basic French I (Fall, Winter). Basic skills for students who begin with no knowledge of French.

FRN-101. Basic French II (Winter, Spring). A continuation of FRN-100. Prerequisite: FRN-100 or two years of secondary school French.

FRN-102. Basic French III (Fall, Spring). A continuation of FRN-101, with introduction of readings. Prerequisite: FRN-101 or three years of secondary school French

FRN-200. Intermediate French I (Fall, Winter). Intensive review and development of all language skills, with emphasis on vocabulary building, conversation, and composition. Prerequisite: FRN-102 or equivalent.

FRN-201. Intermediate French II (Winter, Spring). Continuation of extensive review and development, vocabulary building, conversation, and composition. Prerequisite: FRN-200 or equivalent.

FRN-204T-207T. The French Language Studied Abroad (Fall term in Rennes).

FRN-250T, 251T. The French Language Studied Independently Abroad.

FRN-303. Advanced French (Not offered 2010-11). Advanced language training for students who have completed the term abroad in Rennes or who have had similar experience. Examination of finer points of grammar, stylistics, and phonetics. Prerequisite: FRN-204T or equivalent.

French and Francophone Studies

Prerequisite for 300-level courses listed in this section is French 201 or another 300-level course. Prerequisite for all 400-level courses is a 300-level course.

FRN-208T. Contemporary France (Fall term in Rennes). See Terms Abroad program. Gen Ed: LCC

FRN-300. Modern France/La France actuelle (Spring; Batson). Studies of contemporary French culture through authentic material — texts, films, radio, and television broadcasts dealing with current historical, political, sociological, and aesthetic issues. *GenEd: LCC*

FRN-301. A Survey of French Literature I (Not offered 2010-11). The evolution of French literature from the earliest writings through the age of Enlightenment. Readings of major works from each period to illustrate trends. *GenEd: HuL, LCC*

FRN-302. A Survey of French Literature II (Not offered 2010-11). Selected works representing literature and society from the late eighteenth century to the present. Readings of works from each period to illustrate cultural, historical, and artistic trends. Prerequisite: FRN-201, any 300-level or permission of instructor. *GenEd: HuL, LCC*

FRN-304. Studies in the French Caribbean (Not offered 2010-11). Exploration of how French colonialism has informed artistic expression in the French Antilles. Taking Martinique as a point of departure, we will examine how colonial and post-colonial subjects represent and are represented through literary, theatrical, and musical productions. Themes to include notions of *négritude*, *créolité*, and bilingualism, as well as issues of class and gender. Prerequisite: FRN-201, any 300-level or permission of instructor. *Gen-Ed: HuL, LCC*

FRN-305T. Mini-term in Martinique (Not offered 2010-11). See Terms Abroad Program. Continuation of the themes of FRN-304, studied and experienced on the island of Martinique. Prerequisite: FRN-304. *Gen Ed: LCC*

FRN-306T. Readings in French and Francophone Culture (Fall term in Rennes). See Terms Abroad Program. France and the French of today as reflected in selected literary works from various genres and periods. Prerequisite: FRN-201, any 300-level or permission of instructor. *Gen Ed: HuL, LCC*

FRN-307. Negritude Movement: Point of Departure in Black African and Afro-Caribbean Literatures in French (Not offered 2010-11). This study of the Black diaspora in French in the 1930s examines a variety of political and literary strategies developed in reaction to French colonial policies before the era of official independences. We consider authors such as Césaire, Damas, Senghor, Fanon, and Sartre to better understand how these writers represent influences on the literatures of decolonization and post-colonial identity. Prerequisite: FRN-201, any 300-level or permission of instructor. *Gen Ed: HuL, LCC*

FRN-308. Women on Top: Great Women Writers and Characters of French Narrative Fiction

(Not offered 2010-11). French language women writers and the women they write about in their novels and short stories. Authors may include Claire de Duras, George Sand, Colette, Anne Hébert, Marguerite Yourcenar, Simone de Beauvoir, Marguerite Duras, Andrée Chéridid and Mariama Bâ. Focus on cultural, historical and political positioning of both writers and their subjects. Prerequisite: FRN-201, any 300-level or permission of instructor. *GenEd: HuL, LCC*

FRN-309. Identifying Desire, Desiring Identity: French and Francophone Non-Narrative Literature (Not offered 2010-11). This course will explore French and Francophone theatre and poetry through the lenses of identity and desire. We will in particular examine notions of self and of other as they are set in play through various dramatic and poetic texts, including, but not limited to, those of Labé, Racine, Baudelaire, Tremblay, Césaire, and Schwartz-Bart. Prerequisite: FRN-201, any 300-level or permission of instructor. *GenEd: HuL, LCC*

FRN-311. Studies in Francophone North America: Quebec (Fall; Batson). Exploration of the cultural, literary, and linguistic expressions from the province of Quebec, situating it in the historical and social context of the French-speaking Americas. Focusing on artistic expression from novels to film, we will examine the multiplicities of identities at play in the spaces of Francophone North America as we explore such themes as colonialism, bilingualism, and culturally informed demonstrations of self-determination, revolt, and accommodation. *GenEd: HuL, LCC*

FRN-312. What is French Cinéma?/Qu'est-ce que le cinéma français? (Also MLT-215) (Not offered 2010-11). This course moves from an introduction to the earliest examples of French and world cinema, to an in-depth study of widely recognized classics of French cinema, considered in chronological order from 1933 to 1985, so as to develop an appreciation for the history, genre, and particular theme(s) of each film, as well as its originality. Students will learn how to talk about and write analytical papers on the films according to critical, cultural, and technological considerations, in order to determine what, if anything, is particularly “French” about French cinema. The course is taught in English, but students taking the course for French credit will read all materials in French, and assignments will be written in French. *GenEd: LCC*

FRN-400. Whose Enlightenment? (Spring; Chilcoat). Eighteenth-century France’s philosophical tradition, focusing on debates over sex, race, class, education and revolution. Writers may include: Rousseau, Toussaint Louverture, Voltaire, Louise d’Epinay, Olympe de Gouges, Condorcet, Marie Antoinette, and Sade. Prerequisite: One course at the 300 level. *GenEd: HuL, LCC*

FRN-401. The Writers of Romanticism. (Not offered 2010-11). Writers of personal and imaginative prose, poetry, and drama following the French Revolution. The beginning of Realism. Prerequisite: One course at the 300 level. *GenEd: HuL, LCC*

FRN-402. Sex Lives and Videotape: Casting Sexuality in French and Francophone Film (Also MLT-212) (Winter; Chilcoat). Analysis and critique of films whose focus is the “sexual orientation” of its characters. Films may include *La Cage aux folles*, *Les Diaboliques*, *French Twist*, *Sitcom*, *Ma Vie en rose*, *Woubi Chéri*. Theoretical and critical works by authors such as Michel Foucault, Monique Wittig, Simone de Beauvoir, Susan Hayward, Laura Mulvey, Sigmund Freud, and Kate Bornstein will inform our study of these films. Readings in both French and English. All films subtitled. *GenEd: LCC*

FRN-403. Studies in the French Theater (Fall; Batson). Studies of French-language theatrical texts and performances from the classical period to the present. Prerequisite: One course at the 300 level. *GenEd: HuL, LCC*

FRN-410. War Stories; 100 Years of French Literature (Not offered 2010-11). This course focuses on works in French about war, from memories of the Napoleonic wars to World War 11. We will examine the impact of war and conflict on the development of French history and culture, and we will analyze texts (literary, films, novels, short stories, comic books) in their historical and socio-cultural context, so as to develop a comparative approach to textual analysis through the connecting theme of war and conflict. *GenEd: LCC, HuL*

FRN-411. The 20th Century Novel (Not offered 2010-11). Scandale! Exploration of significant writings from twentieth-century France that have been considered scandalous and scandal-making. Examination of these novels, particular blendings of content and form, and interrogation of the various

re-evaluations of identity and expression that they ask their reader to engage in. Explorations of these novels, questions of class, race, nationality, species, sex, and gender. Representative authors: Gide, Proust, Colette, Vian, Dariessecq. *Gen Ed: HuL, LCC*

FRN-420. Artist at Hero, 1800-1930 (Not offered 2010-11). The reaction of the artistic temperament to its time, and of the times to the artistic temperament. *GenEd: HuL, LCC*

FRN-421. Histoire de la danse, Danse de l'histoire / History of Dance, Dance of History (Also ADA-053, MLT-211) (Not offered 2010-11). Examination of Western European dance and dance texts as revelatory of broader historical and cultural patterns, with special analyses of dance as a key tool of nation-building (as with the court of Louis XIV) and/or a central medium of artistic creation (as in 1920s Paris). Primary focus on France as creator, user, and potential abuser of dance's power, but some attention given other European models (Berlin, St. Petersburg, London). Readings from theoreticians, historians, and dance littérateurs (Molière, Gautier, Cocteau). *GenEd: HuL, LCC*

FRN-430. West African Oral Literature (Also MLT-213) (Not offered 2010-11). West-African oral genres with a focus on tales and epics in their form and ideologies. Through a study of the oral literature of the region, we will explore the socio-cultural structures of ancient West Africa, their collapse through religious and colonial implications, and their vestiges in today's Africa. *GenEd: HuL, LCC*

FRN-431. Voices of Francophonie Literature from French-Speaking Countries and Territories other than France (Winter; Silvestre). The ways contemporary writers from former French colonies in West and North Africa and from the French-speaking Caribbean stress local, social, political, religious, and gender matters in their novels and short-stories. We also examine these writers' particular use of the French language according to local meanings and other strategies they develop to redefine post-colonial societies. Among selected writers we have Calixthe Beyala, Mariama Bâ, Assia Djebar, Rachid Minouni, Patrick Chamoiseau, and Maryse Condé. Prerequisite, One course at the 300-level. *Gen Ed: HuL, LCC*

FRN-489. Senior Project (Winter; Batson). The seminar will provide a forum in which a French or Francophone topic of current interest and importance is explored in depth. Students will gain experience in giving oral presentations and critically evaluating the written work of both established scholars and fellow students, and they must submit a paper to fulfill the senior writing requirement. WS

FRN-490-492. Independent Study (Fall, Winter, Spring). Individual directed readings in French literature. Prerequisite: At least one course at the 400-level and permission of the instructor.

German Cultural Studies Program

The German Program offers instruction in language, culture, and literature from beginning to advanced levels. Students can complete a minor and a major or interdepartmental major in German Cultural Studies. All students are well served if they combine their study of German with second fields (e.g. another language, the arts, economics, engineering, history, international studies and management, and/or political science). Language study and the experience of the Term Abroad with their resulting linguistic fluency and cultural sensitivity greatly enhance students' opportunities as they pursue careers in their chosen fields.

German Language Sequence

GER-100. Basic German I (Fall). Basic skills for students who begin with no knowledge of German.

GER-101. Basic German II (Winter). Continuation of GER-100. Prerequisite: GER-100 or two years of secondary school German.

GER-102. Basic German III (Spring). Continuation of GER-101, with introduction of readings. Prerequisite: GER-101 or three years of secondary school German

GER-200. Intermediate German I (Fall). Intensive grammar review, emphasis on vocabulary building, idiomatic expressions, conversation, and composition based on cultural and literary texts.

Prerequisite: GER-102 or equivalent.

GER-201. Intermediate German II (Winter). Continuation of extensive grammar review, vocabulary building, conversation, and composition based on more advanced cultural and literary texts. Prerequisite: GER-200 or equivalent.

GER-202. Advanced German (Not offered 2010-11). Mastery of the spoken and written language, with an emphasis on the finer points of grammar, style, and colloquial expression. Prerequisite: GER-201 or equivalent.

GER-204T-207T. German Language and Culture Studies Abroad (Spring). See International Programs.

GER-250T-251T. The German Language Studied Independently Abroad.

German Cultural Studies Courses

The study and critical understanding of the literature of Germany, Austria, and Switzerland, in the context of their larGER-cultural, social, political, and intellectual history. Prerequisite for 300-level courses listed in this section is German 201 or another 300-level course. Prerequisite for all 400-level courses is a 300-level course.

GER-300T. German Civilization (Spring in Freiburg/Berlin). See International Programs. An introduction to the cultural history of German speaking Europe. Prerequisite: GER-201 or permission of the instructor. *GenEd: LCC*

GER-301. German Culture and the Professions (Not offered 2010-11). Focus on business oriented linguistic competence (certification possible) and cultural sensitivity, combined with an introduction to the economic history of Germany 1945-present day. Prerequisite: GER-201 or permission of the instructor. GenEd: LCC

GER-302. German Prose: A Survey (Not offered 2010-11). Selected works representing literature and society from the late eighteenth century to the present. Readings of works from each period to illustrate cultural, historical, and artistic trends. Prerequisite: GER-201 or permission of the instructor. GenEd: HuL, LCC

GER-303. German Drama: A Survey (Not offered 2010-11). Theory and practice of German theater from the Enlightenment to the Present. Prerequisite: GER-201 or permission of the instructor. GenEd: HuL, LCC

GER-304. Once Upon a Time: German Fairy Tales, Folklore, and Fantasy (Not offered 2010-11). Exploration of the genre and tradition of the German Fairy Tale, its reception within various cultural frameworks, and its influence on later literature of the nineteenth, twentieth and twenty-first centuries, with special focus on identifying aesthetic, sociological, psychological, and psychoanalytical implications and gender issues. The Grimm Brothers' Kinder- und Hausmärchen (and their revisions in popular and literary culture) will provide a basis for discussing the fairy tale's role in culture and its continued vitality within the different cultural frameworks of classical, romantic, and modern folklore and fantasy storytelling. GenEd: HUL, LCC

GER-306. Twentieth Century German Literature (Spring). Representative works by major writers, read as expressions of concern about their times. Prerequisite: GER-201 or permission of the instructor. GenEd: HuL, LCC

GER-333. Metropolis Berlin: Cultural Representations of Germany's Capital (Also MLT-233) (Not offered 2010-11). An exploration of how the city Berlin has been constructed and contested as a political and cultural as well as physical site in art and architecture, literature and film. Prerequisite: GER-201. GenEd: HuL, LCC

GER-334. Femme fatales? Women in 19th and 20th Century German Culture and Society (Also MLT-234) (Not offered 2010-11). An examination of female sexuality as one of the central controversies of modern German culture. In addition to analyzing cultural artifacts (plays, films, paintings), we will discuss such diverse social phenomena as the Women's movement, morality crusades, psychoanalysis, and sexology. Prerequisite: GER-201. GenEd: HuL, LCC

GER-335. Voices from Abroad: German Exile Culture, 1933-1990 (Also MLT-235) (Not offered 2010-11). This course, taught in translation, is designed for both Germanists and other students of literature interested in exploring notions of exile and the particular cultural artifacts, including novels, films, essays and poetry, that bear witness to the struggle of artists exiled from WWII Germany and Austria. The class additionally examines texts by current émigrés to Germany and incorporates theoretical assessments of exile, considering works by Said, Milosz and others. GenEd: HuL, LCC

GER-336. The Thrill of Victory: Reading German Sports (and) Culture (Also MLT-336). (Not offered 2010-11). This course traces the ways that Sports have reflected and influenced German culture through the 20th century, analyzing links between athleticism and conceptions of gender, nationhood, individuality and race set out in literary texts, films, and visual arts. Exploring notions of victory, physical perfection, and spectatorship, we will consider works by some of Germany's greatest authors and artists, including Kafka, Schnitzler, Brecht, Riefenstahl, Kirschner and Handke. GenEd: HuL, LCC

GER-337. Flashy Erotics to Forbidden Laughter: German Cabaret through the 20th Century (Not offered 2010-11). This course explores the German "Kabarett," a dramatic form essential to German culture throughout the 20th Century. Very versatile, cabaret throughout Germany's history was at times didactic, subversive, raunchy, witty, extravagant and sharply critical. We examine cabaret's development in contexts ranging from Weimar and Vienna, to Nazi and Concentration Camp forms, to East and West German political cabaret, and contemporary forms, considering the institutions and figures that shaped cabaret over time. GenEd: HuL, LCC

GER-339. The Shoah in Film: Cinematic Treatments of Holocaust Trauma and Memory (Also MLT339) (Not offered 2010-11). The course examines cinematic representations of the Holocaust in the films of German, German-Jewish, and other European filmmakers. Comparing and contrasting a variety of film genres and cinematic techniques, we explore fundamental questions about the relationships between art and history, representation and experience and memory and responsibility. By considering theoretical and historical readings as well, we situate the films within significant intellectual and historical contexts. Prerequisite: German 201 or permission of the instructor. GenEd: LCC

GER-401. Meeting the Other: Multiculturalism in Contemporary Germany (Not offered 2010-11). Analyzing recent cultural productions by minorities (literature, music and films) with respect to national, cultural, and sexual self-representations in the context of social and political developments. Prerequisite: Any 300-level course or permission of the instructor. GenEd: HuL, LCC

GER-402. German Film Studies (Fall; Ricci Bell). Decoding film-specific 'narratives' in German movies on the background of socio-political, economic, and cultural conditions of their production. Prerequisite: Any 300-level course or permission of the instructor. GenEd: LCC

GER-403. Shoah: Literary, Artistic and Filmic Representations of the Holocaust (Not offered 2010-11). Comparing and contrasting works of German and German-Jewish writers. Prerequisite: Any 300-level course or permission of the instructor. GenEd: HuL, LCC

GER-489. Senior Writing Project (Winter, Spring; Nelson, Ricci Bell).

GER-490-492. Independent Study (Fall, Winter, Spring). Individual directed readings in German literature. Prerequisite: At least one course at the 400-level and permission of the instructor.

Hebrew

HEB-100. Basic Hebrew I (Fall). The beginning of a year-long sequence of three courses designed to introduce students to the Hebrew language and to familiarize students with linguistic aspects that will prepare them to function with more advanced skills. Emphasis on learners' ability to use the Hebrew language in all four skill areas, listening, reading, writing, and speaking, with particular attention given to mastering conversation in Hebrew.

HEB-101. Basic Hebrew II (Winter). Continuation of HEB-100.

HEB-102. Basic Hebrew III (Spring). Continuation of HEB-101.

Italian

ITL-100. Basic Italian I (Winter). A foundation course in Italian, open only to students who have been accepted for specific International Programs.

ITL-104T. The Italian Language Studied Abroad (Spring term in Florence). A continuation of Basic Italian I. Prerequisite: ITL-100. See International Programs.

ITL-250T, 251T. The Italian Language Studied Independently Abroad.

Japanese

JPN-100. Basic Japanese I (Fall). A foundation course in Japanese. Study of the structure of the language is supported by laboratory work, audiolingual training.

JPN-101. Basic Japanese II (Winter). A continuation of JPN-100. Prerequisite: JPN-100.

JPN-102. Basic Japanese III (Spring). A continuation of JPN-101.

JPN-200. Intermediate Japanese I (Fall). Emphasis on grammar review and skills of oral communication. Prerequisite: JPN-102 or equivalent.

JPN-201. Intermediate Japanese II (Winter). Continuation of grammar review and communication skills. Prerequisite: JPN-200 or equivalent.

JPN-202. Intermediate Japanese III (Spring). A continuation of JPN-201.

JPN-204T. The Japanese Language Studied Abroad (Fall; Term in Japan). A continuation of Basic Japanese I. Prerequisite: JPN-100. See International Programs.

JPN-205T. Written Japanese Abroad (Fall; Term in Japan). A continuation of Basic Japanese I. Prerequisite: JPN-100. See International Programs.

JPN-250T-252T. The Japanese Language Studied Independently Abroad.

JPN-300. Advanced Intermediate Japanese I (Winter). Continued formal study of the Japanese language. Prerequisite: JPN-202 or equivalent.

JPN-301. Advanced Intermediate Japanese II (Spring). Continuation of Japanese 300. Prerequisite: JPN-300 or permission of the instructor.

JPN-302. Advanced Intermediate Japanese III (Fall). Continuation of Japanese 301. Prerequisite: JPN-301 or permission of the instructor.

JPN-490-492. Japanese Independent Study. Prerequisite: Permission of the instructor.

Portuguese

POR-100. Basic Portuguese I. (Spring) A foundation course in Portuguese, open only to students who have been accepted for the following fall's term abroad in Brazil. Study of the structure of the language supported by laboratory work, audio-lingual training.

POR-104T. Portuguese Language Studied Abroad (Not offered 2010-11). A continuation of Basic Portuguese I. Prerequisite: POR-100. See International Programs.

POR-200. Intermediate Portuguese I. (Not offered 2010-11). Intermediate Portuguese I is an intensive and accelerated grammar review, and offers vocabulary growth. This course furthers the development of conversation, reading and writing skills based on a variety of cultural text and authentic cultural artifacts.

POR-490. Portuguese Independent Study. Prerequisite: Permission of the instructor.

Russian

RUS-100. Basic Russian I (Fall). For students with no knowledge of Russian. An introduction to the language, with emphasis on oral skills and communicative proficiency.

RUS-101. Basic Russian II (Winter). Continuation of RUS-100. Prerequisite: RUS-100 or two years of high school Russian.

RUS-102. Basic Russian III (Spring). A continuation of RUS-101, with increasing attention paid to reading simple, every day texts. Prerequisite: RUS-101 or equivalent.

RUS-200. Intermediate Russian I (Fall). Intensive development of the four proficiency skills (speaking, listening, reading, writing) with continued emphasis on strategies of basic conversation. Prerequisite: RUS-102 or equivalent.

RUS-201. Intermediate Russian II (Winter). Continuation of RUS-200. Prerequisite: Russian 200 or equivalent.

RUS-202. Advanced Russian (Spring). Development of skills and vocabulary necessary to deal with conversation about and texts on Russian cultural life. Basic grammar review. Prerequisite: RUS-201 or equivalent.

RUS-224T-227T. The Russian Language Studied Abroad.

RUS-250T, 251T. The Russian Language Studied Independently Abroad.

Russian Literature and Culture

RUS-230. Contemporary Russian Culture (Not offered 2010-11). A course that combines expanding oral, aural, and written skills with an introduction to contemporary issues in Russian culture and political life. Prerequisite: RUS-202 or instructor's permission. GenEd: LCC

RUS-300. Survey of Russian Literature I: From Pushkin to Revolution (Not offered 2010-11). Readings that begin with the godfather of Russian literary life, Aleksander Pushkin, and that ends on the eve of the October revolution. Continued attention to development of vocabulary and oral presentation. Prerequisite: RUS-202 or instructor's permission. GenEd: HuL, LCC

RUS-301. Survey of Russian Literature II: From Revolution to Present (Not offered 2010-11). Readings ranging from the great revolutionary writers (Mayokovsky, Babel, Platonov, etc.) to contemporary writers of interest. Prerequisite: RUS-300. GenEd: HuL, LCC

RUS-302. The Russian Short Story: Pathologies of the Everyday (Not offered 2010-11). A survey of Russian short prose, with emphasis on its reflected/distorted images of Russian everyday life. Includes Gogol, Tolstoy, Gorky, Kharmis, Petrushevskaja, and others. GenEd: HuL, LCC

RUS-330. Special Topic in Russian Culture: The Forbidden: Eroticism, Passion and Death in Russian Culture (Not offered 2010-11). Through analysis of literature, film and painting we will ask questions such as: Is there a necessary link between the erotic and the forbidden? What does a portrayal of passion tell us about a society's value system? Is death in Russian culture celebrated or condemned? GenEd: HuL, LCC

RUS-490-492. Independent Study (Fall, Winter, Spring). Prerequisites: One 300-level course and permission of the instructor.

Spanish Language and Culture

SPN-100. Basic Spanish I (Fall). An introduction to the study of the Spanish language and culture through listening, speaking, reading, and writing. No prior knowledge of Spanish is required. Attendance of weekly sessions with the language assistant is required.

SPN-101. Basic Spanish II (Winter). A continuation of Spanish I. This course further develops all language skills. Prerequisite: SPN-100 or two years of Spanish at high school level. Attendance of weekly sessions with the language assistant is required.

SPN-102. Basic Spanish III (Spring). A continuation of Spanish II. This course further develops all language skills. Prerequisite: SPN-101 or three years of Spanish at high school level. Attendance of weekly sessions with the language assistant is required.

SPN-200. Intermediate Spanish I (Fall, Winter, Spring). Intensive and accelerated grammar review, and vocabulary growth. Further development of conversation and writing skills based on cultural texts. Prerequisite: SPN-102 or equivalent or four years of secondary school Spanish.

SPN-201. Intermediate Spanish II (Fall, Winter, Spring). Continuation of the intensive and accelerated grammar review and vocabulary growth initiated in the previous course. Further development of conversation and writing skills based on cultural and literary texts. Prerequisite: SPN-200 or four years of secondary school Spanish.

SPN-202. Intermediate Spanish III (Fall, Winter, Spring). Continuation of the intensive and accelerated grammar review and vocabulary growth initiated in the previous course. Further development of conversation and writing skills based on literary texts. Prerequisite: SPN-201 or four years of secondary school Spanish.

SPN-203. Advanced Spanish (Fall, Winter, Spring). The course emphasizes the further development of composition and writing skills using the process-writing approach. Writing production will consist of expository and creative pieces based on cultural and literary readings. Prerequisite: SPN-202 or permission of the instructor.

SPN-204T-207T. The Spanish Language Studied Abroad (Winter). See International Programs.

SPN-208T. Spanish Civilization (Not offered 2010-11). See International Programs.

SPN-209T. Mexican Civilization (Not offered 2010-11).

SPN-250T, 251T . The Spanish Language Studied Independently Abroad.

Literatures and Cultures (300-level courses)

Majors, ID majors, and minors must take two 300-level courses from different clusters; there are four clusters (listed below). Prerequisite for 300-level courses listed in this section is SPN 203 or permission of the instructor.

Studies in Spanish Peninsular Literatures and Cultures (300-324)

SPN-300T. Love in Andalusia (Not offered 2010-11). A broad look at concepts of love in Spanish literature. The action of most of the texts takes place in Seville or in Andalusia. We will examine the treatment of love from the courtly to 20th-century erotica; authors will include Cervantes, Lope de Vega, Garcia Lorca, Paloma Pedrero and Lucia Etxebarria. Prerequisite: SPN-203 or permission of the instructor. See Terms Abroad Program. GenEd: HuL, LCC

SPN-301. Pop, Punk, and Rock & Roll: Spanish Generation X Writers of the 1990s and the Mass Media (Not offered 2010-11). In this course we will study the narrative of the youngest generation of writers in Spain, those born after 1960 and publishing in the 1990s. We will examine their works in relation to the influence of the mass media on the construction of subject identities. How does the mass media and popular culture contribute to the self-definition of contemporary bodies? How does it infuse Generation X's writing on a thematic and a technical level? We will answer these questions through repeated literary analysis of short stories by authors like Josan Hatero, Juan Bonilla, Marta Sanz, and Nuria Barrio and of novels like Amor, curiosidad, prozac y dudas by Lucía Etxebarria, and La pistola de mi hermano by Ray Loriga. Prerequisite: SPN-203 or permission of the instructor. GenEd: HuL, LCC

SPN-302. Open Your Eyes: Spanish Culture through Film since 1929 (Not offered 2010-11). In this course we will examine issues concerning Spanish culture through film. Students will learn to analyze, interpret and write about films, from note taking and first drafts to polished essays and research projects. At the same time, students will gain knowledge on the historical framework and the cultural and social environment of the films themselves. This double focus will lead to improved critical writing skills, better analytical abilities, and an increased sensitivity and understanding of cultural frameworks. Students will also gain knowledge of some of the most important directors and actors of the Iberian Peninsula. Prerequisite: SPN-203 or permission of the instructor. GenEd: LCC

SPN-303. Bodies and Souls: Saints, Sinners, and Spectacles in Early Modern Spain (Not offered 2010-11). This course will explore the image of the body and its role in intellectual and spiritual formation in the literature of Medieval and Golden Age Spain. We will examine various representations of the body as it is defined and manipulated within the context of the sexual, the spiritual, the profane, and the

divine. Some of the key themes will include: the relationship between body and text, the regulation and control of the body, the imperfect, mutilated, and weak body, gender and authority, consuming bodies and eating communities, the body of the Other, the body as spectacle, and corporeal love and desire. Readings will include selections from medieval lyric poetry, medieval, renaissance, and baroque narrative, and Golden Age drama, as well as contemporary images of the body in films such as *Fight Club*, *Thirteen*, and *María llena de gracia*. Prerequisite: SPN-203 or permission of the instructor. *GenEd: HuL, LCC*

SPN-304. Performing Identities in Contemporary Spanish Theater (Fall; Moyano).

Representative works by Spain's leading playwrights from the 1930s to the present (García Lorca, Sastre, Buero Vallejo, Muñoz, Arrabal, López Rubio, Cabal, Pedrero, Diosdado, Onetti) are studied from diverse theoretical approaches to reflect on the performative nature of identities. Prerequisite: SPN-203 or permission of the instructor. *GenEd: HuL, LCC*

SPN-305. Music Videos and Reality Television in Contemporary Spanish Literature (Not offered 2010-11). In this course we will analyze two novels, *Héroes* (1993) by Ray Loriga and *Veo veo* (1996) by Gabriela Bustelo, through theoretical articles and examples of music videos clips and reality television shows. Students will gain a historical and socio-cultural understanding of the characteristics that define contemporary Spanish Generation X narrative, and they will learn close reading and literary analytical skills. *GenEd: LCC*

SPN-309. Women's Roles in Golden Age Spanish Theatre (Not offered 2010-11). In sixteenth- and seventeenth-century Spain, theatrical productions, called comedias, were an extremely popular form of public entertainment. Many of the most celebrated literary figures of Golden Age Spain had theatrical ambitions, and comedias ranged in theme and tone from the stately and philosophical to the downright farcical. This course focuses on a set of well-known plays that feature prominent female characters. Each of these plays meditates on the role of women both on the stage and in society as a whole. Most of these plays depict strong women characters that transcend their prescribed social roles. Some of the women in these plays behave "like men," even to the point of dressing like them, and we will use these theatrical works to examine the double standard that defined acceptable behavior of each gender. *GenEd: HuL, LCC*

SPN-311(T). Otherness and Citizenship in Contemporary Spanish Theater and Cinema (Not offered 2010-11). An introduction to the study of the dramatic and film genres through the analysis and discussion of contemporary works by Spanish playwrights (Alonso deSantos, Moral, Onetti, Pedrero) and filmmakers (Almodóvar, Bollain, De la Iglesia, León de Aranoa, Pons, Uribe). Theoretical readings and diverse critical approaches to theater and cinema frame the course around the portrayal of the Other (women, North African and Latin American immigrants, LGBT communities, Roma people, and the poor). The analysis of primary texts will center on how the authors/directors weave representations of difference into narratives of nationhood, engaging in cultural and political debates about citizenship. The course also aims to familiarize students with Spanish visual culture and performance from "la Movida" (immediate post-Franco period) to the new millennium. Prerequisite: Spanish 203 or permission of the instructor. *GenEd: LCC*

Studies in Latin American Literatures and Cultures (325-349)

SPN-325. Staging Conflict: Studies in One-Act Mexican Theater (Not offered 2010-11). This course surveys contemporary one-act Mexican theater focusing on the theatrical devices, trends, and discourses adopted by playwrights to explore conflictive issues in Mexican society and culture: urban violence, generational clashes within the family, sexual diversity, gender roles, consumerism, among others. The course offers an introduction to the study of drama and the analysis of theatrical signs, and it attempts to complement the students' term abroad experience in Mexico by focusing on and contextualizing linguistic and cultural aspects in the texts. Students read texts by Emilio Carballido, Víctor Hugo Rascón Banda, Sabina Berman, Hugo Salcedo, among others. *GenEd: HuL, LCC*

SPN-326. Women Weaving Histories: Short Narratives by Latin American Female Writers (Not offered 2010-11). We will focus on short stories written in the 20th century by women throughout the Latin American region, including Isabel Allende (Chile), Elena Poniatowska (México), Luisa Valenzuela (Argentina), Rosario Ferré (Puerto Rico), Laura Antillano (Venezuela), María Teresa Solaris (Perú), Helena

Araujo (Colombia), Clarice Lispector (Brasil), Claribel Alegría (El Salvador/Nicaragua), among others. We will examine how these women have fictionalized their political and social realities and called into question the myths surrounding their existence; how their narratives subvert notions of national history, and of female identity and sexuality in relation to private and public spaces. Prerequisite: Spanish 203 or permission of the instructor. *GenEd: HuL, LCC*

SPN-327. The Nation at Home: Family and Nationhood in Spanish American Theater (Not offered 2010-11). An introduction to the study of the dramatic genre through the analysis and discussion of representative works by Spanish American playwrights (Triana, Wolff, Díaz, Gambaro, Argüelles, Berman, Canales, among others). Theoretical readings and diverse critical approaches to theater frame the course around the representation of family as a microcosm in which narratives of nationhood are contested, revised, and imagined. Prerequisite: Spanish 203 or permission of the instructor. *GenEd: HuL, LCC*

SPN-328. Inquiring Latin American Identities: Reading Context, Space & Cultural Artifacts (Not offered 2010-11). This course examines various aspects of the cultures of Latin America today. Latin-American cultures are conceived as processes initiated and sustained by the confluences of radically different cultures that molded and continue to shape the lives of its people. The course explores the impact of such encounters with regard to gender relations, ethnicity, urban spaces, cultural practices and beliefs. Substantive theoretical readings will complement the assignments. *GenEd: LCC*

SPN-329. Interruptions: The Paradox of Tradition in Spanish American Poetry (Not offered 2010-11). Octavio Paz describes modern literature as a "tradition of discontinuity," one that constantly rebels against itself in search of innovation. This course examines Paz's assertion through the study of foundational Spanish American poets. As we read and discuss each poet's contribution to modern literature we will also study the characteristics that manifest a Spanish American poetic tradition. The course's objectives are centered on strengthening student's process of language acquisition, developing analytical skills, and reinforcing writing proficiency through reading poetry. Students will also have the opportunity to share their knowledge and collaborate in a learning community through in-class discussion and oral presentations. *GenEd: HuL, LCC*

SPN-330T. Mexican Women's Contemporary Short Fiction. (Not offered 2010-11). This course focuses on Mexican women's contemporary short fiction. Its analytical structure centers on reading stories from three anthologies that deal with three of the most significant formative female experiences in contemporary Latin-American societies: the mother, the family, and schools. The axis of conversation and analysis follows a feminist theoretical path while keeping in mind also local cultural, social and economic realities, racial and ethnic identities, and temporal specificities. *GenEd: HuL, LCC*

SPN-332. An Introduction to Afr-Hispanic Literatures and Cultures (Winter; Mosquera). This course exposes students, through selected readings dealing with the black experience in Latin America, to African diaspora literature particular to Spanish-speaking regions. It bridges various genres and artistic media (narrative, poetry, drama, film, music) in order to provide a general sense - aesthetic, material and cultural, theoretical and cross-temporal - of different manners in which black diasporic expressions have intervened in the re-creation, transformation, and interrogation of African-derived identities in Latin America. As such, this course examines these expressions as locutions that problematize and enrich our perceptions of social, cultural, economic, religious, gender, and sexual social orders and identities related to the black experience. *GenEd: LCC, HUL*

Studies in Latina/o Literatures and Cultures (350-374)

SPN-350. Visions and Voices: Chicana Icons from Myth to Matter (Fall; Martinez). La Virgen de Guadalupe, La Malinche, and Frida Kahlo surround us on a daily basis. We see them in our dreams and in ourselves; they are repeatedly embodied in contemporary life and art. In this course we will discuss the historical significance of these three figures in dialogue with feminist reappropriations of their iconic value in contemporary literature, art, and culture. We will examine how musicians, visual artists, poets, narrators, and playwrights reclaim the iconic significance of these women and give them new voice and body in order to reposition and redefine the sexual and social identities of contemporary women. Prerequisite: SPN-203 or permission of the instructor. *GenEd: HuL, LCC*

Studies in Comparative Perspectives (375-399)

SPN-375. Dreams, Mirages and Delusions in Peninsular and Latin American Fiction (Not offered 2010-11). This course examines the complex relationships between author, character, and audience and explores representations of reality through the subconscious, the magical real and the unreal. Readings include texts by Cervantes, Borges, García Lorca, García Márquez, Cortazar, and Ana Lydia Vega.

Prerequisite: SPN-203 or permission of the instructor. *GenEd: HuL, LCC*

SPN-376. Down to Earth: Cross-Cultural Explorations of the Hispanic World (Winter; Osuna). This course furthers the development of cultural competency while maximizing language skills and providing the foundation for further studies in language, literature, and culture. The course is organized according to geographic regions that provide the framework to situate people and events in the context of historical pasts and contemporary cultural events. Prerequisite: Spanish 203 or permission of the instructor. *GenEd: HuL, LCC*

SPN-378. Short Fiction: From Naturalism to Neoliberalism (Not offered 2010-11). How do science, economics and political events affect literature? Find out in this survey of short fiction from the mid-nineteenth century to the present day from Spain and Latin America. The course examines the ways in which national and international events are expressed in literature. *GenEd: HuL, LCC*

Literatures and Cultures (400-level courses)

Prerequisites for 400-level courses listed in this section are two 300-level courses.

SPN-400. Crossing Borders: A Study in Mexican and Chicano Literatures (Not offered 2010-11). An overview of Mexican and Chicano societies through literature and film dealing with Northern Mexico and the Southwestern United States. Topics will cover malinchismo, machismo, maquiladoras, and identity from the critical perspective of border studies and transnationalism. We will read texts by Carlos Fuentes, Rosina Conde, Hugo Salcedo, Tomás Rivera, Cherrie Moraga, and others. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-401. Bodies and Power in Latin American Narrative (Not offered 2010-11). We will examine through narrative and film the metaphoric use of the body in literature and how it represents the effects of political and socio-economic power. We will read texts by Manuel Puig, Gabriel García Márquez, Laura Esquivel, among others. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-402. Dressing Up the Canon: Cross-Dressing in Hispanic Literature and Film (Not offered 2010-11). The course is a survey of literary and cinematic texts in the Hispanic world that adopt cross-dressing as a subversive device to reflect on and deal with the questioning of authority at various arenas (gender roles, sexual and national identities, politics, and cultural hegemony). Authors and directors such as Juana Inés de la Cruz, García Lorca, Luis Riaza, Paloma Pedrero, Isaac Chocrón, Diana Raznovich, Arturo Ripstein, and Pedro Almodóvar will be studied, as well as critical theory readings that will frame the class discussions. Prerequisites: Two 300-level courses.

SPN-403. The “Second Sex” in Latin America: Women’s Writing in the Twentieth Century (Not offered 2010-11). This course will focus on the ways in which female writers have expressed their struggle against powerful patriarchal systems, and how they have worked and continue to work toward gaining an equal voice in the literature of the Americas. Readings include narrative, theater and poetry by well-known and lesser-known women writers from various Latin-American countries. *GenEd: HuL, LCC*

SPN-416. “Testimonio” and Resistance Writings in Central America as Literary Discourse (Not offered 2010-11). This course explores how social struggles in the last fifty years in Central America have led to new forms of cultural and literary expression. Through the writings of such authors as Manlio Argueta, Rigoberta Menchú, Humberto Ak’abal, Doris Tijerino, and others, we will also examine movements of ethnic or national liberation, women’s liberation, poor and oppressed peoples’ organizations of all types, ecological activism, and the like. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-417. Death and Revenge in the Southern Cone (Fall; Martinez). This course explores the literature of the Dirty War in Argentina, Uruguay, and of the early years of the Pinochet regime in Chile. Through analysis of narrative, theater and film we will touch upon the effects of torture and terrorism on society in those countries during the early 1970’s through the mid 1980’s. The class will read texts and view films written and produced under heavy censorship, and those written and produced in exile. We will also examine themes of revenge either by exiled writers or by those who can write more freely after a change in government. We will read texts by Marta Traba, Luisa Valenzuela, Diana Raznovich, Eduardo Pavlovsky, Ariel Dorfman, and others. Films will include Camila and Death and the Maiden. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-418. Of Cock Fights and Crowded Elevators: Readings in Contemporary Mexican Theater (Not offered 2010-11). Readings in contemporary Mexican theater that seek to explore how Mexican playwrights stage, perform, and imagine the nation and their communities either contesting or legitimizing hegemonic narratives of cultural uniformity, normative gender and sexual roles, and a cohesive political state. We will analyze dramatic texts by Luisa Josefina Hernández, Hugo Argüelles, Leonor Azcárate, Tomás Urtusástegui, Dante del Castillo, Jesús González Dávila, Sabina Berman, Hugo Salcedo, among others. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-431. Colonial Latin America 1492-1800 (Not offered 2010-11). This course examines the complex array of European, indigenous, mestizo and African recordings of the encounter between Europeans, slaves and native Americans that started in the fifteenth century; and at the colonization and subsequent reconfiguration and displacement of individuals, communities, and their cultures. The course analyzes in some detail the historical and theoretical issues arising from this trans-Atlantic collision and exchange, a diverse historiographic and literary production that heralded and bore witness to the many ways in which the various peoples of, and involved in, the creation of the Americas documented, perceived, and imagined the old and the new, themselves and others. We will read travel journals, poetry, drama, histories, ethnographies, and other types of textual/visual production such as films and codices. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-432. Islands Adrift: Race, Politics, and Diasporas in the Hispanic Caribbean (Not offered 2010-11). Introduction to the literatures and cultures of Cuba, Dominican Republic, and Puerto Rico centering on how the region continues to approach its development tempered by an array of colonial legacies—from the slave plantation system to globalization—that impact on social, political, economic, and cultural dynamics. Diverse critical approaches will frame the analysis of literary, visual, and musical texts by Luis Palés Matos, Nicolás Guillén, Pedro Mir, Heberto Padilla, Tomás Gutiérrez Alea, Aída Cartagena Portalatín, Celia Cruz, Ana Lydia Vega, Juan Luis Guerra, Reinaldo Arenas, Mayra Montero, among others. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-433. Latin American Colonial Crossroads at the Movies (Not offered 2010-11). This course explores critically filmic approaches to colonial Latin American literature and history. Its main objectives are to analyze films preoccupied with historical events and life in colonial times, to engage the filmic representation of the cultural, political, and religious encounters and tensions informing our desire to revisit contact among Amerindians, African slaves and Europeans, and to familiarize students with debates pertaining to reconstructing the colonial past for contemporary consumption. *GenEd: LCC*

SPN-446. Video Clip Literature, E-mail Novels, and Telephone Texts: Spanish Narrative and Technology of the Twenty-first Century (Not offered 2010-11). As technology—telephones, computers, televisions—contributes to the isolating experience of the human being, and as consumer culture increasingly covers up the real for an image of the real, individuals find themselves searching for a place to develop their identities. Authors and characters of the narrative production of the 1990s and the first decade of the twenty-first century fuse and confuse their identities with the technological world that surrounds them. In this class we will study how technology contributes to the creation of innovative narrative techniques and the construction of simulative modes of identification inside and outside of the text. Authors studied in this course include Lucía Etxebarria, Ray Loriga, Gabriela Bustelo, André Neuman, and Care Santos. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-447. Virtual Embodiments: Video Games, Video Clips and Reality TV in Contemporary Spanish Narrative (Not offered 2010-11). In this course we will analyze three contemporary Spanish novels *Ático* by Gaby Martínez (2004), *Héroes* by Ray Loriga (1993), and *Veo* by Gabriela Bustelo (1996) that confront the construction of identity through technology. We will examine these novels in relation to theoretical articles on the video game, the video clip, and reality television. We will study the effects of these technologies on the construction of fictional subject identities as well as on our own lives. This will take place through close analysis of the novels and through multimedia assignments that include the navigation and examination of Spanish video games, the creation of a video clip that simulates the narrative style of the novel, and the production of a reality television “show.” Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-448. Trash and Transgression: Spanish Surrealism and Popular Culture in Dalí, Lorca and Buñuel (Not offered 2010-11). This course studies the work of a group of young Spanish poets, playwrights, filmmakers and painters, generally known as the Group of '27, who constituted the most important Spanish renaissance of the last centuries, and which was broken abruptly by the Civil War of 1936. We will examine the popular roots of some of their works as well as some of their most distinct contributions to Surrealism, as exemplified by Buñuel's cinematic innovation and its religious confusions and repressed sexual longings. Prerequisites: Two 300-level courses. *GenEd: HuL, LCC*

SPN-489. Honors Senior Seminar (Spring; Mosquera). For seniors who qualify for departmental honors; please contact the department during the Winter term.

SPN-490-492. Independent Study (Fall, Winter, Spring). Individual directed readings in the field of Spanish or Spanish-American literature. Prerequisite: At least one course in Spanish at the 400-level and permission of the instructor.

Modern Languages and Literatures Practica

MLL-490 and 491. Academic Training Practicum I & II (Fall, Winter, Spring). Language Assistants will receive direct supervision from their faculty mentors in becoming effective and skilled language assistants and instructors. Students will also learn from observation and practice how to design and implement curriculum, lessons, and assignments. Course is open only to non-Fulbright Language Assistants. MLL-490 and MLL-491 must be taken simultaneously over 3 terms to receive 2 credits.

Music

Chair: Professor D. McMullen

Faculty: Professor H. Tann; Associate Professors J. Matsue, T. Olsen

Administration: V. Klimash (Director of Performance)

Staff: L. Goodman (Office Assistant), K. Herrington (Administrative Assistant)

Requirements for the Major: Twelve courses, including the theory sequence (AMU 101, 201 (102), 301 (200)); four music history courses (chosen from AMU 212, 213, 214, 215, 340); a performance workshop (AMU 230, 231, 232, 233, 234), or written confirmation of exceptional service in one of the departmental ensembles, or a juried recital; two music electives chosen in consultation with the student's departmental advisor; a two-term senior project; and at least two years of practicum credit, one year of which must be in an ensemble.

Requirements for the Interdepartmental Major: Eight courses, including the theory sequence (AMU 101, 201 (102), 301 (200)); three music history courses (chosen from AMU 212, 213, 214, 215, 340); a performance workshop (AMU 230, 231, 232, 233, 234), or written confirmation of exceptional service in one of the departmental ensembles, or a juried recital; one upper-level elective (300 or above) or AMU 497, chosen in consultation with the student's departmental advisor; and at least one year of practicum credit in an ensemble.

Requirements for Honors: To be eligible for departmental honors, a student must fulfill the following requirements: (1) a minimum index of 3.3 in music; (2) for full Majors: a grade of “A minus” or better in a two-term senior project in composition, performance, research, or analysis (AMU 498/499); for Interdepartmental Majors: a grade of “A minus” or better in a one-term senior project in composition, performance, research, or analysis (AMU 497). In addition, the student must satisfy College requirements for departmental honors.

Requirements for the Minor in Music: Six courses, including the theory sequence (AMU 101, 201 (102), 301 (200)); two music history courses (chosen from AMU 212, 213, 214, 215, 340); one music elective chosen in consultation with the student's departmental advisor; and at least one year of practicum credit in an ensemble.

Requirements for the Minor in World Musics and Cultures: Six courses, including AMU 101; ANT 110; two area courses (chosen from AMU 120/ANT 148, AMU 131, AMU 132, AMU 133, AMU 134, AMU 136, AMU 232, AMU 233, AMU 234); AMU 220/ANT 274, AMU 320 (221); AMU 490 Independent Study as a capstone experience; and at least one year of practicum credit in an ensemble chosen from AMU 012, AMU 013, AMU 015.

Course Registration Guidelines: The Department of Music recommends that students working toward a Major, Interdepartmental Major, or Minor in Music start the music theory sequence no later than by the Winter Term of the sophomore year or Fall Term of the sophomore year for those needing remedial work. This is especially important for Double Majors, Interdepartmental Majors, and students enrolled in the Leadership in Medicine Program.

Introductory Courses

AMU-050. The Language of Music (Not offered 2010-11). An introductory survey of the main aspects of music theory and practice including rhythm, intervals, scales and keys, melody, harmony, and form. Designed for students with no formal background in music. Does not count toward major.

AMU-060. From Chant to Mozart (Fall; McMullen). A chronological study of compositions from the ninth century through the time of the French Revolution. Gregorian chant; Renaissance court music; the effect of the Reformation and Counter-Reformation on music; Florentine opera; Vivaldi's concertos; sacred music of Bach and Handel; symphonies, keyboard works, and operas of Haydn and Mozart. *Gen-Ed: HUL*.

AMU-061. Beethoven to Bernstein (Winter; McMullen). A study of composers and their works from the end of the eighteenth century through the present. Beethoven, Chopin, Berlioz, Mendelssohn, Schubert, Schumann, Verdi, Wagner, Brahms, Debussy, Stravinsky, Schoenberg, Ives, Copland, Varese, among others. *Gen-Ed: HUL*.

AMU-110. Class Piano (Not offered 2010-11). This course, aimed at students with no experience in piano playing, integrates basics of music theory with learning to play the piano. Students will first learn to read treble and bass clefs at the keyboard and then come to an understanding of keys and basic harmonic principles while learning to play music from a variety of repertoires.

Music Theory Core Courses

AMU-100. Elements of Music Theory (Fall, Spring; Tann). An introduction to the art of music for students already familiar with the basics of notation. A review of musical elements (intervals, triads, scales, durations) complemented by hands-on creative work in the Music Technology Studio.

AMU-101. Music Theory I (Fall, Winter; Tann). The harmonic vocabulary and compositional techniques of Baroque and early Classical composers approached through short written exercises and listening assignments.

AMU-201 (102). Music Theory II (Spring; Tann). A continuation of Music Theory I with models drawn from late Classical and Romantic composers. Prerequisite: AMU-101 or permission of the instructor.

World Music and American Music

AMU-120. Introduction to World Music (Also ANT 148) (Not offered 2010-11). An introduction to various musics from world areas such as Africa, South Asia, and Europe. Readings, discussion, and listening assignments will explore music in society, including such concepts as the formation of new global musics, music's role in religious practices, and the connection between language and music. Students will ultimately gain the skills necessary to engage with music of the world with particular emphasis on music as an integral component of culture.

AMU-125. World Religions and Music (Not offered 2010-11). Music, deemed by some to be a gift from the Divine, continues to play an important role in the histories of all religions. Through an examination of three religions — Buddhism, Judaism, and Christianity — students will come to an understanding of the intricate relationships among music, theology, liturgy, ritual, and human religious expressions in different cultures and at different time periods.

AMU-130. American Music (Not offered 2010-11) American music-cultures approached through performance, lecture, video, and audio. Survey samples from popular, classical, and folk traditions.

