

UNION
COLLEGE

Academic Register

2012/2013

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The information in this *Academic Register* was prepared as of July 1, 2012. 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/areas-of-study.

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 2012-13 Calendar

August 2012

10 Fall tuition due

September 2012

2 Residence halls open for First Year Students only

2-4 First-year student orientation

4 Residence halls open for returning upper class students

4 First-year student advising and schedule adjustments

5 Fall term classes begin; add/drop starts

5-7 Off-campus and commuter student registration data verification

11 Last day to add an open course without instructor's written approval; last day to add/drop without a late fee

18 Last day to drop a course without a "W" and to finalize fall term course schedule

25 Last day to declare a course "Pass-Fail"

October 2012

8 Winter term course prescheduling materials available online

8-25 Academic advising for winter term courses; students must consult with faculty advisors

19-20 Homecoming and Family Weekend

26 Graduation application due for Class of 2013

26-Nov. 1 Winter term prescheduling appointments

30 Last day to drop a course with a "W"

November 2012

13 Fall term classes end

14 Reading period

15-20 Fall term final exam period

21 Residence halls and houses close at noon

28 Fall term grades due

December 2012

7 Winter tuition due

January 2013

6 Residence halls and houses open at noon

7 Winter term classes begin; add/drop starts

7-8 Off-campus and commuter student registration data verification

11 Last day to add an open course without instructor's written approval; last day to add/drop without a late fee

18 Last day to drop a course without a "W" and to finalize winter course schedule

25 Last day to declare a course "Pass-Fail"

February 2013

- 11 Spring term prescheduling materials available online
- 11-28 Academic advising for spring term courses; students must consult with faculty advisors

March 2013

- 1 Last day to drop a course with a "W"
- 1-7 Spring term prescheduling appointments
- 15 Last day of winter term classes
- 18-21 Winter term final exam period
- 22 Residence halls and houses close at noon
- 29 Winter term grades due
- 29 Spring tuition due
- 31 Residence halls and houses open at noon

April 2013

- 1 Spring term classes begin; drop/add starts
- 1-2 Off campus and commuter student registration data verification
- 5 Last day to add an open course without instructor's written approval;
Last day to add/drop without a late fee
- 12 Last day to drop a course without a "W" and to finalize spring course schedule
- 19 Last day to declare a course "Pass-Fail"

May 2013

- 6 Fall term prescheduling materials online
- 6-24 Academic advising for fall term courses; students must consult faculty advisors
- 10-11 Steinmetz Symposium and Prize Day
- 24 Last day to drop a course with a "W"
- 27-30 Fall term prescheduling appointments
- 31-June 2 Alumni Weekend – ReUnion 2013

June 2013

- 7 Last day of spring term classes
- 10-13 Spring term final exam period
- 14 Residence halls and houses close at 3 p.m. for students not involved in Commencement
- 16 Commencement
- 16 Residence halls and houses close at 6 p.m.
- 19 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-eight percent of the teaching faculty holds the doctorate or terminal degree (excluding library staff, some of whom hold faculty rank).

Union's Students: About 5,000 apply for placement in the first-year class. Exact statistics vary from year to year, but approximately 57 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 77 percent from New York and New England; 38 states and territories and 39 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 30 percent of each graduating class continues directly to graduate or professional school.

Enrollment: Union College enrolls approximately 2,200 full-time undergraduates.

Accreditation: Union College is accredited by the Middle States Commission on Higher Education, 3624 Market St., Philadelphia, PA 19104, (267-284-5000). The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation. The programs in chemistry are certified by the American Chemical Society. The computer, electrical, and mechanical engineering programs are accredited by the Accreditation Board for Engineering and Technology (ABET), a specialized accrediting agency recognized by the Council for Higher Education Accreditation.

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 traces 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. 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 Common Curriculum (General Education) 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. This year, the College celebrates the bicentennial of Ramée's plan.

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 Center; Frank Bailey Field, an all-weather athletic field; the Morton and Helen Yulman Theater; and the F.W. Olin Center, and the Peter Irving Wold Center for Science and Engineering.

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 facilities include 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 opening of seven Minerva Houses: Beuth House, Breazzano House, Golub House, Green House, Messa House, Sorum House and Wold House.