AMU-131. Music of Black America (Fall; Olsen). Black music in America from its African beginnings to present-day pop styles, approached through live performance, lecture, video, and sound recordings. Special emphasis on gospel, blues, jazz, and rap. No prerequisite. Not open to students who have taken AMU-132. *GenEd: LCC*

AMU-132. The History of Jazz (Not offered 2010-11). A study of the important personalities and trends in the evolution of jazz, approached through reading, video and sound recordings, and live performance. No prerequisite. Not open to students who have taken AMU-131. *GenEd: LCC*

AMU-133. Music of Latin America (Not offered 2010-11). Latin American music-cultures approached through live performance, lecture, video, and audio. Survey samples from folk, popular, and classical traditions, with special emphasis on the musics of Cuba and Brazil. *GenEd: LCC*

AMU-134. Music and Culture of Africa (Spring; Olsen). Through an examination of traditional and popular musics from across the continent, students will gain a better understanding of the integral role played by music in African culture. *GenEd: LCC*

AMU-136. Popular Music in Modern Japan (Not offered 2010-11). An investigation of the position of popular music in modern Japan from Meiji period military music to contemporary Japanese urban popular musics. Intended for students interested in Japanese cultural history and music, ethnomusicology, popular music and culture, and music as modern text. No prerequisite. *GenEd: LCC*

Intermediate Music Theory and Composition

AMU-204. Introduction to Composition. (Not offered 2010-11). The creation and notation of freestyle compositions with emphasis on individual instruction.

AMU-301 (200). Listening Workshop (Winter; Tann). An examination of the large-scale features of music through close listening, analysis of scores, and concert attendance. Prerequisite: AMU-201 (102) or permission of the instructor.

Music History and Cultural Studies

AMU-212. Baroque Music (Fall; McMullen). A study of music composed between 1600 and 1750. Origins and development of opera from Monteverdi through Handel; the influence of dance rhythms; the development of the concerto; harpsichord and organ music by Frescobaldi, Couperin, and Bach; performance practice issues and modern-day musicians; and sacred and secular music of Bach and Handel. *GenEd: HUL*.

AMU-213. Haydn, Mozart, Beethoven (Spring; McMullen). Through a study of the works and lives of these three composers, students will come to a better understanding of Vienna at one of the city's greatest musical heights. Emphasis will be placed on the composers' contributions to the development of the symphony, string quartet, opera, and piano sonata. *GenEd: HUL*.

AMU-214. Romanticism (Not offered 2010-11). Through a study of scores and historical documents this course examines selected works from a variety of views, ranging from musical analytical to historical. Emphasis will be placed on understanding the individual styles developed by composers such as Chopin, Berlioz, Verdi, Wagner, and Brahms over the course of the nineteenth century. *Gen-Ed: HUL*.

AMU-215. Music in the 20th Century (Not offered 2010-11). The study of significant styles and developments in the music of the last century (both "classical" and popular), approached through analysis, performance, and/or composition. Prerequisite: AMU-101 or permission of the instructor.

AMU-220. Music and Culture (Also ANT 274) (Winter; Matsue). A seminar on Music and Culture, with reading, listening, and workshops in a variety of world music areas. Students will also consider how one conducts research on performing arts, culminating in a focused project on music-making in the community. Students thus will encounter diverse peoples and their musical practices in cross-cultural comparison while also exploring research methodology through their own work. Prerequisite: AMU-101 or permission of the instructor.

AMU-320 (221). Encounters with East Asian Music Cultures (Not offered 2010-11). Through exploration of genres such as Chinese Peking Opera, dramatic Korean narrative, and Japanese classical dance, students will explore performance practice throughout East Asia. Students will further consider the history of cultural exchange between China, Korea, and Japan, East Asian aesthetics and social values, and gendered performance. Prerequisite: AMU-101 or permission of the instructor. *GenEd: LCC*

AMU-340. Early Music Seminar (Winter; McMullen). This course focuses on repertoire from the Medieval, Renaissance, and Baroque Eras, with a particular emphasis on performance practice. Students read historical documents on articulation, phrasing, and other aspects of music making, as practiced during these eras. The historical ideas are then applied in ensembles of recorders, other woodwinds, keyboards, guitars, bowed string instruments, and other available instruments. Keyboard students will have the opportunity to learn to play basso continuo. Singers will learn about vocal techniques associated with music written before the mid-eighteenth century. *GenEd: HUL*.

Performance Workshops

AMU-230. Vocal Workshop (Not offered 2010-11). Performance and historical study of music written for small vocal ensembles. Repertoire from many eras.

AMU-231. Chamber Music Workshop (Fall; Klimash). Rehearsal and performance of chamber music primarily from Classical and Romantic periods.

AMU-232. Jazz Workshop (Winter; Olsen). Performance, analysis, and composition of music written in jazz idioms.

AMU-233. Japanese Wadaiko Workshop (Not offered 2010-11). Study of Japanese music and culture, with an emphasis on the performance of Japanese Wadaiko (a popular ensemble drumming style). No prior musical experience necessary. *GenEd: LCC*

AMU-234. Balinese Gamelan Workshop (Spring; Matsue). Study of Balinese music and culture, with an emphasis on the performance of Balinese gong kebyar (an orchestral form featuring xylophones, gongs, drums, and cymbals). No prior musical experience necessary. *GenEd: LCC*

Special Topics in Music

AMU-302. Special Topics: Ethnomusicology Seminar (Not offered 2010-11). An overview of the field of ethnomusicology through exploration of relevant literature, documentaries, and performance. Prerequisite: AMU-220 or permission of the instructor.

AMU-303. Special Topics: Conducting (Spring; Klimash). Fundamentals of conducting vocal and instrumental ensembles, including score reading and preparation, beat patterns, gestures, and rehearsal techniques. Prerequisite: permission of the instructor.

AMU-304. Projects in Composition and Performance (Not offered 2010-11). Self-selected group and individual projects in composition or performance or both. Instrumental ability not necessarily a prerequisite.

AMU-305 (301). Special Topics: Vocal Arranging (Not offered 2010-11). Writing and arranging for the voice, in folk, classical, jazz, and popular contexts. Prerequisite: AMU-201 (102) or permission of the instructor.

AMU-306. The Evolution of Popular Song (Spring; Olsen). From minstrelsy and vaudeville through Tin Pan Alley, Motown, the Beatles, Burt Bacharach, and Billy Joel, this course will examine the creation, performance, transmission, and reception of popular song. In addition to analyzing lyrical/musical content as well as historical context, students will compose words and music in the styles of established master songwriters. Prerequisite: AMU-101 or permission of the instructor.

Independent Work

AMU-295H-296H. Music Honors Independent Project 1 & 2

AMU-490-492. Independent Study

AMU-497. One-Term Senior Project

AMU-498-499. Two-Term Senior Project

Ensembles and Lessons

Students are invited to participate in a variety of faculty-led ensembles. A list of approved instrumental and vocal instructors is available from the music faculty. There is no fee for participation in the ensembles; music lessons are paid for separately on an individual basis. To gain transcript recognition for participation in these activities, students must register with the registrar early in the term and achieve a passing grade from the teacher, director, or conductor. Requests to register for practicum transcript recognition after the drop-add period will not be honored. Each full music credit is accumulated from three previous passing grades in the same practicum (AMU-010, AMU-012, AMU-013, AMU-014, AMU-015, AMU-016, or AMU-017). There are no limits on how many practicum courses can appear on the student's transcript. To earn course credit student must take three terms of the same practicum. At most two of these credits can be used towards graduation in the event that the student is behind in credits. Full music majors must accumulate at least two years of practicum credit (one year of which must be in an ensemble); ID majors and minors must accumulate at least one year of practicum credit in an ensemble.

AMU-010. Instrumental and Vocal Lessons. Individual instruction is offered in voice, keyboard, guitar, wind, string, brass, and percussion instruments. Lessons are paid for separately. For registration information and a list of approved instructors see Professor McMullen.

AMU-012. Union College Taiko Ensemble. In the Union College Taiko Ensemble students will learn to perform on a variety of Japanese traditional drums. The ensemble meets weekly and offers one concert each term and may give additional performances both on- and off-campus. No previous musical experience is required, though students will need to audition/interview at the beginning of each term to determine enrollment. See Professor Matsue.

AMU-013. Union College and Community Gamelan Ensemble. (Not offered 2010-11). In the Union College and Community Gamelan Ensemble students and members of the community will learn to perform music for Balinese gong kebyar, a type of Indonesian orchestra featuring gongs, xylophones, drums, and cymbals. The ensemble meets weekly and offers one concert each term. No previous musical experience is required, though members may need to audition/interview to determine participation at the discretion of the instructor. See Professor Matsue.

AMU-014. Union College and Community Chorale. The rehearsal and performance of large-scale choral works with keyboard and orchestral accompaniment. Open by audition to all students and members of the community. The Chorale rehearses once a week and offers two formal concerts per year. See Professor Klimash.

AMU-015. Union College Jazz Ensemble. The Union College Jazz Ensemble meets weekly and performs throughout the year in both formal and informal settings. Experience in improvisation is desirable but not required. Instrumentalists and vocalists are welcome to audition. See Professor Olsen.

AMU-016. Union College Camerata Singers. The rehearsal and performance of a cappella literature from five centuries of the choral tradition. Open by audition to all Union College students. The Camerata Singers rehearse twice a week and offer one formal concert each term. See Professor Klimash.

AMU-017. Union College and Community Orchestra. The Orchestra meets once a week and presents at least one concert each term. The Orchestra is open by audition to all students and members of the community. Students usually occupy principal chairs and may rotate to allow more players the opportunity for participation. See Professor Klimash.

Nanotechnology

Directors: Professors M. Hagerman (Chemistry) and P. Catravas (Electrical and Computer Engineering)

The interdisciplinary minor in nanotechnology is primarily aimed at science and engineering majors who wish to become more aware of the properties of matter at the nanoscale, the potential usefulness of those properties, and their social and economic implications. It will also appeal to students interested in science and technology policy who wish to have a good grounding in science and technology.

Requirements for the minor:

1. Required courses for all minors (two courses):
Chemistry 224 /Engineering Science 224 (Frontiers of Nanotechnology and Nanomaterials) and Mechanical Engineering 213 (Materials Science)
2. Required science courses: Any two courses, outside of the student's major department, in Biological Science, Chemistry, or Physics which count toward that department's major.
3. Elective courses: Any two courses from the following list, including at least one course from Humanities or Social Sciences:
 - Anthropology 240 Culture and Technology
 - Chemistry 352 Quantum Chemistry
 - Engineering Science 100 Exploring Engineering
 - History 193 Science, Medicine and Technology in Culture (SMTC)
 - History 253 / Physics 053 Physics and Politics
 - Philosophy 232 Philosophy of Science
 - Philosophy 247 Technology and Human Values
 - Physics 350 Quantum Mechanics
4. The student's senior writing, research, or design project should involve elements of nanoscience or nanotechnology. This senior project should be approved by the Nanotechnology program director.

Neuroscience

Director: Associate Professor S. Romero (Psychology); Professor R. Olberg (Biological Sciences)

Faculty: Professors L. Fleishman (Biological Sciences), V. Barr (Computer Science), R. Martin (Philosophy), D. Burns, C. Weisse (Psychology); Associate Professors D. Cervone (Mathematics), Q. Chu-LaGraff (Biological Sciences); Assistant Professors K. Striegnitz (Computer Science), C. Anderson-Hanley, C. Chabris (Psychology), S. Kirkton (Biological Sciences)

The major in neuroscience is designed for students with interests that intersect the fields of biology and psychology. Neuroscience focuses on the relationships among brain function, cognitive processing, and behavior. Researchers in this field come from widely disparate backgrounds, including cognitive psychology, clinical neuropsychology, neuroimaging, neurobiology, neuroethology, bio-psychology, physiology, neurology, and computer science. Thus, research questions are considered from many different levels, and many different converging methodologies are used.

The neuroscience major consists of three tracks: the bioscience track, the cognitive track, and the computational track. The bioscience track focuses on the biological basis of neural development, function, and plasticity. Students will develop an understanding of the nervous system and its role in cognition, perception, and action at the molecular, cellular, and systems level.

The cognitive track provides students with an understanding of how neural networks and brain mechanisms give rise to specific mental processes and behavior. Students begin with the processes that have been traditionally studied in the area of cognitive psychology, but can tailor the program to include processing that is traditionally studied in developmental or clinical psychology as well.

The computational track focuses on issues related to developing computational models of neuronal and mental processes. Students will develop an understanding of artificial intelligence that uses biologically plausible methods.

It is recommended that students in this major start with Biology 101 and 102 then Psychology 210 as these courses are prerequisites for neuroscience students to take the neuroscience related courses in the Psychology Department without taking Psychology 100 (Introduction to Psychology).

Requirements for the Major: The neuroscience major consists of four parts: (1) A core of required courses; (2) required courses in one of three tracks, bioscience, cognitive, or computational; (3) general electives; and (4) a senior writing requirement. Unless listed below, course descriptions are listed under their home departments.

1. Required courses for all neuroscience majors:

BIO-101 and BIO-102 (Introductory Biology); BIO-225 (Molecular Biology of the Cell); Either BIO-362 (Introduction to Neurobiology) or BIO-363 (Introduction to Cellular Neurosciences); CSC-106 (Can Computers Think?); PHL-231 (Symbolic Logic); PSY-200 (Statistical Methods in Psychology); PSY-210 (Introduction to Cognitive Neuroscience) PSY-220 (Psychology of Memory and Thinking)

2. Required and cognate courses in one of three tracks

Bioscience track

Required Courses:

Any TWO from the following list: BIO-325 (Animal Behavior); BIO-330 (Comparative Animal Physiology); BIO-332 (Biology Vertebrate Anatomy); BIO-365 (Neural Circuits and Behavior); BIO-370 (Endocrinology); BIO-384 (Molecular Genetics); PSY-211 (Sensation and Perception)

Students must also take the following cognate Courses: MTH-110, CHM-101 and CHM-102. MTH-112 and one term physics are also recommended.

Cognitive track

Required Courses:

Any TWO from the following list: PSY-211 (Sensation and Perception); PSY-225 (psychology of Language); PSY-221 (Psychology of Learning); BIO-325 (Animal Behavior); PHL-365 (Philosophy of Mind)

Students must also take the following cognate Courses:

MTH-110, CHM-101 and PSY-300. MTH-112 and one term physics are also recommended.

Computational track

Required Courses:

Any TWO from the following list: CSC-206 (Natural Language Processing); CSC-320 (Artificial intelligence); CSC-325; (Robotics); CSC-329 (Neural Networks); PHL-442 (Advanced Logic); PHL-365 (Philosophy of Mind); PHL-462 (Philosophy of Language).

Students must also take the following cognate Courses: MTH-110, MTH-197 (or MTH-199) and CSC-150. MTH-112 and CHM-101 recommended

3. Elective. TWO additional courses from the following list:

BIO-325 (Animal Behavior); BIO-330 (Comparative Animal Physiology); BIO-354 (Developmental Biology); BIO-362 (Neurobiology); BIO-363 (Introduction to Cellular Neuroscience); BIO-365 (Neural Circuits and Behavior); BIO-370 (Endocrinology); BIO-384 (Molecular Genetics); CHM-231 (Organic Chemistry); CSC-103 (Intro to Computational Science); CSC-206 (Natural Language Processing); CSC-243 (Intro to Bioinformatics); CSC-320 (Artificial intelligence); PHL-231 (Symbolic Logic); PHL-232 (Philosophy of Science); PHL-365 (Philosophy of Mind). PHL-462 (Philosophy of Language); PSY-211 (Sensation and Perception); PSY-215 (Introduction to Health Psychology); PSY-221 (Psychology of Learning); PSY-225 (Psychology of Language); PSY-240 (Developmental Psychology); PSY-250 (Abnormal Psychology).

4. Senior writing requirement. Option (b) is strongly recommended.

- ONE of the following senior seminars: PSY-410, PSY-411, PSY-420 BIO-487, BIO-488, or BIO-489, or
- A two- or three-term senior thesis or senior research project. Students should register for senior thesis or research in the department that corresponds to their neuroscience track. Bioscience track: BIO-497, BIO-498, BIO-499. Cognitive track: PSY-498 and PSY-499 or PSY 487, PSY-488, and PSY-489.

Requirements for Honors: In addition to fulfilling college-wide honors requirements, to earn honors in neuroscience, a student must earn a minimum grade point average of 3.3 in the major (including thesis grades, but not including the cognate courses, or more than one term of independent study), a minimum of three grades of A or A- in courses in the major exclusive of the thesis, and satisfactory completion of a senior thesis with a minimum grade of A-.

Requirements for the Minor: Six courses listed in sections 1, 2a, or 2b above with at least one course from 2a and one course from 2b. The minor must also include at least 2 courses whose primary designation is in Biology and 2 courses whose primary designation is in Psychology. For Biology and Psychology Majors, only 1 course counted for the major may also count toward the minor.

Course Registration Guidelines

Note on Prerequisites: BIO-101 and 102 should be substituted for PSY-100 as the prerequisite for PSY-210. Upon completion of PSY-210, neuroscience students may take other Psychology courses without first completing PSY-100.

Organizing Theme

The Organizing Theme Major is best suited for the self-motivated student who has a well-defined intellectual curiosity for a topic involving multiple disciplines and which cannot be accommodated by the already existing majors, double majors, or interdepartmental majors at Union College. The Organizing Theme Major encourages the exploration of thematically related connections across disciplines, and must therefore incorporate courses from at least three different departments (with no more than four courses from any one department to count toward the major). The student must choose and work with an advisor (or advisors) who is supportive of the student's proposed Organizing Theme Major and has a clear understanding of what the project entails. The student who chooses to work with more than one advisor must be certain that the advisors are willing to work together with the student to create and carry out the Organizing Theme Major proposal.

Requirements for the Major

The approved program must conform to the disciplines already established at Union. Your proposal may be submitted no sooner than spring term of your freshman year, and must be submitted, at the very latest, by week six of spring term of your sophomore year. It consists of a total of 12 courses that clearly relate to the organizing theme, at least two of which must be at the 300- or 400-level. In addition, the student must complete a one-term senior thesis or project (ort 498). Or the student must complete 11 courses (at least two of which must be at the 300- or 400-level) and then a two-term senior thesis or project (ort 498-499). NOTE: When preparing the Organizing Theme Major proposal with the advisor(s), the student must identify these 12 courses, plus several (3-4) more that can stand in as alternates in case some of the courses you choose are not available at the time you wish to take them. It is the student's responsibility to check with departments to verify that the courses are offered in the time frame required. The one- or two-term senior thesis or project (ORT 498-499) must demonstrate an integration of the knowledge and skills gained from the Organizing Theme Major courses that the student has taken. The advisor(s) will direct this senior thesis or project.

The Application Process

The Organizing Theme Major proposal requires the approval of the chosen Organizing Theme advisor(s) and then a faculty committee established by the Dean of Studies. It may be proposed no sooner than the spring term of the freshman year and no later than the sixth week of the spring term sophomore year (in extremely rare cases, this deadline may be extended to the first week of the fall term of junior year). For more information about the Organizing Theme Major and the application process, see the Organizing Theme Web page (www.union.edu/academic_depts/organizing_theme) or contact Professor Michelle Chilcoat at chilcoam@union.

Philosophy

Chair: Associate Professor L. Zaibert

Faculty: Professors R. Baker, R. Martin, L. Patrik; Associate Professor F. Davis; Assistant Professor L. Warenski; Visiting Assistant Professor M. Wunderlich

Staff: M. Snowden (Administrative Assistant)

Requirements for the Major: Eleven courses in philosophy, of which seven should be numbered 200 or above and three (excluding PHL-408/418, PHL-498/499, and Independent Study) numbered 400 or above. The eleven courses should include: two courses in the history of philosophy (i.e., two of the following: PHL-150, PHL-155, PHL-160, PHL-166, PHL-167, PHL-170, PHL-245, PHL-338, PHL-341, PHL-450); one course in logic (PHL-125, PHL-231, PHL-235, PHL-447, or PHL-480); and PHL-408/418.

Requirements for the Interdepartmental Major: Seven courses in philosophy, of which four should be numbered 200 or above and two (excluding PHL-408/418, PHL-498/499, and Independent Study) numbered 400 or above. The seven courses should include: two courses in the history of philosophy (i.e., two of the following: PHL-150, PHL-155, PHL-160, PHL-166, PHL-167, PHL-170, PHL-245, PHL-338, PHL-341, PHL-450); one course in logic (PHL-125, PHL-231, PHL-235, PHL-447, or PHL-480); and PHL-408/418.

Requirements for Departmental Honors: To be eligible for departmental honors, the candidate must (1) complete all requirements for a major in Philosophy, or for an ID major in Philosophy and another discipline; (2) have a minimum grade point average of 3.3 in philosophy; (3) have received at least three "A" or "A-" grades in philosophy courses, excluding the Honors Thesis (PHL-498/499); (4) receive a grade of "A" or "A-" on their thesis; (5) publicly defend the thesis; and (6) be voted honors by a committee of three faculty members appointed by the department or, in the case of an ID major, by the Departments. In addition, the candidate must satisfy all College-wide requirements for honors or ID honors.

In satisfying departmental honors requirements, neither Philosophy 498 or 499 counts towards the total number of advanced courses (≥ 400 level) you need to take to fulfill your philosophy major, but both courses do count towards the number of intermediate level courses (≥ 200 level) that you need to take.

Requirements for the Minor: Five courses in philosophy, of which two should be numbered 200 or above. The five courses should include: one course in the history of philosophy (i.e., one of the following: PHL-150, PHL-155, PHL-160, PHL-166, PHL-167, PHL-170, PHL-245, PHL-338, PHL-341, PHL-450); and one course in logic (PHL-125, PHL-231, PHL-235, PHL-447, or PHL-480)

Course Registration Guidelines

Senior Writing Requirement: Students who take Departmental Honors and ID majors who are required to write a senior thesis by their other major Department will satisfy this requirement by writing a senior thesis. All other students will in PHL-408/418 significantly develop a paper that they have written.

All students are strongly advised to consult the advising information on the Philosophy Department's Web site.

Introductory Courses

Introductory Courses, whether issues-oriented or historically-oriented, do not presuppose any prior acquaintance with philosophy. They may be taken in any order. For more advising information, consult the Philosophy Department website.

PHL-051. Ethics Bowl Practicum. For students who want to participate in the Union College Ethics Bowl Team. This practicum provides students the opportunity to further develop their ethical reasoning, critical thinking, and communication skills by participating in the National Intercollegiate Ethics Bowl Program and the Bioethics Bowl. Ethics Bowls are case study competitions that combine the excitement and fun of a competitive quiz with an innovative approach to education in practical and professional ethics. Students enrolled in this course will represent Union College at two events in the 2010-2011 academic year. Petition required.

Issues-oriented Courses

PHL-100. Introduction to Philosophy (Spring; Wunderlich;) An introduction to some of the most enduring questions of philosophy: Does God exist? Might the external world be an illusion? Is science rational? What is the relationship between the mind and the body? What is it to be moral, and why should one bother?

PHL-105. Introduction to Ethics (Fall, Winter: Wunderlich; Spring; Davis) An introduction to traditional normative ethical theories, which attempt to provide a rationally defensible account of morally right and wrong conduct and morally good and bad character, and consideration of the challenges posed to these theories by ethical relativism and feminist ethics.

PHL-110. Moral Problems: A Case Study Approach (Fall; Wunderlich). An introduction to ethics by considering how a wide variety of reality-based examples of complex and controversial ethical issues might be resolved in a rational manner.

PHL-115. Paradoxes (Not offered 2010-11). A paradox arises when apparently acceptable premises and an apparently acceptable method of inference lead, surprisingly and annoyingly, to an *unacceptable* conclusion. We will examine famous paradoxes from many branches of philosophy, showing how attempts to resolve them yield valuable insights into such central philosophical concepts as truth, time, infinity, God, rationality, and morality.

PHL-120. First-Year Seminar (Fall, Warenski; Winter; Zaibert). An introduction to some of the central problems of philosophy and to ways of approaching any issue philosophically, including the existence of God, conflicts between science and religion, free will, the nature of the mind, truth, and knowledge.

PHL-125. Introduction to Logic and Critical Thinking (Fall; Warenski). A course in informal logic, with a very brief introduction to elementary formal logic. Students will learn to identify, analyze and evaluate English-language arguments in areas ranging from the sciences to current affairs to the law.

PHL-135. Philosophy in Film (Not offered 2010-11). This course will be an exploration of the portrayal in film of philosophical issues, followed by a focused consideration of the issues themselves. The goal will be to stimulate students' philosophical imaginations through film and then use that energy as the springboard for philosophical study and discussion of such issues as appearance and reality, freedom and responsibility, the existence of god, the question of whether computers are sentient, rational, and moral agents, and our moral obligations to others and to the state.

Historically-oriented Courses

PHL-150. Ancient Philosophy (Fall; Patrik). An examination of issues debated by ancient Greek and Roman philosophers that became central to western philosophy, including the nature of reality, the criteria for knowledge, the difference between good and pleasure, and the principles of political justice. Discussion of readings from the Pre-Socratics, Plato, Aristotle, the Epicureans and the Stoics.

PHL-155. Seventeenth and Eighteenth Century European Philosophy (Not offered 2010-11). An introduction to philosophy by way of some of the most important European philosophical works of the Seventeenth and Eighteenth Centuries.

PHL-160. Nineteenth and Twentieth Century Philosophy (Not offered 2010-11). An exploration of some of the major trends in the philosophy of the 19th and 20th centuries focusing especially on contemporary skepticism, cultural relativism, the crisis of faith and morality, language, and the metaphysics of truth, as reflected in the contemporary philosophical movements of existentialism, analytic philosophy, phenomenology, and postmodernism.

PHL-166. Indian Philosophy (Not offered 2010-11) An introductory survey of Hinduism, Buddhism, Jainism and Carvaka. Over the centuries, Indian philosophers inquired into the nature of reality and mind, debated epistemological issues concerning the criteria for valid knowledge, proposed paths for attaining spiritual liberation, and developed social theories for the welfare of people. Methods used by Indian philosophers include meditation, yoga, reasoning, logic, debate and observation. Some of these methods will be explored in class. *GenEd: LCC*

PHL-167. Chinese Philosophy (Spring; Patrik) An introductory survey of Confucianism, Daoism, Moism, Yin Yang, Legalism, Neo-Confucianism and Neo-Daoism. Among the theories covered in the course are Confucian theories of self-cultivation, the superior person and human nature, Menzi's theory of original human goodness, Xunzi's theory of evil human nature, Daoist theories of non-action, harmony with nature, and law of reversion, and Moist theories of universal love and non-discrimination. Many of these Chinese theories shaped Chinese civilization for over two millennia. *GenEd: LCC*

PHL-170. Philosophy in America (Not offered 2010-11) An introduction to philosophy by way of the works of major American philosophers.

PHL-175. Jesus. (Not offered 2010-11). A survey of recent debates among historians, theologians, and interested onlookers over who Jesus was and how Christians can best respond to the challenge that recent scholarship poses to traditional Christian beliefs.

PHL-180. Theories of the Good Life (Spring; Patrik). This course takes a cross-cultural approach to theories of the good life by studying ancient Greek, Chinese, African and Hindu theories, as well as more modern versions of these theories. In class, we shall analyze and debate these theories in terms of their underlying beliefs about human nature and in terms of whether someone can actually live by these theories. *GenEd: LCC*

Intermediate Courses

Intermediate Courses do not presuppose any prior acquaintance with philosophy. They may be taken in any order; and are pitched at a level that is more appropriate for second and higher year students than for first year students. However, in some cases an order for taking intermediate courses is recommended (for this and other advising information, consult the Philosophy Department website).

PHL-231. Symbolic Logic (Winter, Spring; Warenski). An introduction to modern symbolic logic, focusing on translation, semantics and syntax for propositional and predicate logic. You will learn to translate natural language into the language of logic and vice versa, and study key concepts such as validity, consistency, proof, soundness and completeness. *GenEd: QMR*

PHL-232. Philosophy of Science (Winter; Clark) An introduction to philosophy of science. What are scientific theories, and how are they tested? What is scientific method? What counts as evidence for a scientific theory? What is scientific explanation? We will approach these questions both philosophically and through formal techniques.

PHL-234. Philosophy of History (Not offered 2010-11). An examination of how historical studies contribute to knowledge. Among the issues considered will be how historical interpretations differ from scientific theories, whether there are different ideals of objectivity in humanistic historical studies and in the sciences, and how, if at all, interpretational conflict in historical studies can be rationally adjudicated.

PHL-235. Reasoning and the Law (Spring; Clark). A non-technical introduction to legal reasoning. We will consider the nature of arguments in general and learn how to distinguish good arguments from bad ones, and then consider a variety of issues that arise in the context of the law, including arguments whose force turns on a proper understanding of men's real and proximate cause. The arguments that we will consider are drawn primarily from judicial decisions. We shall also examine the relationship between morality and the law.

PHL-237. Introduction to Political Philosophy (Not offered in 2010-11) An historical introduction to issues in political philosophy. The texts that we will consider address questions such as: Why should individuals live in society at all? Why should individuals obey any government at all? What are the sources, limits and purposes of political power?

PHL-238. Business Ethics (Not offered 2010-11). An introduction to issues in business ethics, including questions about economic distributive justice and the moral justification of economic systems, the moral responsibilities of corporations, and the moral rights and responsibilities of employers and employees.

PHL-240. Contemplative Social Justice Ethics (Not offered 2010-11) Helping others is a basic ethical motivation found in social work, non-profit organizations, and social activist movements. This course looks at philosophical theories of altruism that focus on the project of ending world poverty and on the more abstract question of whether it is possible to be an altruist. The practical side of the course includes the study and practice of different contemplative methods that are said to provide support for altruistic motivation and action. These contemplative methods are drawn from the Black Church, Buddhist, Catholic, Jewish, Muslim and Protestant traditions. Students will do research on a non-profit organization that addresses social justice issues for their final paper.

PHL-242. The Philosophy of Aristotle (Cross-listed with CLS-242) For description see CLS 242)

PHL-245. Buddhist Ethics (Fall; Patrik) Ethics is one of the three main components of the Buddhist path, the others being meditation and wisdom. In the centuries following the Buddha's death, two main branches of Buddhism developed: Theravada Buddhism and Mahayana Buddhism. The older school, Theravada, emphasized moral guidelines and meditation practices that culminate in nirvana; the Mahayana school emphasized a morality of compassion and a metaphysical theory of emptiness. In the contemporary period, Buddhists are concerned about issues relating to the environment, social justice, war, medicine and health, gender, and race. Buddhist ethical theories emphasize selflessness, moral discipline, compassion, karma and awareness. This course draws from ancient ethical texts as well as contemporary works on applying basic Buddhist principles to today's moral problems.

PHL-246. Art, Media, and Society (Not offered 2010-11). An examination of the traditional aesthetic theories of philosophers such as Plato, Aristotle, Burke, Hume, Schopenhauer, and Nietzsche, as well as more recent theories. Among the issues considered will be how art is different from everyday objects and the impact of technology on art.

PHL-247. Technology and Human Values (Not offered 2010-11). An examination of some of the challenges posed by emerging technologies to traditional conceptions and values. Topics to be discussed may include what it is to be a person, attitudes toward one's own body, privacy, and the significance of death.

PHL-248. Philosophy and Current Affairs (Winter; Davis) Evolution, Morality & Religion. "Public philosophy" tests the prospects and limits of philosophy as a means of analyzing events and conditions of current interest. We will select an issue, such as affirmative action, the politics of religion, minority rights, the entertainment industry, etc., and track it both in the scholarly and the popular media (newspapers, television, etc.).

PHL-249. The Self In Cyberspace (Winter; Davis). This course is an inquiry into claims about how computational technology affects who we think we are as self-aware individuals, as private individuals, and as public individuals. Students will be expected to participate in on-line discussions. No special knowledge of computer technology is presupposed. Freshmen admitted only by instructor's approval.

PHL-250. Ethical Theory (Spring; Davis). Theories such as utilitarianism, pure obligation theory, virtue-ethics, and enlightened self-interest theory propose to provide defensible methods for answering questions about right and wrong. The course examines traditional theories (Aristotle, Hobbes, Kant, Mill, etc.) and contemporary theories (Harman, Rawls, Wolf, Nagel, Gauthier) on issues such as moral skepticism and truth, rational self-interest, care as the basis of ethics, the diversity of moral beliefs, moral trump cards, etc.

PHL-255. On War and Killing. (Not offered in 2010-11). The central goal of this course is to develop and apply some useful tools for critical reflection upon the morality of war. In considering this issue we will focus on two main questions: (i) that of *jus ad bellum* – what, if anything, makes it right to go to war?, and (ii) that of *jus in bello* - what kinds of actions are, and are not, justified in carrying out a war?

PHL-261. Philosophy of Religion (Fall; Davis). Current research in philosophical theology about language, possible worlds, and evidence used to address issues such as whether moral obligation can depend upon God's will, whether God's power is limited by the possible, whether God owns us, whether it is reasonable to bet on the existence of God.

PHL-264. Philosophy of American Education (Not offered 2010-11) An introduction to issues in the philosophy of education, including the nature, aims and means of education, with an eye to how these issues arise in an American educational context.

PHL-266. Philosophy in Literature (Not offered in 2010-11) This course examines works of literature that raise questions of philosophical interest. These works will be studied in conjunction with philosophical texts and will be used as a means of illuminating and illustrating philosophical issues. Although we will be reading some classics in literature, the focus of the course will be on the philosophical issues as opposed to literary analysis. Topics to be covered may include the nature of the good life, theories of morality and punishment, weakness of will, death, and personal identity.

PHL-273. Environmental Ethics (Spring; Vitek). An exploration of the ethical and philosophical ideas that have shaped attitudes toward the environment and toward non-human species.

PHL-274. Environmental History and Literature (Not offered 2010-11). An examination of American environmentalism from 1850 to the present, including the writings of Black Elk, John Muir, Aldo Leopold, Rachel Carson, E.F. Schumacher, and Gary Snyder. Emphasis will be given to the social implications of environmental issues and the ways in which an historical perspective can enhance understanding of current environmental policies and practices.

PHL-305. Relativism in Ethics and Politics (Not offered 2010-2011) Relativism is not just a 'theoretical' issue: the Events of 9/11 have pitted those who demand 'moral clarity' against those who urge 'more understanding.' Moral disagreement is not limited to conflicts between cultures: democratic societies attempt to accommodate points of view which conflict and diverge, sometimes nearly to the point of violence, as debates on abortion or gay marriage or the separation of church and state, or even taxation, show. But relativism is also an important theoretical issue as it raises questions about truth, justification of belief and moral skepticism. We explore these theoretical, moral and political dimensions through reading of theorists such as Rawls, Nagel, Harman, Thomson, Gutmann, and others. One philosophy course prerequisite or permission of the instructor.

PHL-338. Zen and Tibetan Buddhism (Not offered 2010-11). Mahayana Buddhism, which spread from India through China, Korea, Japan and Tibet, includes the two schools of Zen Buddhism and Tibetan Buddhism. These two schools are known for their philosophical theory of emptiness and their practice of intensive meditation. Known as the "Sudden Enlightenment" form of Mahayana Buddhism, Zen emphasizes careful observation of the nature of mind. Known as the "Gradual Enlightenment" form of Mahayana Buddhism, Tibetan or Vajrayana Buddhism has preserved many of the Indian philosophical theories of Buddhism, and it emphasizes compassion and development of altruism.

PHL-340. Applied Philosophy Internship This internship trains philosophy majors in community involvement by integrating ethical, legal, business or social justice theory with hands-on work in a non-profit organization, law firm or business. In their junior or senior year, a philosophy major may apply for this internship. After locating an internship opportunity, the student must receive permission from the chair of the philosophy department in order to count the internship for one-term course credit. The student will study philosophy related to her or his internship work and will keep a journal about how these theories relate to the day-to-day internship activities. The student will work with a professor in the philosophy department to determine the reading assignments for their internship and will meet with this professor every other week.

PHL-341. Twentieth Century Philosophy. (Not offered 2010-11) A study of 20th century European or American philosophies: phenomenology, existentialism, or analytic philosophy.

PHL-359. Postmodernism (Cross-listed with WGS-359) (Not offered 2010-11). Do some groups control the way we use language? Is discourse male-dominated or Euro-centric? Postmodern theories investigate the nature of language, as well as questions concerning power and language: How is power gained and controlled through discourse, the media and other cultural institutions? Postmodern theories have had an impact on contemporary literature, art, and media theory. Readings by Structuralist and Postmodern thinkers, such as Saussure, Barthes, Foucault, Cixous, Irigaray, and Derrida will be discussed. Prerequisite: one philosophy course or permission of the instructor.

PHL-365. Philosophy of Mind (Winter; Warenski) Critical examination of some central issues in the philosophy of mind, including the mind/body problem, the problem of other minds, “intelligent” machines, and animal minds.

PHL-366. Epistemology (Not offered 2010-11) Philosophical examination of problems and issues surrounding our concepts of knowledge, justification, memory, and perception.

PHL-375. Biomedical Ethics (Not offered 2010-11) An introduction to ethical problems in biology and medicine, touching on such issues as reproductive ethics (abortion, cloning), research ethics, the ethics of death and dying (assisted suicide, euthanasia) and similar subjects.

Advanced Courses

Advanced courses may be taken in any order, although in some cases certain orders will be recommended. Unlike Introductory and Intermediate courses, most advanced courses presuppose that the student has already taken at least two philosophy courses. Although first and second year students will be allowed to take advanced courses, these courses are pitched at a level that is more appropriate for third and fourth year students. For more advising information, consult www.union.edu/academic_depts/philosophy.

PHL-408/418. New Directions in Philosophy (Fall, Winter, Spring; Zaibert). Preparation for bi-weekly talks by visiting philosophers and development of writing skills. This course extends over two terms. Only one course credit is given. Required of philosophy and interdepartmental majors. During the first term, students sign up for 408; during the second, for 418. Both 408 and 418 may be taken during any year. Because 408 carries no credit, students should register for it in conjunction with three other full-credit courses. Seniors who have not otherwise satisfied their Senior Writing Requirement may do so by taking this course.

PHL-443. Metaphysics (Not offered 2010-11) An examination of such topics as determinism and free will, causation, time, personal identity, necessity and possibility, objectivity, and God. Prerequisite: two philosophy courses or permission of the instructor.

PHL-444. Current Political Philosophy (Not offered 2010-2011). This course concentrates on issues in contemporary political theory. Prerequisite: two philosophy courses or permission of the instructor.

PHL-445. Topics in Metaphysics (Not offered 2010-11) May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

PHL-446. Topics in Epistemology. May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

PHL-447. Topics in Logic (Winter; Warenski). May be repeated, if topic changes. Prerequisite: PHL-231 or permission of instructor.

PHL-448. Topics in Ethics or Value Theory: Punishment and Forgiveness (Fall; Zaibert, Winter; Wunderlich). When is something a reason for action? What is it about something's being a reason that gives it its normative force, that is, that makes it something that one ought to consider? Prerequisites: Two PHL-courses.

PHL-450. Topics in the History of Philosophy:

PHL-462. Philosophy of Language. An examination of key concepts in the philosophy of language, such as truth, meaning, reference, definite descriptions, names, demonstratives, and propositional attitudes. The fundamental question: How does language connect us to the world? Prerequisite: two philosophy courses or permission of the instructor.

PHL-474. Advanced Biomedical Ethics (Spring; Philpott). An advanced historically based introduction to biomedical ethics. Among the subjects treated will be the relationship between bioethics and traditional medical ethics, the evolution of the discourse, core concepts, models, theories and organizational infrastructure of bioethics, including IRBs and ethics committees. The course is designed to serve as a foundation for graduate work in bioethics and to fulfill the required knowledge competencies recommended by the American Society of Bioethics and Humanities in its 1998 report Core Competencies for Health Care Ethics Consultation. Prerequisite: two philosophy courses or permission of the instructor.

PHL-476. Philosophy of Law. (Spring; Zaibert) An advanced course in jurisprudence. Primary topics include: the nature of law and legal reasoning in general; the nature of criminal law, including both the role of excuses in the criminal law and the aims and justification of criminal punishment; and the nature of tort law, including both the relationship between negligence and liability and the relationship between causation and liability. Prerequisite: one philosophy course or permission of the instructor.

PHL-480. Foundations of Mathematics (Not offered 2010-11) (cross-listed with MTH 480) . An advanced course in logic, covering propositional and predicate logic, Gödel's completeness theorem, and introducing recursion theory. For a current course description and information about prerequisites, consult the Mathematics Department catalogue.

PHL-295H/296H. Philosophy Honors Independent Project 1 & 2.

PHL-490-493. Independent Study (Fall, Winter, Spring). Selected topics in philosophy. Prerequisite: Permission of the instructor.

PHL-498/499. Honors Thesis (Fall, Winter). Substantial two-term written project on a specific philosophical topic, under the direction of an advisor, culminating in an honors thesis. Philosophy 498 carries 0 credits. Upon completion of PHL-499 the student receives two course credits. Normally taken in the senior year.

Physics and Astronomy

Chair: Professor M. Vineyard

Faculty: Professors S. Maleki, J. Newman, G. Reich; Associate Professors R. Koopmann, C. Orzel, R. Surman; Assistant Professor S. Amanuel; Senior Lecturer S. LaBrake; Lecturer F. Wilkin; Visiting Assistant Professor J. Marr

Staff: J. Sheehan (Technician), C. Palleschi (Administrative Assistant)

Requirements for the Physics Major: Ten courses in physics (Physics 120, 121, 122, 123, 220, 230, 270, 300, 310, and 490); Math 115 and 117; and two science courses outside the department (note that a course in geophysics, Geology 303, is available). Students are expected to attend the weekly departmental colloquium series to gain an appreciation for current research areas in physics and related areas.

For those students wishing to consider graduate work in physics or a closely related discipline (e.g., astronomy, materials science, applied physics), the department advises the following curriculum: Physics 120, 121, 122, 123, 220, 230, 270, 300, 310, 311, 350, 490, 491; Math 115, 117, and 130. These students are also strongly encouraged to take electives from Physics 200, 210 and 312, Astronomy 200, 210, 220, 230, and 240, Math 127, 138 and 180, and Electrical and Computer Engineering 225.

For students interested in pursuing careers that do not require graduate work in physics, some substitutions of courses in engineering will be considered by the department. Examples include: Mechanical Engineering 212 for Physics 230 and Electrical Engineering 343 for Physics 270. Students must request formal approval from the Department of Physics and Astronomy for any such substitution.

Requirements for the Astronomy Major: Ten courses in Physics and Astronomy (Physics 120, 121, 122, 123, Astronomy 51 or 100, Astronomy 50 or Geology 303, Astronomy 230 or 240, Physics 490, and two courses selected from the following: Physics 230, Astronomy 52, 200, 210, 220, and 230 or 240, whichever is not counted as a required course); Math 113 and 115; and one science course outside the department. Students wishing to pursue graduate work in astronomy are advised to major in physics and minor in astrophysics.

Requirements for Honors: In addition to the requirements for the major given above, the student must take at least one additional course in research (PHY 491), submit an honors thesis, and satisfy College requirements for departmental honors.

Requirements for the Interdepartmental Major: Students taking physics or astronomy as part of an 8-6 or 8-4-4 interdepartmental major program can choose from either a conceptual or a calculus track. Suitable choices of courses numbered in the 50s, as well as independent study courses 495-498, can count toward the *conceptual track* ID major (such as Arts and Physics or Physics and Society). Suitable choices of courses numbered 100 or greater can count toward a *calculus track* ID major (such as Computational Physics, Biophysics, Geophysics, Environmental or Chemical Physics). For any of these ID majors, a written proposal must be submitted by the student, in consultation with their faculty advisor, for approval by the Department of Physics and Astronomy.

Requirements for the Minor: The Department of Physics and Astronomy offers academic minors in physics, astronomy, and astrophysics. Students wishing to minor in physics should take either Physics 120, 121, 122, and three other courses in consultation with the Department, or, if a life science student, Physics 110, 111, 200 or 210, and three other courses in consultation with the Department. Students wishing to minor in astronomy should take Physics 120, 121, 122 or 123, Astronomy 51 or 100, Astronomy 50 or Geology 303, and one course from Astronomy 52, 200, 210, 220, 230, 240, and Physics 495; or Physics 110, 111, Astronomy 51 or 100, Astronomy 50 or Geology 303, and two courses from Astronomy 52, 200, 210, 220, 230, 240, and Physics 495. Students wishing to minor in astrophysics should take Astronomy 50 or Geology 303, and five courses selected from Astronomy 100, 200, 210, 220, 230, and 240.

Requirements for Secondary School Certification: PSY-246, EDS-500A, 500B, and at least one year of a foreign language. Physics requirements are identical to those of the physics major. All science majors are encouraged to seek certification in more than one science. To become certified in a second science requires a full major in the second science. Those wishing to become certified in general science must include at least two courses each from the areas of biology (Biology 101 and 102), chemistry (Chemistry 101 and 102 or Chemistry 110), and earth science (any geology course or Astronomy 100).

Course Registration Guidelines

Advanced Placement: Students who score a grade of 4 or 5 on the Advanced Placement C-exam (mechanics and/or electromagnetics), an A on the physics A-levels, a 5 or above on the Higher Level or a 6 or above on the standard exam of the International Baccalaureate (provided they earn the IB diploma), may be given credit for up to a maximum of two courses (Physics 120 and/or 121). If a student does not earn the IB diploma, they will be given credit only if they pass the higher level exam with a grade of 6 or above.

Astronomy Courses

General Education Courses

Courses numbered in the 050s are designed particularly for non-science majors seeking to satisfy General Education requirements, and all of these courses carry General Education credit. These courses may count toward the major in astronomy or the interdepartmental major (see requirements for the astronomy and ID majors, above), but they may not be counted toward the major in physics or toward any other science or engineering major.

AST-050. The Solar System (GenEd lab; Spring). An introductory but detailed discussion of the solar system with special emphasis on the application of physics and the measurement of fundamental properties. Topics include the contents of the solar system (earth, moon, sun, planets, asteroids, comets), formation of the solar system, evolutionary processes (cratering, volcanism, tidal effects), extrasolar planetary systems, and possibilities of life on other planets. Labs will be performed in which students learn how to find and observe the planets and measure fundamental properties. No background in mathematics or physics required.

AST-051. Introduction to Astronomy (GenEd lab; Fall). A descriptive review of current knowledge in astronomy, including methods of measurement and the applications of physics to astronomy. Topics include stars (structure, formation, and evolution), galaxies, and the universe. Evening laboratory sessions in which students learn how to use cameras and telescopes. No background in mathematics or physics required.

AST-052. Relativity, Black Holes, and Quasars (Not Offered 2010-11). A descriptive introduction to Einstein's theories of Special and General Relativity, with applications to the astrophysical phenomena of black holes and quasars. No background in mathematics or physics required.

AST-058. Astrobiology: Life in the Universe (Same as BIO-058) (Winter). Does life exist elsewhere in the universe, or are we alone? The emerging science of astrobiology attempts to answer this fundamental question using an interdisciplinary approach rooted in biology and astronomy. This course will examine the current state of our scientific knowledge concerning the possibility of life elsewhere in the universe. Topics include: the nature and origin of life on Earth, the possibility of life on Mars and elsewhere in the Solar System, the search for extrasolar planets, the habitability of planets, and the search for extraterrestrial intelligence (SET). Fulfills GenEd requirement (no lab).

Courses for Science and Engineering Majors

AST-100. Introduction to Astrophysics (Fall). An introduction to the field of astrophysics, with an emphasis on a scientific understanding of stars and the universe. Topics include stars (structure, formation, and evolution), galaxies (the Milky Way, galaxy types, quasars, and active galaxies), dark matter, and the Big Bang model of the universe. One hour mathematics/computational lab each week. Prerequisites: PHY-110 or PHY-120 or IMP-112.

AST-200. Stellar Structure and Evolution (Not Offered 2010-11). An examination of the physical principles governing the structure and evolution of stars. Topics include radiation laws, and the determination of stellar temperature, luminosity, and composition; radiative transfer and the interior structure of stars; nuclear fusion and nucleosynthesis; star clusters and stellar evolution; and stellar remnants (white dwarfs, neutron stars, pulsars, and black holes). Prerequisites: PHY-111 or PHY-121 or IMP-113.

AST-210. Galaxies (Spring). A survey of the physical properties, dynamics, and distribution of galaxies. Topics include the content, formation, and evolution of the Milky Way and other galaxies; the large-scale distribution of galaxies; interactions between galaxies; dark matter; active galactic nuclei; and quasars. Prerequisites: PHY-111 or PHY-121 or IMP-113.

AST-220. Cosmology and General Relativity (Not Offered 2010-11). A detailed study of the universe. Topics include an introduction to general relativity; the shape, size, age, and future of the universe; models of the primordial universe, including the Big Bang Theory and the Inflation Theory; the origin of the elements; dark matter; the cosmic background radiation; and the formation of galaxies. Prerequisites: PHY-111 or PHY-121 or IMP-113, and MTH-115. PHY-122 is recommended.

AST-230. Observational Astronomy (Not Offered 2010-11). A laboratory-based course dealing with modern astronomical techniques. The course work will involve primarily nighttime observations with a 20-inch telescope and computer analysis of the data. Techniques covered include CCD observations, sky subtraction, spectroscopy, and photometry. Student projects may include determination of the distances and ages of star clusters; measurements of the variability of stars and of quasars; measurements of the masses of Jupiter, binary star systems, and galaxies; and determination of orbits of asteroids. Prerequisites: PHY-111 or PHY-121 or IMP-113 or permission of the instructor (with some telescope experience).

AST-240. Radio Astronomy (Fall). A laboratory-based course in the observing methods and the astrophysics learned from astronomical studies at radio wavelengths. Topics include the operation of a radio telescope; important emission mechanisms; star formation regions; interstellar gas; interstellar molecular clouds; radio galaxies; and the cosmic microwave background. Student projects will involve observations with Union's 2-meter radio telescope and with the 37-meter radio telescope at the Haystack Observatory in Westford, Massachusetts. Prerequisites: PHY-111 or PHY-121 or IMP-113, and Math-115.

Physics Courses

General Education Courses

Courses numbered in the 050s are designed particularly for non-science majors seeking to satisfy General Education requirements, and all of these courses carry General Education credit. They may not be counted toward the major in physics or toward any other science or engineering major, but may count toward an interdepartmental major (see requirements for ID-major, above).

PHY-051. Seeing the Light: Concepts of Vision (Same as BIO-051) (GenEd lab; Not offered 2010-11). An introduction to the biology and physics of vision. Topics include the workings of the eye and brain, the properties of light, and recent advances in the development of robotic vision. Closed to physics and biology majors. No mathematics or science background is required.

PHY-053. Physics and Politics (Same as HST-253) (Not Offered 2010-11). This class will introduce students to some of the most important developments during the twentieth century in modern physics, the theory of relativity, quantum mechanics, and nuclear physics, set in a comparative context of the capitalist democratic United States, fascist National Socialist Germany, and communist Soviet Union. Along with an explanation of how the science works, this class will examine how the political, social, and ideological context can influence science and scientists. No background in mathematics or physics required.

PHY-054. Laser Technology and Modern Optics (GenEd lab; Winter). An introduction to lasers and their applications in today's technological society. The special properties of laser light, various types of lasers and how they function, and laser applications including holography, medical uses of lasers, communications, and spectroscopy. Laboratory provides hands-on experiences with lasers. Not open to physics majors. No background in mathematics or physics required.

Courses for Science and Engineering Majors

Integrated Math/Physics IMP-111 (Fall), IMP-112 (Winter), IMP-113 (Spring). An introductory team-taught, year-long sequence of integrated courses, three in mathematics and two in physics, roughly spanning the content of MTH-113, MTH-115, and MTH-117 and PHY-120 and PHY-121. Designed for engineering students as well as other interested students. Prerequisite: Eligibility for MTH-113.

PHY-100. First-Year Seminar (Fall). Team-taught course introducing physics at Union. Topics covered may include astronomy, astrophysics, atomic and molecular physics, biophysics, computational physics, laser physics, quantum measurement, nuclear and particle physics, solid-state physics, and statistical physics. Prerequisite: 4 or 5 on AP exam or by invitation.

PHY-110. Classical and Modern Physics for the Life Sciences I (Fall, Spring). An introduction to classical mechanics, fluids, and thermodynamics with applications in the life sciences. Three lab hours each week. Prerequisite: Math 102 or 112 or 113 (may be taken concurrently). Students must major in a life science or be admitted by permission of the instructor.

PHY-111. Classical and Modern Physics for the Life Sciences II (Fall, Winter). An introduction to electromagnetism, optics, and the structure of matter with applications in the life sciences. Three lab hours each week. Prerequisite: PHY-110 or PHY-120 or IMP-112.

PHY-120. Matter in Motion (Fall, Winter, Spring). Calculus-based introduction to classical mechanics; Newtonian dynamics and energetics of a single particle and of systems of particles. Integrated class and lab meets four times each week. Prerequisites: MTH-102 or MTH-112 or MTH-113 (may be taken concurrently).

PHY-121. Principles of Electromagnetism (Fall, Winter, Spring). Calculus-based introduction to waves, electro and magneto statics, and electrodynamics through Maxwell's equations. Integrated class and lab meets four times each week. Prerequisite: PHY-120 or IMP-112.

PHY-122. Relativity, Quantum, and Their Applications (Winter). Calculus-based introduction to the structure of matter, including quantum effects, particle, nuclear, atomic, molecular, and solid state physics, and applications to materials of interest to engineers and scientists. Three lab hours each week. Prerequisite: PHY-121 or IMP-113.

PHY-123. Heat, Light, and Astronomy (Fall). Calculus-based introduction to thermodynamics, geometric and physical optics, and astrophysics. Integrated class and lab meets four times each week. Prerequisite: PHY-121 or IMP-113.

PHY-200. Molecular Biophysics (Not Offered 2010-11). Selected topics in molecular biophysics including an overview of proteins, nucleic acids, viruses and bacteria, with an emphasis on molecular structure and functioning. Experimental techniques used in modern biophysical research included in the course are various optical spectroscopies and microscopies, as well as hydrodynamic methods (sedimentation, diffusion, viscosity, electrophoresis), NMR, and x-ray diffraction. Prerequisites: PHY-111 or PHY-121 or IMP-113, and some exposure to biology or permission of the instructor.

PHY-210. The Physics of Modern Medicine: Applications in Imaging, Surgery and Therapy. (Fall) This course introduces the technologies used in modern medicine and the basic physical principles that underlie them. Topics will include: laser surgery, ultrasound imaging, laparoscopic surgery, diagnostic x-ray imaging, nuclear medicine, computed tomography (CAT) scans, magnetic resonance imaging (MRI) scans, and radiation therapy. Safety issues involved in the use of each technique will be considered in depth, and discussions will include societal implications of the growing use of technology in medicine. Specific medical applications discussed will include (but are not limited to): colon cancer screening, arthroscopic knee surgery, laser eye surgery, dermatological laser surgery, obstetrical ultrasound, cardiovascular ultrasound, mammography, osteoporosis screening, cancer radiation therapy, and applications of PET and MRI brain scans in neuroscience. Prerequisites: PHY-111 or PHY-121 or IMP-113, or permission of the instructor.

PHY-220. Relativity and Introduction to Quantum Mechanics (Spring). A second course in modern physics covering special relativity and an introduction to quantum mechanics. Topics include relativistic kinematics, relativistic dynamics, four-vector notation, relativistic collisions, origins of quantum mechanics, Schrodinger's equation and the development of wave mechanics, applications of wave mechanics in one and three dimensions (step potential, square well, harmonic oscillator), angular momentum operators, the hydrogen atom, Dirac notation and matrix formulation of linear operators, Dirac Delta function, spin angular momentum, measurement theory, and time-independent perturbation theory. One hour computational lab each week. Prerequisite: PHY-111 or PHY-122.

PHY-230. Intermediate Classical Mechanics (Fall). An analytical treatment of classical mechanics. Topics include motion of a particle in one, two, and three dimensions; planetary motion; collision theory; moving coordinate systems; dynamics of rigid bodies; and the Lagrangian form of the equations of motion. One hour computational lab each week. Prerequisites: PHY-110 or PHY-120 or IMP-112, and MTH-117 (pre- or co-requisite), or permission of the instructor.

PHY-270. Intermediate Electromagnetism (Winter). Electric and magnetic fields and potentials; electric and magnetic properties of matter; Maxwell's field equations. One hour computational lab each week. Prerequisites: PHY-121 or IMP-113, and MTH-117, or permission of the instructor.

PHY-295H-296H. Physics Honors Independent Project 1 & 2 (Fall, Winter, Spring). Topic to be chosen in consultation with a faculty member and the student's advisor.

PHY-300. Methods of Modern Experimental Physics (Spring). A laboratory-based course dealing with contemporary techniques in experimental physics. Prerequisites: PHY-122 and one physics course at the 200-level or higher, or permission of the instructor.

PHY-310. Advanced Topics in Physics I (Fall, Nuclear/Elementary Particle Physics). Course topic for each year to be chosen from the following:

- Condensed Matter Physics: An introduction to the microscopic structures and to the electrical and thermal properties of metals, insulators, and semiconductors. Topics include the description of crystal lattices, electrons in a periodic potential, electronic band theory, phonons and their interactions with electrons, cohesive energy of solids, defect states, and superconductivity.
- Modern Physical Optics: Interference, diffraction and polarization of light, interaction of light and matter, classical and quantum description of optics, and lasers. Three-hour lab each week.
- Nuclear/Elementary Particle Physics: An introduction to both nuclear and particle physics covering basic nuclear structure and properties, nuclear models, nuclear decay and radioactivity, nuclear reactions, fission, fusion, accelerators, elementary particle physics, and the quark model.
- Statistical Mechanics: Probability theory, laws of thermodynamics, kinetic theory of gases and the statistical basis of thermodynamics, Bose Einstein and Fermi Dirac distributions, applications to simple fluids, magnetic systems, metals, photons, and superfluid helium.
- Advanced Electromagnetism: Relativistic electrodynamics, electromagnetic radiation and waves.
- Quantum Optics: The study of the interaction of light and matter in systems where the wave nature of matter and the particle nature of light must be taken into account. Topics may include single-photon interference, correlated photons and the EPR paradox, quantum computing, quantum cryptography and quantum teleportation, atom optics and atom interferometry, laser cooling and Bose-Einstein Condensation, and implications of quantum mechanics for nanomaterials and nanodevices.
- Others depending upon student interest. Course open to juniors and seniors only. Enrollment by permission of the instructor.

PHY-311. Advanced Topics in Physics II (Winter, Modern Physical Optics). Course topic for each year to be chosen from those listed in Physics 310 depending upon student interest. Course open to juniors and seniors only. Enrollment by permission of the instructor.

PHY-312. Advanced Topics in Physics III (Not Offered 2010-11). Course topic for each year to be chosen from those listed in Physics 310 depending upon student interest. Course open to juniors and seniors only. Enrollment by permission of the instructor.

PHY-350. Advanced Quantum Mechanics (Spring). A second course in quantum mechanics with applications to selected problems in atomic, nuclear, and solid state physics. Prerequisites: PHY-220 and MTH-117, or permission of the instructor.

PHY-490-493. Research in Physics (Fall, Winter, Spring). The student will normally begin a research project by the fall of the senior year under the supervision of a faculty member; interested students are encouraged to begin research projects earlier in their studies. All students involved in research will meet together once a week with a faculty member who will organize oral reports by the students based on their progress. A written report is required on completion of the project. *WS (final term)*

PHY-495-498. Independent Study in Physics (Fall, Winter, Spring). Topic to be chosen in consultation with a faculty member and the student's advisor.

Political Science

Chair: Associate Professor Z. Oxley

Faculty: Professors C. Brown, L. Marso; Associate Professors M. Angrist, R. Hislope; Assistant Professors M. Dallas, B. Hays, M. Scherer, G. Seri; Senior Lecturer T. Lobe; Visiting Assistant Professors P. Nicholas, D. Watson, C. Xydias

Staff: T. Martinez-Hilton (Administrative Assistant)

Requirements for the Major: Twelve courses in the department – students must take 111 or 112, 113, 498-499 (a two-term senior project), and eight other courses. No more than two of these twelve courses may be internship courses (i.e., PSC-277, PSC-279T). Of the eight non-specified courses at least three of the four major areas of the discipline must be covered: Political Theory, U.S. Politics, Comparative Politics and International Politics. Introductory courses may not be used to satisfy these distribution requirements.

To fulfill the department's research requirement and to prepare for the senior project, students must take two courses. First, all students must take at least one "R" course. The presence of the "R" designation next to a course number (i.e., PSC 272R) denotes that the course will have a major research assignment as a central component of the course. Second, students must take an additional "R" course, or a seminar (PSC 339, 349, 359, 369), or a methods course (appropriate PSC and cross-listed methods courses are listed under "Research Methods Courses" below; students may request from the political science chair that a research methods course in another department qualify as a methods course for satisfying this requirement). Both research courses should be taken by the end of the student's junior year as preparation for the senior project (PSC 498-499). Students are welcome and encouraged to take more than two research courses; these are simply minimum requirements.

Majors also must complete a foreign experience requirement. The primary option to fulfill this requirement will be the completion of a three course language sequence. If students begin their language sequence beyond the introductory course, only two language courses are required. We recommend that all political science students begin a language track early in their academic career and do not wait until senior year. The foreign experience requirement can also be completed by going on a full length term abroad (mini terms will not fulfill this requirement). We strongly advise students to not count on acceptance into a term abroad program as they have highly competitive application processes. If students make the decision not to start a language early and are not admitted to a full length term abroad, they will not be guaranteed the language of their choice if they must fulfill the language requirement in their senior year.

Majors are also required to take at least two courses in any of the other social sciences (economics, history, sociology, and anthropology) and/or psychology and philosophy.

Any request for exceptions to these requirements must be approved by the department chair.

Requirements for the Interdepartmental Major: Eight courses in the department, which must include 111 or 112, 113, 498-499 (one-term project, with the other term credited to the other major), and five other courses. To fulfill the research requirement Interdepartmental majors must take at least one "R" course. ID majors must also fulfill the foreign experience requirement described above. Internship courses, such as 277 and 279T, may not be counted toward the eight courses required for the interdepartmental major. Students considering interdepartmental majors must petition the department for approval of their proposed course programs.

Requirements for Honors: To receive departmental honors the student must fulfill the following requirements: (1) a minimum index of 3.30 in political science; (2) completion of a political science seminar with a grade of "A minus" or better; and (3) a grade of "A minus" or higher on the senior project. Students who do not attain an A minus or better grade in the seminar may still be eligible for honors if their departmental average is a 3.5 or higher. In addition the student must satisfy College requirements for departmental honors.

Requirements for the Minor: The minor consists of six total courses. Students must take either 111 or 112; and 113. Of the four remaining courses, at least three upper-level courses must all be drawn from one of the following four sub-fields (Political Theory, U.S. Politics, Comparative Politics or International Politics). No internships or independent studies may be counted toward the minor without approval of the Chair.

Requirements for Secondary School Certification in Social Studies: PSY-246, EDS 500A, 500B, 500C and at least one year of a foreign language. PSC 281 is strongly recommended. Required political science courses are identical to those of the major. Majors seeking social studies certification are required to take at least seven courses in the Department of History and at least one course from both the Department of Economics and the Departments of Sociology and Anthropology.

Interdepartmental Political Science Majors Seeking Secondary School Certification: Students must be interdepartmental majors in political science and history. In addition, students must take at least one course from each of the remaining social science departments (economics, sociology, and anthropology).

PSC-123. Topics in Mathematical Political Science. (Same as MTH-060). A mathematical treatment (not involving calculus or statistics) of escalation, political power, social choice, and international conflict. No previous study of political science is necessary, but PSC-111 or PSC-112 would be relevant.

Introductory Courses

PSC-111. Introduction to U.S. Politics. (Fall; Hays, Nicholas, Winter; Nicholas, Spring; Oxley) A broad overview of the operation and issues of central concern in the study of U.S. politics. Particular attention is paid to evaluating the U.S. governing system in relation to major theories of political power, such as elitism, pluralism, and populism. In examining these and other broad concepts there is a focus on the foundations, institutions, and linkage mechanisms (political parties, media, etc.) that play a critical role in U.S. politics. Depending on the instructor, topics covered often include: the founding period, U.S. political culture, civil rights and liberties, money and politics, campaigns and elections, the role of mass media, parties and interest groups, politics in the post 9/11 era, and public policies focusing on crime, foreign affairs, the environment, poverty, health care, and war.

PSC-112. Introduction to Global Politics. (Fall; Lobe, Winter; Dallas, Watson, Spring; Watson) An overview of 21st century dynamics that shape national politics in different regional settings, the behavior of states in the world arena, and how global actors impact each other. Depending on the instructor, topics to be explored could include war, terrorism, political economy, historical perspectives, cultural tensions, nation-building and development, imperialism, democracy, balance of power, human rights, emerging institutions, and the world's ecology. In all sections, attention will be paid to the development of political arguments, the critical use of concepts and theories, and strategies of making judgments about globalization and about the impact of international affairs on domestic politics and vice-versa.

PSC-113. Introduction to Political Thought. (Fall; Scherer, Winter; Scherer, Spring; Xydias) This course examines key ideas and concepts, as well as "eternal" questions, in the history of western political thought. We will ask controversial questions such as: What is justice? Can we achieve democracy without eliminating poverty? What are the qualities of a good leader? Should we even have leaders? Can women be philosopher-kings? How does class struggle affect the participation of citizens? What are the qualities of a "good" citizen? These questions have been debated for over 2500 years. The debate continues in this course as we learn what the major thinkers said about these issues.

Research Methods Courses

PSC-220. Social Data Analysis. (Winter; Xydias) (Same as SOC-201). Introduction to the research process in political science with an emphasis on the analysis of social science data. Focus on the utility of quantitative data and statistical techniques to answer research questions about the political world. Prerequisite: Any introductory social science course; a background in math is not necessary.

PSC-222. Qualitative Social Research Methods. (Same as SOC-302). Introduction to qualitative research methods. The course is equally concerned with research design, techniques for gathering data, ethics in research, and the translation of field data into text.

PSC-223. Critical Comparisons in Politics. Introduction to qualitative methods in comparative politics; the methodology of comparison; concept formation and innovation; theory-testing and evaluation; the survey of core comparative categories. Preparation of students to conduct in-depth comparative study of political phenomena.

Political Theory Courses

Unless otherwise indicated the prerequisites for the following courses are PSC-113 or sophomore standing.

PSC-232. Church and State: The Politics of Religion in Modern Life. Across America and all around the globe, religion continues to crop up in the midst of politics despite the modern secular commitment to separate church and state. This course will develop answers to the following questions: What are the politically relevant dimensions of religion? What role have political thinkers played in defining "religion"? What are "secularism" and the "secularization thesis"? How should we understand the relations between religion and politics today? This course will address these questions through engagement with the tools and tradition of modern political theory and with a focus on modern Europe and America. Readings may include: Lowith, Schmitt, Blumenberg, Arendt, Winthrop, Hobbes, Spinoza, Locke, Jefferson, Tocqueville, Marx, Weber, Habermas, Ratzinger.

PSC-233. Intellectuals and Politics. Can and should intellectuals influence political life? Can intellectuals "speak truth to power?" This course examines the role of intellectuals, especially political theorists, in challenging dominant configurations of power, authority and values. In seeking to locate and evaluate these challenges to power, we will examine power in its most intimate (at the level of the personal and familial) as well as its most distant (state and international) settings. We explore the meanings and locations of power, the question of how and why it is (or should be) questioned, and isolate particular historical moments when intellectuals were able to play a role in challenging the political agenda. Each author we will read sees her/himself as directly confronting the "powers that be" in and through the acts of writing and speaking.

PSC-234. Women Political Theorists. Where are all the women in the history of political thought? Some thinkers we explore throughout history include Mary Astell, Mary Wollstonecraft, Harriet Taylor Mill, and Emma Goldman. Their work will prepare us to discuss the political and social thought of three prominent women thinkers of the 20th century: Simone de Beauvoir, Iris Murdoch, and Hannah Arendt. We investigate questions concerning freedom and contingency, responsibility, the nature of self in relation to others, and the limits and scope of ethical action in the work of these theorists. Women political theorists often write novels, short stories, and autobiography/biography (rather than philosophical texts) to explore political and philosophical themes. Consequently, we will be reading novels and autobiography along with political philosophy to think about the relationship between philosophy, politics, and literature. We will also be interested in considering how living their lives as women might have influenced the way these philosophers viewed major political and intellectual issues of the day.

PSC-235. African American Political Thought. (Winter; Marso) This course will introduce students to the critical and constructive dimensions of African American political thought. We will assess the claims that Black Americans have made on the polity, how they define themselves, and how they have sought to redefine the basic terms of American public life.

PSC-239. Feminist Political Theory. Have we entered a “post feminist” era? In this course, you will learn that not only is feminism relevant today, but that there can be no democracy without feminism. We will examine feminist texts beginning with the “second wave” and moving into contemporary work. Feminist theorists write about issues such as inequality in marriage, gendered aspects of sexuality, the politics of sex and gender, as well as on issues of justice, democracy, and citizenship. Each thinker also examines the relationships between race, class, and gender oppression in the inequality between the sexes. Feminist analyses of social policies concerning issues such as welfare, abortion, sexual preference, and maternity leave might also be included.

PSC-330. Enlightenment and Its Discontents. (Winter; Brown) Is there a politics to the “age of reason?” This course focuses on enlightenment thought and its critics, in the modern as well as the contemporary era. We will inquire about the role of reason in setting the terms of citizenship, including how the citizen should behave. Is reason a male attribute? Does passion and/or religion play a role in reasonable thinking? The historical span of this course will generally cover the 17th to the 19th centuries and show how we have come to think about politics the way we do today.

PSC-331. Ancient Political Thought. Examines the ideas of major political thinkers in ancient philosophy. Potential themes include the tension between philosophy and politics, the nature of democracy, the relationship between war and political life, debates concerning how to live a “good life,” the political significance of poetry and art, and the body/mind duality. Thinkers and texts that may be covered include Homer, Thucydides, Plato, Aristotle, the Greek poets, Saint Augustine, Thomas Aquinas, and the Bible.

PSC-332. American Political Thought To World War I. Political thought in America from the colonial period until World War I with an emphasis on evolving political, social, cultural, and intellectual perspectives on enlightenment values, nationalism, slavery, the rise of the industrial economy, the political machine, and America’s changing role in the world.

PSC-333. Twentieth Century American Political Thought. An exploration of the development of political thinking in the United States in the 20th century of 20th-century. Potential topics include the nature of democracy in the United States, individualism, pluralism, diversity, freedom, social responsibility, protest, social ethics, justice, and how Americans perceive their role in the world.

PSC-334. Contemporary Continental Theory. (Spring; Scherer) In the latter half of the twentieth century, theorists working in the continental tradition have developed new approaches to modern political concerns about the power of the state, the possibility of democracy, the importance of language, media and rhetoric, and the connections between knowledge, ethics, religion and politics. Students in this course will grapple with some of the most important figures and theories at the leading edge of this tradition. While this course presumes no background in continental theory, students must be prepared to wrestle with difficult texts, ideas and thinkers. Authors may include: Agamben, Badiou, Butler, Cavarero, Cavell, Deleuze, Derrida, Fanon, Foucault, Ranciere, Zizek.

PSC-335. Police, Security and Biopower. While the development of a political community presupposes a certain level of *security*, the second half of the 20th century shows how unfortunately frequent it has become for people to turn into victims of the devices they set to secure themselves. How can the tensions between the political and security be addressed to enhance, not to destroy, the freedom and creativity that characterize a political community? Organized as a seminar, and heavy in contemporary political theory, this course will explore both practical and theoretical relations between political communities and the pre-political preconditions for their preservation.

PSC-339. Seminar: Political Theory. (Fall; Marso) Selected topics in political thought. Content will vary from year to year. Preference given to sophomore and junior political science majors. Prerequisites: PSC-111, PSC-112, or PSC-113 and permission of the instructor.

Fall 2010 Seminar Topic: Judgments in Dark Times: Historic Trials, Justice, and Democracy. This course will focus on how political judgments, mostly enacted in historic or exemplary trials, become a significant factor in fostering or undermining democratic legitimacy. We will study post-World War II trials of war criminals, trials of collaborators in France, as well as trials in the U.S. that illuminate race, gender, and class dilemmas. The theoretical focus will be on discovering which kinds of questions/issues factor into making political judgments and how intellectuals and theorists talk about these judgments after the fact, especially when they consider their effects on democratic politics and institutions. Theorists will include Hannah Arendt, Simone de Beauvoir, Maurice Merleau-Ponty, Jean-Paul Sartre, Walter Benjamin, and Shoshona Felman.

PSC-434. Feminist Film. Using 10 films as our “texts” we will examine the role of women in society, the diversity of women’s lives, the impact of gender roles in various cultural contexts, the possibility of alternative sexualities and ways of living, and whether we can say what constitutes a “feminist film.” The course is focused on discussion of, and writing about, the films but includes analysis of feminist political theory and feminist film theory to provide tools for better interpretation.

Comparative Politics Courses

Unless otherwise indicated prerequisites for the following courses are PSC-111 or PSC-112 or sophomore standing.

PSC-215. Genocide. Genocide is humanity’s greatest and most enduring scourge. After the horrific Holocaust, the world’s leaders cried out, “Never Again.” Sadly, genocide has occurred, again and again, wherein mass murders, ethnic cleansing, mass rape and pillaging, has taken place in countless places and times since World War II. This course examines examples, causes and motives, position of the perpetrators, victims and bystanders. We shall also look at proposals for avoiding or preventing genocide, perhaps through some form of international humanitarian intervention, or “responsibility to protect.”

PSC-240. Comparative Ethnic and Racial Politics. (Winter; Hislope) An introduction to the trends and patterns of ethnic conflicts in the contemporary world. Issues pertaining to the rise of nations; theories of ethnic mobilization; the attempt to build general, cross-national explanations; and current efforts to solve ethnic conflict.

PSC-242. Challenges to Democratization in Latin America. Democracies in Latin America confront a number of challenges, obstacles, and dilemmas that frequently put their continuity at risk. With the format of a research seminar, this course will explore five thematic clusters: Social indicators on rights and inequality, political identities and citizenship, political and legal institutions, life and economic growth after Neoliberalism, and public safety, crime, and state violence. A preoccupation with some of the most urgent challenges faced by democratization in the region will also lead us to assess actual and potential responses.

PSC-243. Latin American Politics: Facing the World. (Fall; Seri) Latin America’s political dynamics, with special reference to Latin America’s position in world affairs, economic and cultural patterns within the region, and U.S. influence.

PSC-244. Japan: Conflict and Consensus. An overview of political structure, process, and policy in contemporary Japan. Begins with a brief historical narrative of postwar politics and proceeds to discussions of Japanese culture and society, electoral politics, decision-making structures and processes, foreign affairs, and political economy.

PSC-246 Contentious Politics. (Fall; Xydias) From the American and French revolutions to peasant riots in contemporary China, ordinary people all over the world have challenged the power of political and economic elites. This course explores why people who are usually submissive to authority sometimes rebel, why some social movements spread but not others, and what impact contentious politics has on ordinary politics. It introduces basic concepts of contentious politics and applies these concepts to the study of historical and contemporary patterns of social protest in Europe, America, and Asia.

PSC-247. Politics and Film. This course explores political themes through the rigorous viewing of feature films and documentaries from the United States and abroad. Films present differing perspectives on the subject. Themes include war, revolution, counter-revolution, role of the individual in social conflict, and US intervention in foreign lands. Class requires critical analysis of the films, supplementary readings, and six conceptual-analytical papers.

PSC-248. The Politics of the New Europe. (Fall; Hislope) A survey of contemporary European politics including topics such as the emerging European Union, the rise of right-wing movements, growing regional and sectional conflict, patterns of immigration, and debate about the very meaning of “Europe.”

PSC-249. Middle East Politics. This course is designed to introduce students to the essential political history and dynamics of the Middle East in the 20th century. Students will study the processes through which the states of the contemporary Middle East emerged; the types of political regimes that have evolved in these states; the origins and evolution of the Arab-Israeli conflict; the relationships between Islam and politics; and debates regarding U.S. foreign policy toward the region.

PSC-343. Women and Politics in the Muslim World. This course explores how politics and women intersect across the Muslim world. Empirically, we will examine similarities and differences in the degree to which women wield social, economic, and political power in their respective countries. Theoretically, we will explore competing explanations for women's varying status in the region. Sample topics for discussion include Islam and women, the veil, honor killings, foreign intervention, and the six female prime ministers/presidents that the Muslim world has produced to date.

PSC-345. Contemporary Chinese Politics. (Spring; Dallas) A survey course on the politics of the People's Republic of China, with an emphasis on state-society relations. The first part briefly introduces the Chinese socialist system. The course then provides a historical overview of the main political and economic reforms in China since Deng Xiaoping's ascent to power. It also explores themes such as bureaucratic politics, regional disparities, center-locality relations, popular protest, and nationalism.

PSC-346. Democracy and Democratization. (Winter; Xydias) Worldwide survey of the global diffusion of democracy. Focus on the patterns, challenges, and difficulties involved in democratic transitions and consolidations. Consideration of democratic subtypes (electoral, liberal, participatory) and their normative trade-offs.

PSC-347. Comparative Left Politics. (Spring; Hislope) A critical exploration of Marxian ideas and a comparative examination of how those ideas were, and are, translated into political practice.

PSC-349. Seminar: Comparative Politics. Selected topics in comparative politics. Content will vary from year to year. Preference to junior and sophomore political science majors. Prerequisites: PSC-111, PSC-112, or PSC-113 and permission of the instructor.

International Politics Courses

Unless otherwise indicated prerequisites for the following courses are PSCC-11 or PSC-112 or PSC-113 or sophomore standing.

PSC-251. American Foreign Policy. (Spring; Watson) Students will examine the history of U.S. foreign policy, how policy is formulated, competing perspectives on how best to define and defend the "national interest," and numerous case studies of post-Cold War foreign policy decision making. Students will then play specific policy-making roles and work together in an intensive simulation designed to expose them to the substance and power dynamics of foreign policy making during the current administration.

PSC-252. International Organizations. This course analyzes the development of contemporary international organizations in all forms, examines the activities of various regional organizations and non-governmental organizations (NGO's), as well as multinational organizations. Focusing on major principles, organizational characteristics, functions, and activities of the United Nations and the UN system, the course assesses the rapid changes, problems, and opportunities that have developed since the end of the Cold War.

PSC-253. International Politics in East Asia. Surveys the main currents of international politics in East Asia in the 20th century and in the new millennium, with an emphasis on events since the end of the cold war. Examines the foreign policies of main players in this area, including China, Japan, Korea, Russia, and the United States. We will also explore the evolution of international institutions and norms pertinent to East Asia.

PSC-254. Politics of the Arab-Israeli Conflict. (Winter; Lobe) In this class students will develop an understanding of the origins, development, and essence of the Arab-Israeli conflict as well as the challenges involved in resolving the conflict. The conflict will be examined in its historical, political, and human dimensions.

PSC-256. Model United Nations. (Winter; Watson) This course prepares students to participate in the National Model United Nations (NMUN), the largest UN simulation in the world. The NMUN program provides students a better understanding of the inner working of the United Nations. Its goals are to develop diplomatic skills amongst college students while at the same time helping to increase the levels of interaction and interdependence that exist between the academic communities around the world. At the simulation, students and faculty from five continents work feverishly to propose resolutions addressing regional conflicts, peacekeeping, human rights, woman and children, economic and social development, and the environment. Students are permitted to take PSC 256 multiple times, but this course can only count once toward a PSC major, ID major or minor.

PSC-257. U.S. Empire in Crisis. The US is the sole superpower in the world, overwhelmingly powerful in military and economic affairs. Yet there is confusion and failure regarding its war on terror, its policies toward the Middle East, Israel and Islamic societies, and how even US allies view US policies, priorities, values, and its arrogance. The course evaluates this paradox, and develops alternative visions.

PSC-258. Chinese Foreign Policy. This course surveys the main developments in Chinese foreign policy since the founding of the People's Republic of China. It analyzes China's relations with the world superpower(s) and its neighbors and examines China's rise as a world power and the impact this has on the balance of power in Asia and the world. It explains the behavior of China from the standpoint of competing theories of international relations.

PSC-259. Wealth and Power Among Nations. (Spring; Dallas) An examination of the tensions between North and South in the global political economy. Topics include world trade patterns, international organizations, military relationships, natural resources and environmental limits, and cross-cultural perceptions and identities.

PSC-350. Theories of International Politics. In-depth investigation and evaluation of the major perspectives on world politics. Mainstream theories will be compared and contrasted to critical/alternative paradigms. Special attention is given to modes of theory evaluation.

PSC-351. Global Politics of Corruption and Organized Crime. This course will focus on the emergence of new transnational criminal networks in the age of globalization, and the sources and patterns of political corruption in a comparative perspective. Specific issues to be explored include: trafficking zones, weak states, economic underdevelopment, the western consumer demand for illegal commodities, international anti-corruption discourse, US drug policy, comparative analysis of mafia organizations, and how private money corrupts democracies.

PSC-355. Defense Policy. (Spring; Brown) A deeper understanding of US Defense Policy in relation to current trends in the international threat environment. Examines the historical roots of US defense policy with a focus on the impact of isolationism, exceptionalism, and the Cold War on those policies. The policy-making process itself will be examined highlighting the influence of the realist paradigm, as well as the various organizational inputs, which help to shape the policy outcomes. A look at the post-Cold War period with emphasis on the impact of 9/11 and the proliferation of weapons of mass destruction on changes in US policy.

PSC-359. Seminar: International Politics. (Winter; Angrist) Selected topics in international politics. Content will vary from year to year. Preference to sophomore and junior political science majors. Prerequisites: PSC-111, PSC-112, or PSC-113 and permission of the instructor.

Winter 2010 Seminar Topic: Terrorism and Torture.

United States Politics Courses

Unless otherwise indicated prerequisites for the following courses are PSC-111 or PSC-112 or sophomore standing.

PSC-260. Policy Making and American Society. The process through which public policies are originated, shaped, adopted, and applied at all levels of government in the U.S. and the impact of public policies on American society. Policies such as crime, immigration, gay rights, abortion, the environment, smoking, and others are used as case studies to examine the policy process.

PSC-261. Public Opinion. (Winter; Oxley) This course examines public opinion in the context of American political culture and values. We examine what the public thinks about a wide variety of issues in American domestic and foreign policy. We also explore contemporary issues with a concentration on the historical legacy of cultural values and beliefs that inform citizens' attitudes and opinions.

PSC-262. Damnation, Revolution and the American Experiment: Politics from Colony to Independence. Examines a series of key issues in American politics from the establishment of the Massachusetts Bay Colony through the Revolutionary War. Topics include: globalization of trade and financial crises. Eruption of radical, fundamentalist evangelical religiosities. Invention and explosion of new means of communication, social dislocation and the toppling of governments. Working with primary

source documents, we will study the Puritan underpinnings of early colonial politics, the emergence of print publics, the influence of market capitalism, and the importance of America's global context.

PSC-263. The Politics of Poverty and Welfare. (Nicholas; Spring) This course will look at various theories of poverty and inequality and the ideological and policy implications of these theories. Further, the history and political controversies surrounding the establishment and continuation of welfare programs such as Social Security, TANF, Medicare, Veterans benefits, and disability will be examined. Prerequisites: Sophomore standing and PSC- 111 or SOC-100.

PSC-264. Congressional Politics. (Fall; Nicholas) An examination of the U.S. Congress emphasizing elections, representation, organization, decision-making and the human psychology of being a representative. Course is unique among PS courses in that almost the entire course is conducted as a simulation, with students taking on the roles of legislators, journalists, lobbyists, and members of the executive branch.

PSC-268. Electoral Politics. Examination of elections in the U.S. Course is taught as a simulated presidential election with students taking on the roles of presidential candidate, campaign staff member, or journalist. Specific topics include the democratic theory of elections, candidate strategy, fundraising, voter decision making, and the electoral roles of the media, political parties, and campaign consultants.

PSC-269. Media and Politics. Major trends in U.S. media, politics, and political communication. The focus is on media treatment of politics, including both the traditional news media, newer media outlets (such as the Internet and talk radio) and popular culture (movies, television shows, and song lyrics, for example). The larger context is the role of media in a democratic society.

PSC-270. Constitutional Law. An examination of the Constitutional tradition in the United States, focusing upon the structure and powers of the federal government. Topics and themes include the power of the courts to interpret the laws and the Constitution, the power of the federal government and the significance of "states rights," federal government intervention in matters of "commerce" or economics, and the nature and expansion of executive power, especially in the area of national security. The course proceeds mainly through close examination of Supreme Court cases, considered in their political, historical and legal context.

PSC-272. The Environment, Energy, and U.S. Politics. (Winter; Nicholas) Examination of how politics and policymaking affect the air we breathe, the water we drink, and the land we live on. This course will explore key U.S. environmental issues and their scientific underpinnings as well as the connections between these issues and our collective use of natural resources. The relevance of environmental policy to community life will be explored via local field trips to wastewater and drinking water facilities, waste management and energy facilities, government agencies and the State Capitol.

PSC-273. The Supreme Court and Judicial Politics. (Fall; Hays) An investigation of the judicial branch of government in the U.S. that focuses on the role of judges, the functioning of courts, and leading contemporary controversies in the judicial system. Among the primary concerns of this course are: the structure of the American Judiciary, judicial selection processes, how cases originate and move through the judicial system, how judges think about and reach decisions in the cases, and the role law plays in society. In exploring these topics many actual Supreme Court cases are dissected, focusing on such issues as: gay rights, pornography, rights of disabled citizens, the rights of those accused of crimes, and free speech over the Internet, to name only a few areas.

PSC-275. Law and Film. This course uses the medium of film as a springboard to introduce and explore concepts in legal theory, American legal culture, and the exercise of public and private power through the legal system. Specific topics of discussion include law as morality, higher versus positive law, law and gender, and the heroic lawyer mythology.

PSC-277. Local Political Internships. (Fall, Winter, Spring; Hislope) Places students in internships in local political organizations and in offices in local and state government. Students draw on their internship experience and related academic work to reach a better understanding of the complexities and dynamics of politics and the state or local level. Prerequisite: Sophomore standing and permission of the instructor.

PSC-279T and 280T. Washington, DC Internship Program. (Spring; Lobe) A 10-week spring term in Washington, DC wherein each student is an intern either on the Hill, with a Non-governmental agency (NGO), or with some other political, social, cultural, or scientific organization in DC. The internship receives one course credit. The second course is a seminar focused on a specific political theme (examples from past years include national security, social security, immigration, environment) introducing students to the policy, partisan and ideological debates within Washington. The third course is Art and Architecture in Washington, focusing on the political dimension of the important buildings, memorials, and museums in DC. Prerequisites: Sophomore standing and permission of the instructor. These courses may not be taken as pass/fail.

PSC-281. Issues in American Education. The analysis of current conflicts over education policy including the funding of education, the impact of charter schools and choice, bilingual education, religion and prayer, tenure laws and the role of teacher unions. Prerequisite: Sophomore standing and PSC111 or SOC-100 or ANT-110 or PSY-100.

PSC-282. Health Politics and Policy. Government as third party payer, regulator, capacity builder, and service deliverer plays a dominant role in the American health care industry. This course examines the formation and implementation of public policies toward health care including current efforts to reform the system by creating a national health insurance program.

PSC-283. Social and Political Movements. (Same as SOC-270). The role of extra-governmental actors in the formation of public policy with a focus on environmental issues. The origins and development of social movements and the differences and similarities among these. Topics include the means by which such groups seek to influence policy and social practice and the outcomes of such attempts.

PSC-284. Political Sociology. (Same as SOC-240). Issues of political power, domination, and legitimacy from a sociological perspective. Topics include the creation and maintenance of political power, the role of legitimacy and the impact of political socialization.

PSC-361. Political Psychology. (Fall; Oxley) (Same as PSY-336). The application of psychological theories to understanding the political attitudes and behavior of individuals (citizens, political leaders) as well as small groups (juries, presidential advisors). Specific topics include stereotypes, personality, social cognition, attitude formation, altruism, emotion, psychoanalysis, groupthink and elite decision-making. Prerequisite: PSC-111 or PSY-100.

PSC-362. CIA and the Art of Intelligence. (Fall; Lobe) Provides an historical background to intelligence and espionage, and offers perspectives on present day secret intelligence operations of world powers in support of their national security objectives. Discussions on intelligence analysis, evaluation, human and technical intelligence, cryptography, counter-intelligence, moles, various kinds of overt operations, US foreign policy issues and goals.

PSC-366. Presidential Politics. (Winter; Brown) The development of the modern presidency, with a special emphasis on the institution of the presidency. The presidencies of Franklin Roosevelt through the current president will be examined.

PSC-367. The Contemporary Presidency. Contemporary development in the institutional presidency, with a focused and close examination of the administrations of Bill Clinton, George W. Bush, and Barack Obama.

PSC-369. Seminar: U.S. Politics. (Spring; Brown) Selected topics in U.S. politics. Content will vary from year to year. Preference to sophomore and junior political science majors. Prerequisites: PSC-111, PSC-112, or PSC-113 and permission of the instructor.

PSC-371. Civil Rights and Civil Liberties. Considers the protections afforded to individual rights and liberties by the U.S. Constitution and the Bill of Rights. Topics include freedom of speech and assembly, the right to privacy, religious freedom, equal protection and discrimination, and the due process rights of those accused of crimes. The course proceeds mainly through close examination of Supreme Court cases, considered in their political, historical and legal context.

PSC-385. Women and Politics. The political, social, and economic circumstances of women in the U.S. Topics include history of women's rights, feminism, women as political actors (voters, candidates, and government officials). Issues including work, reproductive rights, violence against women and poverty are covered. Special attention to the role of minority women. Prerequisites: Sophomore standing or PSC-111 or SOC-100.

Independent Research Courses

PSC-295H/296H. Political Science Honors Independent Project 1 & 2. (Fall, Winter, Spring). By application to the individual instructor and subject to confirmation by the department chair.

PSC-490-497. Independent Study in Political Science. (Fall, Winter, Spring). By application to the individual instructor and subject to confirmation by the department chair.

PSC-498-499. Senior Project in Political Science. (Fall, Winter, Spring). Open to seniors in political science. Subject to department approval, this requirement may be fulfilled by the completion of original political science research, political action, political art, or applied public policy research. The senior project is an intensive two-term research project serving as the capstone experience for the major. All senior projects are subject to an oral examination as a requirement for graduation as a major.

Psychology

Chair: Professor S. Benack

Faculty: Professors D. Burns, K. DeBono, R. Nydegger, L. Stanhope, C. Weisse; Associate Professors G. Bizer, S. Romero; Assistant Professors C. Anderson-Hanley, C. Chabris, J. Hart; Lecturer G. Donaldson; Visiting Assistant Professor F. Fessel; Visiting Instructor T. Sutton

Requirements for the Major:

- Psychology 100, 200, and 300, and nine other courses, one of which can be selected from a list of cognate courses from related disciplines. This list of courses is available from the department secretary or on the department web site (www.union.edu/academic_depts/psychology). Majors should normally complete Psychology 200 and 300 by no later than the end of the junior year.
- At least one laboratory course from each of the following two content areas:
 - Physiological Psychology: Psychology 210, 211, or 312
 - Cognitive Psychology: Psychology 220, 221, or 225
- At least one course from two of the following three content areas:
 - Social Psychology: Psychology 230
 - Developmental Psychology: Psychology 240
 - Clinical/Personality Psychology: Psychology 250 or 251
- Two courses numbered 400 or higher. One of these courses must be a seminar (courses numbered 400-450), and only one course numbered 451-497 (independent study/research/internship) may count toward the major. Students conducting an independent study abroad (ISA) may count two courses numbered 451-497 toward the major.

Requirements for the Interdepartmental Major: Interdepartmental majors will normally take eight courses in psychology. The courses must include Psychology 100 (Introduction) and 200 (Statistics). Students wishing to do an interdepartmental senior thesis will also take Psychology 300 (Research methods). An interdepartmental major must indicate to his or her advisor in psychology what courses within the Psychology Department will constitute the psychology component of the interdepartmental major and must submit an application form. The set of courses should demonstrate a genuine connection to the chosen interdepartmental major and must be approved by the department chair. Normally, specification of these courses will occur by either late in the sophomore or early in the junior year.

Requirements for Honors: In addition to meeting College-wide requirements, honors in psychology requires: (1) a psychology grade point average of 3.40 or higher; (2) three grades of "A" or "A minus" in psychology "core" courses, which include 200, 210, 211, 220, 221, 230, 240, 250, 251, 300, 312; (3) a two-term thesis with a grade of "A" or "A minus" and (4) an oral presentation of the student's work (usually at the Steinmetz Symposium). Interdepartmental majors who wish to earn honors will do an interdepartmental thesis. ID majors must also meet the same GPA requirements for psychology courses as full majors, although only two grades of "A" or "A minus" in psychology "core" courses will be required. Please note that Psychology 200 and 300 are prerequisites to registering for a thesis.

All proposals for honors theses must be submitted to the department chair no later than the end of the eighth week of the spring term of the junior year. The proposal should be one-two typewritten pages describing the project and the student's preparation for the project (e.g., related course work). The proposal will be evaluated by a departmental committee, and the student will be advised about the acceptability of the proposal. Further information is available from the department secretary.

Requirements for the Minor: A student who chooses to minor in psychology must take a total of six courses in psychology, including Psychology 100, Psychology 200, one laboratory course from the Physiological/Cognitive cluster, and one course from the Social/ Developmental/ Clinical cluster.

Course Registration Guidelines

General Education: In the General Education Curriculum, all psychology courses count as if they are courses in the Division of the Social Sciences, except for Psychology 210, 211, 311, 312, 315, and 410, which can be counted toward the General Education science requirement.

Prerequisites for Psychology Majors and Minors: Psychology 100 or permission of the instructor is a prerequisite for all other psychology courses unless otherwise noted. Additional prerequisites are listed in the course description.

Prerequisites for Neuroscience Majors and Minors: BIO 101 and 102 may be substituted for PSY 100 as the prerequisite for PSY 210. Upon completion of PSY 210, neuroscience students may take other Psychology courses without first completing PSY 100.

Senior Writing Requirement: Students may fulfill the senior writing requirement in psychology in one of three ways: (1) by writing a thesis; (2) by completing a seminar (400-level) course designated WS in the senior year (this course must be in addition to any other seminar used to fulfill the basic WAC requirements); or (3) by completing a one- or two-term senior project.

Seminars: Some seminars (e.g., 410, 420, 430, 440, 450) may offer different topics in different terms. These may be taken more than once for credit, with the permission of the instructor.

Courses

PSY-100. A First Course in Psychology (Fall, Winter, Spring; Staff). The activities and experiences of the human being. Personality and its development, motives, learning and intelligence, and behavior in conflict.

PSY-200. Statistical Methods in Psychology (Fall, Winter, Spring; Burns, Fessel, Romero, Stanhope, Sutton). The descriptive and inferential statistical procedures used by researchers to explain and analyze their results. Mean, variance, correlation, hypothesis testing using t-test, ANOVA, and nonparametric tests.

PSY- 210. Introduction to Cognitive Neuroscience (same as BIO-210) (Fall, Winter, Spring; Chabris, Romero, Weisse). Basic concepts of brain functioning as they relate to psychological phenomena. Neuroanatomy, neurotransmission, and brain sites important in the mediation of consummatory behavior, emotions, pleasure, sleep, and memory. Weekly lab. Prerequisite PSY-100 or BIO-101 & BIO-102. Gen Ed Science.

PSY-211. Sensation and Perception (Winter; staff). The structural and functional aspects of the sensory system and sensory processes. Also theories and research in the field of perception and perceptual development. Weekly lab. Gen Ed Science.

PSY-215. Introduction to Health Psychology (Not offered 2010-2011). Psychology's role in the etiology, prevention, progression and treatment of disease states. Topics include mechanisms by which stress and health-related behaviors such as diet, exercise, smoking, and substance abuse contribute to physical illness, problems of medical compliance, doctor-patient relationships, cognitive/behavioral medical treatment techniques; and health promotion/ disease prevention strategies.

PSY- 220. Psychology of Memory and Thinking (Fall, Winter; Burns, Sutton). How humans code, store, remember, and forget information. Related topics include attention, pattern recognition, concept learning, and reading. Weekly lab.

PSY-221. Psychology of Learning (not offered in 2010-2011). A systematic examination of the principles and theories of learning. Classic works of Pavlov, Tolman, Hull, and Skinner will be considered as well as contemporary thinkers. Topics include classical and operant condition and biological constraints on learning. Critical evaluation of the research on humans and lower animals will form a major basis of the discussion. Weekly lab.

PSY-225. The Psychology of Language (Spring; Sutton). Psycholinguistics, including speech perception, child's acquisition of language, animal language, linguistic diversity, and recent research.

PSY-230. Social Psychology (Same as SOC-203) (Fall, Winter, Spring; Bizer, DeBono, Fessel, Hart). Research methods, survey of research on attribution processes, person perception, stereotyping, attraction, persuasion and social influence, and effects of group membership on behavior.

PSY-235. Industrial-Organizational Psychology (Fall; Nydegger). A general overview of the research and theory relating psychology to work behavior and to applications in the industrial setting. Personnel psychology, human factors and engineering psychology, organization theory, organizational development, and organizational behavior will be examined. PSY-230 preferred but not required.

PSY-240. Developmental Psychology (Fall, Winter, Spring; Stanhope). Child behavior and the processes influencing child development. Methods of study and theories.

PSY-242. Death and Dying (Not offered in 2010-2011). This course will examine the social and psychological processes that shape the dying and bereavement process. The historical and cultural factors that influence attitudes toward dying and the ethical issues that impact decisions about how we die will be discussed. In addition, this course will discuss end of life care, including hospice, palliative care and pain management; how our health care system treats the dying; mental health interventions; and suicide.

PSY-245. Psychology of Sex Roles (Winter; Donaldson). The psychological bases and effects of the masculine and feminine role norms in our culture. Topics include biological bases of sex differences, sexuality, romance, work and family roles, origins of sex-typed personality in family and cultural socialization.

PSY-246. Educational Psychology (Winter, Spring; Staff). Principles of psychology applied to teaching with emphasis on the cognitive abilities of students, classroom management procedures, and motivational techniques. Visits to a variety of local schools. (Note: This course or placement exam is required for admission to Union's MAT program.)

PSY-250. Abnormal Psychology (Fall, Winter; Anderson-Hanley, Donaldson, Nydegger). Models and theories of psychology, with description and analyses of forms of abnormality and its modification.

PSY- 251. Personality (Fall, Spring; Donaldson, Hart). Classical and contemporary theories of personality, with an emphasis on current issues and research in the field.

PSY-255. Psychology of Addiction (Not offered in 2010-2011). A socio-psychological approach to understanding a variety of addictive behaviors. Includes coverage of substance abuse, e.g., alcohol, tobacco, illegal drugs and foods, as well as activities such as gambling, sex, work, relationships etc.

PSY-295H. Psychology Honors Independent Project 1

PSY-296H. Psychology Honors Independent Project 2

PSY-300. Research Methods in Psychology (Fall, Winter, Spring; Bizer, Burns, Fessel). The basic research methods used in psychology, introducing the student to research design, data collection procedures, and scientific writing. Emphasis will be on the experimental method. Weekly lab. Prerequisite: Psychology 200.

PSY-305. History and Systems in Psychology (Not offered 2010-11). Assessment of historic development and current status of systemic paradigms in psychology. The influence of philosophy, social, and natural science will be studied.

PSY-311. Animal Behavior (Same as BIO-325)

PSY-312. Introduction to Neurobiology (Same as BIO-362)

PSY-315. Neural Circuits of Behavior (Same as BIO-365)

PSY-320. Applied Cognitive Psychology (Not offered 2010-11). Explores the many ways in which the scientific knowledge attained from cognitive psychology has been applied to everyday problems in perception, remembering, and thinking. Topics include face and name recognition, mnemonic strategies, expert memory, errors in everyday decision making and human factors. Prerequisite: Psychology 220.

PSY-330. Attitudes and Social Behavior (Not offered 2010-11). Survey of research on attitude-behavior relations and on the psychology of persuasion. Issues of attitude structure, formation and measurement also discussed. Students propose original research ideas. Prerequisites: PSY- 230.

PSY-331. Psychology of Emotion (Winter; Hart). Examination and evaluation of scientific theories and research about emotions, including the evolution and development of emotions, the physiological and neurological underpinnings of emotions, individual differences and psychopathology, and the role of emotions in close relationships and everyday life.

PSY-336. Political Psychology (Same as PSC-361)

PSY-350. Psychotherapy (Winter; Anderson-Hanley). Survey of the major contemporary systems of psychotherapy. Includes analytic, family systems, cognitive and behavioral approaches. Students will learn theories, techniques, and processes involved in the practice of therapeutic approaches. Prerequisite: Psychology 250.

PSY-351. Practicum in Human Relations I (Not offered 2010-11). Explores interpersonal communication as it shapes and is shaped by human relationships. Psychological theories of interpersonal communication presented with a view to explicating the processes by which people come to describe, explain, or otherwise account for the world (including themselves) in which they live. Categories of "abnormal" behavior and approaches to psychotherapy revisited from the perspective of communications theory.

PSY-352. Psychological Assessment and Testing (Not offered 2010-11). Learn about one of psychology's most important and unique practical contributions. Examine assessment tools that are key to the practice of clinical and counseling psychology (e.g., diagnostic and personality tests). Review issues related to test construction (e.g., reliability and validity). Practice construction and validation of a new test.

PSY-400. Seminar in Research Design and Analysis (Not offered 2010-11). Focus on advanced research methods and on several statistical techniques commonly used by psychologists. Topics include correlation, multiple regression, analysis of variance, and multivariate analysis of variance. Students also will be exposed to one or more computer packages for performing statistical analyses. Prerequisite: PSY-300.