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 a periodicals 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 Building and Lippman Hall. The Humanities Building is the home for the Departments of English and Modern Languages. Lippman Hall -- opened in Fall 2011 and named in honor of Robert Lippman '50 through a gift by his son, Jim '79 -- houses Economics, History, Political Science and Sociology. On nearby South Lane, Lamont House is the home of the Departments of Anthropology, Classics, Philosophy and the Religious Studies program.

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 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 and Neuroscience 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 winter 2011, the College opened the Peter Irving Wold Center for Science and Engineering. Made possible by a gift from John Wold '38, the interdisciplinary Center serves as a platform for learning, research and innovation which solidifies the College's role as a national leader in the integration of science, engineering and the liberal arts. The three-story 35,000-square-foot research and education facility houses space for interdisciplinary programs such as Biochemistry, 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.

The focal point of the Murray and Ruth Reamer Campus Center is a commons area, part of a multi-level atrium that extends to a patio overlooking 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.

Achilles Center houses Messa Rink, the renovation of which was made possible by a gift from Frank Messa '73.

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

South College, built in 1814, contains Sorum House and Green House, two 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. Beuth House, Breazzano House and Golub House complete the Minerva House system.

Other residence halls are Davidson and Fox Houses; West College, home for many first-year students; 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 candidate's ability 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 challenge and quality of courses taken, and rank in class
- the recommendations of the secondary school
- the personal qualities and extracurricular record of the candidate

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 January 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 January 1. Applications to the Leadership in Medicine program are due by December 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. Personal interviews are offered weekdays from May 1 to Jan 15. Off campus interviews are offered by alumni. Register at www.union.edu/alumniinterview from August 1 - December 1.

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 consult 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 may be submitted online or 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 test date is the last test date 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 who wishes 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 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 by 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

In addition to the application requirements described above, applicants who are citizens of other countries must be proficient in reading, listening, writing, and speaking English as English is the language of instruction at Union. The Admissions Committee requires that all international students (for whom English is not their first language) submit the results of the Test of English as a Foreign Language (TOEFL) or IELTS examination. The SAT I or ACT is also strongly recommended for international applicants.

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. Canadian citizens are required to file the PROFILE form with the appropriate agency before Feb. 1. Additional information is available at www.union.edu/financialaid.

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 Committee 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.

Financial aid for transfer students depends on the economic need of the student, in addition to 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 April 15. For entry into the winter term, the deadline is Oct. 1; while 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 April 15 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 2012-13, is \$56,289. 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 \$3,315 per course in 2012-13. Refer to "Academic Policies, Fourth Courses" for policies regarding enrollment for fourth courses.

Part-time and non-degree course fees: All students in a part-time undergraduate program, both matriculated and non-degree, will be charged \$4,972 per course.

Food Services: All full time undergraduate students are required to be on a meal plan. All first-year students are required to be on the 19-meal plan. Upperclass students may choose any of the meal plans offered. Students living off campus may elect the declining balance meal plan, which includes \$200 per term, for a total of \$600 per year and receive a rebate on their student bill equal to \$1,241 per term, for a total of \$3,723 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:

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 Services.
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 \$1,720 per term, for a total of \$5,160 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 at no additional cost 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. Students will be enrolled for insurance provided through the College and charged accordingly if the online waiver is not completed. The waiver is only valid for the current year, therefore it must be completed annually. The deadline to waive for 2012-13 is August 10 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 an international program: Refer to the "Union College International Programs (Study Away) Withdrawal Policy" in the International Programs Courses of Instruction section for additional information.

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 \$250 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.

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.

A \$200 deposit is required to reserve a place in the program.

Exchange students 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 past due student account balances and/or failure to check-in on schedule)

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 biological parents of the dependent student are separated and/or divorced, the noncustodial parent must also submit the CSS Non-Custodial Profile.

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 transcripts 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. In addition, students can view the status of their application through WebAdvising. The deadline for continuing students is April 15th. Once the completed aid application has been reviewed by the Financial Aid Office, the student will be

notified via email to view their award online. They will also have the opportunity to accept/decline any loans that were offered as part of their aid award through WebAdvising. 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

Federal regulations require that schools monitor the academic progress of each applicant for financial assistance to ensure they are meeting academic progress standards. At Union College, the standards of Satisfactory Academic Progress (SAP) are evaluated annually at the end of each academic year. In order to maintain SAP, all three of the following guidelines must be met.