PSY-405. Honors Topic Seminar (Not offered 2010-11). A one-credit course lasting either one term or running the full academic year, open to junior and senior qualified students. Limited enrollments; students will be recommended for the course by faculty. Each year's topic will be chosen by the supervising faculty member. Normally, students will meet weekly to discuss readings pertaining to the topic and upcoming speakers. About seven to nine speakers with expertise in the chosen area will be invited to discuss their positions with students. Relevant field trips may also be arranged.

PSY-410. Seminar in Brain and Behavior (Same as BIO-211) (Not offered 2010-11). Advanced coverage of the mechanisms of action of psychotropic drugs and a discussion of the effects of certain transmitter systems on behavior. Prerequisite: PSY-210. *GenEd Science*

PSY-411. Seminar in Clinical Neuropsychology (Fall; Anderson-Hanley). Through this course you should gain a close-up view into the field of Clinical Neuropsychology, which aims to explore the relationship between brain function and behavior, especially the evaluation and treatment of brain damaged individuals. This will be accomplished through lecture, readings, discussions, field-work/service-learning, and other hands-on practice experiences. Prerequisite: PSY-210, PSY-250, or PSY-410.

PSY-420. Seminar in Learning and Memory (Fall; Chabris). A selected topic in learning or cognitive psychology, such as language, reading, attention, memory, conditioning, and applications. Prerequisite: PSY-220 or PSY-221, or permission of instructor.

PSY-430. Seminar in Social Psychology (Fall, Winter, Spring; Hart, Bizer, Fessel). A selected area of social psychology. Specific topic will be announced in advance by the instructor. Prerequisite: PSY-230.

PSY-431. Seminar in Psychology of Religion (Winter; DeBono). The psychological origins of religious beliefs and the apparent behavioral consequences of holding such beliefs. Specific topics will include: religiosity as an evolutionary, psychological, and social phenomenon; the role of religious beliefs in mental health, physical health, interpersonal relationships, and prejudice. Prerequisites: PSY-210, PSY-220, PSY-230, PSY-240 or PSY-251 or permission of the instructor.

PSY-432. Love and Death . This course is designed to examine and evaluate two lines of inquiry, principals initiated in the 1950's and 60's by John Bowlby and Ernest Becker, respectively, which have subsequently developed into two influential contemporary theories in experimental social and personality psychology: attachment theory and terror management theory (TMT). These theories, and the intellectual traditions that spawned them, address two of the most important aspects of life – love and death – and as will see, these two elements of the human experience have far-reaching psychological consequences and philosophical implications. The course will start with discussion of Bowlby's and Becker's classic books. I will lead our initial discussions, but as we progress, class members will assume increased responsibility for leading discussions as we examine contemporary research inspired by attachment theory and TMT. Ultimately, each class member will develop his or her own questions, and tentative answers, relating to the course material, which will culminate in a significant theoretical or questions, and tentative answers, relating to the course material, which will culminate in a significant theoretical or empirical project and paper.

PSY-440. Seminar in Human Development (Spring; Stanhope). A selected area of developmental psychology. Topic will be announced in advance by the instructor. Prerequisite: PSY-240.

PSY-441. Seminar in Adolescence (Winter, Spring; Benack). Development during adolescence and early adulthood, including changing relations to parents, love and sexuality, moral and cognitive growth, and the establishing of identity. The seminar will use the case study method, i.e., we will analyze a series of individual people's accounts of their adolescent experience. Prerequisite: Psychology 240 or 251.

PSY-450. Seminar in Clinical Psychology. (Not offered 2010-11). A selected area of clinical psychology. Topic will be announced in advance by the instructor. Prerequisite: PSY-250.

PSY-451. Practicum in Human Relations II (Spring, Anderson-Hanley). Intensive practicum course designed to provide direct exposure to clinical populations, along with structured individual and group clinical supervision. Activities include placement at a psychologically-oriented internship site, along with seminar discussion of clinical cases and systems issues. Emphasis on the theoretical understanding of clinical assessment and intervention from a psychological perspective, integrating both nomothetic and ideographic approaches. Prerequisite: Permission of the instructor.

PSY-487-489 Three-Term Thesis (for neuroscience majors only).

PSY-490, 491, 492. One-Term Independent Study/Research (Fall, Winter, Spring; Staff)

PSY-493-494. Two-Term Independent Study/Research (Fall, Winter, Spring; Staff). First term grade is normally pass or fail. A comprehensive grade for both terms is assigned at the end of second term.

PSY-495. One-Term Senior Project (Fall, Winter, Spring; Staff).

PSY-496-497. Two-Term Senior Project (Fall, Winter, Spring; Staff).

PSY-498-499. Psychology Senior Thesis (Fall, Winter, Spring; Staff). Please read details for psychology honors in department's introductory statement. First term grade is pass or fail; a comprehensive grade for both terms is assigned at the end of the second term. Prerequisites: PSY-200 and PSY-300.

Religious Studies

Director: Professor P. Bedford

Faculty: Professors K. Brison (Anthropology), H. Mueller (Classics), P. Heinegg (English), S. Berk (History), J. Barbanel (Mathematics), L. Patrik (Philosophy); Associate Professor J. Lewin (English)

Religion in its varied expression informs the lives of most of the world's population, both currently and historically. It has been the inspiration for literature, art, and music, and the source of law, meaning and values, social solidarity, and conflict. Religion—Western, Eastern, and otherwise—is a vast cluster of cultural phenomena (including sacred texts, mythologies and theologies, moral codes, and every conceivable kind of ritual) that is best explored from the perspective of more than one discipline. The program is designed to enable students to gather insights from philosophy, psychology, sociology, anthropology, political science, history, literature and other disciplines by way of illuminating this practically universal form of human behavior. The academic study of religion examines religion from outside the framework of any particular belief system, and it does not aim to promote or undermine any particular religion or worldview. The program offers a major, interdepartmental major, and a minor.

Requirements for the Major: A minimum of twelve courses including two Core Courses, plus five courses in an Area of Concentration, plus two courses devoted to a Senior thesis (REL498-499), plus three other Religious Studies courses of which at least two will be outside the selected Area of Concentration. Relevant intermediate-level language courses can be substituted with the permission of the Director of the program.

Requirements of the Interdepartmental Major: At least eight courses in the program, including REL103 and REL300 and a Senior thesis.

Requirements for the Minor: REL103 plus five other courses, including at least two 200-level courses.

Requirements for Honors: To be eligible for honors, the student must fulfill the following requirements: (1) a minimum index of 3.3 in courses in the Major; (2) a grade of at least "A minus" on the senior thesis; and (3) a grade of "distinction" or "high pass" in an oral examination based on the senior thesis. In addition, the student must satisfy College requirements for departmental honors.

The following is only a partial list of the classes counted towards the religious studies major and minor. See the Director of the program for a complete list.

Core Courses

REL-103 Introduction to Religious Studies

REL-300 Seminar: Theory and Method in the Study of Religion

Areas of Concentration

Judaism

AMU-125. World Religions and Music

EGL-226. World of the Bible

EGL-238. Jewish Women Writers

EGL-248. Yiddish Literature in Translation

HST-128. The American Jewish Experience

HST-157. Modern Jewish History

HST-158. The Holocaust

HST-195. Early History of the Jews

REL-203. Judaism/Christianity/Islam: Comparative Perspectives (HST203)

Christianity

AAH-203. Medieval Art and Architecture of Northern Europe
 AAH-300. Italian Art and Architecture of the late Middle Ages
 AMU-060. From Chant to Mozart
 AMU-125. World Religions and Music
 AMU-212. Baroque Music
 EGL-226. World of the Bible (REL200)
 EGL-292. Milton
 GRK-243. New Testament Greek
 HST-171. Europe and the Americas in the Era of Columbus
 HST-240. The Crusades
 HST-241. Mystics, Magic, and Witchcraft in Medieval and Early Modern Europe
 HST-245. Occult Sciences & Societies
 HST-372. History of Latin American Women
 LAT-358. Medieval Latin Literature and Culture
 MLT-284. Popular Religion and Politics in Latin America
 PHL-175. Jesus
 PHL-261. Philosophy of Religion
 REL-203. Judaism/Christianity/Islam: Comparative Perspectives (HST203)

Islam

AAH-201. Islamic Art & Architecture
 AAH-286. Art and Religion of the Silk Road
 HST-240. The Crusades
 HST-243. Ottoman History
 HST-302. Comparing Muslim Cultures
 HST-401. Islam in Africa
 PSC-343. Women and Politics in the Muslim World
 REL-203. Judaism/Christianity/Islam: Comparative Perspectives (HST203)

Religions of Asia

AAH-280. Buddhist Art
 AAH-286. Art and Religion of the Silk Road
 AAH-287. Tibetan Art
 AMU-125. World Religions and Music
 ANT-232. From Bombs to Buddhism
 HST-183. Introduction to South Asian Civilizations
 HST-384. Historical Foundations of South Asian Religion
 PHL-166. Indian Philosophy
 PHL-167. Chinese Philosophy
 PHL-180. Global Philosophies: Theories of the Good Life
 PHL-245. Buddhist Ethics
 PHL-338. Zen and Tibetan Buddhism

Religions of the Ancient Mediterranean

CLS-110. Ancient Egypt: History and Religion
 CLS-111. Ancient Iraq: History and Religion
 CLS-134. Classical Art and Architecture
 CLS-143. Classical Mythology
 CLS-161. Survey of the Ancient Epic
 CLS-232. Religion in the Pagan World
 CLS-244. Poetry and the Cosmos
 CLS-278. Ancient World Mythology
 EGL-226. World of the Bible
 HST-195. Early History of the Jews

Religion, Culture and Society

ANT-150. Anthropology of Religion
 ANT-235. Fundamentalism around the Globe
 AMU-125. World Religions and Music
 HST-372. History of Latin American Women
 MLT-284. Popular Religion and Politics in Latin America
 PHL-180. Global Philosophies: Theories of the Good Life
 PHL-240. Contemplative Social Justice Ethics
 PSC-232. Church and State
 PSC-241. (R) Religion and Politics
 PSC-262. Damnation, Revolution and the American Experiment
 PSC-343. Women and Politics in the Muslim World
 PSY-431. Seminar in Psychology and Religion
 REL-170. Myth, Ritual and Magic (ANT170)
 REL-203. Judaism/Christianity/Islam: Comparative Perspectives (HST203)
 SOC-223. Sociology of Religion

103. Introduction to Religious Studies (Fall, Bedford). This course introduces students to the academic study of religion through an investigation of central topics such as sacred space, sacred text, myth, ritual, ethics, religion and society, concepts of the divine and ultimate reality, anthropology, and others. Examples for discussion are drawn from a variety of religious traditions including Judaism, Christianity, Islam, Hinduism, and Buddhism, as well as other religious traditions, ancient and modern. Attention is also given to aspects of religion in contemporary settings.

203. Judaism/Christianity/Islam: Comparative Perspectives (Also HST-203) (Fall, Bedford). This course offers a comparative approach to Judaism, Christianity and Islam, three closely related religious traditions. It attempts to draw out commonalities among and differences between these traditions by focusing on their histories, their understandings of God, revelation and tradition, religion and society, and responses to social and political change.

300. Seminar: Theory and Method in the Study of Religion (Winter, Bedford). This course offers an introduction to the theory and methodology of the academic study of religion. It explores several of the most influential efforts to develop theories of religion and methods for its study, including approaches found in disciplines such as anthropology, sociology, psychology and phenomenology. The course adopts an historical perspective, outlining issues and developments in the field from the Enlightenment through to today.

Independent Study and Senior Projects

REL-295H-296H. Religious Studies Honors Independent Study
 REL-490-491. Independent Study in Religious Studies
 REL498-499. Senior Thesis

Russia and Eastern European Studies

Director: Professor S. Berk (History)

This program provides a broad, area-oriented liberal arts education focusing on the languages, cultures, and social systems of Russia and Eastern Europe. It leads to a degree of bachelor of arts and is designed primarily for those seeking careers in government service, journalism, law, or business.

Requirements for the Major: Fourteen courses including REE 498-499 and one REE seminar; one course above Russian 102; three courses on the history or culture of the country in question; and four appropriate courses from political science and economics. Up to two additional upper-level language courses may be counted toward the total number of required courses. Students must enter the major by the fall of their junior year, and course selections must be approved by the REE director. Majors must have completed at least three courses in the department most directly related to their senior project and must pass a comprehensive examination in the form of an oral defense of their senior project.

Russian (see Modern Languages and Literatures)

Science, Medicine, and Technology in Culture

Director: Professor M. Walker (History)

Science, technology, and medicine all play important roles in modern society. Several different populations of students would be interested in studying Science, Medicine, and Technology in Culture (SMT):

- Science or engineering majors who want to place their interests in a social context
- Humanities or social sciences majors who want to include science, engineering, and their social consequences in their education
- Students who want to study science and engineering at a meta-level (philosophy of science, sociology of science, history of science, etc.).

Requirements for the Major: Anyone wishing to major in SMT must first consult with the program director.

Requirements for the Interdepartmental Major: The interdepartmental major will consist of eight courses: all students will take one of five introductory SMT courses, HST-193, HST-242, PHL-232, PHL-247, or SOC-228, as well as a two-term interdisciplinary senior thesis jointly directed by a faculty member from humanities or social sciences and one from engineering or science. If the other half of the interdepartmental major is in Sciences or Engineering, then these students will do a three course concentration in either history and political science, economics, sociology and anthropology, or philosophy, with all of these classes drawn from the list of SMT courses below, as well as three other SMT courses. If the other half of the interdepartmental major is in Humanities or Social Sciences, then these students will take three courses in engineering and science, each of which must count for the major of the respective engineering or science department, as well as three SMT courses from the list below.

Requirements for the Minor: Students wishing to minor in SMT must take six SMT courses from the list below, drawn from at least three different departments and including at least one of the SMT core courses.

Core Courses (1 course)

HST-193 Science, Medicine, and Technology in Culture
 HST-242 The Scientific Revolution
 PHL-232 Philosophy of Science
 PHL-247 Technology and Human Values
 SOC-228 Sociology of Medicine

Capstone Course

SMT 498/499: Senior Thesis

Electives

Anthropology

ANT-137 Prehistory
 ANT-230 Medical Anthropology
 ANT-240 Technology, Culture and Society

Astronomy

AST-050 The Solar System

Biology

BIO-050 Topics in Contemporary Biology
 BIO-051 Seeing the Light: Concepts of Vision
 BIO-055 Evolution of Animal Behavior
 BIO-065 Food in the 21st Century
 BIO-094 Understanding Cancer
 BIO-243 Bioinformatics: Information Technology in the Life Sciences
 BIO-275 The Biology of Homo Sapiens.

Chemistry

CHM-050 Topics in Chemical Analysis – Forensic Chemistry
 CHM-060 Meals to Molecules

Computer Science

CSC-080 History of Computing
 CSC-104 Robots Rule
 CSC-243 Bioinformatics: Information Technology in the Life Sciences

Economics

ECO-228 Environmental Economics
 ECO-230 The Mind of the Entrepreneur
 ECO-331 E-Commerce Economics
 ECO-375 Efficient Management of Technology

Engineering Science/Engineering

ESC-100 Exploring Engineering

Environmental Studies

ENS-100 Introduction to Environmental Studies
 ENS-200 Energy
 ENS-250 Water Resources and the Environment
 ENS-251 Environmental Science and the Atmosphere

English

EGL-251 Nature and Environmental Writing

Geology

GEO-100 Introduction to Geology
 GEO-101 The Earth and Life Through Time
 GEO-102 Environmental Geology
 GEO-103 Great Moments in The History of Life
 GEO-104 Global Perspectives on Energy
 GEO-106 Restless Oceans
 GEO-107 Natural Disasters
 GEO-108 Earth Resources
 GEO-200 Mineral Science

History

HST-138 Big History
 HST-192 Construction for Humanity
 HST-193 Science, Medicine, and Technology in Culture,
 HST-242 The Scientific Revolution
 HST-253 Physics and Politics
 HST-353 Modern European Ideas

Mathematics

MTH-051 Cryptology: The Mathematics of Secrecy
 MTH-057 Game Theory and its Applications in the Humanities and Social Sciences
 MTH-060 Topics in Mathematical Political Science,
 MTH-221 Mathematical Cryptology

Philosophy

PHL-232 Philosophy of Science
 PHL-247 Technology and Human Values
 PHL-249 The Self in Cyberspace
 PHL-273 Environmental Ethics
 PHL-274 Environmental History and Literature
 PHL-375 Biomedical Ethics
 PHL-474 Advanced Biomedical Ethics

Physics

PHY-051 Seeing the Light: Concepts of Vision
 PHY-053 Physics and Politics
 PHY-054 Laser Technology and Modern Optics

Political Science

PSC-123 Topics in Mathematical Political Science
 PSC-272 The Environment, Energy, and U.S. Politics
 PSC-282 Health Politics and Policy

Psychology

PSY-215 Health Psychology

Sociology

SOC-228 Sociology of Medicine
 SOC-265 Sociology of Human Rights
 SOC-270 Social Movements, the Environment and Society
 SOC-284 Sociology of Women & Health
 SOC-358T Marine Policy and the Maritime Environment
 SOC-359 Environmental Policy and Resource Management
 SOC-370 Public Health Care Policy and Society
 SOC-372 Comparative Health Care Systems
 SOC-374 Mental Health and Society.

Sociology

Chair: Professor I. Kaplan

Faculty: Professor S. Ainlay (President); Associate Professors D. Cotter, M. Goldner, D. Hill Butler; Senior Lecturer J. Grigsby; Visiting Assistant Professors L. Relyea, L. Moffitt

Staff: K. Kuon (Administrative Assistant)

Requirements for the Major: The Department of Sociology offers students a choice from six areas of concentration (“tracks”) within the full twelve-course major:

- Community, Environment and Policy
- Families and Society
- Health and Health Care
- Crime and the Legal System
- Diversity and Change
- General Sociology

Students who major in sociology are required to take Sociology 100, 300, 305, and complete a two-term senior thesis. Majors may include within their seven elective courses up to two cognates from political science, psychology, economics, history, philosophy, and/or anthropology with approval of the department advisor.

Requirements for the Interdepartmental Major: Sociology 100, 300 305, a senior project, and four sociology electives.

Requirements for Honors: The student must fulfill the following requirements: (1) achieve a cumulative index of 3.30 or better; (2) a minimum index of 3.30 in all sociology courses; (3) completion of requirements for the sociology major or an interdepartmental major; (4) three grades of “A” or “A minus” in the major; and (5) at least a grade of “A minus” on the senior thesis. To be eligible for membership in the Alpha Kappa Delta sociology honor society, the student must fulfill all of the above requirements for honors and also have a class standing in the upper third.

Requirements for the Minor: Sociology 100, 300, 305 and three sociology electives. Students are urged to make one of these electives an independent study or research project.

Requirements for Secondary School Certification in Social Studies: PSY-246 and EDS500A and EDS500B. Students must also complete at least 12 courses in the department including Sociology 100, Anthropology 110, Sociology 201, 300, 305, and the senior thesis 498-499, and a minimum of seven courses in the Department of History. In addition, students must complete at least one course from both the Department of Economics and the Department of Political Science.

Interdepartmental Majors Seeking Secondary School Certification: Students must be interdepartmental majors in sociology, anthropology, and history. In addition, students must take at least one course from each of the remaining social science departments (economics, political science) and an interdisciplinary social science topics course.

Internships and Field Research. The department encourages students to participate in community internships for academic credit under formal supervision by a member of the sociology faculty. Internships include human service organizations and government/policy offices. Students can enroll in Soc. 385, 386 and Soc 450. In addition, faculty work closely with students who conduct field research; many department majors present research papers at the National Conference on Undergraduate Research and at Union College's Steinmetz Symposium.

Mini-term in Marine Studies (Kaplan). Students visit and compare fishing communities and marine life in Bermuda, New England, and Newfoundland.

Community Service Mini-term (Grigsby) A community-service based course held annually in December. See Description in course listing

Courses

Sociology 100, is a prerequisite for all sociology courses.

SOC-100. Introduction to Sociology (Fall, Winter, Spring; Staff). The basic concepts and perspectives of sociology, including a survey of the major social institutions, social aspects of personality, and the processes of social interaction.

SOC-201. Social Data Analysis (Same as PSC-220). The analysis of social science data. Emphasis on testing substantive hypotheses by means of computer data processing and statistical techniques.

SOC-202. Social Problems and Social Policy (not offered 2010-11). Identification of social forces and cultural images of major social problems (ie., substance abuse, violence, crime, pollution) and relevant social policies.

SOC-203. Social Psychology (Same as PSY-230)(Fall, Winter, Spring)

SOC-204. Social Construction of Deviance (Spring; Moffitt). An examination of "deviance" as a sociological phenomenon, including how the deviant label develops and how those so labeled are treated and controlled. Crime, prostitution, witch persecutions, mental illness, and the shaping of sexual identities and preferences are investigated.

SOC-205. Social Work and Human Services (Fall; Moffitt). The history of social services and the development of the profession of social work. Social problems and society's response to these problems will be investigated.

SOC-206. Aging and Society (not offered 2010-11). The social, psychological, and economic consequences of aging, with an emphasis on successful aging. Social programs and policies for the aged are evaluated.

SOC-212. The American Family and Cross-Cultural Perspectives (Fall; Butler). This course

examines historical and contemporary patterns of American family from cross-cultural perspectives. We explore the ways in which race/ethnicity, social class, gender roles, conflict and crisis, and the media influence family life.

SOC-222. Schools and Societies (not offered 2010-11). Sociological analysis of education as an institution over time and across societies.

SOC-223. Sociology of Religion (not offered 2010-11). The role of religion and religious phenomena from an institutional, organizational, and individual perspective in contemporary and historical context, exploring the interplay between the public and private spheres.

SOC-224. Sociology of Community (not offered 2010-11). How communities and their residents respond to external environments and internal organization. A series of case studies of urban, rural, and suburban communities and their effect on social behavior is a focus.

SOC-225. Sociology of Work, Occupations, and the Professions (not offered 2010-11). Sociological analysis of work in a modern industrial society; emphasis on the professions in terms of role behavior, education, socialization, and division of labor.

SOC-228. Sociology of Medicine. (not offered 2010-11) Sociological perspectives on health, illness, the health professions and institutions, including studies of the social components of disease and its distribution, doctor-patient relations, and alternative health-care systems.

SOC-230. African-Americans in Contemporary Society (not offered 2010-11). This course is an introduction to African American society as revealed in the empirical literature of social sciences. Teaching and Learning in the context of this class will be multidimensional. You will learn about social structure and inequalities through readings, lectures, discussions, popular media examples, and field trips. Using these pedagogical strategies, our class will work as a learning community to explore contemporary issues relating to African American experiences. *GenEd: LCC*

SOC-231. Sex and Gender in American Society (Winter, Butler). An examination of gender and the social context of the behavior of men and women in contemporary American Society.

SOC-233. Race, Class, and Gender in American Society (Spring; Goldner). The issues of gender, race, and class as organizing principles within sociology. The course draws broadly from the critical tradition, which focuses on issues of power, control, opportunity, gender, and economic relations. *GenEd: LCC*

SOC-240. Political Sociology (Spring; Butler) (Same as PSC-284) Explores issues of political power, domination, and legitimacy from a sociological perspective. Topics include the creation and maintenance of political power and the impact of political socialization.

SOC-245. Sociology of Developing Countries (not offered 2010-11). The patterns of economic, social, and political change in developing countries through case studies of different development strategies in Africa, Latin America, the Caribbean, and Asia. *GenEd: LCC*

SOC-260. Demography: Population and Society (Fall; Grigsby) An introduction the study of human populations and the dynamics of birth, death and migration. Focus on how populations grow and decline and the implications for social policy in areas such as health, aging, social inequality, the environment, immigration and urban life.

SOC-261. Crime and Justice in Society.(not offered 2010-11) The social construction of crime and delinquency as social and legal categories; perspectives on causation and consequences of the societal reaction to crime.

SOC-265. Sociology of Human Rights (Winter; Moffitt). This course examines themes associated with the study of human rights and social justice. Issues involving hate crimes, sex slavery and ethnic and racial abuse are examined. *GenEd: LCC*

SOC-270. Social Movements, the Environment, and Society (not offered 2010-11) (Same as PSC-283). The role of extra-governmental actors in the formation of public policy with a focus on environmental issues. The origins and development of social movements and the differences and similarities among these. Topics include the means by which such groups seek to influence policy and social practice and the outcomes of such attempts.

SOC-271. Sociology of Disaster (Spring; Grigsby). This course is an introduction to the sociological analysis of disasters. We will consider how sociologists conceptualize and theorize about disasters and the social and physical damage, death and injury, and economic loss they involve. Variations in the vulnerability of communities and particular social groups to such events will also be examined.

SOC-282. Sociology of the Disabled and Handicapped (not offered 2010-11). A sociological perspective on handicapping conditions, including the hearing impaired, visually impaired, orthopedically disabled, learning disabled, and mentally retarded.

SOC-284. Sociology of Women & Health (Winter; Grigsby). A critical introduction to the sociological analysis of issues in women's health in the contemporary United States, emphasizing how the key variables of gender, race & class structure access to health & well-being for women in our society.

SOC-285 Food, Nutrition and Society. (not offered 2010-11). In this course we will explore the social construction of food and its emotional and cultural meaning. How do social structures, such as education, affect how we eat? Included in the topics addressed in this course are how gender, culture, socio-economic status, ethnicity, and media affect our food choices, nutrition, health and health care system.

SOC-286. Women and Change in the Third World (not offered 2010-11). An analysis of theories of societal change and development in terms of the contributions of Third World women in the development process. *GenEd: LCC*

SOC-290. Personality, Media, and Society (Fall; Kaplan). How social roles and group dynamics impact personality and group behavior. Agents of socialization, with particular emphasis on the media and their impact on individual and societal expectations and values, will also be examined.

SOC-300. Quantitative Methods of Social Research (Fall; Cotter). Identifying sociopolitical questions and developing hypotheses; designing research instruments (questionnaires); basic statistics and introduction to social science computer analysis.

SOC-302. Qualitative Social Research Methods (Same as PSC-222) Introduction to qualitative research methods. The course is equally concerned with research design, techniques for gathering data, ethics in research, and the translation of field data into text.

SOC-305. History of Sociological Thought (Winter; Goldner). The development of sociological theory, with particular emphasis on the works of Marx, Weber, Durkheim, Mead, Foucault, and Bourdieu, with a feminist critical analysis of each.

SOC-320. Africa: Social and Demographic Trends (not offered 2010-11). The culture, economy, and politics of Africa, especially sub-Saharan. Topics include family life, religion, kinship systems, urbanization, health, and population growth. Compares traditional African societies by examining contemporary issues of change. *GenEd: LCC*

SOC-326. Discrimination and Marginality (not offered 2010-11). An examination of discrimination and marginality in society. Topics include the social control of power and justice.

SOC-340. Inequality and Mobility: From Penthouse to Poorhouse. (Fall; Cotter) The forms, causes, and consequences of social inequality. Topics include objective and ideological manifestations of trends and patterns in wealth, poverty, mobility, and welfare policy.

SOC-346. African American Women: Unheard Voices and Contemporary Lifestyles (not offered 2010-11). This course examines the socialization of black womanhood. We will explore how certain socio-historical norms shape black women's ideas about race, gender, class, sexuality, constructions of femininity, and public and private activism. Understanding the complexities of strategies of resistance to multiple and intersecting oppressions (race, class, gender, sexuality, etc.) forms the focus of the course. Suggested prerequisites: SOC-230, SOC-233, WGS-100, *GenEd: LCC*

SOC-358T. Marine Policy and the Maritime Environment (not offered 2010-11) An examination of social life in maritime communities and the shaping of the national and international marine policies. To be taken in conjunction with Marine Studies Term Abroad.

SOC-359. Environmental Policy and Resource Management (not offered 2010-11). An examination of environmental issues and problems such as acid rain, ocean dumping, and nuclear wastes, and the social forces that shape environmental policies.

SOC-360. Domestic Violence (Spring; Relyea). A sociological examination of issues and questions raised by violence within American families. The public definition of family violence, subjective experiences of abusers and victims, social and individual causes and consequences of abuse, complexities and problems of social interventions.

SOC-362. Family and Community Services (not offered 2010-11). An examination of the response of community organizations and services to family life. Particular issues will include spouse and child abuse, juvenile delinquency, teenage pregnancy, daycare, and family instability and mental health. Visits to community and human service organizations will also be arranged.

SOC-364. Sex and Motherhood (not offered 2010-11). An analysis of selected issues in the regulation of human reproduction & family building, primarily from sociological and feminist perspectives. Topics such as birth control, abortion, adolescent pregnancy, infertility & pregnancy are examined in historical and cross-cultural contexts with particular focus on the variables of gender, class and race.

SOC-370. Public Health Care Policy and Society (Spring Goldner) An overview of public health with emphasis on the impact of large-scale social and cultural forces on the health of the public. The epidemiology of selected diseases, injuries, and the addictive disorders; the health effects of exposure to environmental and work place toxins; the role of nutrition in health.

SOC-372. Comparative Health Care Systems (not offered 2010-11). An in-depth survey of health care systems from a cross-cultural perspective, of particular interest to health care providers and practitioners and to students interested in comparative health care systems, particularly those planning to go on the Health Systems Term Abroad.

SOC-374. Mental Health and Society (Fall; Relyea). A general introduction to the social scientific study of mental health. Topics include theories of mental illness, epidemiology of mental illness, the social experience of being a mental patient, and contemporary issues in mental health.

SOC-385. Internship in the Delivery of Human Services. (Spring; Kaplan) Designed to provide the student with work and research experience within a human service organization. Registration by application filed during fall term and by permission of instructor.

SOC-386. Eldercare Internship Seminar (not offered 2010-11). Designed to facilitate the integration of hands-on work experience with knowledge of practices and policies in long-term care for the elderly.

SOC-387T. Community Service Miniterm (December Grigsby). An integrative learning experience that combines an intensive off-campus December service experience with academic inquiry and critical reflection about the social, political, cultural and economic issues in which such service is embedded. Current focus is hurricane recovery in Louisiana Gulf coast. Registration by application filed in spring term and permission of instructor.

SOC-450. Environmental Services and Policy (Winter; Kaplan). The focus of this seminar is on the implementation of different environmental policies. Internships at the NYS Dept of Environmental Conservation and local environmental organizations are part of this course

Independent Studies and Thesis

SOC-295H- 296H, Sociology Honors Ind Project 1 & 2

SOC-490-497. Independent Study (Fall, Winter, Spring; Staff). Prerequisite: Permission of the department chair.

SOC-498-499. Senior Thesis in Sociology (Fall, Winter, Spring; Staff). Special project for senior majors.

Spanish and Hispanic Studies (see Modern Languages and Literatures)

Studio Fine Arts (see Visual Arts)

Theater and Dance

Chair: Professor W. Finlay

Faculty: Professor C. Steckler; Senior Artist in Residence P. Culbert; Senior Artist in Residence and Director of the Dance Program M. Moutillet; Visiting Assistant Professor & Technical Director S. Michalek; Visiting Assistant Professor & Costumer B. Belz

Administration: M. Rogers (Assistant Director of Dance)

Staff: L. Goodman (Office Assistant), K. Herrington (Administrative Assistant)

Theater

Requirements for the Major: Twelve courses plus one theater practicum credit which must include experience in the Art of Stage Management. The theater major includes ATH 110, 112, 113, 120, 125, 151, 230, 231, 342; 497 or 498& 499, one elective chosen in consultation with major advisor, and either EGL 223 or 224. Highly recommended are additional electives in dance.

Requirements for the Interdepartmental Major: Eight courses plus one theater practicum credit which must include experience in the Art of Stage Management. The interdepartmental major includes ATH 110, 112, 113, 125, 151, 230, 231, 342. Highly recommended are additional electives/dance technique classes.

Requirements for Honors: ATH498-499. Candidates must satisfy college qualifications for honors and receive a grade of at least "A minus".

Requirements for the Minor: Six courses plus one Theater Practicum credit which must include experience in the art of Stage Management. The Theater minor includes ATH-110 (Stage Craft I), ATH-120 (History of Theater) and the choice of one design class and one performance class offered by the Department. Also required are two electives from within the Department of Theater and Dance chosen in consultation with the student's Minor advisor.

Courses in Theater

ATH-100. Public Speaking (Not offered 2010-2011). A practical introduction to speechmaking. Through varied and increasingly complex speech assignments, students learn to integrate standard skills in public communication: speech concept and content, the organization and support of ideas, audience analysis and involvement, plus physical presentation techniques including personal style and the mastery of multimedia presentational technology.

ATH-102. Introduction to Theater (Spring; Steckler). The concepts and practices of theater as an artistic collaboration, a profession and a communal event is the focus of this introductory course. This is an explorative overview of the elements of theater, including a study of the creative process; playwriting, acting, directing, design, craft and technical direction. A variety of forms and styles of theater will be reviewed and discussed through the reading and analysis of significant plays in the dramatic lexicon. Quizzes, term papers, oral presentations and a final performance of a 10-minute play.

ATH-105. Special Topics in Theater-Stage Combat (Spring; Finlay). An exploration of the physical violence portrayed on stage from the Elizabethan period to the present. Students will be instructed in the safe use of both period and contemporary weaponry as well as the techniques of unarmed stage fighting. Prerequisite: ATH-230 or permission of the instructor.

ATH-108. Special Topics in Theater-Stage Makeup (Not offered 2010-2011). This studio class in the design and application techniques of stage make-up will cover techniques in corrective make-up (including feature modifications), old age, period make-up (including an overview of period make-up styles and uses), fantasy, facial hair, 2-D and basic 3-D prosthetic techniques commonly used onstage.

ATH-110. Stage Craft I (Fall, Winter, Spring; Michalek). This course seeks to introduce students to the language and practice of technical theater. It covers the basics of tools, hardware, theatrical construction, safety practices, lighting, painting and the physical space. Additional weekly lab hours are required for the hands-on experience of building the department production and are scheduled once the term begins at the mutual convenience of student and instructor.

ATH-112. Acting I (Fall; Culbert, Winter; Finlay). Designed to engage the aspiring actor in developing performance power, technique, and discipline, including self-discovery, in-depth character exploration, and textual analysis. Understanding what goes into actions, objectives, and given circumstances will be part of the process of beginning monologue and scene work. Appreciation of theater as a profession through learning how to prepare and see other performances. It will require an open heart and mind in order to have the opportunity to take risks, challenge oneself, and be creative.

ATH-113. Introduction to Stage Design (Winter; Steckler). This studio course introduces the work and practices of the theatrical scenic designer. Through studying the historical traditions and styles of theater as well as the innovative practices of contemporary designers students will read and interpret several plays and create original designs in sketches, renderings and scale models. Projects and exercises will emphasize "design ideas" about space, place, pictorial representation and the expressive use of materials. There will be on-going, in-class studio exercises that deal with craft practices and skill acquisition – using the architects' scale, drawing techniques, handling knives, joining board with adhesives, watercolor painting, textures with acrylic mediums, etc. Each project presentation will be accompanied by a paper describing the research and design process.

ATH-117. Fundamentals of Stage Lighting Design (Winter; Michalek). This course seeks to introduce students to the world of stage lighting design and technology. Initial emphasis will be on electrical theory, photometrics and the wide variety of fixtures and control boards in use in the modern theater. The class will then progress to basic lighting theory and analysis of lighting techniques. In the final weeks, the class will actively participate in the design, hang, focus and programming of the lighting for a departmental production.

ATH-120. History of Theater (Not offered 2010-2011). An investigation of the development of Western theater from its roots in Greek tragedy to the contemporary with special focus on the works of Sophocles, Plautus, Medieval Theater, the Commedia dell'arte, Elizabethan theater, Moliere, Restoration, and 19th century American theater. This class concentrates on the nature of theater-in-performance including the physical development of theater spaces, staging concepts, and the artist-audience relationship. GenEd: LCC

ATH-121. Puppet Theater Design and Performance (Fall; Steckler). This studio course introduces the design, craft and performance of puppets, animated objects and toy theaters. We will study traditional practices of the genre around the world as well as contemporary and innovative expressions. Students will design, construct, and perform several shows throughout the term in collaborative and individual projects emphasizing the elements of character, space, place, story, text, theme, voice, movement, and technique. Quizzes, research presentations and final papers. There will be a final public performance of original student work.

ATH-122. Introduction to Costume Design (Fall; Belz). An exploration into the principles and practice of stage costume design including an historical survey of clothes and fashion. The course will be geared toward practical application of design theory and collaboration in conjunction with directors and other designers.

ATH-125. Improvisation I (Winter; Culbert). This class allows the individual and the group to explore through intuitive creative ways a physical, emotional and spontaneous form of approaching theater. This course prepares the performer for advanced training techniques by focusing attention on freeing the body to communicate. Emphasis will be placed on spatial awareness and control, physical characterization and developing performing skills in gestural relationships, kinesthetic response, tempo and character dynamics. Theater games and a variety of improvisation methodologies will be used in the practice of performance discipline, risk taking and collaboration on stage.

ATH-140. American Musical Theater and Dance (Same as ADA-140) (Fall; Moutillet). This course is an introduction to the American Musical from Vaudeville and Minstrel Shows to today's contemporary Broadway shows. Through lectures, video viewing and workshops students will learn an historical background focusing on the work of lyricists, composers, choreographers, directors and producers. This unique American entertainment art form reflects American diversity and culture, changing times, values and trends. No prerequisite.

ATH-150. Staging Exploration in Theater and Dance (Same as ADA-150) (Winter; Batson, Moutillet). This course is based on the close examination of a particular period of theme of multi-disciplinary artistic production that will offer students an immersion into important developments in performative expressions. This course explores dynamic movements in the artistic avant-garde, its historical background, and its principal creators in theater, dance and associated performing arts, through discussions, lectures, studio work, and collaborative creation. The resulting collaboration will be produced and performed at Yulman Theater. No prerequisite.

ATH-151. Directing I (Fall; Finlay). Students explore the process of bringing the script and the director's concept to the stage by working with actors through casting, script analysis, rehearsal, and performance. Previous acting experience (in class or in production) required.

ATH-226. Stage Craft II (Fall, Winter, Spring; Michalek). Intermediate level course in the technical aspects of theatrical production. Similar to ATH 110, but with more in-depth exploration of the nuances of stagecraft. Furthermore, students will take on the role of a crew foreman and be responsible for managing a small group of carpenters or lighting technicians during their lab hours. Prerequisite: ATH-110 or permission of the instructor.

ATH-230. Movement for Actors (Not offered 2010-2011). Development of the actor's body as an expressive instrument. Yoga/centering exercises, actorbatics and circus techniques are explored to achieve a flexible, free, strong and restfully alert body on stage. Contemporary and period character development through movement.

ATH-231. Voice for the Stage (Not offered 2010-2011). This is a studio performance course in vocal technique for the stage or other performance media. Class work will include daily physical and vocal limbering designed to develop a free and natural speaking voice. Extensive exercises for the breath, resonance and articulation will be given to develop an awareness and appropriate use of the voice. In class presentations of scripted material, extracts from dramatic literature and readings of stories or poetry put into practice the techniques of this performance course. Instruction in dialect work for the stage will be included. Examinations will include presentations of memorized text following a vocal workout program in the Linklater method.

ATH-235. Physical Theater (Winter; Moutillet) This course emphasizes the development of the actor's body as an expressive instrument. Primarily focus is on the actor's physical presence, actions over language, and use of gestures. Actors/dancers will be trained in techniques that focus on the building of strength, flexibility, improvisation targeting relationships and interplay between performers, and visual elements to create scenic imagery. Workshops pursue a wide range of styles, approaches and aesthetics including dance-theater, movement theater, mask, use of live camera to project performers' actions and interactions with props and scenery. We review European, Japanese and American styles of physical expression to broaden theatrical actions. The course will culminate in a collaborative creation produced and performed at The Yulman Theater in the Winter Dance Concert. No prerequisite.

ATH-240. Theater Criticism (Fall; Culbert). This is an intensive and practical course on reading and writing dramatic criticism. A look at the concepts and practices of theater criticism in American Theater begins with a discussion of major theories of Western drama, from Aristotle to Artaud. Through the reading and discussion of contemporary examples of dramatic criticism and directed studies in techniques of journalistic writing students will gain an understanding of the nature and function of a theater review and an ability to critically view theater productions. Writing will include research essays, response papers and critical reviews of play scripts as well as performances on campus and at professional theaters. GenEd: LCC

ATH-295H-296H. Theater Honors Independent Project 1 & 2. For the sophomore scholar student who has demonstrated the ability to work independently, this one or two-term project may be proposed to a sponsoring faculty member. It is expected that this student-initiated project is designed to allow the student to gain experience through independent research, study or practical studies that could not otherwise be gained in the curriculum. Projects must be proposed at least a term in advance. By permission of sponsoring faculty only.

ATH-325. Acting Shakespeare (Not offered 2010-2011) The demands of Shakespeare in performance in this class will include active work on scansion, verse structure, rhetoric, language imagery, as well as text analysis and character analysis in a professional discipline of role preparation and rehearsal

process for individual (monologue) and partnered (scene) work. It is assumed that the student taking this course is prepared and willing to challenge him/herself in order to become an expressive, creative and informed Shakespearean actor. A variety of contemporary methods of actor training will be reviewed and used as a process of performance preparation. Prerequisite: ATH-112 or permission of the instructor. GenEd: LCC

ATH-342. Acting II (Spring; Culbert). Students review skills learned in earlier acting classes with a higher degree of emphasis on performance. Focus on in-depth textual analysis - discovering in the inner workings of a play, of scenes, monologues and character choices. Students will gain an understanding the work of a professional actor, and the discipline of the theater business. Prerequisites: ATH-112 or permission of the instructor.

ATH-361. Advanced Directing (Not offered 2010-2011). An advanced course in techniques of working with script, actor, and designer in realizing a theatrical event on stage. Final project to be directed for public performance. Prerequisite: ATH-151.

ATH-366. Acting Styles (Not offered 2010-2011). This class is about how an actor can transform poetic and heightened language and make it seem natural. It is designed for the serious student as a continuation of their acting training and to provide a means to understanding classical and highly stylized theater. The class will be an intensive session covering a varied range of acting styles across the history of theater. Close analysis of specific theater texts including Greek Theater, Shakespeare, French Comedy, and Absurdism, among others. We will be examining both traditional and unconventional approaches to presenting performances. Being prepared, doing work outside of class, seeing other performances, keeping a rehearsal journal, and turning in written critical analysis will be required to complete this class successfully. Prerequisite: ATH-342 or permission of the instructor. GenEd: LCC

ATH-490-494. Theater Independent Study 1, 2, 3, 4 & 5 For the junior or senior student who has demonstrated the ability to work independently, this one term project may be proposed to a sponsoring faculty member. This course may be repeated up to five times, as independent or interrelated studies. It is expected that this student-initiated project is designed to allow the student to gain experience through independent research, study or practical studies that could not otherwise be gained in the curriculum. Projects must be proposed at least a term in advance. By permission of sponsoring faculty only.

ATH-497. Theater One-Term Senior Project As a requirement of the major, students propose this one-term project as a "capstone" study in an area of concentration in theater studies. This project is designed in consultation with the faculty coordinator of senior projects and must be proposed at least a term in advance. Projects may include research, practical production experience or independent projects in theater. By permission of the faculty.

ATH-498-499. Theater Two-Term Senior Project Students seeking to graduate with honors may elect to propose a two-term senior project as a "capstone" study in an area of concentration in theater studies. This project is designed in consultation with the faculty coordinator of senior projects and must be proposed at least a term in advance. Projects may include research, practical production experience or independent projects in theater. By permission of the faculty.

Theater Practica

ATH-010. Rehearsal and Production: Students are invited to participate in theater productions in a variety of capacities, both on-stage and off-stage. To gain transcript recognition for participation in these activities, students must register for the theater practicum with the registrar and achieve a passing grade from the faculty supervisor. Requests for practicum transcript recognition must be filed with the registrar during the term in which the practicum is undertaken. During the senior year, students may request up to two full practicum credits towards graduation. Such requests are made to the registrar during the senior year transcript audit (or its equivalent for those who plan to graduate early). Each full theater practicum credit is accumulated from three previous passing grades (any combination of theater and dance practicum). No more than two such graduation credits are available, whatever the discipline (music, theater, or dance). Students are advised to select full practicum credits in whichever area best suits their academic program.

Dance

Requirements for the Minor: A total of 6 credits required to achieve a minor in dance. Students must take the choreography course (ADA-050), one history class (ADA-052, ADA-053, or ADA-140) and one Dance Project chosen from ADA 490-493. One credit from the theater program is also required chosen in consultation with the Director of Dance. Depending on the students' interest and area of study, an appropriate course will be chosen. Two full practicum credits are also required in dance technique over six terms of study.

Dance Technique Classes: Ballet, Modern, Jazz, Tap, Hip Hop and Dance & Fitness and Pilates for Performers are offered in the Dance Studio each term. A small fee is charged. To gain transcript recognition for dance technique classes, students must register with the registrar early in the term and achieve a passing grade from the faculty supervisor. Requests to register for practicum transcript recognition after the drop-add period will not be honored. During the senior year, students may request up to two full dance practicum credits towards graduation. Such requests are made to the registrar during the senior year transcript audit (or its equivalent for those who plan to graduate early). Each full dance practicum credit is accumulated from three previous passing grades (any combination of theater and dance practicum). No more than two such graduation credits are available, whatever the discipline (music, theater, or dance). Students are advised to select full practicum credits in whichever area best suits their academic program

Courses in Dance

ADA-050. The Dance Experience (Spring; Moutillet). An experiential survey course introducing the many facets of dance in our contemporary world. Through lectures, performance attendances, and workshops students discover dance vocabulary, styles, and inner skills. Special emphasis on creative abilities, built on trust, and exploration. Studio classes include diverse technique dance forms, video viewing, improvisation, and creative process sessions. Each student will work as a choreographer in an individual or collective dance piece to be performed publicly. A weekly dance technique class is required.

ADA-052. Dance in America (Not offered 2010-2011). An introduction to dance in America from Native American to contemporary diverse styles, approached through lecture, video viewing, and dance workshops. A voyage through time from the French Court with the birth of Classical Dance through the twentieth century with the development of Modern and Post-Modern Dance. Study of the advent of new music and dance with the African American heritage and American contributions towards social dancing. Special emphasis on historical background and international influences, studying the dancers, choreographers, traditions, and trends that influence the making of contemporary dance as an art and form of expression. No prerequisite. GenEd: LCC

ADA-053. Histoire de la danse, Danse de l'histoire/History of Dance, Dance of History (Also FRN-421, MLT-211) (Not offered 2010-2011). Examination of Western European dance and dance texts as revelatory of broader historical and cultural patterns, with special analyses of dance as a key tool of nation-building (as with the court of Louis XIV) and/or a central medium of artistic creation (as in 1920s Paris), Primary focus on France as creator, user, and potential abuser of dance's power, but some attention given other European models (Berlin, St. Petersburg, London). Readings from theoreticians, historians, and dance litterateurs (Moliere, Gautier, Cocteau).

ADA-140. American Musical Theater and Dance (Also ATH-140) (Fall; Moutillet). This course is an introduction to the American Musical from Vaudeville and Minstrel Shows to today's contemporary Broadway shows. Through lectures, video viewing and workshops students will learn an historical background focusing on the work of lyricists, composers, choreographers, directors and producers. This unique American entertainment art form reflects American diversity and culture, changing times, values and trends. No prerequisite.

ADA-150. Staging Exploration in Theater and Dance (Also ATH-150) (Not Offered 2010-2011). This course is based on the close examination of a particular period of theme of multi-disciplinary artistic production that will offer students an immersion into important developments in per formative

expressions. This course explores dynamic movements in the artistic avant-garde, its historical background, and its principal creators in theater, dance and associated performing arts, through discussions, lectures, studio work, and collaborative creation. The resulting collaboration will be produced and performed at Yulman Theater. No prerequisite.

ADA-295H. Dance Honors Independent Project 1

ADA-296H. Dance Honors Independent Project 2

ADA-490-493. Dance Project 1, 2, 3 & 4. As an Independent Study, students can elect to pursue a specific area of interest. Subjects might include dance styles, a choreographer or dancer's life and achievements, a dance craze as well as a specific dance technique. Students can also research the creation of workshops, dance classes or new dance techniques for engagement on campus or for outside venues. Students will present their research through a public lecture/demonstration. Prerequisite consists of one history course, ADA-052 Dance in America, ADA-053 Danse de l'Histoire, or ADA-140 Musical Theater and Dance.

Other Dance Projects will allow students to develop their own dance style, create a dance piece or restage the work of a famous choreographer. The student will act as Artistic Director, overseeing the creation and being responsible for collaborators such as musicians, actors, dancers, sculptors or any other inter-disciplinary artists. Prerequisite, ADA-050-Dance Experience.