- At the end of the first academic year, students are expected to have a GPA of at least 1.65. Students must complete each subsequent academic year with a minimum GPA of 2.0.
- Students must complete their program at a pace of 66%. To illustrate: Typically, students register for/attempt a total of 9 credit-bearing courses per academic year. In order to meet Union's pace standard, 6 of those courses must be successfully completed ($6 \div 9 = 66\%$).
- Students are expected to complete graduation requirements within the normal time specified in the program description for the program in which they are enrolled. Under certain circumstances, however, the student may require more than the normal completion time to fulfill graduation requirements. The maximum time frame in which a student must complete the program is 150% of the published length of program measured in credit-bearing classes attempted.

When evaluating pace, please note the following:

- Credits transferred in from another institution as well as Advanced Placement classes that are accepted towards the student's educational program are counted when measuring SAP as classes attempted and classes earned.
- Grades of "W" (withdrawn), "WF" (withdrawn with failure) and "I" (incomplete) will be included as classes attempted, but not as earned. Note: Students who have received an "I" and, as a result, are not making SAP are responsible for informing the Financial Aid office when they have been assigned a traditional grade letter. They should request a review of their SAP status. This review is not considered an appeal and may **not** result in eligibility for federal student aid. For example, if a processing deadline has passed then federal aid cannot be disbursed regardless of their SAP status. *It is the responsibility of the student in this situation to contact the financial aid office for all processing deadlines.*
- For repeated courses, the original and repeated course will both be included in the total number of classes attempted. However, the student will only receive credit for taking the class once. This includes student's who have repeated a course because of a prior failure or who are repeating a course they have passed, but not met a minimum grade requirement. For instance, if a required prerequisite must be completed with a "C-", but the student

previously passed with a “D”, both classes will count as attempted, but counted only once as earned.

Students who are not meeting the SAP requirements will lose eligibility for their federal aid (Stafford loans, PLUS loans, PELL, SEOG and federal work study) the following academic year. In order to regain eligibility, they must be meeting SAP requirements by the end of the following year.

Federal regulations permit students to appeal their loss of federal aid and, instead, be placed on one term of Academic Probation status. This status allows for reinstatement of federal funds for one payment period only, provided all appeal conditions are met and approved. The bases on which a student may file an appeal include the death of a relative, an injury or illness of the student, or other special circumstances beyond the student’s control. The student must complete the Satisfactory Academic Progress Appeal Form and include documentation to support their basis of appeal, a letter that explains what has changed in the student’s situation that will allow the student to demonstrate SAP at the next evaluation and a plan of action developed with the academic advisor that will ensure they continue to meet SAP. *In certain cases, an academic advisor may develop a plan which will enable the student to meet Union’s SAP standards by a specific point in time. In such situations, until the specified point in time is reached, the student’s progress must be evaluated each term to determine whether or not the student is meeting the requirements of the plan. Any student who is not meeting the requirements of the plan will lose their Academic Probation status and, therefore, eligibility for federal funding.* The Appeal Form along with supporting documentation will be reviewed by a committee that will include the Director of Financial Aid as well as an Academic Dean. The student will be informed of the committee’s decision by letter and/or email.

In the event that a student is placed on Academic Probation for one term, Union will review the progress at the end of each subsequent term for the entire academic year to confirm he/she is making SAP or meeting the requirements specified in the academic plan.

New York State: Academic Eligibility Requirements

Payment:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Course Credits:	0	1.5	3	4.5	7.5	10.5	13.5	16.5	19.5	22.5	25.5	28.5	31.5	34.5	36
GPA:	0	1.3	1.5	1.8	1.8	2.0	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 \$602 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.

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. Additional information regarding the work-study employment program is available on the financial aid office website.

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 (tentatively 6.8% effective July 1, 2012). Loan maximum amounts are \$3,500 (first-year students), \$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 1.0% origination fee.

Federal Direct Unsubsidized Stafford Loan: Students who do not qualify for all or part of the need-based 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. first-year students \$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 first-year students 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. Information on the application process is available on our web site or from the Financial Aid Office.

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 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.

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 \$4,000 to \$14,000 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 Houses. 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 lower 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 lower 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 coed 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 European 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, 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: Fourteen 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, Phi Delta Theta, Phi Iota Alpha, Phi Gamma Delta, Sigma Chi, and Zeta Beta Tau. The national sororities are Delta Delta Delta, Gamma Phi Beta, Lambda Pi Chi, Sigma Delta Tau, and Sigma Gamma Rho. The local sorority is Alpha Delta Lambda.

*No longer on campus.