Dance Technique Practica

ADA-010. Ballet I (Fall, Winter, Spring; Geren). An introduction to the basic techniques of classical ballet. Each class incorporates proper body alignment, balance and self-awareness of the classical form. Students learn ballet technique and style by combining a barre warm-up, centre phrases, and across-the-floor combinations. *For all students*

ADA-011. Ballet II (Fall, Winter, Spring; Moutillet). The intermediate ballet level is designed for dancers who have been trained in the classical form. Class includes complex combinations at the barre and in the center. Musical accompaniment will explore the lyricism of the classical form. Insight into progressive step combinations, physical control, and variations through turns, jumps, adagios and allegros. Repertoire and new creations will be taught in class. *For trained dancers*

ADA-012. Ballet III (Fall, Winter, Spring; Moutillet). This advanced ballet level emphasizes academic training as well as repertoire. Depending on student's ability and strength, pointe work will be added. Original or traditional ballets will be learned in class. Dancers who have a desire to perform are encouraged to attend. *For intermediate dancers*

ADA-020. Jazz Dance I (Fall, Winter, Spring; Rogers) Learn the basics of Jazz technique, a high powered energy form that moves to fast rhythms. A challenging free style that uses dynamic body movements, flexibility and present day dance steps. *For beginners*

ADA-021. Jazz Dance II (Fall, Winter, Spring; Rogers) An intermediate level designed for a trained dancer. Combination will include various jazz styles exploring the classical, funky, and the contemporary. *For trained dancers*

ADA-030. Modern Dance I (Not offered 2010-2011). Gain an in depth understanding of how the body moves, proper placement, alignment, and flexibility. Welcome the knowledge of a well trained and disciplined body. *For beginners*

ADA-031. Modern Dance II (Fall, Spring; Moutillet) Explore the dynamics, rhythms, phrasing and use of space unique to contemporary dance while developing technical strength. Reinforce your physical possibilities and perfect your inner potential toward dance expression. The use of music, space and choreographic gestures will be learned through challenging group choreography. *For trained dancers*

ADA-035. Dance and Fitness (Fall, Winter, Spring; Moutillet). Provides students with the study of a trained body in modern dance, yoga and fitness routines. Gain expertise on how to shape and train your body to its full potential. *For all students*

ADA-036. Pilates For Performers (Fall, Winter, and Spring; Geren) In class, students learn the basic, intermediate, and advanced exercises of the Pilates workout. The course focuses specifically on technique that helps with centering of body work for the Performing Arts. Strengthening and working on flexibility enhance performers' abilities. Gain confidence and awareness of body placement as well as studying a technique for warming up before shows. Union offers few beginners dance classes, the Pilates for Performers being an ideal training base for all performance artists, including novices. *For all students*

ADA-040. Afro-Dance. A class built for everyone who wants to dance to African rhythms. Emphasizes stamina and the learning of exciting dance routines. A cultural dance style and technique welcoming dancers of all levels into a rich range of African dance movements. *For all students*

ADA-045. Tap Dance I. For beginners who want to explore the world of tap dance. Students will learn basic footwork, and routines on exciting rhythms. *For beginners*

ADA-046. Tap Dance II. (Fall; Rogers). Tap dance provides students with the study of steps found in the tap dancing art form. Students will be introduced to proper warm up, tap steps, specific exercises in rhythms, routines, and use of music. For dancers, adding a tap class will give them the opportunity to learn about a new dance form. Students that have previous experience in tap will be able to expand their expertise. For the theater students the learning of tap can eventually be useful for musicals. *For trained dancers*

ADA-060. Hip Hop I Dance Class. (Winter, Spring; Domenico-Wasbes) The *Hip Hop I* dance class gives students the opportunity to learn the basic of this popular and important dance form. A style based on routines from street jazz, breaking, popping, and locking. This dance style welcomes students with no previous dance experience and is a dazzling way for students to gain confidence in their body to today's most celebrated pop music. *For all students*

ADA-061. Hip Hop II Dance Class. (Winter, Spring; Domenico-Wasbes) The *Hip Hop II* dance class provides trained dancers with a high energy class in an innovative dance style. Hip Hop is urban, it's diverse, and it's forever changing. The freestyle dance fusion gives students the opportunity to develop their own sense of style to the latest hit songs. *For trained dancers*

ADA-070. Choreography- Modern. (Winter; Moutillet) This class will give students the opportunity to participate in the creation of a dance piece. Studio classes will focus on a particular era with a definite theme that will generate choreographic scenes. The dance vocabulary will be the amalgam of diverse dance styles. Students will have the opportunity to learn choreographed movements as well as interacting in the process by sharing their own individual ideas. The choreography will use recorded or live music as well as incorporating multi-media, inventive sets and costumes for a contemporary performance art production. Each week the class will build on material that will be presented as part of the winter dance concerts at the Yulman Theater. *For intermediate level*

ADA-071. Choreography-Jazz. (Winter; Rogers) Each week the class will work toward the composition of innovative dance movements found in the jazz form. This class will primarily focus upon the post-jazz dance vocabulary of the 1980's, which incorporates diverse dance styles such as ballet, funk jazz and hip-hop. Each student will learn from the faculty choreography as well as develop their own potential by proposing movements for collaborative work. Students will explore a wide range of intricate steps as a mean of self-expression, individual and ensemble study. The finalized choreography will be presented as part of the winter dance concerts. *For intermediate level*

ADA-072. Choreography- Ensemble. (Winter; Moutillet) This class concentrates on creating a choreography that will give students the opportunity to work as a team; a unit or a group. Every show demands this type of collaborative work to provide meaning, help the theme or story line development or simply create a stunning visual effect. The *Ensemble* practicum encourages cooperation between student participants and strives for efficient dance vocabulary that brings momentum and advance the plot of our winter dance concerts. The choreography will incorporate inventive sets or props for a contemporary performance art production. *For intermediate level*

ADA-073. Choreography- Rhythms. (Winter; Rogers) This practicum will focus on developing various rhythms to create vibrant sounds and a challenging choreography. The dance vocabulary will stress the primacy of percussion beats. Students will learn to use their entire bodies as an instrument as well as their feet to enhance syncopated beats. This dance style will include tap dancing, stepping, rhythms with the body or with percussive instruments. They will have to fuse dance styles and percussions to create an exciting performance. *For intermediate and advance level*

Visual Arts: Art History and Studio Fine Arts

Chair: Associate Professor D. Ogawa

Faculty: Professors M. Benjamin, C. Duncan, W. Hatke, L. Matthew; Associate Professor L. Cox; Assistant Professor F. Orellana; Senior Lecturer & Artist in Residence S. Wimer

Staff: F. Rapant (Photography Technician), A. Thomas (Slide Curator), L. Goodman (Office Assistant), K. Herrington (Administrative Assistant)

Art History

Requirements for the Major: Twelve courses including two of the three Western art history survey courses and one of the Asian art history survey courses, five other art history courses (which must cover at least three historical periods, cultures, or geographic regions), a minimum of one studio arts course, and three additional advanced art history courses. One of these advanced courses must be AAH400, a seminar on methodology, which should be taken the winter term of a student's junior year. Majors concentrating in art history are encouraged to continue the study of at least one foreign language at Union. Seniors should fulfill the WS requirement in an art history seminar or through the senior thesis.

To pursue a senior thesis, art history concentrators or interdepartmental majors must have a cumulative grade point average of 3.3 overall and 3.3 in their art history concentration. The student must have successfully completed a junior qualifying paper ("B plus" or above) in the context of an upper-level art history course with the approval of the faculty advisor, and have completed AAH400. The senior thesis topic must be approved by the faculty advisor in the third term of the junior year. All of these criteria must be met by the end of the junior year.

Requirements for the Art History/Studio Arts Dual Concentration: Students who wish to major in a combined dual concentration of studio art and art history must take seven courses in each area.

In studio: Students take one course in three of the disciplines of the studio arts offered by the department (drawing and painting; photography; printmaking and two-dimensional design; sculpture and three-dimensional design; digital arts). Students may not exceed four introductory courses. Two intermediate-level courses are required in at least two studio art disciplines (AVA210-262 or 345). Two advanced courses are required in a single discipline (300 or above). For honors requirements, see below.

In art history: Students take two of the three Western art history survey courses and one of the Asian art history survey courses. Additionally, students must take four additional courses that cover at least three historical periods or geographic regions; three of these four must be advanced courses. The WS requirement for combined dual concentration must be fulfilled by an art history seminar taken in the senior year. For honors requirements see below.

Requirements for the Interdepartmental Major: A minimum of eight courses in the Visual Arts Department, of which seven must be in art history (and include three art history surveys divided between Asian and Western and one in studio art). All proposals for interdepartmental majors including art history must be approved by the art history faculty.

Requirements for Honors in Art History: To qualify for departmental honors, a student must fulfill the following requirements: (1) cumulative grade point average of 3.3; (2) a grade point average of 3.3 in the art history concentration; (3) successful completion of a two-term senior thesis ("A" or "A-minus"); (4) approval by a second faculty reader; (5) an oral presentation at The Steinmetz Symposium in the spring term of senior year and (6) a copy of the thesis must be left with the department's collection and archives. Having fulfilled the above, the student must then be nominated by the department for honors. Further guidelines for the senior thesis and departmental honors are available from the art history faculty.

Requirements for Honors in the Art History/Studio Combined Dual Concentration: Honors for the combined concentration requires a cumulative grade point average of 3.3; a 3.3 grade point average for all courses counting toward the combined concentration; and one of three project options. 1) Successful completion of a two-term art history thesis (“A” or “A minus”), which also requires successful completion of a paper by the end of the junior year (“B plus” or above), a proposal approved by the advisor, approval of the final product by a second faculty reader, and an oral presentation at The Steinmetz Symposium in the spring term of the senior year or 2) A two-term independent study project focusing on the student’s particular area of interest in the studio arts, culminating in an exhibition (“A” or “A minus”) or 3) a two-term project that combines art history and studio arts, which must be planned in consultation with an advisor from each discipline, and which must be proposed by the end of the junior year. For those doing a written work, a copy must be left with the department’s collection and archives, for those completing a studio project, visual documentation (usually slide reproductions) of the project, a one-page abstract, and one original work must be left with the department. These requirements for project option #3 will be negotiated with the advisors on a case-by-case basis. All students must complete the WS requirement or an equivalent during the senior year.

Requirements for the Minor: Six courses including at least two terms of the introductory art history survey. Three of the remaining art history courses should be in areas related culturally or chronologically.

Courses in Art History

AAH-101. Introduction to Art History, Part I (Fall; Matthew). Major works of art and artistic traditions from prehistory through the 10th century in western Europe; Islamic art also is considered. The vocabulary and techniques of painting, sculpture, the decorative arts, and architecture. Emphasis on the institutions of art and historical context as well. Visual analysis, verbal and written interpretation of art. *GenEd: LCC*

AAH-102. Introduction to Art History, Part II (Winter; Matthew). Major works of art and artistic traditions from the Romanesque to the end of the 16th century in western Europe. The vocabulary and techniques of painting, sculpture, architecture, the decorative arts, and printmaking. Emphasis on the institutions of art and historical context as well. Visual analysis, verbal and written interpretation of art. *GenEd: LCC*

AAH-103. Introduction to Art History, Part III (Spring; Cox). Major works of art and artistic traditions from the 17th century to the end of the 20th century, primarily in western Europe. The vocabulary and techniques of painting, sculpture, architecture, the decorative arts, and printmaking; the emergence of modernism, abstraction, new materials, and non-objective art. Emphasis on the institutions of art and historical context as well. Visual analysis, verbal and written interpretation of art. *GenEd: LCC*

AAH-104. Arts of China (Spring; Staff). This survey covers works of art and artistic traditions in China from the Neolithic period to the early 20th century. Lectures will focus on representative works in various media – calligraphy, painting, sculpture, architecture, and decorative arts – within the contexts of the tomb, court production, literati culture, Buddhist and Daoist temples, and interactions with other cultures. *GenEd: LCC*

AAH-105. Arts of Japan (Winter; Staff). This introduction to the arts of Japan from the Neolithic period to the 20th century will focus on key monuments of sculpture, architecture, painting, calligraphy, gardens, printing, and other arts within their historical and cultural contexts. Themes discussed include: materials and technologies, sacred and profane spaces, patrons and viewers, tradition and modernity, and the creation of a distinctly “Japanese” aesthetic. *GenEd: LCC*

AAH-200. Classical Art and Architecture (Same as CLS-134) (Not offered 2010-2011). An introductory survey of the arts of Greece and Rome, including painting, sculpture, architecture, and decorative arts. Emphasis will be placed upon learning art historical and archaeological terminology and methods, the place of art and architecture in ancient society and culture, and contacts with other cultures, in addition to becoming familiar with the most important monuments, artists, and patrons. *GenEd: LCC*

AAH-201. Islamic Art and Architecture (Not offered 2010-2011). A broad and select survey of the

art and architecture of Islamic cultures from the 7th through the 16th centuries that will stress the religious, social, economic, and historical contexts within which Islamic arts and architecture developed. We will study a variety of arts in addition to the traditional architecture, painting and sculpture familiar to students in Western art history surveys, including calligraphy and book painting, metalwork, ceramics, glass, carpets and textiles, and gardens and landscape design.

AAH-203. Medieval Art and Architecture of Northern Europe (Not offered 2010-2011). An introductory survey of sculpture and decorative arts, manuscripts, painting and architecture from the seventh through fourteenth centuries north of the Alps. Examines the emergence of western medieval culture and attitudes toward the arts, as well as western European views of its Byzantine and Muslim neighbors. In addition to introducing major monuments and patrons, students will be introduced to the materials and techniques used to produce the art and architecture of the Middle Ages. The art of medieval Italy is covered in a separate course, AAH-300. *GenEd: LCC*

AAH-206. Introduction to History of Architecture: The Renaissance Tradition, 15th-18th Centuries (Not offered 2010-2011). An historical survey that examines the language and functions of architecture and its roles in Western European culture. The course begins with the revival of interest in classical antiquity in the 1400s in Italy and its effect on the practice and theory of architecture. We then examine the transmission of these ideas to northern Europe during the subsequent centuries, and the evolution of architectural ideas and practices both north and south of the Alps. *GenEd: LCC*

AAH-207. Artists, Art and Entrepreneurship in Western Europe, 1300-1700 (Not offered 2010-2011). This course examines the artist as entrepreneur in Western Europe during a crucial period of change, from the Middle Ages to the Early Modern era. We will investigate workshop practices and the production of art, artists’ education and training, markets and the emergence of art dealers and auctions, new techniques and technologies, and artists’ relationships with their customers and patrons. This is an interdisciplinary course that surveys the intersections between art history, economic and social history, and the history of technology. We will also have the opportunity to examine similarities and differences between two different sectors of the arts: the visual and the musical. No previous experience in art history is required.

AAH-209. The Art of the Book (Not offered 2010-2011). The evolution of the book as an object and a historical phenomenon beginning with the printed book and the invention of printing in the early modern period. The course will examine the subsequent development of printing technologies, the revival of craft traditions, and the creation of “artist’s books” in the 20th and 21st centuries. Themes will include the social and religious functions of books, literacy, censorship, book collectors and collecting, and the relationship of texts and images. Students will make use of the extensive collection of rare and artists’ books in Special Collections at Schaffer Library. *GenEd: LCC*

AAH-212. The Way of St. James: An Interdisciplinary Study (Same as MLT-270) (Not offered 2010-2011). Prerequisite to the course “Hiking the Trail in Spain.” Teaches the history, literature, art, and architecture of the route to Santiago de Compostela in northern Spain. Readings include selections from Berceo, the Songs of Mary, and various texts on Romanesque history, art and architecture. *GenEd: LCC*

AAH-213T. Hiking the Trail in Spain (Same as MLT-271T) (Not offered 2010-2011). Students who take this “mini-term” abroad must have taken AAH- 212 on campus. The course takes place in Spain, where students will walk a portion of the actual route to Santiago de Compostela. *GenEd: LCC*

AAH-222. History of Photography (Winter; Ogawa). An introductory survey of the history of Photography from its pre-history to the present. We will explore the evolution of photographic expression in the period, and focus on relationships between photography and fine art, photography and popular culture, and photography and theory. We will spend time studying first-hand the original photographic works housed in Special Collections, Schaffer Library and in the Union College Permanent Collection.

AAH-223. The Nude (Not offered 2010-2011). The nude in its art historical and social contexts. Traditionally considered shorthand for abstract concepts such as “truth” or “beauty,” the nude is in fact a powerful index to ideas about gender, power, and sexuality in any of the historical periods which produced it. Drawing on recent scholarship, we will examine works produced in Ancient Greece, the Renaissance, and the Modern Period in social and historical context, and consider ways in which the human body has been both a stylistic vehicle for artistic expression and a social tool for constructing ideas of masculinity and femininity. *GenEd: LCC*

AAH-250T. The Architecture of the Federal Capital. The architecture and symbolism of the federal capital. Open to political science students enrolled in the program in Washington, D.C. Contact the Political Science Department for more information.

AAH- 260. Art of the United States (Fall; Cox). An introductory survey of the visual culture of the United States from colonial times through the present including painting, sculpture, architectural structures, photography, folk traditions and objects more recently defined as “material culture.” Artists and media are situated and studied within the context of broader cultural, political and social themes. Emphasis on visual and textual analysis.

AAH-263. Latin American & Caribbean Art: A Cultural Survey of the Modern Era (Not offered 2010-2011). An examination of the major aspects of Latin American and Caribbean art from the early 19th through the 20th century. Emphasis is placed on integrating the social and political background of the various cultures with the key artists, artistic issues and movements of particular countries and periods. Topics to be covered include: the influence of the major art academies in Mexico, Brazil and Ecuador, the strong links between art and politics, Indigenism, woman as artist and subject, and the on-going dialogue with the art of Europe and later the United States. *GenEd: LCC*

AAH-280. Buddhist Art (Not offered 2010-2011). This survey covers major monuments of Buddhist art, from its Indic roots to its representational forms under the teachings of Theravada. Figural and narrative imagery in architecture, sculpture, painting, as well as ritual implements in bronze, wood, textiles, and other ephemeral materials will be studied in the context of Buddhist doctrine, state ideology, and popular culture. Course readings include select Buddhist texts (e.g., sutras, philosophical treatises, poems) in translation. *GenEd: LCC*

AAH-283. Ceramic Traditions of East Asia (Not offered 2010-2011). In East Asia, ceramic production achieves the status of high art, transcending its Eurocentric designation as a “decorative” or “applied” art. This course explores the interplay of form, glaze, and design among pottery traditions – from rustic earthenware to high-fired porcelain – in China, Korea, Japan, and Vietnam. Lectures and visits to museum collections will also consider the historical role of ceramics in cross-cultural exchanges within Asia and beyond, to the Mediterranean, the Middle East, Western Europe, and the Americas. *GenEd; LCC*

AAH-286. Art and Religion of the Silk Road (Not offered 2010-2011). Central Asia – broadly defined as the area occupied, from East to West, by present-day western China, Mongolia, Russia, Kazakhstan, Kyrgyzstan, northern India, Pakistan, Tajikistan, Afghanistan, Uzbekistan, Turkmenistan, and Iran – has been characterized as both harsh wasteland and cultural crossroads. This course concerns the visual culture of the Silk Road of Central Asia, focusing on the roles visual culture played in establishing modes of religious imagination in medieval culture. *GenEd: LCC*

AAH-287: Tibetan Art. (Not offered 2010-2011). This course is intended as a comprehensive survey of Tibetan art. It will analyze representative works from major periods in Tibetan history, including architecture, painting, and sculpture. In addition to the styles and iconographies employed in their creation, an emphasis will be placed on understanding the cultural, political, and religious significance of the works. The course will begin with an introduction of a variety of fanciful and subjective “representations” of Tibet and its art in the West. It will then familiarize students—following the historical chronology—with scholarly achievements of the last two decades in Tibetan studies, which have radically changed our understanding of Tibetan art. *GenEd: LCC*

AAH-294. Visual Culture of Communist China, 1919 to Present (Not offered 2010-2011). This course explores the relationship between ideology and visual culture in China, from the founding of the Communist Party in 1919, to Mao Zedong’s prescriptions at the 1942 Yan’an Conference of Literature and Art, to art policy after the founding of the People’s Republic of China in 1949. Readings and discussion will cover the range of adherence and resistance to the official party line by art workers. Topics include expressionism, socialist realism, peasant art, “wound art,” cynical realism, political pop, and the avant-garde, as seen in painting, sculpture, architecture, posters, advertising, video, performance, and the material culture of quotidian life. *GenEd: LCC*

AAH-300. Italian Art and Architecture of the Late Middle Ages (Not offered 2010-2011). A study of art and architecture in Italy from 1100 to 1400 emphasizing religious, political, and cultural contexts and the role of the Byzantine tradition. Examination of paintings, sculpture, architecture, and the decorative arts in the major urban centers of the Italian peninsula, including Florence, Siena, Pisa, Rome and Milan, as well as the courts of northern Italy. Venetian topics are covered separately in AAH-206 and AAH-305. Prerequisite: One art history course or permission of the instructor.

AAH-303. Renaissance Art in Italy: The 15th Century (Not offered 2010-2011). A study of the visual arts that emphasizes painting, prints, sculpture, and the decorative arts. The origins of the Renaissance in the Middle Ages, the role of patronage, the education of the artist, and the functions of works of art will be important themes. The importance of the materials and techniques of art will be stressed. Prerequisite: One art history course or permission of the instructor.

AAH-304. Renaissance Art in Italy: The 16th Century (Not offered 2010-2011). A study of the visual arts that emphasizes painting, prints, sculpture, and the decorative arts. Particular attention to the growth of secular art, the role of court patronage, definitions of Mannerism, the cult of the artistic genius, and the emergence of a history of art in this period. Prerequisite: One art history course or permission of the instructor.

AAH-306. Color, Pigments, and Paintings (Not offered 2010-2011). This course examines the materials and techniques used by Western European painters during the period ca. 1200 to ca. 1600. We will also examine theories concerning color and light as articulated by intellectuals and practitioners of the period. This course is also intended to provide an introduction to the role of scientific examination, analysis, and treatment of paintings, and what these processes do (or do not) tell us about materials, techniques, and the taste for colors and coloristic effects in the periods we are covering.

AAH-309. The History of Gardens and Landscape Architecture (Not offered 2010-2011). European gardens and landscape architecture from the 15th-18th centuries. Persian and Islamic traditions will be considered, but the main emphasis will be on Italy, France, Holland and Britain. The focus of the course is interdisciplinary, and will include consideration of literature, politics, commerce, and social practices in addition to issues of architectural design and theory. Prerequisites: one of the following: AAH-101, 102, 206, or permission of the instructor. *GenEd; LCC*

AAH-320. 17th- and 18th-Century European Art (Not offered 2010-2011). This course will cover the major European art movements of the 17th and 18th centuries. It will be structured chronologically and treat the art of the Catholic Counter-reformation, the “Golden Age” in the Netherlands, the art under the absolute monarchy in France, the Rococo period, and the rise of Neo-classicism during the Enlightenment. We will examine the stylistic characteristics of these major movements, and explore the relationships between art and religious, political, and cultural history.

AAH-322. 19th-Century European Art (Fall; Ogawa). An advanced course examining major artistic movements and developments from David to Seurat (1784-1886). The relationship between the visual arts and arts institutions will be an organizing theme. Prerequisite: AAH-102 or permission of the instructor.

AAH-340. European Modern Art, 1880-1940 (Winter; Cox). Major developments in modernism primarily in Europe. Traces the emergence of modernist visual vocabularies in painting, graphic arts, photography, sculpture, architecture, and “decorative arts” ranging from Seurat’s Neo-Impressionism to Mondrian’s “Neo-Plasticism.” Topics include the transformations of traditional modes of art making, the proliferation of movements and “-isms,” the political functions of art and exhibitions, film as an art, and the rise of abstraction. Visual and textual analysis. Prerequisites: one of the following: AAH-102, 103, 322, 366, or permission of the instructor.

AAH-363. Early American Modernism, 1900-1945 (Not offered 2010-2011). A study of modern art in the United States from 1900-1945. Topics to be covered reflect the divergent styles, movements and influences that gave shape to the art of this period, including the rise of the avant-garde in New York City, important patrons, social realism, the WPA and the Harlem Renaissance to name a few. Art works are studied in relation to the cultural and political context of the period. Verbal and written interpretation of art; emphasis on visual and textual analysis. Prerequisite: one of the following: AAH-102, 103 or permission of the instructor.

AAH-366. Contemporary Art and Theory (Not offered 2010-2011). Art of the United States and Europe since World War II in critical and historical perspective, emphasizing the influence of social movements on artistic thought and expression. Topics include the impact of technology and popular culture, the subversion of the traditional boundaries between arts, the rejection of the object, and the rise of pluralism. Prerequisite: AAH- 103, 340, 363 or permission of the instructor. *GenEd; LCC*

AAH-380. The Floating World: Edo Prints and Printmaking (Same as AVA-380) (Not offered 2010-2011). Students will produce a portfolio of woodblock prints based on an exploration of the history of Japanese prints during the Edo period (1603-1867). *Ukiyō-e*, or “floating-world pictures,” depicted to the urban pleasures offered in the imperial capital Edo (modern-day Tokyo). The themes and individual artistic styles, first studied, then interpreted by the students in their prints, include: cityscapes and landscapes; representations of beautiful men and women in *bijinga*; the exotic encounter with the west; and explicit erotic imagery. *GenEd: LCC*

AAH-390. The Art Museum: History, Theory, and Practice (Not offered 2010-2011). This upper-level course takes the art museum as its subject. It will examine the history of the art museum and its roots in late 18th century ideas about knowledge, display, and democratic politics, and trace the growth of the art museum over the course of the 19th and 20th centuries in the context of changing cultural notions of “the public,” philanthropy, and modernist and avant-garde art practice. The course will be supplemented by visits to local art museums. This course also serves as a prerequisite to TAB-336: Three Weeks in the Louvre.

AAH-400. Seminar: The Methods of Art History (Winter; Cox). The methodology and historiography of art history. A discussion-oriented course that entails extensive reading and written work. Prerequisite: At least one upper-level art history course or permission of the instructor. Required for all art history majors.

AAH-440. Seminar: Special Topics in Art History (Fall; Matthew). A seminar focusing primarily on a major artistic movement, artist, patron, or site to allow for an in-depth investigation of an art historical issue or problem. For Fall 2010-2011 The topic will be the history of gardens and landscape architecture. Topics in the past have included: the nude, Leonardo, the French Revolution, Manet and Impressionism, and Gender and Race in Contemporary Visual Culture. Prerequisite: At least one upper-level art history course or permission of the instructor.

AAH-460. Seminar: Visual Culture, Race & Gender. (Not offered 2010-2011). A lecture and discussion-based course concerned with how constructions of race and sexual differentiation are played out across art history and visual culture, focusing on the visual arts of Western Europe and the United States. The first half of the course investigates the constructs of gender and race from antiquity to the middle of the 20th century as expressed in art and visual culture. The second half of the course is a close study of female artists of color living and working in the United States, grouped as African-American, Latina/Chicana, Asian and Middle Eastern and Multi-ethnic.

AAH-480. Seminar: Asian Garden Design (Not offered 2010-2011). This seminar explores the history and theory of public and private garden design in China and Japan, as well as the reception and reimagining of Asian gardens in the Euro-American context. In addition to reading and writing assignments, the course involves the communal construction of an Asian garden over the ten-week period. Enrollment is limited to 10, with instructor’s permission only. There are no prerequisites, though some knowledge of or background in one or more of the following is desirable: architecture, art history, carpentry/woodworking, computer-aided design, engineering, project management, studio/applied arts. *GenEd: LCC*

Internships, Independent Studies & Thesis

AAH-295H-296H . Art History Honors Independent Project 1 & 2

AAH-490-493. Independent Study Courses

AAH-495-496. Museum Internship. Students who have largely fulfilled the requirements for a concentration in art history may be able to intern at the Albany Institute of History and Art, the Hyde Collection, the Schenectady Museum, other regional museums, or the National Buildings Museum in Washington, D.C. The latter is offered in conjunction with Union’s spring term in Washington, D.C. Permission of the chair required.

AAH-498-499. Senior Thesis. Two term credits when completed.

Studio Fine Arts

Requirements for the Major: At least twelve courses in the department. Five introductory level courses (AVA100-160 or 345), one from each of the following areas: design fundamentals or drawing (AVA100, AVA110 or 345); photography (AVA120); sculpture or three-dimensional design (AVA130, AVA140); printmaking (AVA150, AVA151); digital arts (AVA160). Two intermediate studio courses (AVA210-262, or 345); two advanced studio courses (AVA300 or above); one art history course; and two other visual arts studio courses chosen in consultation with a visual arts faculty advisor.

Most majors will do either a two-term senior honors project (AVA498-499) or a one-term independent senior studio project. These comprise in-depth study in a studio discipline in the senior year, leading to a solo exhibition during spring term. A senior honors project takes the form of a two-term independent study focusing on the student’s particular area of interest in the visual arts, usually during winter and spring terms (first term, 498, pass/fail; second term, 499, with an overall grade for both terms).

Requirements for the Art History/Studio Arts Dual Concentration: Students who wish to major in a combined dual concentration of studio art and art history must take seven courses in each area.

In studio: Students take one course in three of the disciplines of the studio arts offered by the department (drawing and painting; photography; printmaking and two-dimensional design; sculpture and three-dimensional design; digital arts). Students may not exceed four introductory courses. Two intermediate-level courses are required in at least two studio art disciplines (AVA210-262 or 345). Two advanced courses are required in a single discipline (300 or above). For honors requirements, see below.

In art history: Students take two of the three Western art history survey courses and one of the Asian art history survey courses. Additionally, students must take four additional courses that cover at least three historical periods or geographic regions; three of these four must be advanced courses. The WS requirement for combined dual concentration must be fulfilled by an art history seminar taken in the senior year.

Requirements for the Interdepartmental Major: Eight courses with at least one course in three of the five general disciplines of studio visual arts (drawing/painting; photography; printmaking/two-dimensional design; sculpture/three-dimensional design; digital arts). No more than three introductory courses (AVA100-160 or 345); no more than two intermediate courses (AVA200-262 or 345); at least two advanced level courses (AVA300 or above); at least one art history course; senior/honors sequence optional.

A studio art interdepartmental major with a digital arts focus requires four digital art courses, three studio courses in at least two of the four studio disciplines, and one art history course. Those interested should consult Professor Duncan, Professor Orellana or Professor Barr for specific details.

Requirement for Honors in Studio Fine Arts: Candidates must meet College qualifications for honors and secure approval from a visual arts faculty sponsor for the two-term project with culminating exhibit. There are additional requirements for honors in studio fine arts and they should be obtained from your visual arts advisor. Students pursuing a one-term senior project must also secure approval from a studio visual arts faculty sponsor.

Requirements for Honors in the Art History/Studio Combined Dual Concentration: Honors for the combined concentration requires a cumulative grade point average of 3.3; a 3.3 grade point average for all courses counting toward the combined concentration; and one of three project options. 1) Successful completion of a two-term art history thesis (“A” or “A minus”), which also requires successful completion of a paper by the end of the junior year (“B plus” or above), a proposal approved by the advisor, approval of the final product by a second faculty reader, and an oral presentation at Steinmetz in the spring term of the senior year or 2) A two-term independent study project focusing on the student’s particular area of interest in the studio arts, culminating in an exhibition (“A” or “A minus”) or 3) a two-term project that combines art history and studio arts, which must be planned in consultation with an advisor from each discipline and

proposed by the end of the junior year. For those doing a written work, a copy must be left with the department's collection and archives; for those completing a studio project, visual documentation of the project (slide or digital), a one-page abstract and one original work must be left with the department. These requirements for project option #3 will be negotiated with the advisors on a case-by-case basis. All students must complete the WS requirement or an equivalent during the senior year.

Requirements for the Minor: Seven courses, including three introductory (AVA100-160 or 345); two intermediate (AVA200-262 or 345); and one advanced course (AVA300 or above). One art history course is required.

Course Registration Guidelines

100-level Course: All 100-level Studio courses are petition courses.

Enrollment: Due to demand and limited enrollments, Visual Arts majors and minors are given priority in registration for all studio visual arts, unless otherwise noted in the winter and spring course listing schedule. Most introductory courses reserve some openings for incoming fall term freshman.

Senior Writing Experience: Each honors student keeps a written journal during the two-term project, reflecting on his/her work. There is regular verbal and written input from the faculty sponsor. This journal forms the basis for a final paper of at least 15 pages, which satisfies the College's senior writing (WS) requirement. Visual arts majors who do not pursue a senior honors project may satisfy the WS requirement either through an art history senior seminar designated WS (for studio concentrators who have the necessary prerequisites in art history) or by obtaining a faculty sponsor for a one-term independent senior studio project with a journal and final paper.

Architecture Track: Union offers a studio fine arts concentration with a recommended sequence of courses for students wanting graduate school preparation in architecture as well as related fields of historic preservation, landscape architecture, and urban planning. While graduate schools in these areas don't require a specific major, a thorough visual arts portfolio is essential and greatly enhanced by specific course work in engineering, art history, math, and science. Those interested should consult any of the studio advisors as early as possible for specific details. Advisors: Professors Benjamin, Duncan, Hatke, Orellana; Senior Lecturer Wimer

Courses in Studio Fine Arts

AVA-100. Design Fundamentals I (Fall; Wimer). Introduction to the basic design elements of line, shape, texture, value and color and the organizing principles of composition, unity/harmony, focus, direction, rhythm and contrast, space, intent/content. Problem-solving exercises, studio projects, slide talks, class critiques.

AVA-101. Engineering Graphics (Same as MER-101). Engineering graphics with emphasis on engineering drawings, introduction to solid modeling, and manufacturing. Topics include sketching, descriptive geometry, tolerances, sectioning, auxiliary views, assembly drawings, CAD, and manufacturing techniques.

AVA-110. Drawing I (Fall; Hatke, Spring; Wimer). Drawing problems that explore different ways of responding to and recording perception, using a variety of drawing media. Work in and outside class; daily critiques.

AVA-120. Photography I (Fall, Winter; Benjamin). An introduction to photographic techniques with some history. Individual development through projects along with the study of fundamental art ideas. A 35mm film camera with a light meter and adjustable focus is required. Limited enrollment, by permission of instructor.

AVA-130. Sculpture I (Fall; Staff, Winter; Duncan). A beginning course that introduces basic sculptural vocabularies and techniques, with an emphasis on the individual student's development. Each project is linked to particular materials, methods and approaches to making sculpture. These include

modeling in clay, making life molds and plaster casts, wood construction, and stone carving. Informal slide talks cover important developments in twentieth-century sculpture. We'll take a field trip to New York City, Mass MOCA or Storm King Art Center to see contemporary work up close. Regular work in and outside of class is required. No previous experience necessary.

AVA-140. Three Dimensional Design I (Spring; Duncan). An introduction to the essential elements of form, space, structure and materials, with an emphasis on individual creative solutions. Class discussions involve the nature and design of useful or functional objects. Projects for each student include constructing a chair of found materials, and designing and building a proposal model for an imaginary "monument" on campus. We'll use various materials including clay, wood, plaster, and mixed media. Work in and outside class is required; slide talks, field trips to museums or other resources, and class critiques are part of the class. No previous experience necessary.

AVA-150. Printmaking: Relief (Winter; Wimer). Introductory course in relief printing (linocut, collograph, monotype, and woodcut). Introduction to materials and process of printmaking. Outside work required and critiques.

AVA-151. Printmaking: Etching (Spring; Wimer). Introduction to intaglio printing. Includes dry point, etching with hard and soft grounds, aquatint, lift ground, white ground. Outside work required, critiques.

AVA-160. Digital Art (Fall, Winter; Orellana). This introductory course focuses on the fundamentals of using the computer as an art tool in the production of two-dimensional content. Topics covered include essentials of digital imaging, digital printing, and posting information to world-wide-web. Class lectures and hands-on studio will incorporate technique demonstrations, discussions, technical exploration, aesthetic inquiry and historical information relevant to computer multimedia, hypermedia and telecommunications. Students are encouraged to pursue areas of interest and explore new ideas throughout the course. No previous experience necessary. Outside work required.

AVA-200. Design Fundamentals II (Not offered 2010-2011). A continuation of two-dimensional design investigation with a focus on color. Weekly assignments, problem-solving exercises, studio projects; slide talks; critiques. Prerequisite: AVA-100 or AVA- 110 (recommended), or portfolio review and permission of the instructor.

AVA-210. Drawing II (Winter; Wimer). Drawing problems involving both representational methods and alternatives, with a focus on drawing as a flexible structure. Projects include architectural, figure, and abstract work. Further exploration of drawing media, including charcoal, pencil, ink, and collage. Work in class and significant outside work. Prerequisite: Drawing I (recommended), any other studio art course, or permission of the instructor.

AVA-220. Photography II (Winter; Benjamin). Intermediate photography, with an emphasis on refinement of technique and development of personal imagery. Lectures, studio practice, presentation of photographers' works, and critiques provide a basis for creative evaluation and understanding of tradition in photography. Prerequisite: Photography I. Limited enrollment, by permission of the instructor.

AVA-230. Sculpture II (Fall; Staff) A complementary experience to Sculpture I or Three-Dimensional Design I. Includes welded steel, more advanced techniques in wood, and other media. Specific class projects aim to develop fluency with materials and concepts. Individual work expected and encouraged. Prerequisite: AVA-130, AVA-140, or permission of the instructor.

AVA-240. Three-Dimensional Design II (Offered as independent study 2010-2011). A continuation of Three-Dimensional Design I, with emphasis on design and construction of chairs. The chair as structure; necessity; aesthetic object. Function, decoration, metaphor. Relationship of design to the human body. Each class member will construct three functioning chairs. Prerequisite AVA-130 or 140, or permission of the instructor.

AVA-260. Painting: Oil (Fall, Spring; Hatke). An introduction to oil painting technique, color, and pictorial composition. Initial development of an individual visual vocabulary. Prerequisite: A college-level introductory studio art course, two-dimensional or three-dimensional media, or portfolio review and permission of the instructor

AVA-261. Painting: Watercolor (Winter; Hatke). Painting that explores aqueous painting media, emphasizing watercolor techniques. Discussions centering on issues of composition, content, and expression. Prerequisite: Same as AVA-260. Recommended: AVA-100 or AVA-110. Outside work is required.

AVA-262. Real and Recorded Time (Not offered 2010-2011). An introduction to the basic concepts of time-based artwork, using a variety of processes and media. Students explore concepts in sequencing, performance, motion, video and audio production, editing, interactivity, stop-motion animation, installation, and documentation. Class lectures and hands-on studio time will incorporate technique demonstrations, screenings, readings, discussions, technical exploration, aesthetic inquiry and historical information relevant to the course. Outside work is required. Prerequisites: AVA-160 or permission of instructor.

AVA-270. The Processed Pixel (Winter; Orellana). Utilizing basic aspects of computer programming, this course will explore how artists can use computer code to communicate a variety of ideas and content. By means of the programming environment Processing, students will investigate issues in animation, computational design, physical computing, data visualization, interactivity, and other relevant topics. Class lectures and hands-on studio time will incorporate technique demonstrations, discussions, technical exploration, aesthetic inquiry and historical information relevant to the course. Outside work required. Prerequisite: AVA-160 or permission of instructor.

AVA-280. Web Aesthetics (Spring; Orellana). Focusing primarily on design, this course will cover multimedia arts within the realm of the world wide web. Students will explore the Internet as a medium for art and communication, while utilizing the artistic and design possibilities of Dreamweaver, Adobe Photoshop, and Flash. Class lectures and hands-on studio time will incorporate technique demonstrations, discussions, technical exploration, aesthetic inquiry and historical information relevant to the course. Outside work required. Prerequisite: AVA-160 or permission of instructor.

AVA-320. Photography III (Fall, Spring; Benjamin). Advanced photography, with an emphasis on the attainment of individual style. The creation of a cohesive body of work, along with research of the history and art of photography. Students work in digital color photography. Prerequisite: Photography II or permission of instructor. Limited enrollment. Digital camera required.

AVA-330. Sculpture III (Spring; Duncan). Advanced exploration of techniques, materials, and concepts of sculpture. Emphasis on development of individual student's work. Prerequisite: AVA-230 (Sculpture II), AVA-240 (Three-Dimensional Design II), or permission of the instructor.

AVA-345. The Illustrated Organism (Same as BIO-345) (Not offered 2010-2011). Descriptive graphic and written analysis of plants and animals; direct observation in field, studio and laboratory integrating biology and visual arts. Culminates with annotated portfolios illustrating organisms studied. Taught jointly by visual arts and biological sciences faculty using combined facilities. Apply through either participating department. Credits visual arts and biology majors. *GenEd: SCLB*

AVA-350. Advanced Printmaking (Winter, Spring; Wimer). Continuation of Relief Printmaking during winter term, and Intaglio Printmaking during spring term. Exploration of advanced technique in both intaglio and relief printmaking including multiple plate and color printing process. Outside work required, critiques. Prerequisite: AVA-150-151 or permission of instructor.

AVA-360. Advanced Painting (Fall, Winter, Spring; Hatke). Emphasis on refining individual direction with respect to ideas of composition, content, and media. Stylistic development is stressed. Outside work required, critiques. Prerequisites: AVA-260, AVA-261; Recommended: AVA-210 and AVA-130 or AVA-140.

AVA-363. 3D Computer Modeling (Fall; Orellana) This course will introduce students into the world of three-dimensional computer graphics. Through this hands-on-course, students will learn how to use 3D software to realize ideas in sculpture, virtual environments, 3D modeling, installation, and rapid prototyping. Class lectures and hands-on studio time will incorporate technique demonstrations, discussions, technical exploration, aesthetic inquiry and historical information relevant to the course. Software covered: Cinema 4D and Adobe After Effects. Outside work required. Prerequisite: AVA-160 or permission of instructor.

AVA-370. Physical Computing (Spring; Orellana). Through the application of basic electronic techniques and the use of the programmable micro-controllers the Basic Stamp II and the Arduino, this course will explore and control interactive artworks, kinetic sculpture, robotic art, sound works, light art, and performance environments. Class lectures and hands-on studio time will incorporate technique demonstrations, discussions, technical exploration, aesthetic inquiry and historical information relevant to the course. Outside work required. Prerequisite: AVA-160 or AVA-130 or permission of instructor.

AVA-380. The Floating World: Edo Prints and Printmaking (Same as AAH-380) (Not offered 2010-2011). Students will produce a portfolio of woodblock prints based on an exploration of the history of Japanese prints during the Edo period (1603-1867). *Ukiyô-e*, or "floating-world pictures," depicted to the urban pleasures offered in the imperial capital Edo (modern-day Tokyo). The themes and individual artistic styles, first studied, then interpreted by the students in their prints, include: cityscapes and landscapes; representations beautiful men and women in *bijinga*; the exotic encounter with the west; and explicit erotic imagery.

AVA-400. Special Projects in Photography (Spring; Benjamin) Utilizing previous expertise about the art of photography and PhotoShop software, this course will explore learning about significant contemporary photographers and their most important personal projects while students conceptualize their own "special" projects to be made over an entire term. There are class critiques and visiting artists; each student completes a portfolio project. Work can be in color digital or traditional black and white film [with chemical processing] photography. Digital or film camera required. Prerequisite: AVA-320 or permission of instructor.

Internships, Independent Studies & Thesis

AVA-295H-296H. Visual Arts Honors Independent Project 1 & 2.

AVA-410-419. Drawing Independent Study

AVA-420-429. Photography Independent Study. (Fall, Winter, Spring; Benjamin) A student who has demonstrated they can work independently and who proposes a specific project may do an independent course of study in photography [either black & white or digital color]. A journal, written assignments, weekly meetings and final portfolio are required. A student needs to submit a written proposal well in advance of pre-registration to be considered. By permission of instructor only.

AVA-430-439. Sculpture Independent Study

AVA-450-459. Printmaking Independent Study

AVA-460-469. Painting Independent Study

AVA-470-471. Studio Internship 1 & 2. A student who has largely fulfilled the requirements for a concentration in studio visual arts may apply to the department to pursue an internship with a studio visual arts related professional business, art center, gallery or artist's studio. This is a student-initiated experience where the student proposes the internship, seeks faculty sponsorship, and obtains the chair's approval. An internship application is required to be completed by the student and approved by the department prior to pre-registration for the term of the intern opportunity.

AVA-480. Digital Art Independent Study

AVA-497. Senior Studio Project . A one-term project requiring sponsorship by a studio faculty member. A project carried out in the student's area of studio concentration with WAC:WS credit possible with completion of an additional written research paper.

AVA-498-499. Senior Thesis 1 & 2. A two-term studio project requiring faculty sponsorship. (See preceding information on Departmental Honors and WS requirement.)

Visual Arts Practicum

The Visual Arts Department offers a practicum in ceramics. Students who receive three terms of practicum credit in ceramics can receive a single course credit towards graduation. Please bear in mind that college-wide, no more than two course credits received for practica can be counted towards graduation. Permission of the Visual Arts chair is required if you wish to count course credits gained in ceramics practica towards the major. Requests to register for transcript recognition after the drop/add period will not be honored.

Ceramics Practicum Clay as a medium for pottery and sculpture. Materials fee \$50.

AVA-010. Ceramics I (Fall, Winter, Spring; Niefeld). An introduction to clay, including hand-building, wheel-throwing, glazing and firing techniques. The studio is available for practice and completion of assignments.

AVA-020. Ceramics II (Fall, Winter, Spring; Niefeld). Students will learn more advanced forming and decorating techniques. In addition to studio assignments, a short research presentation will be required.

AVA-030. Ceramics III (Fall, Winter, Spring; Niefeld). In addition to classroom assignments students will learn kiln firing and glaze preparation.

Women's and Gender Studies

Director: Professor L. Marso (Political Science)

Faculty: Professors T. Meade (History); Associate Professors A. Feffer, A. Foroughi (History), J. Lewin (English), C. Batson, M. Chilcoat (Modern Languages), J. Matsue (Music), Z. Oxley (Political Science), D. Hill Butler (Sociology), D. Ogawa (Visual Arts); Assistant Professor S. Raucci (Classics), C. Bracken (English); Lecturer G. Donaldson (Psychology); G. Golderman (Schaffer Library)

Women's and Gender Studies is an interdisciplinary program that includes more than 50 courses offered in art and humanities, social sciences, and sciences. Offering a critical perspective that places gender at the center of analysis, Women's and Gender Studies reexamines traditional beliefs, supports new kinds of research, explores feminist theory, and enables students to better understand the societal positions and global processes affecting both women and men throughout the world. Women's and Gender Studies courses probe the way cultures construct concepts of gender, introducing students to differences of class, race, ethnic, and sexual orientation in a range of societies. Students are encouraged to think about gender and racial stereotypes and to become aware of unexamined assumptions about sexual and gender differences.

Requirements for the Major: Twelve courses, including Introduction to Women's and Gender Studies (WGS 100), The Capstone Course, often taught as Feminist Film (WGS-495), and a two-term senior thesis. The remaining eight courses must be selected from a listing of more than 50 WGS courses offered in a number of departments and crossing at least two of the College's four divisions. A one-term internship at a designated locale in the Capital District is recommended and can be counted as one of the eight required courses (see director for details). Students should confer with the program director in designing and fulfilling their requirements.

Complete course lists are available in the Women's and Gender Studies office in the Reamer Campus Center (Room 302) or on the program website.

Requirements for Honors: Candidates for honors must meet College requirements, have a cumulative grade point average of 3.3 in Women's and Gender Studies, at least three "A" or "A-minus" grades in Women's and Gender Studies courses, and have earned an "A" or "A-minus" on the senior thesis. Departmental honors is formally awarded at the discretion of the director of Women's and Gender Studies in consultation with the faculty executive committee.

Requirements for the Minor: Six courses, including Introduction to Women's and Gender Studies (WGS-100), Capstone Course on Feminist Film (WGS 495), and four remaining courses with WGS designation from at least two divisions (in consultation with the director).

Requirements for the Interdepartmental Major: Eight courses, including Introduction to Women's and Gender Studies (WGS-100), Capstone Course on Feminist Film (WGS-495), four remaining courses with WGS designation from at least two divisions, and a senior thesis on a subject that examines gender, women, and/or feminism. One term of the senior thesis counts towards the WGS major. One-term internship is recommended (see major requirements above). Students should confer with the program director in designing and fulfilling their requirements.

WGS-100. Introduction to Women's and Gender Studies. A team-taught course serving as an interdisciplinary introduction to the findings of feminist scholarship on gender and women. The course is broad in scope and covers topics in feminist theory, the social construction of gender, and issues affecting women's and men's lives throughout the world.

WGS-479. Internship in Women's and Gender Studies. An internship experience in local agencies, social services, law and media centers, women's advocacy groups, childcare centers, gay and lesbian organizations, with health care providers, and others. The goal is to develop students' knowledge of and ability to analyze organizations that deal with gender and women's issues and communities. Prerequisite, sophomore standing and permission of the director.

WGS-495. Capstone Course on Women and Gender Theory. A required interdisciplinary course designed as the culmination of the major, currently taught as Feminist Film. Students will be expected to bring their knowledge of Women's and Gender Studies to critically examine a series of feminist films. This course reinforces and provides a coherent perspective on the major issues in the discipline and affords an opportunity to reflect upon the importance of the chosen major and/or minor focus in light of these issues. Prerequisite WGS-100.

WGS-498, 499. Senior Thesis. A student directed two term project culminating in a thesis representing the depth and breadth of knowledge attained in Women's and Gender Studies interdisciplinary course work. Student theses in WGS are usually advised by the current director, but can be advised by any faculty member in WGS in consultation with the director.

World Musics and Cultures (see Music)





Prizes, Honors, and Scholarships

Endowed and Annual Prizes

William F. Allen (1895) Essay Prize. To a senior in any department for the best essay.

Ronald K. Amiraian (1980) Memorial Prize. To a student of modern languages who has performed with distinction on a Union Term Abroad.

Andrew W. Archibald (1872) Prize. To the senior earning a Bachelor of Arts degree with the highest scholastic standing.

Frank Bailey (1885) Prize. To the senior who has rendered the greatest service to the College in any field.

Arnold I. Bittleman Memorial Prize. To a student who has studied drawing in the Visual Arts department and whose work, in the judgment of the Visual Arts faculty in collaboration with an outside juror, is outstanding. .

William H. Bloom (1945), M.D. and Jonathan R. Bloom (1988) Poetry Prize. For the best poems or series of poems by an undergraduate.

David Brind (1982) Memorial Prize in English. To one or more outstanding senior students in English.

Stephen P. Brown Memorial Trophy. To the fraternity that has the best record in scholarship, intramural athletics, and extracurricular activities.

George H. Catlin (1867) Prize. To the graduating senior in liberal arts with the highest scholastic record and deemed most promising for graduate study and for eventual service in the field of college teaching.

Alan Lake Chidsey (1925) Citizenship Award. To a senior for distinctive contribution to the advancement of responsible government in student affairs.

Class of 2001 Prize. To the junior, selected on the basis of academic, personal and social achievement and on his or her contributions to Union in all of these areas.

Hilda A. Colish Annual Prize in Sculpture. To a non-arts major for their achievement in sculpture.

Josephine Daggett Prize. To a senior of the best conduct and character.

Division of Analytical Chemistry of the American Chemical Society Award. To a student who has excelled in analytical chemistry.

Joseph D. Doty Prize. To the junior or senior who, in the judgment of the Department of History, has done work of outstanding merit.

Samuel S. Feuer (1925) Prize. To the senior in the premedical course whose primary interest is in dentistry and who has maintained the highest scholastic average over four years.

Frankel Prize. For outstanding achievement in a religion course.

Robert M. Fuller (1863) Prizes. One to the sophomore, the other to the senior, who demonstrates outstanding work, ability, and promise in chemistry

Bruce M. Garber (1971) Prize. To the premedical or pre dental student who best exemplifies the qualities of personal integrity and humane concern for the future practice of medicine or dentistry.

General Electric Power Generation Steinmetz Award. To a senior in the Mechanical Engineering Department who completes the best senior project.

Geology Faculty Prize: To a senior who contributes most to the Geology Department and social morale.

Lisa S. Gerhan (1994) Memorial Award. For academic excellence, a commitment to the field of psychology, and the potential for future contributions to the field.

Ashraf M. Ghaly Geotechnical Prize. Created by Prof. Ashraf M. Ghaly in gratitude to the students who nominated him for the Stillman Prize for Excellence in Teaching, and to commemorate his winning of that prize in 1997.

Celia Glaubach Prize. To the student who has demonstrated outstanding scholarship in the area of Religious Studies.

Shankar Gokhale Prize. To the senior in engineering, preferably in the five-year program with the second major in economics, judged to have the greatest potential for community service in the area of mathematical approaches to economic problems.

John S. Hadala (1928) Endowed Book Prize. To a senior majoring in Mechanical Engineering on the basis of academic, personal, and social achievement

Hans Hainebach Memorial Prize in German Literature. To a sophomore or junior who has demonstrated particular promise as a student of German literature.

Hans Hainebach Memorial Prize in Judaica. To a student who has offered the best performance in the field of Judaica.