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): Active Minds; African and Latino Alliance of Students; Asian Student Union; Baja Club; Ballroom Dancing Club; Best Buddies; Bhangra; Big Brothers/Big Sisters; Biology Club; Black Student Union; Bowling Club; Campus Action; CELA; Cheer and Spirit Squad; Chemistry Club; Classics Club; Cocoa House; College Against Cancer; Concert; Concordiensis; Dutch Oven.

Also, Environmental; Fashion Show; Fencing Club; Film Committee; French Club; Garnet Yearbook; Gospel Ensemble/Heavenly Voices; Idol; Italian Club; Karate Club; MAPS/SNMA; Men's

Hockey Club; Men's Rugby Club; Mountebanks; Multifaith Forum; The National Society of Black Engineers.

Also, Outing Club; Philosophy; Physics; Pre-Health Club; Pre-Law; Project Sunshine; Russian and East European Culture Club; Safe Space; Shakti; Ski Club; Society of Hispanic Professional Engineers; Society of Women Engineers; Spanish Club; Speakers Forum; Student Allies For Equality; Springfest; Student Forum; TVUC; Ultimate Ultimate Club; U-Break; U-Program; U-Rebloom; Virtual U; Women's Rugby Club; Women's Union; World Around U; and WRUC.

Organizations (recognized by the Student Forum but not funded from Student Activity fees): AUM: Hindu Students; Campus Protestant Ministry; Catholic Student Association; Chabad; Dance Team; Dutch Pipers; Elphalets; Etta Kappa Nu; Garnet Minstrelles; Hillel; Interfraternity Council; Intersarsity Christian Fellowship; Multicultural Greek Council; Muslim Student Association; Panhellenic Council; Psi Chi; Tau Beta Pi; Theme House Consortium; Union Community Action Reaching Everyone (UCARE); Union College Democrats; Union College Republicans.

Union offers a rich general cultural program of concerts, lectures, and films.

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, a Hillel Director and advisors to InterVarsity Christian Fellowship, Chabad, AUM and the Muslim Student Association.

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.
- 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 26 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, golf, 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 and athletic training facilities); Viniar Athletic Center, (basketball and volleyball); 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, lacrosse, soccer, and field hockey); Breazzano Fitness Center at Alumni Gymnasium (fitness center, swimming, racquetball, squash, and coaches' offices); Garis Field (soccer and club sports); the turf at College Park, a multipurpose, all-weather, lighted field (soccer, intramurals and club sports); College Boathouse (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

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: <http://www.union.edu/offices/safety/reports/clery/index.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. The Counseling Center also provides a clinician for psychotropic medication.

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 3 Nurse Practitioners, 2 Registered Nurses, an [Administrative Assistant](#) 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. [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, hospital visits, 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: Students should present insurance cards (medical and prescription) to 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 helps 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. Hire, 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 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 live and work in a global, diverse, and technologically-complex society.

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 made important advances in general education, interdisciplinary study, international programs, and undergraduate research. Our tradition of curricular innovation continues as Union pioneers ways to conceive of engineering as an integral component of the liberal arts and as we introduce students to computational methods, community-based learning, entrepreneurship, and ethical understanding in courses across the curriculum. 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. 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" that defines a central, unifying topic cutting across disciplinary lines. Students may also elect to take up to two minors.

The College is 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 upper-class 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.

Degree Requirements

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

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 Common Curriculum (General Education);
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 and materials 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 registration 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 Common Curriculum (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:

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.

Students in the Scholars, Union and Seward Fellows 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 Common Curriculum (General Education at Union)

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 Common 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 Common 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 Preceptorial 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 making connections across disciplines, we require a three-course

cluster in which students learn to bridge and integrate information on a common topic from diverse perspectives. Union's Common Curriculum provides the foundational breadth that defines a liberal arts education through requirements in humanities, social sciences, linguistic and cultural competency, quantitative reasoning, and science and technology. The Common 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 Common 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 Common Curriculum (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. Bioengineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering may not be used as a component of interdepartmental majors. 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. 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 Common Curriculum (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 first 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 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 (5-year program)
- 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, application procedures and withdrawal policies.

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 at the Registrar's Office provided that seats are available or permission is obtained from the professor.

Fourth Courses: Students are allowed to enroll in one fourth course in each academic year at no charge, provided they have a cumulative grade point average (GPA) 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 or wish to register for their second or third overload course of the academic year, require 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.