Hedda Hainebach Memorial Prize in Music and Theater. This prize will be awarded between music and theater in alternate years. To the best performer of classical music as a soloist, with accompanist, or as an outstanding member of a group. To a student who has written the best short play or to the best actor or actress in a play.

Edward Everett Hale, Jr. Prize. For the best essay written by a sophomore or junior.

Joel A. Halpern (1961) Prize. To a student or students who have reached out beyond the campus to make a commitment in service to the community

Oswald Heck (1924)-Irwin Steingut Prize. To the student who has consistently done the best work in Political Science.

Eugene W. Hellmich (1923) Memorial Prize. To seniors who demonstrate excellence in mathematics and are planning to teach math.

Victor Herbert Prize. To the student who shows the most promise of making a contribution to American music.

Albert Hill Recognition Award. To seniors who have held leadership positions and demonstrated exceptional commitment to enhancing the college community.

Julian B. Hoffman, M.D. (1966) Memorial Award. To the student for distinguished interest, devotion, and contribution to the arts and/or intellectual climate at Union College.

Hollander Convocation Music Prize. To a musician or ensemble for musical performance.

Roger H. Hull Community Service Award. Awarded to a senior who has rendered the greatest sustained service to the greater Schenectady Community. This award honors a student who has initiated and/or is actively engaged in an ongoing community service project.

Charles B. Hurd Prize. To a student of physical chemistry.

Albert C. Ingham (1847) Prize. To the student in Social Sciences judged to have done the most outstanding piece of scholarly work.

Ingvar V. Ingvarsson Prize. To a senior in electrical engineering chosen for high scholarship.

John Iwanik Prize. To an outstanding Russian language student.

William B. Jaffe (1926) Art Award. For exceptional achievement by an art major, marked by excellence in the study of art history, independent scholarship, and interest in the work of the department.

William B. Jaffe (1926) Athletic Award. To the member of the graduating class to be the outstanding athlete of the year, taking into account the character and motivation of the individual in addition to athletic excellence.

Thomas J. Judson (1966) Memorial Book Prize. To a sophomore who has shown academic excellence as well as sincere interest in the study of modern languages.

David S. Kaplan (1982) Prize. To a student applying to participate in a term abroad. Preference to students majoring in political science.

Warner King (1906) Prize. To the senior in engineering who has contributed most to the traditions and ideals of the College.

Ethel Kirchenbaum Memorial Prize. To the senior who, in the opinion of the Engineering Departments at Union College, shall be deemed to possess the best potential for furthering the ideals of the engineering profession.

Harold A. Larrabee Prize. To the student who has done the best work in philosophy during the year.

William E. Lasnik (1968) Prize. To a junior or senior premedical student on the basis of scholarship and character.

Anthony C. LaVecchia (1998) Memorial Award. Awarded to a student who demonstrates a keen interest and passion in journalism, especially with a focus in political journalism.

Stephen F. Leo (1884), M.D. Prize. To the premedical student on scholarship who attains the highest grades in the graduating class and who has been accepted in medical school.

Alice P. and Donald C. Loughry (1952) Prizes. To students completing the best senior projects in computer science, computer engineering, and electrical engineering.

Edith Emilee MacCoy Prize. To the student who excels in botany.

John Lewis March Prize. To a senior who has shown increased interest and ability in psychology during the final two years of college.

Minerva Prize. Awarded to the female student whose work best combines the scholarly study of women or gender with activities that enhance the life of women on campus.

Lewis Henry Morgan (1840) Prize. To the anthropology major who produces the best senior thesis.

R. E. Morgan Memorial Award. To a senior computer engineering major who has demonstrated outstanding scholarship.

Harold and Ellen Nagorsky Memorial Prize. Awarded to a premedical junior student who contributes the most to the Union College community through extracurricular activities.

Alvin F. Nitchman (1924) Prize. To the most promising senior who plans to attend law school.

Ronald M. Obenzinger (1961) Prize. To a premedical student who is selected for high academic merit and personal worthiness.

Robert G. O'Neale (1878) Prize. Awarded each year to the Bachelor of Arts candidate with the highest standing in Classics.

Hans Pasch Memorial Prize. Awarded for the best essay written about the Holocaust.

Elias Peissner Prize. To an economics major who has done work of outstanding merit.

William A. Pike Memorial (1960) Trophy. To a junior for attitude, ability, participation, and achievement in intercollegiate sports.

President's Commission on the Status of Women at Union College Prizes. To seniors who have contributed significantly to promoting equality between the sexes on campus in areas such as scholarship, college and community service, and athletics.

Daniel F. Pullman Prizes. To a senior of high scholastic standing in Humanities and Engineering.

Rennes Lecturer/Lectrice Prize. To a senior planning to serve as a lecturer or lectrice pursuant to Union College's teacher exchange program in Rennes, France.

Martin Terry Resch Prize. To the senior who shows the greatest promise for advanced study in pure or applied mathematics.

Mrs. Edwin L. Rich Prize. Awarded each year to a student majoring in English who has demonstrated outstanding scholarship.

Charles Alexander Richmond Prizes. One for excellence in the fine arts, the other for excellence in the appreciation of music.

Robert B. Ridings Award. To a senior female athlete for her attitude, ability, participation, and achievement in intercollegiate sports.

Paul Rieschick (1974) Prize. In appreciation of the time and effort he devoted to the basketball program and individual players.

Mark Rosenthal (1976) Memorial Prize. Awarded to a senior involved in community activities, in good academic standing and planning to attend medical school after graduation.

Rotary Foundation Endowed Prize for International Study. To the senior who shows the greatest promise and interest in an area of international relations. Preference to a student from Schenectady County.

Robert L. Royal (1938) Award. To a student who has been accepted by Albany Medical College, to be applied to the purchase of instruments and equipment necessary to medical studies.

Mortimer F. Sayre Prize. To the senior with the best potential for furthering the ideals of the mechanical engineering profession.

Calvin G. Schmidt (1951) Prize. To the member of the junior class who has contributed most to the betterment of student life on campus.

J. Richard Shanebrook Prize. To a student of any religious tradition who has contributed the most to the betterment of religious life on campus.

Daniel Shocket (1972) Memorial Award. To a student majoring in English with a strong interest in creative writing.

Aime Simon (1991) Term Abroad Prize. To students of high academic standing and promise with strong interests in French studies, participating in a term abroad program in a French-speaking country.

Edward S.C. Smith Geology Prize. To a senior, majoring in geology, who demonstrates high professional potential.

Freling H. Smith (1865) Prize. To a senior in the Department of History with the best senior thesis.

Dr. Reuben Sorkin (1933) Award for Proficiency in Premedical Studies. To a senior demonstrating proficiency in undergraduate studies with an outstanding aptitude for continuing work leading to a degree in medicine.

Ralph W. Stearns (1907) Prize. To the junior selected by the electrical engineering faculty for ability to design and complete a new piece of teaching equipment.

Milton Hymes Sternfeld (1916) Prize. For the best original essay in philosophy by a member of the senior class.

Roger Thayer Stone (1928) Prize. To the sociology major who produces the best senior thesis.

William W. Thomas Award in French and Francophone Studies. To a senior who has excelled in and contributed most to French and Francophone Studies on the basis of academic, personal and extracurricular achievement

Frances Travis Award. To a student who is working his or her way through college and who has demonstrated unusual responsibility and self-reliance.

James Henry Turnbull (1929) Prize. To a sophomore student who excelled in physics.

UNITAS Diversity Leadership Award. To the student who has made a significant contribution toward fostering diversity on campus.

Wessel Ten Broeck Van Orden (1839) Prize. To a first-year student excelling in English composition.

Edward Vilella, L.H.D. 1991 Prize. To the student for the best dance performance.

David Wagenseil (1978) Memorial Award. To a senior fraternity man for outstanding participation and leadership in intramural sports.

Horatio G. Warner (1826) Prize. To a student of high personal character who has the highest scholastic standing in the Bachelor of Arts program.

Mildred Wilder Prize. To the senior majoring in political science who has written the best piece of scholarly work pertaining to the subject of women and politics.

George H. Williams Prize. To a graduating senior for excellence in Computer Science.

Lee and William Wrubel Memorial Prize. To a senior preparing for dentistry or medicine, based upon both academic achievement and character.

Eugene I. Yudis (1955) Prize. To the student in any class who has produced the best piece of prose fiction.

Special Awards and Prizes

John Bigelow Medal (2008). Recognizes friends of the College who have contributed to the advancement of humanity.

Eliphalet Nott Medal. Established by President Roger H. Hull. Recognizes the perseverance of alumni who have attained great distinction in their fields. The medal is named for Eliphalet Nott, president of Union College from 1804 to 1866.

Founders Medal. Established by action of the Board of Trustees in 1968. Presented at irregular intervals in recognition of unusual and distinguished service to Union College in a particular area of institutional life.

Gideon Hawley Teacher Recognition Award: Nominated by first-year and sophomore Union College students, to a secondary school teacher who has made a difference in their lives.

The John H. Jenkins Award. Awarded for the best bibliography or bibliographical work published during the year, or for a bibliographical research project of significance while in process of preparation. Determination of the recipient of the award shall be at the sole discretion of Union College or such agents as it shall engage.

Stillman Prize. To a faculty member to encourage outstanding teaching.

UNITAS Community-Building Award. To the Union College student, administrator, staff or faculty member who best demonstrates leadership in bringing together as many segments as possible of the campus community for purposes such as community service, fundraising for a worthy cause or celebration of College history.

Endowed Scholarships

The scholarships listed below are available to qualified students in any course of study unless there is a notation to the contrary.

Robert Carter Alexander (1880) Memorial Scholarship. The gift of friends in memory of Robert Carter Alexander, Class of 1880, a lawyer, journalist, and life trustee of Union. Income awarded as a scholarship to encourage academic excellence in classical studies.

Floyd E. Allen (1909) Memorial Scholarship. Established by Helen M. Allen in memory of her husband, Floyd, Class of 1909, a graduate engineer, to establish a scholarship in the Division of Engineering.

William Allen (1895) Scholarship. The gift of Judge William Allen, Class of 1895.

Ann and Bruce Allison Scholarship. Established by Robert M. DeMichele, Class of 1966, a life member of the Board of Trustees of Union College. Preference given to a high academic achieving member of the men's lacrosse team.

Alpha Delta Phi Scholarship. Established in 1998 by Union College and Alpha Delta Phi. Awarded annually to students majoring in English or the humanities.

Carlos Alvarez (1982) Memorial Scholarship. Created from the gifts of the Kappa Sigma brothers and friends.

Ronald Amiraian (1980) Memorial Scholarship. Established by Dr. and Mrs. Kenneth Amiraian in honor of their son, Ronald, Class of 1980. Preference to modern language students participating in the Terms Abroad program.

A.M. and S.M. Anderson Scholarship. Created by A. Melcher Anderson, Class of 1945, and his wife, Shirley M. Anderson. Preference shall be given to students majoring in engineering and related technologies, or in the natural sciences including physics, chemistry and mathematics.

Cecil E. Angell (1941) and Jane S. Angell Memorial Scholarship. Created in memory of Cecil E. Angell, Class of 1941, by his family and friends. Income awarded annually to students pursuing courses in engineering who require financial assistance.

Applegarth Memorial Scholarship. Created from the bequest of Lillian E. Applegarth, former secretary and assistant to several Union College presidents, in memory of William R. Applegarth, Gladys M. Applegarth, and Lillian E. Applegarth.

Jeremy April (2005) Memorial Scholarship. Created from the gifts of Union College and the April family and friends.

Arkell Hall Foundation Scholarship. A gift of The Arkell Hall Foundation in memory of Bertell Arkell Barbour. Income used to aid a student or students selected on the basis of character, financial need, and academic performance. Further qualifications in order of priority are: (1) students from the Canajoharie (NY) Central School District; (2) students from other parts of Montgomery County; (3) students from the general area of New York State.

Clarence S. Arms (1905) Scholarship. The gift of Clarence S. Arms, Class of 1905, an engineer in the steel and wire industry and a leading consultant on wire mills in Europe, the United States, and Canada. Preference to a deserving applicant from Sidney (NY) High School.

Thomas Armstrong (1871) Scholarship. The gift of Thomas Armstrong of Plattsburgh, NY. Restricted to residents of Clinton County.

R. Douglas Arnold (1972) Scholarship. Created from the gifts of R. Douglas Arnold, Class of 1972.

Brayton R. Babcock Memorial Scholarship. The gift of Brayton R. Babcock, Jr., in memory of his father, Brayton Babcock, Class of 1893.

Marian A. Baciewicz (1977) Memorial Scholarship. Established by Mr. and Mrs. Frank A. Baciewicz in memory of their daughter, Marian, Class of 1977. Annual income awarded on the basis of need to a female member of Union's senior class whose goal is furthering human understanding. Preference to a female student studying biology, chemistry, or biochemistry.

Frank Bailey, Jr., Fund. A gift from Dr. and Mrs. Frank Bailey, in memory of their son, class of 1931 who died during his senior year in Union. Preference will be given to members of the Alpha Delta Phi Fraternity.

Frank Bailey, Jr., (1931) Memorial Fund. A gift from the members of the Class of 1931 in memory of their classmate, Frank Bailey, Jr., and contributed to by the Bailey family. Frank Bailey, Jr., died a few days before his class graduated. He was the son of Frank Bailey, Class of 1885, long-time treasurer of Union College and a life trustee.

Richard M. Baird (1930) Scholarship. Created from the gifts of Richard M. Baird, Class of 1930.

May I.C. Baker Scholarship. The gift of Mrs. Harriet C. Moore in memory of her sister, Mrs. Walter C. Baker. Income awarded to a student pursuing a course of study in humanities. May I.C. Baker was the wife of Walter C. Baker, Class of 1915, a past chairman of the Board of Trustees and a life trustee of the College.

May I.C. Baker Scholarship. The gift of Mrs. Anna C. Newberry in memory of her sister, Mrs. Walter C. Baker. Income awarded to a student pursuing a course of study in humanities.

Walter C. Baker (1915) Scholarship. Established by Walter C. Baker, Class of 1915, a member of the Board of Trustees of Union College.

Walter R.G. Baker (1916) Scholarship. Established by the Baker Charitable Foundation in honor and memory of Walter R.G. Baker, Class of 1916. Preference to students pursuing a degree in engineering.

Thomas A. Baltay (1987) Memorial Scholarship. Established by Charles Baltay, Class of 1958 in memory of his son, Thomas, Class of 1987.

Max and Helen B. Barandes Scholarship. Created from the gifts of Gerald Barandes, Class of 1954, Dr. Martin Barandes, Class of 1959, and Robert Barandes, Class of 1969 in honor of their parents.

Richard I. Barstow (1929) Scholarship. Established by Richard I. Barstow, Class of 1929.

Dr. David J. Becker (1979) Scholarship. Created from the gifts of Dr. David J. Becker, Class of 1979, on the occasion of his 25th Class ReUnion.

Stanley R. Becker (1940) Scholarship. Created from the bequest of Stanley R. Becker, Class of 1940. Awarded to junior and seniors majoring in political science.

John W. Belanger Scholarship. Created by the bequest of John W. Belanger, a former trustee. Awarded to students pursuing courses in engineering.

Randi Sue Bell (1985) Scholarship. Established in memory of Randi S. Bell, Class of 1985 through gifts of her family and friends.

Ralph D. Bennett (1921) Scholarship. Established by his family and friends. Mr. Bennett was a trustee of the College from 1946 to 1994. Preference to students pursuing courses in engineering or physics.

John A. Best (1898) Memorial Scholarship. Created by gifts of Harriet and Elizabeth Best, in memory of their father, with income awarded annually to humanities students.

Alfred F.H. Bischoff (1935) Scholarship. Established by Alfred F.H. Bischoff, Class of 1935. Preference is given to students majoring in electrical engineering.

Milton Blatt Memorial Scholarship. Created by Gustave L. Davis, MD, Class of 1959, and his wife, Susan, in memory of Milton Blatt. Preference to graduates of public high schools in the five boroughs of New York City.

Anne E. Blodgett and Harold E. Blodgett (1911) Scholarship Fund. Established under the will of Harold E. Blodgett, Class of 1911. Primary consideration to students from Schenectady County.

Catherine A. Blodgett Memorial Scholarship. The gift of Harold E. Blodgett, Class of 1911 to establish a scholarship fund in memory of his mother, Catherine Ann Blodgett. First preference to residents of Herkimer and Fulton counties in New York.

James Seymour Blodgett Memorial Scholarship. Established by Harold E. Blodgett, Class of 1911 in memory of his father. Preference to students from Schenectady County.

Esther Levitz Bocian and Emanuel H. Bocian (1908) Scholarships. Established by Emanuel H. Bocian in memory of his wife, Esther Levitz Bocian, and himself, to be used for two scholarships awarded at the discretion of the president of Union College.

Madison E. Brainard, Class of 1911, Memorial Scholarship. Established by the estate of Lucille Clancy.

Donald C. Brate (1945) Scholarship. Established by Donald C. Brate, Class of 1945, with preference to students pursuing a degree in engineering.

David M. Brind (1982) Scholarship. Established in memory of David M. Brind, Class of 1982, a pre-law student. Awarded to juniors or seniors who possess a love of the outdoors, particularly as expressed through active participation in field and stream activities, with second preference for students who plan a career in law.

Stephen P. Brown '53 Scholarship. Created from the gifts of Herbert R. and Charlotte L. Cooper, sister of Stephen P. Brown '53. Preference will be given to students who are U.S. citizens.

Fred W. Bruhn (1932) Endowed Scholarship. Established by members of the family of the late Fred W. Bruhn '32. Preference will be given to students who are members of the Men's Baseball and Women's Softball Teams.

Meade Brunet (1916) Scholarship. A gift of Meade Brunet, LLD, Class of 1916, a member and former chairman of the Board of Trustees of Union College. It is hoped that recipients of the scholarship will repay the grant within ten years of graduation. Preference first to students from Petersboro, VA, then to students from Richmond, VA, finally to students from the State of Virginia.

William E. Bruyn and Beatrice V. Bruyn Endowment Fund. A bequest from Beatrice V. Bruyn in memory of her husband, William, and herself. First preference to students from families in Ulster County, NY.

Joseph and Antoinette Bucci Memorial Scholarship. Created from the gifts of Cesare A. Bucci, Class of 1951.

Gary R. Burch (1962), M.D., Scholarship. Created by Elizabeth Burch in memory of her late husband, a commissioned medical officer in the Army.

Roger N. Burgess (1938). A gift from the estate of Roger N. Burgess, Class of 1938.

Louis Calder Foundation Scholarship. Created by the Louis Calder Foundation. Preference to students from the five boroughs of the City of New York.

Edward D. Cammarota (1937) Scholarship. Created by Edward D. Cammarota, Class of 1937. First preference to students whose families reside in Schenectady County.

Michael R. Cappiello (1939) Scholarship. Established by Michael R. Cappiello, Class of 1939, and awarded to an entering freshman. Preference will be given in the following order: (1) students who are residents of Bourne or Wareham, Mass.; (2) students who are children of members of the Ancient & Honorable Artillery Co. of Massachusetts.

Josephine C. and Bryan L. Carpenter (1921) Scholarship. Created from the gifts of Josephine C. Carpenter, in memory of her husband, Bryan L. Carpenter, Class of 1921).

Todd M. Carr (1977) Memorial Scholarship. Established in memory of Todd Carr, Class of 1977, through the efforts of classmate Charles Flanagan to honor the courage and example set by Todd in his battle against Lou Gehrig's disease. Income is awarded to a student selected on the basis of character, financial need, academic performance, and extracurricular activities.

Carroll Scholarships. A gift from a trust established by Edward L. Carroll, Class of 1927, to students studying theater, fine arts, or music.

Edward W. Carsky (1950) Scholarship. Established by Edward W. Carsky, Class of 1950, to benefit an incoming freshman who is a graduate of Johnstown High School, Johnstown, NY.

David (1959) and Elaine Chapnick Scholarship. Created from the gifts of David Chapnick, Class of 1959, and his wife, Elaine. Preference to students studying history and liberal arts.

Roland David Ciaranello (1965), M.D., Scholarship. Created from the gifts of Roland and Carmella Ciaranello in memory of their son, Roland, Class of 1965. Preference to pre-med students living in Schenectady County.

Adam F. Ciesinski (1941) Scholarship. Established by Stephen J. Ciesinski, Class of 1970, and his brothers and sisters in honor of their father, Adam Ciesinski, Class of 1941.

Travis J. & Shanna Putnam Clark Memorial Scholarship. Established by family, friends and members of the Union community in memory of Travis J. and Shanna Putnam Clark, members of the Class of 2000.

Gaylord Judd Clarke (1859) Scholarships. Established by Mrs. Anna L. Giles in honor of her father, Gaylord Judd Clarke (1859), a lawyer and a journalist.

Class of 1895 Scholarship. Gifts from members of the Class of 1895.

Class of 1912 Scholarship. Gifts from members of the Class of 1912.

Class of 1920 Scholarship. Gifts from members of the Class of 1920.

Class of 1936 Scholarship. Part of the General Pooled Endowment Funds of the College; no restrictions on use.

Class of 1937 Memorial Scholarship. A memorial to classmates who lost their lives in World War II. Preference to descendants of members of the class.

Class of 1950 Scholarship. Gifts from members of the Class of 1950.

Class of 1951 Scholarship. Gifts from members of the Class of 1951.

Class of 1952 C. William '34 and Lee H. Huntley Memorial Scholarship. Gifts from members of the Class of 1952.

Class of 1956 John A. Davidson '56 Memorial Scholarship. Established by members of the Class of 1956 on the occasion of their 50th ReUnion in memory of their classmate and friend, John A. Davidson, Class of 1956.

Class of 1958 Donald T. Stadtmuller Memorial Scholarship. Created by members of the Class of 1958 in memory of their classmate Donald T. Stadtmuller. Awarded to students of diverse interests.

Class of 1969 25th ReUnion Memorial Scholarship. Created by the Class of 1969 on the occasion of their 25th ReUnion to honor their departed classmates.

John C. (1975) and Eileen S. Clegg Scholarship. Created from the gifts of Eileen S. Clegg, in memory of her husband, John C. Clegg, member of the Class of 1975. Preference shall be given to students with electrical engineering majors.

Student Assistance Fund in Memory of Henry J. Clute. The bequest of Anna Clute Newcomb in memory of her father, Henry J. Clute.

Elaine and Myron J. Cohn (1932) Scholarship. Created by Myron J. Cohn, Class of 1932.

Morris Mandel Cohn (1921) Scholarship. Created from the gifts of Dr. Cohn's two children, Jay N. Cohn, M.D., Class of 1952 and Grayce Cohn Cohen. Preference shall be given to students from the Capital District of New York who have an interest in studying environmental science.

William T. Colburn (1979) and Susan T. Marcolina, MD, FACP (1980) Scholarship. Created by William T. Colburn and Susan T. Marcolina. Preference shall be given to students pursuing careers in science and technology fields.

Robert C. Connell (1942) Memorial Scholarship. Created by James Cushing in memory of his long-time friend.

Continuing Education Fund. Established to encourage the "nontraditional" student who engages in academic pursuits through the continuing education undergraduate program. A student may attend classes part-time or full-time in the evening program or as a special student in the day program.

Harry Cook (1906) Memorial Scholarship. The gift of Harry Cook, Class of 1906, and his wife, Lavinia. Income awarded as a scholarship. Harry Cook was a lawyer practicing in Albany, NY.

Gerald F. Cooke (1973) and Cooke Family Scholarship. Created from the gifts of Estelle Cooke-Sampson, Class of 1974 and Lawrence E. Cooke, Class of 1977 in memory of their brother, Gerald Cooke. Preference will be given to African American students.

Harris Lee Cooke Scholarship. Established by Lucy E. Williams, in memory of Harris Lee Cooke, her brother. Mr. Cooke practiced law in Cooperstown, NY, for forty-five years and was awarded an honorary Doctor of Humane Letters degree in 1934.

Frances King Corrigan Scholarship. Established from the gifts of Joseph Corrigan, Class of 1929 in memory of his wife. Income awarded annually to physically handicapped students.

Leslie F. Couch (1952) Scholarship. Created by Leslie F. Couch, Class of 1952.

CPS Chemical, Inc. Scholarship. Established from a gift from CPS Chemical, Inc. for deserving biology major students.

Professors Edward Craig and Yu Chang Merit Scholarship. Created from the gifts of David M. Madden, Class of 1984, on the occasion of his 20th ReUnion, honoring Professors Craig and Chang. Preference shall be given to students majoring in electrical and/or computer engineering.

Eugene G. Crippen (1919) Memorial Scholarship. Established by Eva Hayes Crippen in memory of her husband, Eugene, Class of 1919, who pioneered in the development of radio and electronic communications before becoming a teacher of aeronautics in the Civil Service Administration. Preference to a promising student pursuing a course leading to a career in aeronautical engineering, electrical engineering, or medicine.

Clarence Livingston Crofts (1872) Memorial Scholarship. The gift of Frederick S. Crofts, in memory of his father, Clarence Livingston Crofts. Frederick S. Crofts, a publisher and journalist in New York City, received an honorary degree of Doctor of Humane Letters in 1939.

William J. Curtin (1982) Scholarship. Created from the gifts of William J. Curtin, Class of 1982. Preference to students from Potsdam, NY.

Oscar and Elva Dahlquist Memorial Scholarship. Established by Donna E.D. Phillips, Class of 1979, in memory of her parents.

The Charles A. Dana Scholarships. Established by a grant from The Charles A. Dana Foundation for students who have completed at least one year of college and who have demonstrated leadership in college and/or community activities.

Dr. Richard G. Day (1939) Memorial Scholarship. Established by the family and friends of Dr. Day. Preference given to students majoring in pre-med.

Harold S. and Margaret N. Deal Memorial Scholarship. Created from the estate of Margaret N. Deal. Preference shall be given to students who have interest in a career in pharmacy and who are majoring either in biochemistry or pre-health programs.

Judith G. Dein (1976) & Alan M. Reisch (1975) Scholarship. Created from the gift of Judith G. Dein and Alan M. Reisch. Preference shall be given to students majoring in political science.

Burton and Violet Delack Scholarship. Created from the gifts of the Delack family in memory of Burton B. Delack, Class of 1936, and his late wife, Violet. Preference shall be given to undergraduates who are from Schenectady and Niskayuna.

Edward I. Devlin (1881) Memorial Scholarship. The gift of Jean Dickson Devlin in memory of her husband, Edward, Class of 1881. Annual income used to award a scholarship or scholarships.

Dewar Scholarship. Established by the Dewar Foundation, Inc. Preference to graduates of Oneonta (NY) Senior High School.

William Thompson Dewart Scholarship. The gift of William Thompson Dewart for a scholarship in his name.

Louis M. DiCarlo (1932) Scholarship. Established by Dr. DiCarlo during his fiftieth reunion year for a scholarship for humanities students who demonstrate potential for making contributions to the improvement of the quality of human life.

Janine N. Donikian Scholarship. Created in her honor by her brother, Andre R. Donikian, Class of 1965, and Dr. Marc Donikian, her father. Awarded to students from the state of Indiana and adjoining Midwestern states.

The Molly Stark and André R. Donikian (1965) Scholarship. Created from the gifts of Molly S. and Andre R. Donikian, Class of 1965. Preference will be given to students who are planning to continue studies at Albany Law School.

C. E. Donnellon Fund. The gift of C. E. Donnellon, a friend of Union College, made out of friendship for Frank Bailey, Class of 1885, who was a business associate.

Dr. Robert N. Downer (1966) and Martha E. Downer (1990) Scholarship. Established by gifts from Dr. Robert N. Downer, Class of 1966, and his daughter, Martha E. Downer, Class of 1990, in honor of Martha's graduation and the Bicentennial Campaign for Union College.

Anna Draves Great Expectations Scholarship. Created from the gift of John R. Draves, Class of 1948, in memory of his mother. Preference to promising and aspiring students with potential for attaining Union's academic standards and who have great financial need.

Esther C. and Oswald E. Drescher, Jr. Scholarship. Created from the gifts of John E. Drescher, Class of 1956, in honor of his mother and father.

Harwood Dudley (1875) Memorial Scholarship. The bequest of Frances Selmser Dudley, wife of Harwood Dudley, Class of 1875, a trustee of Union from 1908 until his death in 1915. Income awarded as a scholarship to a needy student who, at the end of the freshman year, has attained the highest scholastic average.

Thomas W. Duffy (1971) Scholarship. Created from the estate of Thomas W. Duffy, who was killed in the September 11, 2001 terrorist attack on the World Trade Center.

James M. Dunn (1912), M.D., Memorial Scholarship. Created by gifts from his wife, Marguerite Dunn, and awarded to a student or students pursuing a full-time course of study leading to a career in medicine.

Dr. Joseph H. Dusenbury (1945) Memorial Scholarship. Established by Mrs. Joseph H. Dusenbury in memory of her husband, Joseph, Class of 1945.

William H. Eagleson, Jr. (1929) Memorial Scholarship. Established by his widow, Mae Eagleson, for a scholarship in his memory for humanities students, including, but not necessarily limited to, history, philosophy, languages, linguistics, literature, archaeology, jurisprudence, history and criticism of the arts, ethics, comparative religion, and those aspects of the social sciences employing historical or philosophical approaches.

Edgar W. (1906) and Maude M. Earle Scholarship. A gift from a trust established by Edgar W. Earle, Class of 1906.

Early Alumni Endowed Scholarship. A compilation of the George F. Allison, Class of 1884; Richard M. Blatchford, Class of 1885; Donald Coulter, Class of 1915; and James A. Goodrich, Class of 1879; Alexander Duane, Class of 1878 funds.

William C. Eismeman (1945) & Burton Grusky (1951) Veterans Scholarship. Created from the gifts of Hope H. Eisman and Robert R. Grusky (1979), to honor their fathers, both of whom graduated from Union and were Army veterans. Awarded to students who were formally active duty members in the United States of America's armed forces.

Dr. Edward Ellery Scholarship. Established by Rudolph A. Schatzel, Class of 1921, in memory of Dr. Edward Ellery, professor of chemistry (1905-1937) and dean of faculty (1918-1937) at Union College. Awarded annually to students pursuing courses in the sciences.

Eppler Family Scholarship. Established by Mr. and Mrs. Heinz Eppler to support the College's financial aid program.

Louis Epstein Scholarship. Established by Michael J. Epstein, Class of 1959, MD, in honor of his father, Louis Epstein.

Robert P. Ericson (1941) Scholarship. Preference to students wishing to study the classics.

Judson R. Escalante (1953) Scholarship. Established by gifts from Judson R. Escalante, Class of 1953 to students who are pursuing a course of study in the humanities and who demonstrate potential for making contributions to the improvement of the quality of human life.

Henry C. Fagal Scholarship. Created from gifts of Frederick F. Fagal, Class of 1938 and Janet Beardsley Fagal. First preference to students residing in the Schenectady area. Second preference to students from the Amsterdam area.

William and Adeline Fairlee Scholarship. Established by the bequest of Alvah Fairlee, Class of 1893 in memory of his parents. The donor was a Schenectady attorney who served as city judge and police justice.

Falk Scholarship. The gift of Elynor R. and David Falk, Class of 1939, MD, awarded to motivate a student to strive for continuing improvement in academic and personal development, with preference to a major in the biological sciences including but not limited to premedical preparation.

Samuel W. Farr (1938) Scholarship. Created from the gifts of Samuel W. Farr, Class of 1938.

Victor H. Fazio (1965) Scholarship. Established by Victor H. Fazio, Class of 1965. Preference to students planning to enter a career in public service.

Franklin L. Fero (1917) Scholarship. Established by a bequest from Franklin L. Fero, Class of 1917.

John H. Fisher, Jr. '52 and Virginia M. Fisher Scholarship. Created from the gifts of Virginia M. Fisher in memory of her husband.

Roland V. (1943) and Nancy Fitzroy Scholarship. Established by Roland V. Fitzroy, Class of 1943 and given to students majoring in electrical engineering.

Dr. Leon B. Foote (1909) Memorial Scholarship. A bequest from the estate of Ruth Z. Foote, widow of Dr. Leon B. Foote, Class of 1909.

Dr. Dixon Ryan Fox Memorial Scholarship. The gift of friends and alumni of Union College made during the Sesquicentennial Campaign (1945-46) in memory of Dixon Ryan Fox, president of Union College from 1934-1945.

Dr. Dixon Ryan Fox Memorial Scholarship. The gift of Mrs. E. E. Gilbert of Schenectady, a friend of Union College, in memory of Dixon Ryan Fox, president of Union from 1934-45.

Helen Marlette Fox Scholarship. Created from the gift of Helen Marlette Fox, a former employee of the College, whose husband, Norman W. Fox, is a member of the Class of 1943.

Herbert O. Fox (1939) and Jean M. Fox Scholarship. Created from the gift of Jean M. Fox, in memory of her husband, Herbert O. Fox, Class of 1939. Mr. Fox was the son of Dixon Ryan Fox, Union College president from 1934-45.

Nicholas V.V. Franchot (1875) Memorial Scholarship. The gift of Mr. Franchot's three daughters, Janet Wilder, Anna Godley, and Louise Munson, in his memory. Mr. Franchot (1875) was a life trustee of Union College from 1895 until his death in 1943.

Juel Frankel Memorial Scholarship. Created through the gifts of friends and family of Juel W. Frankel, the wife of Jacob Frankel (1917).

Dr. Herbert Freeman (1947) Scholarship. Created from the gifts of Dr. Herbert Freeman, Class of 1947 on the occasion of the Class of 1947's fiftieth ReUnion.

James (Wes) Fry (1946) Scholarship. Created from the bequest of Wes Fry, Class of 1946, to graduates of Lake George High School, Lake George, NY, who are good citizens and a credit to the community and country.

Joseph F. Furlong (1942) Scholarship. Created by Joseph F. Furlong III, Class of 1970 and his wife, Dixie Furlong, in recognition of Joseph F. Furlong, Class of 1942 in honor of Union's Bicentennial.

Howard Cogswell Furman Scholarship. The gift of Howard Cogswell Furman, a friend of Union College, to provide tuition or funds for other college expenses for students attending Union.

James Gage (1931) Scholarship. Established by Sally Gage in memory of her husband. Preference is given to pre-law or liberal arts students.

George R. Galbraith (1917) Scholarship. Established by a gift from George R. Galbraith, Class of 1917.

Lt. Edward C. Gelsleichter Memorial Scholarship. Established by his brother, F.D. Gelsleichter, Class of 1933, and supported by gifts from the Gelsleichter family.

The Burdett Gibson (1923) Scholarship. The gift of Charles Gibson, in memory of his father, Burdett Gibson, Class of 1923.

William A. Gietz (1949) Scholarship. Established by a gift of Barbara M. Brugh, in memory of her husband, William A. Gietz, Class of 1949. Preference shall be given to students who show interest in pursuing a career in communications or broadcasting.

Ambrose H. Gilligan (1926) Scholarship. Established by Kenneth J. Whalen, Class of 1949, a life trustee, to honor his former high school principal and coach, Ambrose H. Gilligan, Class of 1926.

Charles A. Gilmore, Jr. (1936) Scholarship. Created from the bequest of Charles A. Gilmore, Jr., Class of 1936, with preference given to a student majoring in English.

Girling Scholarship. The gift of Wallace S. Girling, Class of 1917, and a long-term member of the Board of Trustees. Preference given to residents of Long Island.

Gold Star Scholarship. The gift of alumni and friends of Union College during the Sesquicentennial Campaign (1945-46) for scholarships in memory of alumni who lost their lives as members of the Armed Forces during World War II.

Arthur S. Golden (1901) Memorial Scholarship. The bequest of Mildred V. Golden in memory of her husband, Arthur S. Golden, Class of 1901.

Nancy A. Gordon Memorial Scholarship. Created by Dr. Neal J. Gordon, Class of 1969 in memory of his wife, Nancy.

William C. Gotshall Scholarship. The bequest of William C. Gotshall, a friend of Union College. Preference to worthy students in any branch or course of engineering.

Graduate Council Scholarship. Established by the Graduate Council (now called Alumni Council) at its meeting Oct. 13, 1935, reserving income from the Losee estate for this purpose.

John L. Grant (1945) Memorial Scholarship. Awarded to an undergraduate student majoring in Economics and enrolled in the joint MBA program.

William V. and Adelaide M. Grant Memorial Scholarship. Established by William R. Grant, Class of 1949, a trustee of Union College, in memory of his parents. Preference to qualified students in the following order: graduate of Chaminade High School, graduate of Portsmouth Abbey School, discretion of the College.

J. Alfred Greene, Jr., (1919) and Harriette W. Greene Scholarship. Established through a bequest from Harriette W. Greene in memory of her husband, J. Alfred Greene, Jr., Class of 1919.

J. William Greve (1951) Scholarship. Created by J. William Greve, Class of 1951.

Dickinson E. Griffith, Jr., (1941) Memorial Scholarship. The gifts of friends of Dickinson E. Griffith, Jr., Class of 1941.

Carroll C. Grinnell '19 Memorial Scholarship. Established by the gifts of the members of the Class of 1919 in memory of their classmate, Carroll Grinnell.

Robert Shepard Griswold (1952) Memorial Fund. Established through a bequest from his mother, the late Clare S. Griswold. The income is to be used to further the musical career study of a student.

James R. Gross (1963) Scholarship. Established by James R. Gross, Class of 1963.

Jerome D. Guthmann (1914) Scholarship. Established under the will of Mrs. Fannie D. Guthmann in memory of her son, Class of 1914.

Denise Kitsock Gutstein (1986) Scholarship. Established by Denise Kitsock Gutstein, Class of 1986.

Hans and Hedda Hainebach Humanities and Arts Scholarship. Established through bequest of Hedda Hainebach. Awarded to students who are majoring in the humanities or arts.

J. Potter Hallenbeck (1910) Scholarship. Established by the gifts of the Hallenbeck family in memory of J. Potter Hallenbeck, Class of 1910.

Joel A. Halpern (1961) Memorial Scholarship. Established by the Halpern family in memory of Joel A. Halpern, Class of 1961. Awarded to a member or members of the freshman class. The scholarship will be renewed in the sophomore, junior, and senior years provided the recipient(s) continues to qualify for financial aid. Preference to students from Westchester County, NY.

Joseph K. and Mary Jane Handler Scholarship. Established by Joseph Handler, Class of 1952, and his wife Mary Jane. Preference given to students living west of the Mississippi.

Thomas E. Hanigan, Jr., (1944) Scholarship. Established by life trustee Thomas E. Hanigan, Class of 1944, for students in the humanities.

Thomas E. Hanigan, Jr., (1944) Memorial Scholarship. Established by the W.R. Grace Foundation in honor of Mr. Hanigan, Class of 1944, who served as trustee of Union College and officer and director of W.R. Grace Co.

John J. Hardiman (1938) Memorial Scholarship. Established in his memory by three of his classmates in the Class of 1938. Mr. Hardiman lost his sight in 1954 but continued to operate the Hardiman Liquor Store in Watertown, NY, until his death, demonstrating great courage.

Dr. and Mrs. David M. Harvey Scholarship. Established by Dr. David M. Harvey, Class of 1951. Preference given to students who reside in Schenectady County.

Mortimer T. Harvey (1917) Scholarship. Created from the gift of Mortimer T. Harvey, Class of 1917, with preference to students studying or majoring in chemistry who would like to pursue a career in research.

Haviland Family Scholarship. Created from a trust established by Dr. and Mrs. James W. Haviland, Class of 1932 in honor of Morrison L. Haviland, Class of 1898; Karl F. West, Class of 1904; James W. Havland, Class of 1932 and Donald S. Haviland, Class of 1970.

Hawkes Family Scholarship. Established by Donald C. Hawkes, Jr., Class of 1937, to honor all the members of the Hawkes family who have attended Union College.

E. Zeh Hawkes (1926) Scholarship. Gift of Dr. Stuart Z. Hawkes, Class of 1926, in tribute to his father, Class of 1887 and a former life trustee of Union. Preference first to candidates from Essex County, N.J., and second to other residents of New Jersey.

The Reuben D. Head (1925) Scholarship. Established by Mr. Head, Class of 1925, with the. Preference to graduates of Greenville (NY) Central School.

William Randolph Hearst Foundation Scholarship. Created by the William Randolph Hearst Foundation with preference given to minority students from the five boroughs of the City of New York.

Oswald D. Heck (1924) Memorial Scholarship. Established under the will of Oswald D. Heck, Class of 1924, member of the New York State Assembly from 1931 to 1959 and Speaker of the Assembly from 1937 to 1959, and supplemented by contributions from friends and associates.

Eugene W. Hellmich (1923) Scholarship. Created from the bequest of Eugene W. Hellmich, Class of 1923.

Rutson R. Henderson (1923) Scholarship. Established by James A. Henderson in memory of his father. Preference shall be given to a student(s) selected on the basis of character, and academic performance. Further qualifications are: 1) students from Oneonta High School, and 2) students from Otsego and Delaware counties.

Seward Daniel Hendricks (1910) and Sarah Winifred Hendricks Trust Fund. The gift of Seward Daniel, Class of 1910 and Sarah Winifred Hendricks.

David L. Henle Merit Scholarship. Created by David L. Henle, Class of 1975.

The Hequembourg Family Scholarship. Created in memory of members of the Hequembourg family: Louis Hequembourg, Class of 1910, Charles L. Hequembourg, Class of 1912, and Frederick W. Hequembourg, Class of 1939. Preference to students from either Albany, Rensselaer, Saratoga, or Schenectady counties.

William Parker Hesse '49 Financial Need Scholarship. Established by William Parker Hesse, Class of 1949.

Joseph M. (1947) and Barbara B. Hinchey Scholarship. Established by Joseph M. Hinchey, Class of 1947. Awards given annually with preference to students studying electrical engineering.

Betsy Ann Hochman (1989) Scholarship. Established by Harold M. and Merle E. Hochman, in memory of their daughter. Awarded in collaboration with the Harry A. (1925) and Bess Kaplan Kappa Nu Scholarship to an upperclass student or students with a demonstrated need and without regard to sex.

Rose L. and Philip Hoffer Family Scholarship. Created from the gifts of Rose and Philip Hoffer.

Thomas R. (1945) and Barbara P. Hoffman Scholarship. Created from the gifts of John R. Peckham, Class of 1978.

Valerie J. Hoffman (1975) Scholarship. Established by Valerie J. Hoffman, Class of 1975.

Lawrence J. Hollander Bicentennial Scholarship. Established by Lawrence J. Hollander (professor and dean of engineering, 1986-93). Awarded to students enrolled in the undergraduate engineering program.

Alice Holmes Scholarship. Established by a bequest from Alice Holmes. Preference is given to students graduating from Schenectady city or county schools.

The Elizabeth W. Holt Scholarship. Established by a bequest from the late Mrs. Holt for students entering from the public schools of Mechanicville and Stillwater or, if no one from these towns, any other public school graduate in Saratoga County, NY.

Anthony J. Hornsby (1899) Memorial Scholarship. Established under the will of Mrs. Mabel H. Hornsby in memory of her husband, Class of 1899. Available to students studying engineering.

Henry J. Horstman (1928) Scholarship. Established by Henry J. Horstman, Class of 1928.

Raymond H. Horstman (1923) Scholarship. Established by Raymond H. Horstman, Class of 1923.

Henry L. Howe III (1943) Scholarship. Established by Henry L. Howe, Class of 1943. Preference to sophomore(s) who pursue a full-time course of study leading to a career in business management and/or manufacturing, and to a student who is a well-rounded individual, involved in various aspects of college life.

George Howard Hoxie (1893) Scholarship. The gift of Dr. and Mrs. George Howard Hoxie, Class of 1893 for a scholarship for a premedical student. Dr. Hoxie founded the School of Medicine at the University of Kansas and was dean of that school.

Lester T. Hubbard (1900) Scholarship Fund. Established from the bequest of Emily A. Hubbard in memory of her husband, Lester, Class of 1900. Mr. Hubbard, a lawyer, was a member of the Alumni Council from its founding in 1910 until 1925.

Hubbell Scholarship. Established under the will of Frederick Brooks Hubbell in memory of Levi Hubbell, Class of 1827; Walter Hubbell, Class of 1814; Walter Seymour Hubbell, Class of 1894; Ferdinand Wakeman Hubbell, Class of 1819; and Horatio Hubbell, Class of 1818.

Hudson-Champlain Scholarship. Established by members of the Hudson-Champlain Alumni Association. Preference given to candidates from Warren, Saratoga, Washington, and Essex Counties upon recommendation of the association.

O. LeRoy Huntington (1932) Memorial Scholarship. Established by his widow, Margaret Huntington. Awarded to a student pursuing a full-time course of study in the humanities, preferably with emphasis on political theory and/or international relations, and who is planning a career in government.

Thomas D. Hurst Scholarship. Established under the will of Thomas D. Hurst. Preference given to applicants from Brooklyn.

Lillian Babbitt Hyde Foundation Scholarship. The gift of the Lillian Babbitt Hyde Foundation of New York City. The annual income is used to secure a distinguished, well-rounded candidate for a course of study at Union. The gift was made by the foundation with the consideration of Charles Foster Brown, Class of 1916, life trustee, in recognition of his devotion to the College and its worthiness.

Indigent Students Scholarship. Established by proceeds of lotteries authorized by the State of New York in 1805.

IBM Scholarship. Funded by a grant from the International Business Machines Corporation to establish an endowed scholarship for women and minority engineering students.

Joseph Jacobs (1931) Memorial Scholarship. Created by the family and friends of Joseph Jacobs, Class of 1931.

Dolores R. Jacobson Memorial Scholarship. Created by the children and grandchildren of Dolores R. Jacobson to honor her memory. Preference given to students entering junior or senior year, majoring in neuroscience with intent to pursue graduate work at the doctoral level in the neurosciences. Second preference will be given to a junior or senior student planning to attend medical school, regardless of major.

Leo E. Jandreau Memorial Scholarship. Established through public contributions and administered by Union. Awarded annually to an upperclassman majoring in the social sciences or humanities, at least one member of whose immediate family is or has been a member of a labor union. Mr. Jandreau was a founder of the national electrical workers union, served for more than 30 years as business agent of IUE Local 301, and was a vice-president of the New York State CIO, chairman of the National GE Conference Board, and president of the Schenectady Central Labor Council. Union awarded him an honorary Doctor of Laws degree in 1978.

Carl B. Jansen (1922) Scholarship. Established by the gift of the Dravo Corporation in honor of Carl B. Jansen, Class of 1922, former chairman of the board directors of the corporation.

Ronald Quentin Jennett and Margaret Anne Jennett Scholarship. Established by Ronald Q. Jennett, Class of 1952. Preference shall be given to students from Clinton, Essex and Franklin counties of New York State or from Ft. Worth, Texas or Tarrant County, Texas.

Christian A. Johnson Scholarship. Established by a grant from the Christian A. Johnson Endeavor Foundation.

Mary Louise Johnson Memorial Scholarship. Established by the gift of Mrs. Anna C. Newberry, in memory of her mother, Mrs. Mary Louise Johnson. Preference to a student majoring in the Division of Social Studies.

Harry A. (1925) and Bess Kaplan Kappa Nu Scholarship. Established by the trustees of Kappa Nu, Harry Kaplan, Class of 1925, president. Awarded in collaboration with Mr. Kaplan to an upperclass student or students with a demonstrated need and without regard to sex.

Hyman V. (1928) and Dorothy G. Kaplan Scholarship. Created from a gift of Red-Kap Sales, Inc. in honor of Hyman V. and Dorothy Kaplan. Preference to a student athlete of high moral and ethical character from a rural area.

The Irving D. Karpas, Jr., (1947) and Suzanne T. Karpas Scholarship. Created by a gift from Irving D. Karpas, Jr., Class of 1947. Annual income awarded as scholarship support with preference to an upperclass student or students who plan to enter medical school.

Norman D. Kathan (1926) Scholarship. Established by a gift from Dr. Norman D. Kathan, Class of 1926. Preference to students pursuing a course of study in preparation for graduate study in medicine and who demonstrate potential for making contributions to the improvement of the quality of human life.

William G. Keens (1902) Scholarship. Established under the will of William G. Keens, Class of 1902.

John Kelleher (1970) Memorial Scholarship. Established by classmates and friends of John Kelleher, Class of 1970.

Dr. Ellis Kellert Memorial Medical Society Scholarship. Established by the Medical Society of Schenectady County in memory of Dr. Ellis Kellert, head pathologist at Ellis Hospital. The fund provides scholarships for premedical students, with first preference to children of present or former members of the society.

William L. Kennedy (1888) and William L. Kennedy, Jr., (1918) Scholarship. A scholarship created by combining the bequest of William L. Kennedy, Jr., Class of 1918 and a gift by Edwin O. Kennedy, Class of 1921, in memory of his father, William L. Kennedy, Class of 1888 and brother, William L. Kennedy, Jr. Awarded annually to students pursuing a course of study in the humanities. Preference to students from Johnstown, NY, and the surrounding area.

Kenneth A. Kesselring Memorial Scholarship. Created by Jane Kesselring Collamer and Nelson P. Collamer, Class of 1933, in memory of Kenneth A. Kesselring. Preference to students whose major is within the Division of Engineering.

Bill and Mabel Ketz Scholarship. Created in honor of Bill and Mabel Ketz by Kenneth J. Whalen, Class of 1949, a life trustee of Union, to recognize and honor them for many years of dedication and service to the College.

Richard J. Killeen (1951) & Patricia M. Killeen Scholarship. Created from the gifts of Richard J. Killeen '51 and Patricia M. Killeen. Awarded to U.S. citizens who are from the capital district of New York State and/or New York State Scholar athletes with intended majors in engineering and/or mathematics and/or the technical sciences.

Robert K. (1942) and Evelyn Killian Scholarship. Created from the gifts of Robert K. Killian, Class of 1942 and Robert K. Killian, Jr., Class of 1969 in honor of Evelyn Killian, wife and mother. Preference to students from Connecticut.

Howard William Kitchin Scholarship. Established by Alma Harris Kitchin, widow of Howard William Kitchin, Class of 1908, for students in a liberal arts curriculum.

Dr. Clarence E. Klapper (1932) Memorial Scholarship. Established by Dr. Margaret E. Klapper in memory of her husband.

Frederick A. and Eleanor G. Klemm Scholarship. Established by Eleanor G. and Frederick A. Klemm, professor of German (1947-1978) and founder of the Terms Abroad Program, to help students with travel expenses on the Terms Abroad Program or similar programs.

Charles A. Koch Scholarship. Established from the estate of Charles A. Koch, father of the late Charles A. Koch, Class of 1954.

Mr. and Mrs. Stanislaus Kosinski Memorial Scholarship. Established from the gifts of Alexander Kosinski, Class of 1935 and his wife, Barbara, in memory of his parents. Awarded to a promising student in music.

Kruesi Scholarship Fund. Established by Paul J. Kruesi, Class of 1900, as a memorial to five Kruesi brothers: August H., Class of 1898, Walter E., Class of 1902, Frank E., Class of 1908, and John, Class of 1914.