With the exception of students in the Scholars and Leadership in Medicine programs, all students, including engineers, are required to complete and submit the "Petition to Enroll in a Fourth Course" form at the time of registration.

A student in good standing may audit a course if the instructor gives permission. An audit is not recorded on 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. 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.

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 cannot 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. Graduating seniors cannot be issued a grade of "Incomplete". A grade of "Incomplete" may be assigned only for extraordinary circumstances beyond the student's control. The instructor must complete the blue incomplete card provided by the Registrar's Office and obtain the student's signature. The blue incomplete card must be submitted to the Registrar with the final grade roster. When an "Incomplete" is granted, the course work must be completed no 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.

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 summer course at Union, 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 the Common Curriculum (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 AP, IB or college course may be used to fulfill a HUM, SOCS, QMR, SCLB, or SET requirement in the Common Curriculum (General Education).

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. Students seeking early graduation must obtain approval from the Office of the Dean of Studies by the end of spring term the year preceding their expected graduation. 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 on their website and 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 at participating colleges of the Hudson-Mohawk consortium, please refer to the relevant heading in this catalog under the "Special Curricular Opportunities" section for rules and restrictions. 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 Common Curriculum (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. All students are welcome to participate fully in the commencement ceremony that follows completion of their degree requirements.

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 complete 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 and double majors may earn departmental honors by fulfilling the requirements listed above in at least one of their 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, first-year student cohort entering in September 2005. 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/grad-rate-report.pdf 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 and Programs: David Hayes, Science & Engineering S-100, 388-6233

Dean of Studies: Mark Wunderlich, Science & Engineering S-100, 388-6234

Dean of Academic Planning and Resources: 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 and Programs, the Dean of Studies and the Dean of Academic Programming and Resources.

The Vice President for Academic Affairs & Dean of the Faculty has 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, the Union College Academy for Lifelong Learning (UCALL), the Director of Engineering and the Director of Assessment.

The Dean of Academic Departments and Programs oversees all academic departments and interdisciplinary programs, playing a key role in faculty recruiting, curriculum development, and advising the Vice President for Academic Affairs & Dean of the Faculty on matters associated with the review and promotion of faculty. Supervisory duties include the Director of Interdisciplinary Programs and all academic department chairs and program directors.

The Dean of Studies has responsibility for implementation of academic policies and has supervisory responsibilities that include Academic Mentoring Programs, the Academic Opportunity Program, Advising, the Common Curriculum (General Education), the Health Professions Program, the Law and Public Policy Program, Post-Baccalaureate Fellowships & Scholarships, the Scholars Program, Undergraduate Research, and the Writing Center.

The Dean of Academic Planning and Resources manages academic finances and facilities, supervises the Engineering Machine Lab and supports the Vice President of Academic Affairs, other Academic Affairs' Deans, faculty, administrators and staff within Academic Affairs on various resource matters.

Academic Mentoring Programs

Gale Keraga, Becker Hall 104, 388-6493

The office provides academic support for all students at Union to help them reach their full academic potential. Academic coaching and study skills development through peer mentoring and academic success workshops is available through the Peer Academic Leaders program (PALS). In addition, academic support for some of our traditionally challenging courses is available through the Supplemental Instruction (SI) program, which offers optional, collaborative, peer-led study sessions. The SI program is jointly sponsored by the Union Scholars Program. The office also supports the academic progress of sophomores and returning students on academic warning.

Academic Opportunity Program / Higher Education Opportunity Program

Director: Philip Poczuk, 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 upper-class 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

Students interested in support services for learning disabilities should 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 require students to complete and do well in the following courses:

- two English courses (satisfied by 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: Ellen Yu Borkowski, Peschel Computing Center, 388-6293
its.union.edu

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 2,100 College-owned computers and workstations on campus, with over 700 available for student use. A high-performance computing cluster, which consists of 88 different servers and more than 1,000 individual processors, was installed in the summer of 2011 and will support research at the college. 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 60 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 Help Desk 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 iMac computers with dual boot OSX/Windows 7 and integrated webcams. Microsoft Office 2011 and Skype are installed on all machines. The collaborative workspace area contains 5 iMacs with dual boot (OSX/Windows 7) and integrated webcams, a multi-standard VCR and 2 multi-zone DVD players. Headsets with microphones are available upon request. Language methods for self-study are available for the languages taught at the college (to be used in the center only). All computers have East Asian, Slavic, and Arabic languages enabled as well as Romance Languages. 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

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 and Scholarships

Director: Margaret 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/offices/registrar

The Registrar's Office oversees online 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 reporting of student status and degree verification statistics to the National Student Clearinghouse.