Rear Admiral Lee E. Landes (1945) Scholarship. Established by Lee E. Landes, Class of 1945. Awarded to students majoring in economics with first preference given to students from Michigan.

Olin G. Landreth Scholarship. Established by Miss Helen A. Landreth in memory of her father, Olin H. Landreth, professor of engineering from 1894-1917. Awarded annually to students pursuing courses in engineering.

The Robert P. Larsen (1953) Scholarship. Established by Robert P. Larsen, Class of 1953. Awarded to students studying engineering, involved in extracurricular activities and who graduated from a high school located in Geneva, NY, or Fullerton, CA.

Alan A. Lascher (1963) Scholarship. Created from gifts of The Weil, Gotshal & Manges Foundation, family and friends, in memory of Alan A. Lascher, Class of 1963.

Laudise Family Scholarship. Originally established by Robert A. Laudise, Class of 1952, in honor and memory of his father.

Karges Lauterbach (1927) Scholarship. A gift from the estate of Karges Lauterbach, Class of 1927, for the benefit of students studying engineering.

John Y. Lavery (1895) Scholarship. Established under the will of John Y. Lavery, Class of 1895. Preference to a student working his or her way through college.

Joseph L. Lawrence (1939), D.D.S., Scholarship. Established in memory of Joseph L. Lawrence, Class of 1939, D.D.S., by his family, including his wife, Pearl Lawrence; son, David B. Lawrence, MD, Class of 1965; and daughter, Barbara Lawrence Scharf.

Katherine Spencer Leavitt Scholarship. Established under the will of Mrs. Katherine S. Leavitt.

Craig LeDuc (2005) Memorial Scholarship. Created from the gifts of Union College and others. Preference is given to students majoring in economics.

Alexander M. Lee '03 Memorial Scholarship. Established by Union College and the family and friends of Alex Lee, Class of 2003, who lost his life in a tragic accident at the end of his sophomore year.

John J. Leonard (1949) Scholarship. A gift from the estate of John J. Leonard, Class of 1949, for the benefit of students enrolled in pre-med.

Laurence W. Levine (1953) Scholarship. Created by Laurence W. Levine, Class of 1953.

Patricia Bohlen Levinson (1975) Scholarship. Created by Richard D. Levinson, Class of 1973, to honor his wife, Patricia, Class of 1975. Preference to students who are involved with the arts and/or humanities.

John V. Lewis (1914) Memorial Scholarship. Established by bequest of his late wife, Mary McDonnell Lewis, in his memory.

Stanley R. Liebman (1939) Scholarship. Established by the bequest of Stanley R. Liebman, Class of 1939, and awarded based solely on scholastic merit.

Gilbert R. Livingston (1924) Memorial Scholarships. Established by bequest of Mr. Livingston, Class of 1924, a scholarship fund that annually designates thirty freshmen as Gilbert R. Livingston Scholars. Awarded on the basis of financial need, academic excellence, and potential for contribution to the quality of life at Union.

Susan Davis Lloyd Scholarship. Created from the gifts of Mr. and Mrs. Randolph Meyer, Class of 1957, and others to benefit students with a medical disability.

Thomas B. Lockwood Scholarship. Established by Thomas B. Lockwood in memory of his father, Daniel Lockwood (1865). Available to students from Buffalo, NY.

The Guy Christopher Logan Scholarship. Established by Pamela and Guy T. Logan, Class of 1990, in memory of their son.

Frederick J. (1942) and Beatrice J. Longe Scholarship. Established by Frederick J. Longe, Class of 1942. Awarded to students pursuing courses in science or engineering.

Eunice E. Lord Scholarship. Created by Frank E. Lord, Class of 1951, in memory of his mother, Eunice E. Lord.

William G. Lutz (1914) Scholarship. Established with a bequest from William G. Lutz, Class of 1914, who died on May 25, 1971. Preference to engineering students.

Harold S. MacGowan (1933) Scholarship. Established from the estate of Harold S. MacGowan, Class of 1933, to benefit a student excelling in a course or courses in the fields of business management and/or industrial engineering.

Edward A. & Neva Jean Sharpe Mahoney Endowed Scholarship. Created from the gifts of Neva Madeline Mahoney in memory of her parents, Edward A. and Neva Jean Sharpe Mahoney. Preference to students pursuing courses in psychology who reside in the Capital District of New York State.

Sigmund Makofski (1926) Scholarship. Established by gifts from friends and admirers of Sig Makofski, Class of 1926. Preference to graduates of Schenectady High School.

C. T. Male (1913) Scholarship. Established by Charles T. Male, Class of 1913, and supported by contributions from members of the Male family.

C.T. Male Associates Scholarship. Created from the gifts of Kenneth J. Male, Class of 1945, C.T. Male Associates, and others. Awarded to students entering their junior year and renewed for the senior year.

Mandeville Scholarship. Created from the estate of David C. Mandeville, Class of 1945.

Joseph T. Maras Memorial Scholarship. Created from the gifts of the family and friends of Joseph T. Maras, former football coach and admissions officer at Union College.

John Lewis March Scholarship. Established by Miss Mildred March in memory of her brother, John L. March, professor at Union College from 1915 to 1948.

A.J. Martini Memorial Scholarship. Established by Paul J. Martini, Class of 1973, and Peter P. Martini, Class of 1978, in honor and memory of their father.

Thomas J. Marvin (1826) Scholarship. Established by the gift of Mrs. Mary L. Sackett in memory of Thomas J. Marvin, Class of 1826.

George Mason Memorial Scholarship. Established under the will of John J. Mason in memory of his brother

Victor F. (1949) and Shirley Mattson Scholarship. Established by Victor Mattson, Class of 1949. Preference to students majoring in chemistry, physics, or mathematics.

Alice W. and Fred W. McChesney Scholarship. Established by the bequest of Alice and Fred McChesney.

Carl E. McCombs (1904) Memorial Scholarship. The bequest of Alice Losee McCombs in memory of her husband, Carl E. McCombs, Class of 1904, a physician, author, and former manager of the New York Bureau of Municipal Research.

Alfred H. McKinlay (1951) Scholarship. Established by Mark A. McKinlay, Class of 1973. Preference shall be given to students who have demonstrated outstanding humanitarian concern and a willingness to help others.

John J. McManus (1942) Memorial Scholarship. Created by the friends and family of John J. McManus, Class of 1942, and by McManus, Longe, Brockwehl, Inc., of which he was a co-founder.

Charles B. McMurray (1887) Scholarship. Established by Charles B. McMurray, Class of 1887, and former life trustee of Union. Preference to applicants from Lansingburgh High School, from Troy, NY, and from Rensselaer County, NY, in the order named.

Walter S. McNab (1908) Scholarship. Created by Duncan S. McNab, Class of 1935, in memory of his father, Walter S. McNab, Class of 1908. Awarded to students who require financial assistance.

Kenneth J. Meaney (1944) Memorial Scholarship. Created by Henriette Thomas in memory of her brother. Preference shall be given to students from Schenectady majoring in history

Elma C. and Dominick Mele (1937) Scholarship. Established by Dominick Mele, MD, Class of 1937, a Schenectady pediatrician who has provided a lifetime of service to the community and the College. Preferences in the following order: students from three high schools in Billings, Mont.; the Montana area; Schenectady, NY.

Frank L. Messa (1973) Endowed Scholarship. Created by Frank L. Messa, Class of 1973. Preference to students from (1) the state of Texas and (2) the Southwest region of the United States.

John Wells Meyer and Kevin Michael Meyer Scholarship. Established by Randolph W. Meyer, Class of 1957, and others in memory of John Wells Meyer and Kevin Michael Meyer. Awards will be made to students who have demonstrated self-discipline, persistence, and the desire to succeed, who require a substantial amount of financial assistance to attend Union.

Dr. David B. Miller (1939) Scholarship. Created from the gifts of David B. Miller, Class of 1939.

Franklyn B. (1932) and Irma Millham Scholarship. Established by a gift from Mr. and Mrs. Franklyn B. Millham to provide scholarship funds for students pursuing a course of study in engineering.

Louis D. Miltimore (1929) Memorial Scholarship. Created from the gifts of the family and friends of Louis D. Miltimore, Class of 1929. Mr. Miltimore served as a trustee of the College from 1953 to 1996.

John E. Mitchell (1945)-Kathryn L. Mullaney (1974) Scholarship. Established by gifts from John E. Mitchell, Class of 1945, and his daughter, Kathryn L. Mullaney, Class of 1974. Preference to students who are children of U.S. Navy personnel.

Mitchell Rosenthal Scholarship. Established under the will of Mrs. Ruth Elise Walton.

Laurence and Dawn Moister Memorial Scholarship. Established by the employees of Union College in memory of Laurence Moister, the college printer, and his wife, Dawn. Preference to a student from Schoharie County who has completed his/her freshman year and has demonstrated outstanding humanitarian qualities and a willingness to help and serve others.

W. Dennis Moran (1964) Scholarship. Created by W. Dennis Moran, Class of 1964.

Carolyn Morrison Scholarship. Miss Morrison, a Schenectady resident, willed her home to Union College. The proceeds from its sale established this scholarship fund, with preference to a student in the social sciences curriculum.

George F. Mosher (1918) Citizenship Award. Established by George F. Mosher, Class of 1918, to attract outstanding students to Union. Candidates selected on the basis of citizenship, as evidenced by school, church, and community activities; character, responsibility, and self-reliance; and academic interest and achievement.

George E. (1917) and Lester T. (1927) Moston Scholarship. Created from a gift from Lester T. Moston, Class of 1927, in memory of his brother, George E. Moston, Class of 1917.

Herman Muehlstein Foundation Scholarship. A grant from the Herman Muehlstein Foundation for scholarship assistance to students from the New York metropolitan area.

Donald E. Mullen (1949) Scholarship. Established through gifts of General Electric employees and corresponding matching gifts from General Electric. Donald E. Mullen, Class of 1949, was a GE employee who died at age 49 as a result of an accident in Brazil. Preference given to foreign students.

Natalie M. and Oscar J. Muller, MD (1937) Scholarship. Created by Oscar J. Muller, Class of 1937. Preference to students who are pre-med majors.

M. William Munno (1970) Scholarship. Established by M. William Munno, Class of 1970.

Hans W. Munzer (1939) Scholarship. Established from the gifts of Grace Elaine Munzer. Preference shall be given to students pursuing courses of study with a concentration in modern languages and/or history who possess above average aptitude for these subjects

David Murray (1852) Scholarship. Established by the gift of Mrs. Martha Nelson Murray in memory of her husband, Class of 1852.

Anna C. Newberry Scholarship. Established by the gift of Mrs. Anna C. Newberry.

George Chapman Newbury (1906) Memorial Fund. The bequest of Florence B. Newbury in memory of her husband, George Chapman Newbury, Class of 1906. Awards to students who are studying for the B.S. degree in engineering.

Gordon F. Newell (1946) Scholarship. Established by Gordon F. Newell, Class of 1946. Awards made to students majoring in physical sciences or engineering (except computer science).

Sture and Hilda Nilsson Scholarship. Created by Sture H. Nilsson, father of Harold Nilsson, Class of 1965.

Dr. Donald and Marie Nitchman Scholarship. Established by Marie Nitchman in memory of her husband, Donald E. Nitchman, Class of 1933. Preference to premedical students showing promise of compassion and selflessness.

Robert C. North and Dorothy North Scholarship. Created by the Norths to honor the memory of Arthur Walbridge North and Irene Davenport North. Preference to encourage and support students who have achieved junior class status and who have, in the judgment of the Department of Political Science, demonstrated promise and skill in the field of international relations, employing quantitative, systemic, and interdisciplinary approaches to the field.

Eliphalet Nott Scholarship. Established by a gift from the Francis L. Pruyn estate to provide scholarships for worthy engineering students in memory of Mr. Pruyn's great-grandfather, Dr. Eliphalet Nott, president of Union College from 1804-1866, who inaugurated the first course in engineering at a liberal arts college.

Michael R. Novack '90 Scholarship. Established from the gift in memory of Michael R. Novack, Class of 1990. Preference shall be given to students who have exhibited aptitude and dedication toward biotechnology.

Ronald Matthew Obenzinger (1961) Memorial Premedical Scholarship. Created by his parents, Nathan and Romana Obenzinger.

Gerald and Anna O'Loughlin Scholarship. Created by Arthur D. O'Loughlin, Class of 1960, in honor of his parents. Preference to engineering or science students who demonstrate leadership in student activities.

Anna and Harry Ortner Scholarship. Established by their son, Herbert T. Ortner, a friend of Union College, to honor his parents, and in particular to give recognition to Harry Ortner's interest in the English language and literature.

William L. Oswald Scholarship. Established by the gift of William L. Oswald.

Nicandro and Amelia Ottaviano Scholarship. Established by Orazio Ottaviano, Class of 1947, and Gioia Ottaviano in honor of their parents.

Jonathan Stanley Parry Scholarship. Created from the gifts of Sherman W. Parry, Class of 1940, in memory of his son, Jonathan Stanley Parry. Preference shall be given to students from Washington County, New York, or the state of Tennessee.

Moses and Issac Parshelsky Scholarship. Established by the gift of Issac Parshelsky. Available to students from Brooklyn, NY.

Levi Parsons Scholarship. Established by the gift of Levi Parsons of Gloversville, NY. Available to students from Fulton, Montgomery, or Hamilton counties.

Robert Porter Patterson (1912) Scholarship. Established by Margaret W. Patterson in loving memory of her husband, Robert Porter Patterson, Class of 1912, a trustee of Union, U.S. Secretary of War, a distinguished judge, attorney, scholar, leader, and humanitarian. Preference to students who intend to pursue a career in the field of law.

George L. Peck (1940) Memorial Scholarship. Established by bequest of his mother, Mrs. Florence L. Wells of Gloversville, NY, in memory of George L. Peck, Class of 1940, an advertising executive in Schenectady.

Roger P. Penny (1958) Scholarship. Established by Roger P. Penny, Class of 1958.

Lisa Novak Peretz (1979) and Gregg Peretz Memorial Scholarship. Created from the gifts of family and friends in memory of Lisa Novak Peretz, Class of 1979 and Gregg Peretz.

Joseph I. and Virginia M. Petrucci Memorial Scholarship. Created from the gifts of Dr. Ralph H. Petrucci, Class of 1950, and his wife, Ruth P. Petrucci. Preference will be given first to students who are the first generation in their family to attend college and, second, from Schenectady and/or the Capital District of New York State.

Donna E.D. Phillips Scholarship. Established by Donna E.D. Phillips, Class of 1979.

Ronald F. Plumb (1980) Scholarship. Created by the family and friends of Ronald Plumb. Preference shall be given to juniors whose background experiences demonstrate the commitment and ability to have served and, to continue to serve, in a leadership capacity and who have an excellent record of extracurricular activities.

Horatio M. Pollack (1895) Scholarship. Established under the will of Horatio M. Pollack, Class of 1895. For a needy and deserving student, with preference to graduates of the Middleburgh and Cobleskill, NY, high schools.

Daniel F. Pullman Scholarship. Established by Daniel F. Pullman. Available to students taking the regular classical curriculum. Preference to qualified students who are members of the Methodist Church.

Dr. Marshall W. Quandt (1933) Scholarship. Established by Dr. Marshall Quant, Class of 1933. Awarded to a resident of the Town of Waterford and made in the following order 1) graduates of Waterford-Halfmoon High School 2) graduates of Lansingburg High School, Troy, NY or Catholic Central High School, Troy, NY 3) graduates of other schools nearby the schools designated in 1 and 2. If none are applicable, the recipient can be from any high school located in Saratoga County, NY.

Andrew V.V. Raymond (1875) Scholarship. Gift of Nicholas V.V. Franchot, Class of 1875, in memory of Andrew V.V. Raymond, Class of 1875, president of Union College from 1894 to 1907.

Reader's Digest Foundation Scholarship. Established to provide scholarships for worthy students.

Dr. Edwin W. Rice, Jr., Scholarship Fund. The College received, under the will of Dr. Edwin W. Rice, Jr., \$5,000 as a trust fund, the interest to be used to aid needy students.

Phil Alden Robinson (1971) Scholarship. Created from the gifts of Phil A. Robinson, Class of 1971.

S. Jesse and Jessie Robinson Scholarship. Established by Phil A. Robinson, Class of 1971, in honor of his parents.

Gertrude Robinson-Bianchi Scholarship. Created from the gifts of Gertrude Robinson Bianchi.

Sam and Roslyn Zimmerman Roden Scholarship. Created from the gifts of Charles Roden, Class of 1960.

Thomas Romeyn (1797) Scholarship. Established by the grandsons and great-grandsons of Thomas Romeyn, Class of 1797, a prominent clergyman of the Dutch Reformed Church.

Peter V. Roosa '74 Memorial Scholarship. Created from the gifts of the Roosa Family Foundation. Preference will be given to students majoring in environmental science and/or biology.

Nathan and Jennie Rosenberg Scholarship. Established by Henry E. Montross, Class of 1919 to aid a student who, by grades and general comportment, gives promise of becoming a substantial contributing citizen of the United States of America.

Harry A. Rositzke (1931) Scholarship. Created from the gifts of Harry A. Rositzke, Class of 1931.

Joseph Rotundo (1929) Scholarship. Gift of alumni and friends in memory of Prof. Joseph Rotundo, Class of 1929, member of the faculty from 1929-1953.

John A. Royce (1913) Scholarship. Established under the will of Mrs. Blanche C. Royce in memory of her husband.

Bernard Salad '37 & Geraldine Demar-Salad Scholarship. Established by Maureen Demar Hall in memory of her mother and step-father.

Robert J. Sallick (1959) Scholarship. Established by Robert J. Sallick, Class of 1959.

Nicholas T. Saviano (1951) Scholarship. Established by Nicholas Saviano, Class of 1951, awarded to an electrical engineering graduate.

Rose Ann and Nicholas T. Saviano Scholarship. Created by Nicholas T. Saviano, Jr., Class of 1951, in memory of his parents.

Harold L. Saxton (1924) Scholarship. A gift from a trust established by Harold L. Saxton, Class of 1924.

Mortimer F. Sayre Scholarship. Established by Harrison S. Sayre, Class of 1934, in memory of his father, Mortimer F. Sayre, a professor of mechanical engineering. Awarded to students pursuing mechanical or civil engineering.

Edwin W. Scantlebury (1941) Scholarship. Established from gifts of Edwin W. Scantlebury, Class of 1941.

R.A. Schatzel (1921) Scholarship. Created from gifts of Rudolph A. Schatzel, Class of 1921.

Jessie Scheman and Lillian Rosen Memorial Scholarship. Created from the gifts of Robin J. Scheman, Class of 1984.

Schenectady Alumni Ed Fitz Memorial Scholarship. Created by members of the Schenectady Alumni Club to honor Ed Fitz, athletic trainer for thirty-three years. Awarded with preference to students from Schenectady County who, it is anticipated, will enhance the reputation of the College through participation in extracurricular activities.

Calvin G. Schmidt (1951) Scholarship. Created by the Student Council, Inc. in honor of Calvin G. Schmidt, Class of 1951, who retired in 1984 after thirty years of service to Union, the last twenty as registrar.

Roland W. and Claire K. Schmitt Scholarship. Created from the gifts of Roland W. Schmitt, Class of 1985-H and Claire K. Schmitt.

Jack J. Schneider, (1962), M.D. Scholarship. Established by Jack J. Schneider, MD, Class of 1962. Preference is given to students preparing for a career in medicine.

Kyle Schrade (2005) Memorial Scholarship. Created from the gifts of Union College and others. Preference is given to students majoring in history.

Murray D. Schwartz (1969) Scholarship. Established by Murray D. Schwartz, Class of 1969, and his friends. Income used to aid students studying in the humanities.

Daniel Seymour (1866) Scholarship. A bequest from Harris P. Wetsell in memory of his uncle, Daniel Seymour, Class of 1866, a lawyer. Awarded by the president of the College to students who show promise of future success.

Hester Shapiro '73G Scholarship. Created from the gifts of Rochelle, Sarah and William Shapiro, in memory of William's mother. Preference will be given to a female student majoring in chemistry or English and residing in the Boston area or Schenectady, NY.

Morris A. Shapiro (1932), M.D., Scholarship. Created by Hester Shapiro '73G, in honor of her husband, Dr. Morris A. Shapiro, Class of 1932. Preference to students who plan to enter medical school.

Samuel R. Sharp (1981) Memorial Scholarship. Established by the Sharp family and Steven A. Klinger, Class of 1981. Preference to students majoring in political science.

Howard Sheffer (1939) Chemistry Scholarship. Established by the family of Prof. Howard Sheffer, Class of 1939, for a worthy chemistry major in his or her junior or senior year.

Kenneth S. Sheldon (1920) Scholarship. Established by Mildred L. Steele, in memory of her father. Preference shall be given to juniors or seniors.

Daniel Shocket (1972) Memorial Scholarship. Created from the gifts of Carol and Sheldon Shocket in memory of their son. Preference given to students majoring in English with a strong interest in creative writing.

Scott M. Siegler (1969) Scholarship. Created by Dr. Edward Siegler and Scott M. Siegler, Class of 1969. Preference to students majoring in English.

Joseph E. Silver (1976) Memorial Scholarship. Established by a bequest from the estate of Charlotte E. Silver. Preference to students majoring in political science.

Jamie Silverberg (1979) Scholarship. Created by Dr. Doris Silverberg in memory of her daughter, Jamie, Class of 1979. Awarded to a senior pursuing a career in medicine.

Jerry and Sandra Silverman Scholarship. Created from the gifts of Dr. Mitchel U. Silverman, Class of 1976, as a permanent tribute to his parents, Jerry and Sandra Silverman. Preference will be given first to students who are the first generation in their family to attend college, secondly from the state of California or thirdly to students in the pre-med program.

Coletta S. & J. Jay Sitney (1934) Scholarship. Established through bequest of Coletta S. & J. Jay Sitney, Class of 1934.

Jeanne L. and Robert L. Slobod (1935) Scholarship. Created from the gifts of Jeanne L. and Robert L. Slobod. Preference will be given to students of Iroquois heritage and then to Native American students.

Robert Avon Smith (1952) Scholarship. Established by Robert Avon Smith, Class of 1952. First preference to premedical students from the Binghamton, Johnson City, and Endicott areas of New York State. Second preference to electrical engineering students from that area, then other students from that area.

Stanley M. Smith, Jr. (1950) Scholarship. A gift from the estate of Stanley M. Smith, Jr., Class of 1950.

Walter C. Smith (1914) Memorial Scholarship. Established through a bequest of his widow, Josephine Hull Smith, in memory of her husband, Walter, who graduated in 1914 with a bachelor of science in engineering degree.

Frank B. Snell (1895) Scholarship. Established by Mrs. Katherine B. Snell in memory of her son, Frank B. Snell (1895). Available to a student who is working his or her way through college.

Johnson Ide Snell (1865) Scholarship. Established by Mrs. Katherine B. Snell in memory of her husband, Johnson Ide Snell, Class of 1865. Available to a student who is working his or her way through college.

George W. Spaine Memorial Scholarship. Established through the gifts of the community in memory of George W. Spaine, principal of Mont Pleasant High School from 1931-1954. Awarded to graduates of Schenectady High School.

Ichabod Spencer (1822) Scholarship. Established by Mrs. Katherine Spencer Leavitt in memory of her father, the Reverend Ichabod S. Spencer, Class of 1822.

Walter A. Spencer (1972) Scholarship. Established by Walter A. Spencer, Class of 1972.

Dr. Jonathan R. Spicehandler (1970) Scholarship. Established by Debra F. Spicehandler in memory of her husband. Awarded to a student majoring in the sciences.

Nancy and Ross H. Spicer (1947) Scholarship. Created by Ross H. Spicer, Class of 1947. Preference shall be given to students majoring in Engineering.

Dorothy Golub Spira Scholarship. Established by Dorothy Golub Spira.

Leo Winston Spira (1927) and Dorothy Golub Spira Scholarship. Created by Dorothy Golub Spira in honor of her husband, Leo Winston Spira, Class of 1927.

Robert C. Sprong (1950) and Anna Sprong Scholarship. Created from the gifts of Robert C. Sprong, Class of 1950, to students majoring in engineering.

Dr. Frank R. (1926) and Adelaide H. Stansel Scholarship. Created by Dr. and Mrs. Frank Stansel.

Starr Foundation Scholarship. Established in 1995 by a grant from the Starr Foundation to support an engineering student studying abroad.

Frederick Starr Scholarship. The gift of the Frederick Starr Contracting Co. Available to students from New York City.

Ralph W. Stearns (1907) Memorial Scholarship. Created from the gifts of Emma L. Stearns in memory of her husband.

Christian Steenstrup Memorial Scholarship. Established by the bequest of Laura Auer in memory of her father. Preference shall be given to students majoring in Mechanical Engineering.

The Earl E. Steinert (1924) Fund. Established through bequests from Earl E. and Margaret W. Steinert. Awarded to a student in the engineering division.

Charles P. Steinmetz Scholarship. A gift of the General Electric Co. Awarded first to employees or children of employees of the General Electric Co. and second to children of residents of Schenectady if there should be no GE applicants.

Charles P. Steinmetz Memorial Scholarship. Established by Marjorie Hayden, daughter of Joseph and Corrine Hayden. Charles Steinmetz adopted Joseph, his young lab assistant, in 1903 and they worked together until Steinmetz's death in 1923. Preference to students majoring in engineering or physics.

Charles D. Stewart (1952) Scholarship. Created by Charles D. Stewart, Class of 1952. Preference to students majoring in psychology, on the Dean's list, interested in continuing for a graduate degree and indicating an interested in an "applied" field, e.g. industrial, social clinical, counseling or organizational psychology.

Stevens-Chadbourne Scholarship. Established by the daughters of Norman O. Chadbourne, Class of 1935, and Dorothy Stevens Chadbourne in honor of their 50th wedding anniversary. First preference to students from Schenectady County selected on a basis of character, financial need, and academic performance.

Albert Henry Stevenson (1936) Scholarship. Created from the gifts of Albert H. Stevenson, Class of 1936. Preference given to Union Students who reside at least 500 miles from the Capital District of New York State.

Charles D. Stewart (1952) Scholarship. Established by Charles D. Stewart, Class of 1952. Preference to students majoring in psychology.

Mark Stokes (2003) Memorial Scholarship. Created from the gifts of Union College and the Stokes family and friends. Preference shall be given to students who participate in extracurricular activities.

Hugh M. Stoller Memorial (1913) Scholarship. Established under the will of Prof. James H. Stoller, Class of 1884, in memory of his son, Hugh M. Stoller, Class of 1913.

Hyacinthia Stromillo Scholarship. Created from the gifts of Hyacinthia Stromillo, a friend of Union College.

Twitty J. Styles Scholarship. Created by Fred G. Pressley, Class of 1975, and others to honor Professor Twitty J. Styles. Preference shall be given to students majoring in biology.

A. Walter Suiter (1893) Scholarship. Established under the will of Dr. A. Walter Suiter, Class of 1893. Preference to a resident of the village or county of Herkimer, NY.

Surdna Foundation Scholarship. Established by a grant from the Surdna Foundation of New York City, John E. Andrus, donor of the initial gift to finance the foundation.

Henry J. Swanker (1931) Scholarship. Created from the gifts of Henry J. Swanker and Esther M. Swanker. First preference to students from Schenectady County; second preference to students from the Capital District of New York State.

Monroe M. Sweetland (1885) Scholarship. Established by the gift of Monroe M. Sweetland, Class of 1885. Preference to members of the Sweetland family.

Alfred J. Swyer, M.D. (1941) Scholarship. Established by Dr. Alfred J. Swyer, Class of 1941. First preference to a junior pre-med student who is ranked in the second quarter of his/her class.

Wilbur S. and Claire A. Tarbell Scholarship. Established by bequest of Claire A. Tarbell of Brooklyn, NY.

The Anthony P. Tartaglia, M.D. (1954) Scholarship. Established by Dr. Anthony P. Tartaglia, Class of 1954.

Warren C. Taylor Memorial Scholarship. Established by Elizabeth L. Taylor in memory of her father, a professor of civil engineering from 1910 to 1950. Awarded to a student or students in the junior or senior year pursuing a full-time course of study in civil engineering or related fields.

Willard G. Taylor (1952) Scholarship. Established by William G. Taylor, Class of 1952.

Willard H. Taylor (1942) Scholarship. Established by Willard H. Taylor, Class of 1942. First preference to student(s) selected on the basis of character, financial need, and academic performance.

Taylor/Schneiderwind Scholarship. Established from the bequest of Helyn Taylor in memory of her husband, J. Stanley Taylor, Class of 1925, and her nephew, Harold C. Schneiderwind, Class of 1935.

Aaron Thal (1943) Scholarship. Established from the bequest of Aaron Thal, Class of 1943, awarded to a student who is a resident of the State of Ohio.

Muriel and Seymour Thickman (1944) Family Scholarship. Established by Muriel and Seymour Thickman, Class of 1944, to encourage students with a principally liberal arts education who are considering a career in the practice of medicine.

William (Billy) T. Thomas (1939) Scholarship. Established by Henriette Thomas in memory of her husband.

Chester C. Thorne (1857) Scholarship. Established under the will of Chester C. Thorne, Class of 1857. Awarded at the end of the junior year.

Denise Meigher Summerhayes Todd Memorial Scholarship. Created by Timothy A. Meigher, Class of 1975 in memory of his mother. Denise Todd graduated from Union College in 1986 at the age of 71.

The Toll-Hill Scholarship. Created from the gifts of Albert Karen Hill, Class of 1946 and Perrie Jones Hill honoring members of the Toll and Hill families who have attended Union College.

Alan R. Tropp (1951) Scholarship. Created from the gifts of Mrs. Yvonne Tropp, family, and friends.

Troy Scholarship Fund. The gift of residents of the city of Troy, NY, secured through the efforts of Union College alumni in that city. The annual income used to award a scholarship to students who reside in the city of Troy.

James Ullman '41 Scholarship. Established by Dr. Sanford Ullman, son of James Ullman, Class of 1941. Preference will be given to students who graduated from the following high schools: Hudson, Germantown, Chatham, Ichabod Crane or Taconic Hills.

Professor James E. Underwood Scholarship. Created from the gifts of Richard A. Ferguson, Class of 1967, in honor of Professor and former interim President of Union College, James E. Underwood.

United States Navy V-12/V-5 Scholarship. Established by gifts from alumni who were members of the V-12/V-5 units at Union College during World War II, in memory of deceased members of these units and to honor all who served in these units. Preference to undergraduates who are children of parents who have served or are currently serving in the United States Armed Forces.

Joseph Ushkow Scholarship. Created by Jerome Serchuck and Joan Ushkow Serchuck. Mr. Ushkow received an honorary degree in 1971.

Laszlo Z. Valachi (1961) Scholarship. Created from the gifts of Laszlo Z. Valachi, Class of 1961 and Susan F. Valachi. Awarded to students who are majoring in or studying Geology.

William Henry Van Schoonhoven (1829) Scholarship. Established by Mrs. Harriet V. E. Thorne in memory of her father, William Henry Van Schoonhoven, Class of 1829.

Alan B. Van Wert Scholarship. Established by Alan B. Van Wert, Class of 1937. First preference shall be given to a resident of the State of Maine in recognition of his/her scholastic accomplishments, character, and promise in extracurricular activities.

John Vanneck Scholarship. Established by Paul Rieschick, Class of 1974, in memory of John Vanneck, a benefactor to Paul Rieschick and others.

William H. Vaughn (1885) Scholarship. Established by Mrs. Jennie C. Vaughn, in memory of her husband, William H. Vaughn, Class of 1885.

Daniel Vedder Scholarship. Established by Daniel Vedder. Available at the end of the freshman year to a member of the freshman class who is preparing for the Christian ministry.

Cornelia Veeder Scholarship. Established under the will of Miss Cornelia Veeder.

Eugene P. Vehslage (1949) Scholarship. Established by Eugene P. Vehslage, Class of 1949. Preference to students pursuing electrical engineering or computer science.

Leo and Evelyn Viniar Scholarship. Created from the gifts of David A. Viniar, Class of 1976, as trustee for the Viniar Family Foundation, in honor of his parents.

Samuel Sherwood Wakeman (1864) Scholarship. Established under the will of Samuel Sherwood Wakeman, Class of 1864. Available to residents of Saratoga County, NY, preference to applicants from the village of Ballston Spa.

Charles Newman Waldron (1906) and Dorothy Waterman Waldron Memorial Fund. Created from the gifts of William A. Waldron, Class of 1935, and others in memory of his parents, Charles Newman Waldron, Class of 1906, and Dorothy Waterman Waldron, in honor of their long lives of devoted and fruitful service to Union College. Income is used to assist deserving undergraduate students in purchasing books and other articles necessary or desirable in their academic work.

Nicholas L. Wallace (1926) Scholarship. Created from the gifts of Mildred S. Wallace in memory of her husband, Nicholas L. Wallace, Class of 1926.

William and Dorothy Reimann Wallace Scholarship. Created from the gifts of William Wallace III (1947).

Maurice C. Walsh Memorial Scholarship. Created by Margo and Bruce Walsh, Class of 1960, in memory of Mr. Walsh's father. Preference to students studying electrical engineering or computer systems engineering.

Ruth E. Walsh Memorial Scholarship. Created by Margo and Bruce Walsh, Class of 1960, in memory of Mr. Walsh's mother. Preference to students studying electrical engineering or computer systems engineering.

Warner-Lambert/Kenneth Whalen (1949) Scholarship. Created by the Warner-Lambert Company in honor of Union's life trustee and director of Warner Lambert, Kenneth J. Whalen, Class of 1949.

Taylor Waterhouse (1923) Memorial Scholarship. Established by the bequest of Alice Waterhouse in memory of her brother, Taylor Waterhouse, Class of 1923. Awarded annually to full-time students pursuing courses in chemistry, with preference to students who plan a career in the field of chemistry.

Dr. Myron Weaver Scholarship. Established by friends of Dr. Myron Weaver and supplemented by the bequest of Dr. Weaver, dean of the faculty of medicine at the University of British Columbia and the Union College physician and director of health service from 1956 until his death on Dec. 26, 1963.

Abbott S. Weinstein (1946) Scholarship. Established by Natalie W. Weinstein in memory of her husband, Abbott S. Weinstein, Class of 1946.

Steven D. Weinstein (1976) Memorial Scholarship. Established with proceeds from a life insurance policy. Preference to students participating in the Terms Abroad program.

Weisburgh Scholarship. Created from the gift of Leon Weisburgh, Class of 1950 and his wife, Frankie.

Mildred and E. Glen Wells (1927) Scholarship. Created from the gifts of E. Glen Wells, Class of 1927. Preference to students pursuing courses in economics.

Mary Elizabeth Wemple Memorial Scholarship. Established by the family and friends of Betty Wemple, who was a long-time employee serving the College in many positions helping students.

Ellwood B. And Alma A. Wengenroth Scholarship. Created from the gifts of Ellwood B. Wengenroth, Class of 1935. Awarded to students pursuing courses in engineering.

Elizabeth R. Whalen Scholarship. Established by Kenneth J. Whalen, Class of 1949, in honor of his wife.

Royton F. Wheadon (1908) Scholarship. A gift from a trust established by Royton F. Wheadon, Class of 1908.

William M. Wheeler (1936) Scholarship. Established from gifts of William M. Wheeler, Class of 1936, and awarded annually to students pursuing courses in engineering.

Squire Whipple (1830) Memorial Scholarship. Established in 1999 in memory of Squire Whipple, Class of 1830.

William C. White Memorial Scholarship. Established by his wife, Mrs. Lillian McKim White, and three children, Dr. Malcolm L. White, William M. White, and Mrs. Virginia White Sargent. Awarded annually to an electrical engineering student who has demonstrated inventive and creative thinking in the field of electronics.

Willis Rodney Whitney-Peter Stephen Sykowski (1935) Scholarship. Gift of the late Dr. Peter Sykowski, Class of 1935, a prominent Schenectady ophthalmologist, in memory of Dr. Willis R. Whitney. Annual income used to award a scholarship to one or more students. Preference to a qualified graduate of St. Mary's Parochial School of Schenectady, NY.

Robert H. Wiese (1944), M.D., Scholarship. Created by Joyce M. Wiese in memory of her husband.

Harriet and Roscoe L. Williams (1930) Scholarship. Established by the gifts of their family. Support to a student enrolled in the MAT program and who intends to become a public school administrator in New York State.

James W. Wilson (1969) Scholarship. Established by James W. Wilson, Class of 1969, and awarded to students who require financial assistance. Preference to students who demonstrate leadership in extracurricular activities as well as maintaining high academic performance.

John David Wolfe Memorial Scholarship. Established by Miss Catherine Lorillard Wolfe in memory of her father, John David Wolfe. Preference to students residing south of the Mason-Dixon Line.

The Wold Geoscience Scholarship. A merit-based scholarship established by John S. Wold, Class of 1938, and his wife, Jane Wold, for award to a first-year student, who will receive the scholarship until graduation provided the student is majoring in the geosciences and whose performance is outstanding.

Arthur S. Wright (1882) Scholarship. Established under the will of Mrs. Julia B. Wright in memory of her husband, a member of the Class of 1882.

W. Howard Wright (1895) Chemistry Scholarships. Established by W. Howard Wright, Class of 1895, and his son, Henry DeForest Wright, in memory of his father. Mr. W. H. Wright and Henry D. Wright served with distinction on the Union College Board of Trustees. Four scholarships awarded each year to students planning to major in chemistry and living in Schenectady County, or surrounding counties, or in Warren County. Selection will be made in conjunction with Schenectady International, Inc.

William C. Yates (1898) Scholarship. The bequest of his wife, Grace Lawrence Yates, who was the daughter of Rev. Dr. Egbert C. Lawrence, Class of 1869. William C. Yates, Class of 1898, was an honorary trustee of Kappa Alpha fraternity and the recipient of the Alumni Council Gold Medal for Notable Service.

Martha H. and Alexander J. Young (1928) Scholarship. A gift established from the estate of Martha H. Young, widow of Dr. Alexander J. Young, Class of 1928.

Shiu Kong Yuen (1942) Scholarship. Created from gifts made by the family of the late Shiu Kong (Mac) Yuen, Class of 1942. Preference to students studying science or engineering.

Union College administers scholarships for graduates of the College attending the Albany Law School and the Albany Medical College.

Carter Davidson Memorial Scholarship. Established by friends and associates of Carter Davidson, 13th president of Union College and seventh chancellor of Union University. Awarded to a graduating senior of Union College who will attend a graduate division of Union University.

Fuller Medical Scholarship. Established under the will of Dr. Robert M. Fuller, Class of 1863. Available to medical students of the Albany Medical College who have excelled in chemistry at Union.

John K. Porter (1837) Memorial Scholarship. Established by the gift of Mrs. John K. Porter in memory of her husband, John K. Porter, Class of 1837. Available to graduates attending the Albany Law School.

William C. Saxton Scholarship. Established from the estate of Anna Hotaling Saxton in memory of her husband, William C. Saxton. Available to students in the Albany Law School.

Judge Gilbert McMaster Speir (1832) Memorial Scholarship. Established by Emily Speir Arnold in memory of her father, Judge Gilbert McMaster Speir, Class of 1832. Awarded by the faculty to the graduating senior entering the Albany Law School who has the greatest proficiency in historical studies.

Harold C. Wiggers Scholarship Fund. Established by Dr. David and Elynor Falk to honor the former dean of the Albany Medical College, Harold C. Wiggers. Used at Albany Medical College and limited to graduates of Union College who have completed two years of premedical preparation at Union College. Dr. David Falk graduated from Union College in 1939 and Albany Medical College in 1943.

Annual Scholarships

Annual Business Campaign Scholarship. Sustained by annual gifts from Annual Business Campaign donors. Awards will be made to students from the Capital Region (Schenectady, Albany, Saratoga, Montgomery, and Rensselaer counties), eligible for financial aid. Preference to students from Schenectady County.

David J. Breazzano (1978) Scholarship. Sustained by the annual gift of David J. Breazzano, Class of 1978.

Louis Calder Foundation Scholarship. A grant from the Louis Calder Foundation of New York City to provide scholarships for students from the New York metropolitan area. The initial contribution was given by the late Louis Calder.

Class of 1963 Scholarship. Established by the Class of 1963 in honor of their 45th ReUnion.

Dreyfus Foundation Scholarship. Gift of the Dreyfus Foundation for National Merit scholars who are beginning their sophomore year and who plan a career in chemistry or related sciences.

Herman Goldman Foundation Scholarship. Established by the Herman Goldman Foundation. Preference shall be given to Union College minority students.

Ernest L. and Florence L. Judkins Scholarship. Established under the will of Mrs. Florence L. Judkins, providing for the Ernest L. and Florence L. Judkins Scholarship Fund. Selection of recipients to be made by the Scholarship Committee of the College.

Alice P. and Donald C. Loughry (1952) Annual Scholarship. Created by Alice P. and Donald C. Loughry, Class of 1952.

Gerald and Anna O'Loughlin Scholarship. Established by Arthur D. O'Loughlin, Class of 1960, in memory of his parents. Preference shall be given to engineering or science students who demonstrate leadership in student activities.

Alfred H. McKinlay (1951) Scholarship. Established by Mark A. McKinlay, PhD., Class of 1973, in honor of his father, Alfred H. McKinlay, Class of 1951. Preference shall be given to students who have demonstrated outstanding humanitarian concern and a willingness to help others.

Dr. Joseph '36 and Betty Milano Scholarship. Created by gifts of family and friends in memory of Dr. Joseph Milano, Class of 1936.

Richard E. Roberts '50, Esq. and Dr. John S. Morris Schenectady Foundation Scholarship. An annual scholarship created from gifts of The Schenectady Foundation in honor of Richard E. Roberts '50, Esq. and Dr. John S. Morris, President, Union College 1979-1990. Preference given to students who are Schenectady County residents and active in Schenectady community volunteer activities.

Lothrop (1956) and Janice D. Smith Scholarship. Created by Janice D and Lothrop Smith, Class of 1956.

The Morton H. Yulman (1936) Scholarship. Sustained by annual gifts from the children of Morton H. Yulman, Class of 1936, a life trustee of the College. Awarded to students entering their junior year. Preference given, but not limited to, students from the Capital District of New York State.

Fellowships

Arnold Bittleman Fund for Undergraduate Summer Research. Established by students and friends of the late Professor Arnold Bittleman. Awarded to students performing summer research in the field of Visual Arts.

Booth Ferris Research Fellowship. Established by the Booth Ferris Foundation to support the Summer Science Research Endowment Fund.

Class of 1973 35th ReUnion Community Service Internship. Established by the Class of 1973 in honor of their 35th ReUnion. Awarded annually to Union College students interning in not-for-profit community service organizations.

Lee L. Davenport (1937) Summer Research Fellowship. Established by Lee L. Davenport, Class of 1937, to students pursuing studies in engineering, chemistry, biology, physics, or geology.

Tracy Leigh Epstein-Pesikoff Terms Abroad Fellowship. Established by Michael J. Epstein, MD, Class of 1959, in honor of his daughter. Awarded annually to students participating in terms abroad.

Philip B. Evans (1965) Terms Abroad Fellowship. Established by Philip B. Evans, Class of 1965. Awarded to students who require assistance to participate in the terms abroad program for study in Asia.

Frank Gado Endowed Terms Abroad Fellowship. Created by Janet, Class of 1974, and Hans Black, MD, Class of 1974, to honor Frank Gado, professor emeritus of English, who retired in 1996 after more than thirty years of service. Awarded to a student who wants an international learning experience and cannot afford the full cost.

Paula Gmelch Fund for Undergraduate Summer Research. Created by George and Sharon Gmelch, faculty members in Union's Anthropology Department, in honor of their sister-in-law. Awarded to a student interested in performing summer research in the areas of anthropology or environmental studies.

Roger H. Hull Community Service Internship. Created by the Trustees of Union College in honor of President Roger H. Hull's service to the College from 1990 to 2005. Awarded to a student interested in pursuing a career in community or non-profit service.

David S. Kaplan Term in Washington. Created from the gifts of Congressional Quarterly, its employees, and friends and relatives of David S. Kaplan, with income awarded to a student participating in Union's annual term in Washington, DC.

Laudise Summer Research Fellowship in Chemistry. Created by Robert A. Laudise, Class of 1952, in memory of his father, Anthony T. Laudise.

Kenneth N. Mathes (1935) Fund. Created by Kenneth N. Mathes, Class of 1935, for engineering students on terms abroad.

Francis C. McMath (1946) Summer Research Fellowship in Engineering. Established from the gifts of Francis C. McMath, Class of 1946, with income awarded annually to students entering senior year who wish to conduct research in the field of environmental engineering.

Merck Summer Undergraduate Research Scholarship. Established by the Merck Co. Foundation to support summer research in chemistry.

NYNEX Foundation Endowment Fund. Established in 1988 with funds applied to the teaching interns component of the Student Aid for Educational Quality.

Robert Panoff (1942) Summer Research Fellowship. Established by Kathleen Panoff in memory of her husband, Robert, Class of 1942, and supported by gifts of Mrs. Panoff and others. Made to students of high academic standing in electrical engineering who participate in a summer research program under the guidance of the electrical engineering faculty.

John (1981) and Michele (1984) Sciortino Cancer Research Fund. Established in 2005 by John Sciortino, Class of 1981, and Michele Sciortino, Class of 1984, in memory of Russell Sciortino, Frederick Hudson, Jr., Mark Hudson and all those whose lives have been affected by cancer illnesses. Awarded annually to a student to support a summer research fellowship, senior thesis project or such other academic undertaking that is related or might contribute to the understanding of the causes of cancer or improve the diagnosis or treatment of cancer illnesses.

Robert Avon Smith (1952) Summer Research Fellowship in Biomedical Engineering. Created by Robert Avon Smith, Class of 1952. Awarded to students in the sciences or engineering who participate in a summer research program in biomedical engineering under the guidance of College faculty.

William Cady Stone Fellowship. Established by William Stone. Awarded to help provide a full-time student with one year of study abroad.

Surdna Summer Science Research Fellowships. Established by the Surdna Foundation. Awarded to students enrolled in the sciences.

Richard C. Tilghman (1969) Term Abroad Fellowship. Established by Richard C. Tilghman, Class of 1969. Awarded to a student pursuing a major in the sciences, engineering, or mathematics.

J. and P. Fisher Viglielmo terms Abroad Fellowship. Established from the gifts of James A. Fisher '81 and Pamela Viglielmo '82. Awarded annually to student students who participate in the terms abroad program.

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Kelly M. Williams, B.A., J.D. Managing Director, Credit Suisse First Boston

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The Faculty

The date that appears after each faculty member's title refers to the start of service to the College.