Schaffer Library

Director: Frances Maloy

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. All students complete a Sophomore or Scholars Research Seminar as part of the Common Curriculum (General Education). 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 a 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 non-engineering 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.

NSF-STEM Scholars

The Union College NSF - STEM Scholars Program is an academic scholarship program funded by the National Science Foundation for students with a broad range of interests who are

planning to study in one of the Science, Technology, Engineering or Mathematics (STEM) fields. The scholarship provides selected students with additional financial aid for all four years so long as they remain in the program. The NSF-STEM Scholars are full members of the Union Scholars Program and have additional opportunities as well. A faculty mentor works closely with each cohort and with individual NSF-STEM Scholars to discuss academic issues and developmental needs and to provide expanded research and professional growth opportunities.

NSF-STEM Scholars take the Scholars Preceptorial (FPR-100H) with their peers in the Union Scholars Program, followed by a Research Seminar (SCH-150) that is only open to NSF-STEM Scholars. During the sophomore year, the NSF-STEM Scholars work on their sophomore independent study projects, a two-term (one course credit) sophomore independent study project (295H-296H) with a professor of the student's choosing. NSF-STEM Scholars are encouraged to take advantage of all aspects of the Union Scholars Program, and new opportunities are available in selected years.

Community-based learning

Community-based learning involves courses and study off campus that have a service learning or civic engagement component. Union College has developed many courses that offer students an opportunity to apply the knowledge they are learning in the classroom beyond Union's campus and in doing so both serve and learn from our community. Opportunities include experiences within the mini-term in New Orleans and the National Health Systems term abroad, along with courses in sociology, economics, modern languages, political science and engineering that have significant community service components. The Kenney Community Center offers many programs that provide students with community-based opportunities beyond the classroom.

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, The College of Saint Rose, Empire State College, Hudson Valley Community College, Maria College, Rensselaer Polytechnic Institute, The Sage Colleges, Schenectady County Community College, Siena College, Skidmore College, Southern Vermont College, the State University of New York at Albany, and the State University of New York at Cobleskill.

Students with 18 or more credits toward graduation may not cross-register for courses at a two-year college without permission from the Dean of Studies

Part-Time Undergraduate Study

Union College makes a limited number of its undergraduate programs of study, specifically those in 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 register for courses from these and other departments on a non-degree basis. Registration is handled for all part-time students by the Registrar's Office in Silliman Hall.

Members of UCALL and senior citizens aged 65 and over are entitled to audit one course per academic year at no cost with the written permission of the instructor.

Students wishing to matriculate in an engineering program on a part-time basis are required to meet with the appropriate department chair. 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 for part-time students. Course schedules are available online during the sixth week of the term. Students registering for the first time must do so in person at the Registrar's Office 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.

Relatively few courses are offered in the evening, so matriculated students will 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 the student portal, Webadvising 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/offices/registrar/course-exam-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. Area of studies are generally offered though majors and minors unless indicated below. Please refer to the detailed sections on each area of study for more information.

Comprehensive Listing of Areas of Study

D: Department I: Interdisciplinary Program

Africana Studies^I
 American Studies^I
 Anthropology^D
 Arabic (courses only; see Modern Languages and Literatures^D)
 Art History (see Visual Arts^D)
 Asian Studies^I
 Astronomy (see Physics & Astronomy^D)
 Biochemistry^I
 Bioengineering^I
 Biological Sciences^D
 Chemistry^D
 Chinese (see Modern Languages and Literatures^D)
 Classics^D
 Computational Methods^I (minor only)
 Computer Engineering^I
 Computer Science^D
 Dance (minor only; see Theater and Dance^D)
 Digital Media^I (minor only)
 Economics^D
 Electrical Engineering^D
 Energy Studies^I (minor only)
 Engineering (program overview and general engineering courses)
 English^D
 Entrepreneurship (courses across the curriculum)
 Environmental Science, Policy and Engineering^I
 Ethics Across the Curriculum (courses across the curriculum)
 Film Studies^I (minor only)
 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: Modern (courses only; see Modern Languages and Literatures^D)
 Hebrew: Biblical (courses only; see Classics^D)
 History^D
 Interdepartmental/Interdisciplinary (courses only)
 International Programs
 Italian (courses only; see Modern Languages and Literatures^D)
 Japanese (minor and interdepartmental major only; see Modern Languages and Literatures^D)
 Jewish Studies (minor only)
 Latin (see Classics^D)
 Latin American and Caribbean Studies^I
 Law and Humanities^I (minor only)
 Law and Public Policy (6-year program)^I
 Leadership in Medicine/Health Systems Program (8-year program)
 Managerial Economics
 Master of Arts in Teaching (MAT) (5-year program)
 Master of Business Administration (5-year program)