James C. Adrian, Jr., Professor of Chemistry (1994). B.S. 1980, University of Maryland; Ph.D. 1992, University of Pittsburgh

Samuel Amanuel, Assistant Professor of Physics and Astronomy (2006). B.Sc. 1992, Addis Ababa University; M.S. 1997, Ph.D. 2004, Southern Illinois University (On Leave, Fall, Spring)

Ann M. Anderson, Agnes S. Macdonald Professor of Mechanical Engineering (1992). B.S. 1984, Tufts University; M.S. 1985, Ph.D. 1990, Stanford University

Janet S. Anderson, Florence B. Sherwood Professor of Physical Science and Professor of Chemistry (1978). B.S. 1972, College of William and Mary; Ph.D. 1976, University of Wisconsin

Cay M. Anderson-Hanley, Assistant Professor of Psychology (2004). B.S. 1988, Gordon College; M.S. 1991, Ph.D. 1995 State University of New York at Albany

Michele P. Angrist, Associate Professor of Political Science (2000). B.A. 1992, Washington University; M.P.A. 1995, Ph.D. 2000, Princeton University (On Leave, Spring)

Charles H. Arndt III, Visiting Assistant Professor of Russian (2009). B.A. 1992, Dickinson College; Ph.D. 2004, Brown University

Kenneth Aslakson, Assistant Professor of History (2007). B.A. 1986, Southwestern University; J.D. 1991, Ph.D. 2007, University of Texas at Austin (On Leave, Winter, Spring)

Robert B. Baker, William D. Williams Professor of Philosophy (1973). B.A. 1959, City College of New York; Ph.D. 1967, University of Minnesota

Julius B. Barbanel, Professor of Mathematics (1979-81, 1982). B.S. 1973, Case Institute of Technology; M.S. 1976, Ph.D. 1979, State University of New York at Buffalo

Valerie B. Barr, Professor of Computer Science and Chair of the Department (2004). B.A. 1977, Mount Holyoke College; M.S. 1979, New York University; Ph.D. 1996, Rutgers University

Charles R. Batson, Associate Professor of French (1998). B.A. 1987, Furman University; M.A. 1989, University of Virginia; Ph.D. 1997, University of Illinois

Peter R. Bedford, John and Jane Wold Professor of Religious Studies and Director of Religious Studies (2007). B.A. 1981, University of Sydney; B.D. 1982, University of London; M.A. 1985, Ph.D. 1992, University of Chicago

Brittney Belz, Visiting Assistant Professor of Theater and Dance and Costumer (2010). BFA 2005, University of Connecticut at Storrs; MFA 2008, University of Virginia at Charlottesville

Suzanne Benack, Professor of Psychology (1981). B.A. 1975, Swarthmore College; Ph.D. 1981, Harvard University

Martin Benjamin, Professor of Visual Arts (Photography) (1979). B.A. 1971, State University of New York at Albany

Stephen M. Berk, Henry and Sally Schaffer Professor of Holocaust and Jewish Studies (1967). B.A. 1962, University of Pennsylvania; M.A. 1964, University of Chicago; Ph.D. 1971, Columbia University (On Leave, Fall, Winter)

Kristin A. Bidoshi, Associate Professor of Russian and Dean of Studies (2001). B.A. 1991, Beloit College; M.A. 1995, Ph.D. 2000, Ohio State University

Jennifer Bishop, Visiting Assistant Professor of Biology (2009). B.S. 1997, Bloomsburg University of Pennsylvania; Ph.D. 2005, North Carolina State University

George Y. Bizer, Associate Professor of Psychology (2005). B.A. 1995, Indiana University; M.A. 1997, Ph.D. 2001, Ohio State University

Claire Bracken, Assistant Professor of English (2007). B.A. 2001, University College Dublin; M.A. 2002, University College Cork; Ph.D. 2008, University College Dublin (On Leave, Fall)

Denis Brennan, Lecturer of History (2006). B.A. 1990, M.A. 1992, Ph.D. 2003, State University of New York at Albany

Karen Brison, Professor of Anthropology and Chair of the Department (1993). B.A. 1981, McGill University; M.A. 1983, Ph.D. 1988, University of California at San Diego

Clifford W. Brown, Jr., Robert Porter Patterson Professor of Government (1978). A.B. 1964, A.M. 1970, Ph.D. 1970, Harvard University

Bradford A. Bruno, Associate Professor of Mechanical Engineering (2001). B.S. 1990, The Pennsylvania State University at University Park; M.S. 1992, University of Michigan at Ann Arbor; Ph.D. 2000, The Pennsylvania State University at University Park

Ronald Bucinell, Associate Professor of Mechanical Engineering (1993). B.S. 1981, Rochester Institute of Technology; M.S. 1983, Ph.D. 1987, Drexel University

Daniel J. Burns, Gilbert R. Livingston Professor of Psychology (1993). B.S. 1981, State University of New York at Oswego; M.A. 1984, Ph.D. 1986, State University of New York at Binghamton (On Leave, Fall)

Donna L. Burton, Reference Librarian/Government Documents, Associate Professor (1985). B.A. 1974, M.L.S. 1975, State University of New York at Albany

Jesse Carrick, Visiting Assistant Professor of Chemistry (2010). A.S. 2000, Motlow State Community College; B.S. 2002, Middle Tennessee State University; M.S. 2005, Indiana University at Bloomington; Ph.D. 2008, The University of Alabama at Tuscaloosa

Mary K. Carroll, Professor of Chemistry and Chair of the Department (1992). B.S. 1986, Union College; Ph.D. 1991, Indiana University

Aaron G. Cass, Associate Professor of Computer Science (2003). B.S. 1993, M.C.S. 1996, University of Virginia; Ph.D. 2005, University of Massachusetts at Amherst

Palma E. Catravas, Associate Professor of Electrical and Computer Engineering (2002). B.M., B.S. 1991, University of Maryland at College Park; S.M. 1994, Ph.D. 1998, Massachusetts Institute of Technology

Davide P. Cervone, Associate Professor of Mathematics (1996). B.A. 1984, Williams College; Ph.D. 1993, Brown University (On Leave, Winter, Spring)

Christopher F. Chabris, Assistant Professor of Psychology (2007). A.B. 1988, A.M. 1997, Ph.D. 1999, Harvard University

Yu Chang, Professor of Electrical and Computer Engineering (1974). B.S. 1961, Cheng Kung University; M.S. 1971, University of Wisconsin; Ph.D. 1974, Syracuse University

A. Michelle Chilcoat, Associate Professor of French and Co-Director of Film Studies (1999). B.A. 1998, University of Georgia; M.A. 1991, Ph.D. 1998, University of Michigan

Randall L. Childree, Visiting Assistant Professor of Classics (2009). B.A. 2000, University of Alabama; M.A. 2002, Ph.D. 2007, University of Florida

Quynh Chu-LaGraff, Associate Professor of Biological Sciences (1999). A.B. 1989, Cornell University; Ph.D. 1996, University of Illinois

Brian D. Cohen, Lecturer in Biological Sciences and Assistant Director of Advising (2003). B.S. 1993, Muhlenburg College; Ph.D. 1998, Albany Medical College

Bruce Connolly, Head of Public Services, Reference, and Instruction, Professor (1978). B.A. 1973, State University College at Buffalo; M.L.S. 1977, State University of New York at Albany

Linda E. Cool, Professor of Anthropology (1994). B.A. 1971, Bryn Mawr College; Ph.D. 1977, Duke University

Jeffrey D. Corbin, Assistant Professor of Biological Sciences (2006). B.A. 1991, University of California at Santa Cruz; Ph.D. 1998, University of North Carolina at Chapel Hill

Rebecca Cortez, Assistant Professor of Mechanical Engineering (2007). B.S. 1988, Washington University; Ph.D. 1992, Northwestern University (On Leave, Fall, Spring)

David A. Cotter, Professor of Sociology (1995). B.A. 1988, The College of Wooster; M.A. 1992, Ph.D. 1996, The University of Maryland at College Park (On Leave, Winter, Spring)

Shane F. Cotter, Assistant Professor of Electrical and Computer Engineering (2005). B.S. 1994, University College Dublin; M.S. 1998, Ph.D. 2001, University of California at San Diego

Lorraine Morales Cox, Associate Professor of Visual Arts (2001). B.F.A. 1992 Virginia Commonwealth University; M.A. 1996, Ph.D. 2001, University of Illinois at Urbana-Champaign

John R. Cramsie, Associate Professor of History (2000). B.A. 1987, University of Minnesota; Ph.D. 1997, University of St. Andrews

Patricia Culbert, Senior Artist-in-Residence in Theatre (1998). B.A. 1977, Tufts University; M.F.A. 1983, Boston University

Jennifer A. Currey, Assistant Professor of Bioengineering (2007). B.S. 2000, M.S. 2003, Ph.D. 2006, Rensselaer Polytechnic Institute

Mark Dallas, Instructor of Political Science (2010). B.A. 1996, Princeton University; M.A. 2002, University of California at Berkeley

Barbara A. Danowski, Associate Professor of Biological Sciences and Chair of the Department (1992). B.A. 1977, University of Connecticut; Ph.D. 1989, University of North Carolina, Chapel Hill

Felmon John Davis, Associate Professor of Philosophy (1980-90, 1991). B.A. 1970, Haverford College; Ph.D. 1986, Princeton University

Lewis S. Davis, Assistant Professor of Economics (2006). B.S. 1988, Davidson College; Ph.D. 1999, University of North Carolina at Chapel Hill

Kenneth G. DeBono, Gilbert R. Livingston Professor of Behavioral Sciences (1986). B.A. 1980, Grinnell College; Ph.D. 1985, University of Minnesota

James de Sève, Visiting Instructor of Film Studies (2008). B.F.A. 2008 State University of New York at Albany

Gail Donaldson, Lecturer in Psychology (1997). B.S. 1985, Edinburgh University; M.A. 1990, New School for Social Research

Kara A. Doyle, Associate Professor of English and Chair of the Department (2000). A.B. 1991, Georgetown University; M.A. 1998, Ph.D. 2000, Cornell University

Chris N. Duncan, Professor of Visual Arts (1988). B.A. 1975, Colby College (On Leave, Fall)

Tomas Dvorak, Associate Professor of Economics (2002). B.A. 1994, Prague School of Economics; M.A. 1995, Central European University; Ph.D. 2000, University of Maryland at College Park

Andrew Feffer, Associate Professor of History and Co-Director of Film Studies (1989). B.A. 1977, Swarthmore College; M.A. 1984, Ph.D. 1987, University of Pennsylvania (On Leave, Fall)

Chris S.T. Fernandes, Associate Professor of Computer Science (2001). B.A. 1991, M.S. 1993, Ph.D. 2000, Northwestern University

Megan M. Ferry, Associate Professor of Chinese and Director of East Asian Studies (1999). B.A. 1989, Mount Holyoke College; M.A. 1993, Ph.D. 1998, Washington University

Florian Fessel, Visiting Assistant Professor of Psychology (2009). B.A. 2002, Hunter College; M.A. 2005, University of Illinois at Urbana-Champaign

William A. Finlay, Professor of Theater, Director of the Morton and Helen Yulman Theater and Chair of the Theatre and Dance Department (1994). B.A. 1974, Rhode Island College; M.F.A. 1980, University of Connecticut

Leo J. Fleishman, William D. Williams Professor of Biological Sciences (1989). B.A. 1978, Tufts University, Ph.D. 1986, Cornell University (

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Ellen Foster, Lecturer in Economics (2000). B.A. 1980 Bryn Mawr College; Ph.D. 1991, State University of New York at Albany

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Harold O. Fried, David L. and Beverly B. Yunich Professor of Business Ethics and Professor of Economics (1983). B.A. 1972, University of Michigan; Ph.D. 1978, University of North Carolina

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John I. Garver, Professor of Geology (1989). B.A. 1984, Middlebury College; M.S. 1985, Ph.D. 1989, University of Washington (On Leave, Fall, Spring)

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Rudy V. Nydegger, Professor of Psychology (1977). B.A. 1966, M.A. 1969, Wichita State University; Ph.D. 1970, Washington University

David C. Ogawa, Associate Professor of Visual Arts and Chair of the Department (1999). B.A. 1986, University of Missouri; M.A. 1989, Ph.D. 1999, Brown University

Robert M. Olberg, Florence B. Sherwood Professor of Life Sciences (1981). B.A. 1968, Rice University; Ph.D. 1978, University of Washington

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Fernando D. Orellana, Assistant Professor of Visual Arts (2005). B.F.A. 1998, The School of the Art Institute of Chicago; M.F.A. 2004, Ohio State University

Chad R. Orzel, Associate Professor of Physics and Astronomy (2001). B.A. 1993, Williams College; Ph.D. 1999, University of Maryland at College Park

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Zoe M. Oxley, Associate Professor of Political Science and Chair of the Department (1998). A.B. 1991, Bowdoin College; M.A. 1995, Ph.D. 1998, Ohio State University

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Brian J. Peterson, Assistant Professor of History (2006). B.A. 1994, M.A. 1998, University of California at Santa Cruz; Ph.D. 2005, Yale University

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Barbara A. Pytel, Senior Lecturer in Biological Sciences (1997). B.S. 1973, St. John's University; M.S. 1978, Ph.D. 1985, New York University

Ashok Ramasubramanian, Assistant Professor of Mechanical Engineering (2007). B.E. 1996, Anna University, Chennai, India; M. S. 1998, University of Massachusetts; Ph.D. 2002, Thayer School of Engineering, Dartmouth College (On Leave, Winter, Spring)

Andrew J. Rapoff, Associate Professor of Mechanical Engineering (2004). B.S. 1983, University of Missouri at Columbia; M.S. 1989, University of Missouri at Rolla; Ph.D. 1997, University of Wisconsin at Madison (On Leave, Fall, Spring)

Stacie Raucci, Assistant Professor of Classics (2004). B.A. 1997, Wellesley College; M.A. 2000, Ph.D. 2004, University of Chicago

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Zhen Zhang, Assistant Professor of Chinese (2007). M.A. 1998, Beijing University; M.A. 2001, State University of New York at Stony Brook; Ph.D. 2007, University of California at Irvine

Karl Zimmermann, Professor of Mathematics (1981). B.S. 1974, Tufts University; M.S. 1976, University of New Hampshire; Ph.D. 1985, Brown University

William S. Zwicker, William D. Williams Professor of Mathematics (1975). A.B. 1971, Harvard University; Ph.D. 1975, Massachusetts Institute of Technology

Departmental Assistants and Technicians

Margaret S. Angie, Biological Sciences (2002). A.A.S. 1983, B.S. 1984, Alfred University
Brittney Belz, Costumer, (2009). BFA 2005, University of Connecticut Storrs; MFA 2008, University of Virginia Charlottesville
Gene E. Davison, Electrical Engineering (1980)
Stanley J. Gorski, Mechanical Engineering (1997). A.A.S. 1975, A.A.S. 1976, Hudson Valley Community College
Mark Hooker, Bioengineering Technician (2006)
James J. Howard, Engineering (1994)
Amy M. Kelley, Biological Sciences (2000)
Victor A. Klimash, Director of Performance in Music (2002). Bachelor of Music, 1966, Master of Music 1968, Eastman School of Music; Doctor of Music, 1975, Florida State University
Steven Michalek, Technical Director of Yulman Theatre (2008). B.A. 2003, SUNY Albany; M.F.A. 2007, University of Connecticut
William Neubeck, Geology (1990). B.S. 1976, State University of New York at Oneonta; M.A. 1980, State University of New York at Binghamton
Roland Pierson, Engineering (1985)
Frank Rapant III, Visual Arts (2006)
Marcus Rogers, Theatre & Dance (2008)
Kathleen M. Ryan, Chemistry (1989). A.S. 1989, Schenectady County Community College
Audrey Sartiaux, Modern Languages and Literatures (2004). DEUG Lettres et Civilisations Étrangères Anglais 1994, Licence Langues Vivantes Étrangères Anglais, 1996, University of Paris – Sorbonne Nouvelle; M.A. French and Francophone Studies 1997, Ph.D. French and Francophone Studies 2006, University of Connecticut
John T. Sheehan, Physics (1997)
Lance Spallholz, Computer Science (1985). B.S. 1969, Union College; M.S.Ed. 1974, College of St. Rose; M.S., Computer Science 1985, Union College
Ann M. Thomas, Visual Arts (1979). A.B. 1962, Manhattanville College
Paul Tompkins, Engineering (2006)

Research Professors

Paul Arciero, Research Professor of Psychology (2009). B.S. 1986, Central Connecticut State University; M.S. 1987, Purdue University; M.S. 1993, University of Vermont; D.P.E. 1993, Springfield College
Robert M. Finks, Research Professor of Geology (2003). B.S. 1947, Queens College; M.A. 1954, Ph.D. 1959, Columbia University
Adrian Frazier, Research Professor of English (1982). B.A. 1971, Pomona College; Diploma in Anglo-Irish Literature 1973, Trinity College, Dublin; M.A. 1976, Ph.D. 1979, Washington University
Philip Kosky, Research Professor of Mechanical Engineering (2000). BSc 1961, University College of London; M.S. 1963, Ph.D. 1966 University of California Berkeley
A.G. Davis Philip, Research Professor of Physics (1976). B.S. 1951, Union College; M.S. 1959 State University of New Mexico; Ph.D. 1964 Case Institute of Technology
Margaret H. Schadler, Research Professor of Biology (1972). A.B. 1953, Cornell University; M.S. 1971, Ph.D. 1977, Union College
Pedro M. Tapia, Research Professor of Environmental Science and Policy (2009). B.S. 1988, Universidad Ricardo Palma (Lima, Peru); M.S. 1996, Ph.D. 2003, University of Nebraska at Lincoln

Endowed Professorships

(Date is year chair was established.)

Thomas Armstrong Professor of Economics (2006) — Suthathip Yaisawarng
Frank Bailey Professor of Classics (1945) — Mark S. Toher
Frank and Marie Louise Bailey Professor of Physics (1949) — Michael F. Vineyard
Marie Louise Bailey Professor of Mathematics (1952) — Alan D. Taylor
May I. Baker Professor of Visual Arts (1979) — Walter J. Hatke
John Bigelow Professor of History (1916) — Mark W. Walker
Stephen J. and Diane K. Ciesinski Dean of the Faculty and Vice President for Academic Affairs (2008) – Therese A. McCarty
Dwane W. Crichton Professor of Theatre (2006) — Charles N. Steckler
Horace E. Dodge III Professorship of Electrical and Computer Engineering (1997) — Michael Rudko
Joseph C. Driscoll Professor of Sociology and Marine Policy (2006) — Ilene M. Kaplan
David Falk '39 and Elynor Rudnick-Falk Professor of Computer Engineering (2007) — Cherrice A. Traver
R. Gordon Gould '41 Professorship in Physics (1995) — Jay E. Newman
Edward E. Hale, Jr. Professor of English (1980) — Harry P. Marten
Doris Zemurray Stone Professor in Modern Literary and Historical Studies (1976) — Brenda Wineapple
Carl B. Jansen Professor of Engineering (1992) — Thomas K. Jewell
Thomas B. Lamont Professor of Literature (1948) — Ruth Stevenson
Gilbert R. Livingston Professor of Psychology (1970) — Daniel J. Burns
Gilbert R. Livingston Professor of Behavioral Sciences (1994) — Kenneth G. DeBono
John D. MacArthur Assistant Professor (1982) – Bradley Hays
Agnes S. Macdonald Professor of Mechanical Engineering (2006) — Ann M. Anderson
Robert Porter Patterson Professor of Government (1956) — Clifford W. Brown Jr.
John Howard Payne Professor of Music (2006) — Hilary Tann
Henry and Sally Schaffer Professor of Holocaust and Jewish Studies (2003) — Stephen M. Berk
Kenneth B. Sharpe Professor in Management (1993) – J. Douglass Klein
Florence B. Sherwood Professor of History and Culture (1993) — Teresa A. Meade
Florence B. Sherwood Professor of Life Sciences (1994) — Robert Olberg
Florence B. Sherwood Professor of Physical Sciences (1994) — Janet S. Anderson
Roger Thayer Stone Professor of Anthropology (1989) — Sharon Gmelch
Thomas J. Watson, Sr., and Emma Watson Day Professor of Mechanical Engineering (1989) — William Keat
William D. Williams Professor of Biological Sciences (2008) – Leo J. Fleishman
William D. Williams Professor of Classics (2006) — Hans-Friedrich O. Mueller
William D. Williams Professor of Mathematics (2006) — William S. Zwicker
William D. Williams Professor of Philosophy (2006) — Robert B. Baker
Chauncey H. Winters Professor of History and Social Sciences (1993) — Robert V. Wells
John and Jane Wold Professor of Geology (1988) — George H. Shaw
John and Jane Wold Professor of Religious Studies (2007) — Peter R. Bedford
David L. and Beverly B. Yunich Professor of Business Ethics (2005) — Harold O. Fried

The Administration

Office of the President

Stephen C. Ainlay, President. B.A. 1973, Goshen College; M.A. 1977, Ph.D. 1981, Rutgers University

Kathryn L. Quinn, Executive Assistant to the President

Sarah E. Iacobacci, Senior Administrative Assistant to the President. B.A. 1999, State University of New York at Albany

Tina Gleason, Director of Institutional Studies

Gretchel Hathaway, Senior Director of Campus Diversity and Affirmative Action. B.A. 1979, Manhattanville College; M.A. 1983, Yeshiva University; Ph.D. 1993, University of Pittsburgh

Karen Ferrer-Muniz, Director of Multicultural Affairs. B.A. Inter American University of Puerto Rico; M.A. State University of New York at Albany

Office of Academic Affairs

Therese A. McCarty, Stephen J. and Diane K. Ciesinski Dean of the Faculty and Vice President for Academic Affairs and Professor of Economics. A.B. 1979, Bryn Mawr College; A.M. 1981, Ph.D. 1987, University of Michigan

Academic Deans

Kristin A. Bidoshi, Dean of Studies and Associate Professor of Russian. B.A. 1991, Beloit College; M.A. 1995, Ph.D. 2000, Ohio State University

David M. Hayes, Dean of Academic Departments and Professor of Chemistry. B.S. 1966, Massachusetts Institute of Technology; Ph.D. 1970, Cornell University

J. Douglass Klein, Dean of Interdisciplinary Studies and Special Programs and Professor of Economics. B.A. 1970, Grinnell College; M.A. 1972, Ph.D. 1975, University of Wisconsin

Cherrice A. Traver, Dean of Engineering and David Falk '39 and Elynor Rudnick-Falk Professor of Computer Engineering. B.S. 1982, State University of New York at Albany; Ph.D. 1986, University of Virginia

Nic Zarrelli, Associate Dean for Academic Affairs. B.A. 1997, Union College; M.B.A. 2009, Union Graduate College

Academic Support Services

Rhona-Jane Beaton, Health Careers Counselor. B.A. 1985, Suffolk University; M.A.T. 1989, Boston College

Brian D. Cohen, Lecturer in Biological Sciences and Assistant Director of Advising (2003). B.S. 1993, Muhlenburg College; Ph.D. 1998, Albany Medical College

Carolyn G. Fielder, Counselor. B.S. 1991, the College of Saint Rose

Kristin Fox, Director of Undergraduate Research and Associate Professor of Chemistry. B.S. 1988, Lafayette College; Ph.D. 1994, Cornell University

Kelli Johnson, Assistant Director of AOP/HEOP. B.A. 2000, University of Arkansas; M.Ed. 2003, University of Arkansas

Gale Keraga, Director of Peer Mentoring and Academic Counselor. B.S. 1977, M.A. 1979, University of Massachusetts at Amherst

Mary C. Mar, Director of Writing Services. B.A. 1971, University of Illinois at Champaign-Urbana; M.Ed. 1985, Ph.D. 1998, McGill University

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Audrey Sartiaux, Director of the Language Center. DEUG Lettres et Civilisations Etrangères-Anglais 1994, University of Paris-Sorbonne Nouvelle; M.A. 1997, Ph.D. 2006, University of Connecticut-Storrs

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Margaret P. Tongue, Director of Post-Baccalaureate Fellowships, Scholarships/Internships and Director of the Scholars Program. B.S. 1992, Clarkson University; M.S. 1995, New Mexico Institute of Mining & Technology

Carol Silvia Weisse, Professor of Psychology and Director Health Professions Program (1988). B.S. 1983, Quinnipiac College. Ph.D. 1988, Uniformed Services University

Athletics

James M. McLaughlin, Director of Athletics. B.A. 1993, Union College; M.B.A. 1997, Union College
Claudia Asano, Head Women's Ice Hockey Coach. B.A. 1999, Harvard University; M.A. 2007, Harvard School of Education

John J. Audino, Head Football Coach. B.A. 1975, University of Notre Dame; M.S. 1977, State University of New York at Albany

David M. Baglio, Coordinator of Varsity Sports Services

Ben Barr, Assistant Men's Hockey Coach. B.S. 2004, Rensselaer Polytechnic Institute

Rick Bennett, Associate Head Coach of Men's Ice Hockey. B.A. 1990, Providence College

Alison Boe, Assistant Women's Hockey Coach. B.A. Harvard University

Adam M. Brinker, Managing Director of Messa Rink at Achilles Center. B.S. 1987, M.A. 1993, Kent State

Peter W. Brown, Head Softball and Assistant Football Coach. B.A. 1983, Union College

Mark Buddle, Head Men's and Women's Tennis Coach. B.A. 1988, M.A. State University of New York at Cortland; M.S. State University of New York at Albany

Mary Ellen Burt, Head Women's Basketball Coach. B.S. 1982; University of Southern California; M.A. 1989, St. John Fisher College

Tara Campbell, Diving Coach. B.A. 2007, Union College; M.Ed. 2009, The College of Saint Rose

Ervin Chambliss, Assistant Men's Lacrosse Coach and Assistant Football Coach. B.A. 1976, University of Rochester; M.S. 1981, State University of New York at Albany

Julie Chu, Assistant Women's Hockey Coach. B.A. 2007, Harvard University

Sandra Collins, Assistant Athletic Director and Head Volleyball Coach. B.S. 1986, Russell Sage College; M.S. 1997, Springfield College

Jill Crary, Assistant Trainer. B.S. 1993, Russell Sage College; M.S. 1996, University of Wisconsin at La Crosse

Jessica M. Critchlow, Head Women's Lacrosse Coach. B.A. 2001, College of Wooster

Scott D. Felix, Aquatics Director and Head Coach of Men's and Women's Swimming and Diving. B.S. 1991, University of Delaware; M.S. 1996, Springfield College

Lacey L. French, Head Field Hockey Coach and Assistant Women's Lacrosse Coach. B.S. 2001, Skidmore College

Jeffrey Gorski, Assistant Men's Basketball Coach. B.A. 2003, Utica College of Syracuse University

Jeffrey D. Guinn, Head Men's Soccer and Assistant Track Coach. B.A. 1987, North Carolina State University

Christopher S. Herrmann, Assistant Swim Coach. B.S. 2007, State University of New York at Cortland; M.S. 2008, East Stroudsburg University

John Houghton, Head Cross Country Coach, B.S. 2001, Union College, MBA 2003, Union Graduate College

Stephen J. Hughes, Coordinator of Equipment Room

Nathan G. Leaman, Head Men's Ice Hockey Coach. B.S. 1997, State University of New York at Cortland; MS. 1999, University of Maine

Joanne M. Little, Associate Director of Athletics. B.S. 1982, University of New Hampshire at Keene; M.S. 1990, Ithaca College

Eric C. McDowell, Sports Information Director. B.S. 1983, University of New Haven

Robert J. Montana, Head Men's Basketball Coach. B.S. 1972, State University of New York College at Brockport

Paul Mound, Head Baseball Coach.

Kathleen Natole, Athletics Business Manager

Brandon D. Perry, Assistant Athletic Trainer. B.S. 1995, State University of New York at Cortland; M.Ed. 1997, Springfield College

Gary R. Reynolds, Assistant Football Coach. B.S. 1971, University of Bridgeport; M.S. 1981, State University of New York at Albany

David Riggi, Head Men's and Women's Cross Country Coach and Assistant Track Coach. B.S. 1997, Union College

Cheryl Rockwood, Head Trainer/Director for Student-Athlete Programming. B.S. 1985, Central Connecticut State University; M.S. 1986, Old Dominion University

Michael Smiley, Assistant Men's Basketball Coach. B.A. 2005, College of the Holy Cross

Michael Smith, Assistant Women's Basketball Coach. B.A. 1972, St. Francis College; M.S. 1978, University of the State of New York at Albany

Brian K. Speck, Head Women's Soccer Coach. B.A. 1988, State University of New York at Albany

Jordan Stevens, Head Softball Coach. B.S. 2004, Bowling Green State University

Elizabeth M. Taimi, Associate Director of Athletics. B.A. 2003, University of Puget Sound; M.S. 2004, University of Massachusetts at Amherst

Paul Wehrum, Head Men's Lacrosse Coach. B.S. 1972, M.S. 1973, State University of New York at Cortland.

Thomas M. White, Head Crew Coach. B.S. 1987, Northeastern University

Kevin Zalaznik, Assistant Sports Information Director. B.S. 2007, Ithaca College

Information Technology Services

Kelly A. Andolina, Help Desk Manager. A.A.S., 1989, Fulton-Montgomery Community College, B.A. 2006, Empire State College

Kevin Barhydt, Academic Technology Specialist. B.S. 1991, State University of New York at Albany

Timothy D. Cade, Systems Analyst. A.A.S. 1993, Community College of the Air Force (New Mexico State University-Alamogordo); A.A.S. 1999, Hudson Valley Community College; B.S. 2003, Empire State College

Walter S. Cook, Computer Technician II.

Rebecca Fiveland, Computer Information analyst. B.S. 2002, Gordon College

Waldemar Kania, Senior Systems Administrator. B.A. Philosophical College of Divine Word, Nysa, Poland; M.A., SS. Cyril & Methodius Seminary

Daniel Mahar, Network Engineer. A.A.S. 1993, Schenectady County Community College

Diane R. McNamara, Director of Telecommunications. B.A. 1975, State University of New York College at Plattsburgh; M.S. 1984, State University of New York at Albany

James E. Meyer, Senior Programmer/Analyst. A.A.S. 1976, Hudson Valley Community College

Carlos Nieves, Computer Hardware Technician-Lead.

Mary E. Parlett-Sweeney, Director of Academic Computing. B.S. 1981, Miami University (Ohio); M.B.A. 1995, Union College

Brendon Potter, Network Manager. B.S. 1998, State University of New York at Potsdam

Susan Rinaldi, Computer Information Specialist.

Laurie A. Romanski, Senior Programmer/Analyst.

Stephen E. Romanski, Senior Systems Analyst/Data Base Administrator. A.A.S. 1982, Hudson Valley Community College

Dave Ruel, Director of Enterprise Computing. B.A. 1978, University of New Hampshire

Bruce J. Senn, Senior Systems Administrator. A.B. 1968, Dartmouth College; M.S.W. 1976, M.B.A. 1980, Syracuse University

Shawn C. Shopmyer, Systems Administrator-Web/Network. B.S. 2001, M.S. 2006, Union College

David Sindoni, Computer Information Analyst. A.A.S. 1978, Hudson Valley Community College; B.S. 1984, Union College

Virginia L. Solomon, Director of Media Services. A.A. 1976, Penn State University at New Kensington; B.S. 1979, Slippery Rock State University; M.A. 1986, Western Carolina University

James J. Strohecker, Manager of Classroom Technology Services. A.S. 1995, Junior College of Albany

Paul Vinette, Senior Systems Analyst. B.S. 1983, State University of New York at Brockport; M.S. 1986, State University of New York at Binghamton

Kesheng Yu, Instructional Technology Coordinator. B.B.A. 1985, Heilongjiang Mechanical Institute, Harbin, China; M.S. 1992, M.Ed. 1993, Ed.D. 1997, Texas Tech University

International Programs

Lara Atkins, Director of International Programs. B.A. 1990, University of Wisconsin at Madison; M.A. 2002, The Florida State University at Tallahassee

Mandeville Gallery & Permanent Collection

Rachel Seligman, Director of the Mandeville Gallery and Curator of the Union College Permanent Collection. B.A. 1991, Skidmore College; M.A. 1993, George Washington University

Registrar

Penelope S. Adey, Registrar. A.A.S. 1974, Schenectady County Community College; B.A. 1990, Union College

Eileen G. Jarmul, Assistant Registrar. B.S. 1984, Excelsior College

Gail P. Sack, Assistant Registrar. B.S. 1984, State University of New York College of Environmental Science and Forestry

Schaffer Library

Thomas McFadden, Library Director. B.A. 1968, College of Idaho; M.A. 1973, Brown University; M.L.S. 1977, University of Pittsburgh

Donna L. Burton, Reference Librarian/Government Documents, Associate Professor. B.A. 1974, M.L.S. 1975, State University of New York at Albany

Bruce Connolly, Head of Public Services, Reference, and Instruction, Professor. B.A. 1973, State University College at Buffalo; M.L.S. 1977, State University of New York at Albany

Ellen H. Fladger, Head of Special Collections, Librarian. A.B. 1970, Mount Holyoke College; M.A. 1982, New York State University College at Oneonta, Cooperstown Graduate Program

David A. Fuller, Systems Librarian, Associate Librarian. B.A. 1982, State University of New York at Oswego; M.A. 1988, New York University; M.L.S. 1989, State University of New York at Albany

David R. Gerhan, Reference and Instructional Librarian, Professor. A.B. 1967, Brown University; M.L.S. 1972, State University of New York at Albany; M.A. 1977, Union College

Gail Golderman, Digital Services Librarian, Librarian. B.A. 1978, State University College at New Paltz; M.L.S. 1992, State University of New York at Albany

Elizabeth Hoppe, Shared Resource Librarian, Assistant Librarian I. B.A. 2004, University of Vermont; MSLIS 2005, Simmons Graduate School of Library and Information Service

Annette M. LeClair, Head of Technical Services, Librarian. B.A. 1974, University of Minnesota; M.A. 1976, University of Virginia; M.S.L.S. 1980, University of North Carolina, Chapel Hill

Cara Molyneaux, Head of Access Services, Associate Librarian. B.A. 1965, Douglass College, Rutgers; M.L.S. 1986, State University of New York at Albany

John F. Myers, Catalog Librarian, Associate Librarian. B.S. 1986, University of Pittsburgh; M.L.I.S. 1995, University of South Carolina

Courtney S. Seymour, Head of Collection Development, Assistant Librarian I. B.S. 1998, Union College; M.L.S. 2000, M.A. 2001, State University of New York at Albany

Loraine M. Wies, Periodicals/Acquisitions, Associate Librarian. A.A. 1981, Berkshire Community College; B.A. 1985, North Adams State College; M.L.S. 1999, State University of New York at Albany

UCALL (Union College Academy of Lifelong Learning)

Valerie D'Amario, Director. B.S. 1982, Russell Sage College

Office of Admissions and Financial Aid

Matthew J. Malatesta, Vice President for Admissions, Financial Aid and Enrollment. B.A. 1991, M.A.T. 1992, Union College

Laura F. Augustine, Associate Director of Financial Aid. B.A. 1979, Ithaca College; M.S. 1983, State University of New York at Albany

Geoffrey M. Bowman, Associate Dean of Admissions. B.A. 2004, Union College

Joyce Brace, Director of Admissions Systems. B.A. 1975, Rockford College

Ann Fleming Brown, Director of Admissions. A.B. 1979, Bryn Mawr College; M.A. 1981, Middlebury College

Vernon M. Castillo, Senior Associate Dean of Admissions. B.A. 1997, Bowdoin College; M.A. 2002, State University of New York at Albany

Stephanie Frantz, Assistant Director of Financial Aid

Susan Hanks, Associate Dean of Admissions. B.A. 1987, Lehigh University

Sarah Henderson Maneely, Assistant Dean of Admissions. B.A. 2007, State University of New York at Potsdam

James V. Luciano, Assistant Dean of Admissions. B.A. 2000, College of Saint Rose; M.S. 2007, Sage Graduate School

Abbey L. Massoud-Tastor, Assistant Dean of Admissions/Director of Alumni Admissions Program. B.A. 2007, Union College

Delon McCallister, Assistant Dean of Admissions. B.S. 2008, Union College

Linda Parker, Director of Financial Aid. B.S. 1984, State University of New York at Albany

Lilia M. Tiemann, Coordinator Admissions and Event Planning, A.A.S. 1986, Maria College

Meredith A. Tower, Assistant Director, Financial Aid. B.A. 1997, State University of New York at Oswego; M.A. 1999, State University of New York at Albany

Office of College Relations

Stephen A. Dare, Vice President for College Relations. B.S. 1977, M.A. 1980, Rowan University

Office of Alumni Relations

Ashley Boland, Associate Director of Alumni Relations. B.A. 2006, Siena College

Rhonda L. Engvold, Assistant Director of Alumni Relations

Dominick F. Famulare, Director of Development and Alumni Relations. B.A. 1992, Union College

Tammy A. Messercola, Director of Alumni Relations. B.A. 1986, University of Texas

Leah VanDerhoof, Assistant Director of Alumni Relations. B.A. 2007, Hartwick College

Office of Communications

Charles K. Casey, Senior Editor of News and Publications. B.A. 1984, Hartwick College

Joyce E. Chabot, Printing Manager.

Erin DeMuth Judd, Associate Editor of Publications. B.A. 2002, Syracuse University; M.S. 2004, University of Tennessee

Erik España, Web Manager. B.S. 1999, Union College

Kenneth George, Web Director. B.A. 1989, Earlham College

Jill C. Hungsberg, Senior Director of Communications and Marketing. B.A. 1994, University of Virginia; M.B.A. 1999, J.L. Kellogg Graduate School of Management at Northwestern University

Tina Lincer, Associate Editor of News and Publications. B.A. 1976, State University of New York at Albany

Jason M. Slater, Web Manager. B.A. 2002, Union College

Phillip Wajda, Director of Media Relations. B.A. 1987, Rowan University

Office of Development

Diane L. Brisnehan, Associate Director of Annual Giving.

Michael S. Brown, Leadership Gifts Officer, B.S. 1976, Cornell University

Suzanne L. Cascio, Assistant Director of Research. B.A. 1984, State University of New York College at Purchase; M.L.S. 1987, State University of New York at Buffalo; M.A.H. 1994, Manhattanville College

Jacqueline I. Cavalier, Director of Gift Planning. B.A. 1973, State University of New York at Fredonia; M.S. 1976, State University of New York at Albany

Jamie R. Delsoin, Associate Director of Annual Giving. B.A. 1999, Massachusetts College of Liberal Arts

Elizabeth Epstein, Assistant Director of Annual Giving. B.A. 1989, State University of New York at Binghamton

Debra Geer, Director of College Initiatives. A.B. 1987, Duke University

Laurey Goldberg, Leadership Gift Officer/Associate Director of Gift Planning. B.A. 1981, New York University

Ridgely Harrison, Assistant Director of Annual Giving. B.A. 2003, Union College

Donald Lang, Leadership Gifts Officer. B.S. 1979, State University of New York at Oswego

Kathleen D. McCann, Director of College Relations Data Systems. B.S. 1981, Rochester Institute of Technology; M.B.A. 1995, Union College

Kathleen M. Newell, Assistant to the Vice President

Catharine E. Potvin, Senior Director of Annual Giving. B.A. 1997, Union College; M.S. 2000, State University of New York at Albany

Blair Raymond, Director of Foundation, Corporate and Government Relations. B.A. 1991, Mount Holyoke College

Scott P. Rava, Director of Principal Gifts. B.S. 1996, LeMoyne College

Pamela Ritter, Director of Family Leadership Giving. B.A. 1993, Indiana University

Stephanie Schiele, Assistant Director of Annual Giving. B.A. 2007, University of Dayton

Betsy P. Sepowitz, Director of Stewardship and Donor Relations. B.A. 1996, Union College

Nicole Tama, Associate Director of Foundation, Corporate and Government Relations. B.A. 1997, Nazareth College of Rochester

Mary Beth Thackeray, Director of Research. B.A. 1976, College of Saint Rose

Sally Webster, Senior Leadership Gifts Officer. B.A. 1974, William Smith College; M.A. 1989, University of Rochester

Office of Finance and Administration

Diane T. Blake, Vice President for Finance and Administration. B.B.A. 1976, Siena College

Bookstore

Timothy Porter, Manager. B.S. 1979, Siena College; M.B.A. 1994, Union College

Bryan Hoppe, Assistant Manager, Computer Technology. B.A. St. Michael's College

Karen Quigley, Assistant Manager. B.S., Ithaca College

Environmental, Health and Safety Compliance

John Sowa, Environmental, Health and Safety Compliance Officer and Professor of Chemistry Emeritus. B.S. 1956, Notre Dame University; Ph.D. 1964, University of Pennsylvania

Facilities Services

Loren Rucinski, Director. B.F.A. 1977, Temple University

Mary D'Amelia, Director, Special Events and Conferences, Central Scheduling, Concert Series. B.S., State University of New York at New Paltz

Thomas Heisinger, Manager of Grounds. B.A. 1983, State University of New York at Oneonta

Paul Matarazzo, Capital Projects Administrator

Terry Miltner, Assistant Manager of Cleaning Services. B.A. 2002, Union College

Richard Patierne, Manager of Building Services and Work Order System. A.A.S. 1986, Schenectady County Community College

Frederick Puliafico, Assistant Director Utilities Management. B.S. 1969, Rennselaer Polytechnic Institute

Gwen Sellie, Manager of Support Services

Charles Yacaginsky, Manager of Mechanical and Electrical Trades. A.A. S., Broome Community College

Finance

Jamie Houghtaling, Assistant Director of Financial Analysis and Budgeting. B.B.A. 2002, Siena College; CPA

MaryBeth Kabalian, Director of Financial Reporting and Analysis. B.B.A. 1991, Siena College; CPA 1994; M.B.A. 2007, Union Graduate College

Joseph Macaluso, Financial Analyst. B.B.A. 2006, Siena College

John K. Skumurski, Director of Budgets, Insurance and Environmental Compliance. B.S./B.A. 1977, Bryant College, CPA 1988

Financial Services

Judy Manchester, Senior Director of Financial Services. B.S. 1979, Siena College

Dianne Camp, Manager of Student Loans. B.A. 1974, Montclair State University

Linda Clayton, Assistant Director of Financial Services

Patricia Ehrlich, Purchasing Manager. B.S. 1986, Clarkson University

Carmela Hartman, Manager, Student Accounts

Kathleen Heisinger, Card Program Manager. A.O.S. 1980, Albany Business College; B.S. 1983, State University of New York at Oneonta

Joanne Herrick, Assistant Director of Financial Services

Human Resources

Eric C. Noll, SPHR, Director of Human Resources. B.S. 1985, State University of New York at Geneseo; M.A. 1987, University of Illinois

Jennifer Blessing, Associate Director. B.S. 1993, Siena College

George Schiller, Associate Director. A.O.S. 1968

Printing Center

Paul DeBiase, Manager of Printing and Mailing Services. A.A.S., Schenectady County Community College

Office of Student Affairs

Stephen C. Leavitt, Vice President for Student Affairs and Dean of Students and Associate Professor of Anthropology. B.A. 1981, Swarthmore College; M.A. 1983, Ph.D. 1989, University of California at San Diego

Dean of Students Office

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Shelly Shinebarger, Director of Student Support Services. B.S. 1992, East Carolina University; M.Ed. 1996, University of South Carolina

Patricia G. Williams, Senior Associate Dean of Students. B.A. 1972, Bennett College; M.S. 1986, Illinois State University

Stanley R. Becker Career Center

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Elaine Reynolds, Director of Retail Operations. B.S. 2001, State University of New York at Oneonta
Callie Stacey, Director of Resident Dining and Catering Services. B.A.1977, Skidmore College

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Molly MacElroy, Director of Residential Life. B.A. 2000, the University of Rochester; M.Ed. 2002, The University of Vermont
Joseph Melendez, Residence Director. B.A. 2007, Syracuse University

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Barbara C. Boyer, Professor of Biological Sciences Emerita (1973-2010). A.B. 1963, University of Rochester; M.S. 1964, Ph.D. 1969, University of Michigan
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David V. Cossey, Chief Information Officer Emeritus (1986-2010). B.A. 1966, The King's College; M.A. 1968, Lehigh University; M.S. 1978, University of Rhode Island
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Thomas D'Andrea, Professor of Psychology Emeritus (1980-1996). B.A. 1957, Ph.D. 1964, University of Minnesota
Thomas H. Dowling, Associate Professor of Psychology Emeritus and Associate Director of the Counseling Service Emeritus (1972-2007). B.A. 1963, University of Rochester; Ed.M. 1965, Ph.D. 1971, State University of New York at Buffalo
William W. Fairchild, Professor of Mathematics Emeritus (1970-2003). B.A. 1960, Swarthmore College; M.A. 1963, University of Pennsylvania; Ph.D. 1967, University of Illinois
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Armen G. Fisher, Associate Professor of Management Emeritus (1966-1996). B.A. 1952, Cornell University; B.S, B.B.A., M.S. 1955, University of Wisconsin; Ph.D. 1966, Rutgers University
Frank Gado, Professor of English Emeritus (1963-1999). A.B. 1958, Dartmouth College; M.A. 1961, Ph.D. 1968, Duke University
Jagdish T. Gajjar, Professor of Electrical and Computer Engineering Emeritus (1970-2003). B.E. in Elec. 1960, B.E. in Mech. 1961, Bombay University; M.E.E. 1963, University of Oklahoma; Ph.D. 1970, University of Houston
Charles Gati, Professor of Political Science Emeritus (1963-68, 1969-1994). A.B. 1961, A.M. 1961, Ph.D. 1965, Indiana University

Carl J.W. George, Professor of Biological Sciences Emeritus (1967-1997). B.S. 1956, University of Michigan; Ph.D. 1960, Harvard University

Edwin F. Gillette, Professor of Mathematics Emeritus (1946-47, 1955-1981). A.B. 1937, Hamilton College; M.A. 1949, Ph.D. 1955, Syracuse University

Seth N. Greenberg, Gilbert R. Livingston Professor of Psychology Emeritus (1979-2007). B.A. 1968, Queens College; M.A. 1970, Ph.D. 1972, Ohio State University

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Jan K. Ludwig, Professor of Philosophy Emeritus (1969-1999). B.A. 1963, Gettysburg College; Ph.D. 1971, Johns Hopkins University

Eli Majlaton, Director of Union College Bookstore, Central Mail and Copy Center Emeritus (1988-2006)

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George McMillan, Purchasing Director Emeritus (1982-2004). B.S. 1964, University of Steubenville

Frank F. Milillo, Professor of Mechanical Engineering Emeritus (1974-2001). B.S. 1966, M.S. 1968, Ph.D. 1974, Polytechnic Institute of Brooklyn

Carolyn Mitchell, Professor of English Emeritus (1998-2003). B.A. 1960, Hunter College; M.A. 1962, Michigan State University; Ph.D. 1977, Boston College

John S. Morris, President Emeritus and Research Professor of Philosophy (1979-1993). B.A. 1951, University of Wales; B.A. 1953, M.A. 1957, Cambridge University; M.A. 1961 Colgate University; Ph.D. 1961, Columbia University

H. Alan Nelson, Professor of English Emeritus (1954-1989). B.A. 1946, Union College; M.A. 1948, Ph.D. 1958, Northwestern University

Byron A. Nichols, Professor of Political Science Emeritus (1968-2008). A.B. 1964, Occidental College; M.A. 1966, Ph.D. 1969, Johns Hopkins University

Filadelfo Panlilio, Professor of Mechanical Engineering Emeritus (1955-1987). B.S. in M.E. 1938, University of Philippines; M.S. 1942, Ph.D. 1946, University of Michigan

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Peter A. Prosper, Jr., Professor of Economics Emeritus (1964-1999). B.S. 1958, Pennsylvania State University; Ph.D. 1970, Cornell University

Raymond Rappaport, Professor of Developmental Biology Emeritus (1952-1987). B.S. 1948, Bethany College; M.S. 1948 University of Michigan; Ph.D. 1952, Yale University

Bruce L. Reynolds, Professor of Economics Emeritus (1974-2002). B.A. 1966, Yale University; M.A. 1971, Ph.D. 1975, University of Michigan

George Richards, Personnel Director Emeritus (1977-1997). B.A. 1958, Wilkes College; M.Div. 1961, Episcopal Seminary

Alan Roberts, Professor of French and Spanish Emeritus (1953-1980). A.B. 1939, Haverford College; M.A. 1940, Ph.D. 1952, Harvard University

Donald E. Robison, Associate Professor of Management Emeritus (1971-1996). B.S. 1952, University of Oregon; M.S. 1956, Ph.D. 1962, Ohio State University

Richard B. Russ, Professor of Electrical Engineering and Computer Science Emeritus (1941-42, 1948-1983). B.E. 1940, M.E.E. 1956, Yale University

Eleanor M. Sarnacki, Head Nurse Emerita (1946-1978). R.N. 1937, St. Peter's Hospital

Kenneth L. Schick, Frank and Marie Louise Bailey Professor of Physics Emeritus (1959-2000). A.B. 1951, Columbia University; Ph.D. 1959, Rutgers University

Josef Schmee, Kenneth B. Sharpe Professor of Management Emeritus (1972-2006). Magister 1968, University of Vienna; M.S. 1970, Ph.D. 1974, Union College

Calvin Schmidt, Registrar Emeritus (1954-1984). B.A. 1951, Union College; M.A. 1959, Teachers' College, Columbia University

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Arnold Seiken, Professor of Mathematics Emeritus (1967-1996). B.A. 1951, Syracuse University; M.A. 1954, Ph.D. 1963, University of Michigan

J. Richard Shanebrook, Professor of Mechanical Engineering Emeritus (1965-2001). B.S. in M.E. 1960, M.S. in M.E. 1963, Ph.D. 1965, Syracuse University

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Barry K. Smith, Associate Professor of Performing Arts (Theater) Emeritus (1971-1999). B.A. 1960, Westminster College; M.F.A. 1971, Yale University

George W. Smith, Professor of Biological Sciences Emeritus (1974-2005). B.S. 1962, Cookman College; M.S. 1966, Virginia State College; Ph.D. 1974, University of Virginia

Phillip D. Snow, Professor of Civil Engineering Emeritus (1974-2004). B.S. 1965, Marietta College; M.S. 1968, Syracuse University; M.S. Environmental Engineering. 1972, Ph.D. 1976, University of Massachusetts

John R. Sowa, Professor of Chemistry Emeritus (1967-2002). B.S. 1956, Notre Dame University; Ph.D. 1964, University of Pennsylvania

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Twitty J. Styles, Professor of Biological Sciences Emeritus (1965-1997). B.S. 1948, Virginia Union University; M.S. 1957, Ph.D. 1963, New York University

Donald R. Thurston, Professor of Political Science and History Emeritus (1966-1996). B.A. 1951, Syracuse University; M.A. 1956, Ph.D. 1970, Columbia University

Peter L. Tobiesen, Professor of Biological Sciences Emeritus (1970-2006). B.A. 1963, Wesleyan University; M.S. 1966, Pennsylvania State University; Ph.D. 1971, Duke University

Samson O.A. Ullmann, Professor of English Emeritus (1957-1992). A.B. 1943, Harvard University; M.A. 1947, Stanford University; A.M. 1949, Ph.D. 1954, Harvard University

James E. Underwood, Chauncey H. Winters Professor of Political Science Emeritus and Dean of the Faculty Emeritus (1963-2003). A.B. 1959, Franklin and Marshall College; M.P.A. 1960, Ph.D. 1968, Syracuse University; L.L.D. 2005, Union College

W. Loretta Walker, Head of Information Services at Schaffer Library, Associate Professor Emerita (1968-1981). B.S. 1949, Howard University; M.L.S. 1968, State University of New York at Albany; M.A. 1977, College of St. Rose

Anton R. Warde, Professor of German Emeritus (1969-1999). B.A. 1964, Union College; M.A. 1966, Ph.D. 1969, University of Nebraska

Charles F. Weick, Professor Chemistry Emeritus (1958-1996). B.S. 1953, Mount Union College; Ph.D. 1959, University of Rochester

Terry S. Weiner, Chauncey H. Winters Professor of Comparative Social Analysis Emeritus (1974-2010). B.A. 1970, University of Illinois; M.A. 1972, Ph.D. 1975, University of North Carolina

Thomas C. Werner, Florence B. Sherwood Professor of Chemistry Emeritus (1971-2008). B.S. 1964, Juniata College; Ph.D. 1969, Massachusetts Institute of Technology

George H. Williams, Professor of Computer Science Emeritus (1970-2003). A.B., B.E.E. 1965, Union College; M.S. 1966, M. Phil. 1968, Ph.D. 1970, Yale University

Hugh Allen Wilson, Professor of Performing Arts Emeritus (Music) (1962-1996). A.B. 1946, Yale University

Dwight S. Wolf, Associate Dean for Academic Services and Planning Emeritus (1977-2007). B.A. 1968, Union College; M.A. 1974, Ed.D. 1980, University of Virginia

Jane S. Zacek, Director of Grant Support Emerita (1993-2008). B.A. 1960, Cornell University; M.A. 1962, Ph.D. 1967, Columbia University

Degrees Offered

Degree Program	Degrees	HEGIS
American Studies	B.A.	0313
Anthropology	B.A.	2202
Arts	B.A.	1001
Asian Studies	B.A.	0301
Astronomy	B.A.	1911
Biochemistry	B.S.	0414
Bioengineering	B.S.	0905
Biology	B.S.	0401
Chemistry	B.S.	1905
Classics	B.A.	1504
Computer Engineering	B.S.	0909
Computer Science	B.S.	0701
Economics	B.A.	2204
Electrical Engineering	B.S.	0909
English	B.A.	1501
Environmental Policy	B.A.	1999.10
Environmental Science	B.S.	1999.20
French and Francophone Studies	B.A.	1102
Geology	B.S.	1914
German Studies	B.A.	1103
History	B.A.	2205
Humanities	B.A.	4903
Interdepartmental Program	B.A., B.S.	4901
Latin American and Caribbean Studies	B.A.	0308
Mathematics	B.S.	1701
Mechanical Engineering	B.S.	0910
Modern Languages	B.A.	1101
Neuroscience	B.S.	0425
Philosophy	B.A.	1509
Physics	B.S.	1902
Political Science	B.A.	2207
Psychology	B.S.	2001
Religious Studies	B.A.	1510
Science	B.S.	4902
Science, Medicine and Technology in Culture	B.A.	4902
Social Science	B.A.	2201
Sociology	B.A.	2208
Spanish and Hispanic Studies	B.A.	1105
Women's and Gender Studies	B.A.	4903

Joint Programs in Conjunction with Other Institutions

Eight-Year Leadership in Medicine - Health Management or Health Care Management (with Albany Medical College and Union Graduate College)	B.S.	0499
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Student Loans
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Student Affairs
Dean of Students, Reamer Campus Center
(518) 388-6116

Academic Matters
Dean of Faculty, Feigenbaum Hall
(518) 388-6102

Business Matters
Finance Office, McKean House
(518) 388-6039

Academic Records
Registrar, Silliman Hall
(518) 388-6109

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