Master of Business Administration in Health Care Management Program (5-year program)
Master of Science in Electrical Engineering, Master of Science in Mechanical Engineering and
Master of Science in Energy Systems
Mathematics^D
Mechanical Engineering^D
Modern Languages and Literatures^D
Music^D
Nanotechnology^I (minor only)
Neuroscience^I
Organizing Theme^I
Philosophy^D
Physics and Astronomy^D
Political Science^D
Portuguese (courses only; see Modern Languages and Literatures^D)
Psychology^D
Public History (minor, see History^D)
Religious Studies^I
Russian and East European Studies^I
Russian (minor and interdepartmental major only; 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 and Dance^D
Visual Arts^D
Women's and Gender Studies^I
World Musics and Cultures^I (minor only, 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 Common Curriculum (General Education, 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 – Common Curriculum (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.

Common Curriculum (General Education)

Director: Associate Professor John Cramsie (History), 388-8779

The Common Curriculum embodies Union's commitment to build intellectual foundations, explore the liberal arts, and create dynamic connections across boundaries as students discover new interests and contribute to humanity. The courses in the Common Curriculum create the essential foundation of a Union Education in the liberal arts. Through them students begin to find the creative intersections of ideas that contribute to society and touch lives.

Students take at least ten courses in completing the Common Curriculum. Students may double-count any courses taken for Common Curriculum credit toward completion of a Cluster except FPR/FPR-H and SRS/SCH. Students may satisfy any of the requirements except FPR/FPR-H and SRS/SCH with appropriate courses taken on international programs. Additional information of this kind can be found in the Common Curriculum Advising Guide and Worksheet located in the Resources Section of the Common Curriculum website.

Courses that Build Intellectual Foundations

First-Year Preceptorial (FPR-100) engages students in the exploration of ideas and diverse perspectives through critical reading, thinking, and writing. Note that students in the Scholars Program take Scholars Preceptorial (FPR-100H),

Sophomore Research Seminar (SRS-200) ensures that students have an early hands-on experience thinking and working as an academic researcher. Note that students in the Scholars Program take the Scholars Research Seminar (SCH-150) after the Scholars Preceptorial.

Literature (HUL) expands the moral imagination needed to understand one's self and fellow human beings through literary analysis, interpretation, and reflection. Complete any one course in EGL, MLT, or any courses listed in the course schedule as HUL.

Natural Science with Lab (SCLB) changes the way students think about the natural world when students understand the scientific method and put it to work. Complete any one Lab course in AST, BCH, BIO, CHM, GEO, PHY, and PSY-210 (depending on term) or PSY-312.

Quantitative and Mathematical Reasoning (QMR) equips students with unique insights and skills necessary to solve complex problems. Complete any one course from MTH (except MTH 100) or any courses listed in the course schedule as QMR.

Courses that Explore the Liberal Arts

Humanities (HUM) courses enable students to find themselves and voice in creative expression and exploration of the works of the imagination. Complete any one course in AAH, AMU, ATH, AVA, CLS, EGL, MLT or PHL.

Social Sciences (SOCS) courses confront students with the complexity and challenges of our world by analyzing the societies we create. Complete any one course in ANT, ECO, HST, PSC, SOC, or PSY-100.

Science, Engineering, and Technology (SET) introduce students to Union's unique commitment to teaching Science and Engineering as Liberal Arts and examining their impact on our humanity. Complete any one science (with or without a lab), Engineering, Computer Science (CSC), or any courses listed in the course schedule as SET. Note that courses within the major or minor may be used to fulfill any of these distribution requirements.

Courses that Create Connections across Boundaries

Linguistic and Cultural Competency (LCC) empowers students as citizens of a global community to contribute across cultural boundaries and shape our shared future. Complete the two-course LCC requirement in one of these ways:

1. Complete a sequence of two language courses at the 101 level or higher.
2. Go on a term abroad that deals with a cultural tradition outside the United States.
3. Go on a mini-term that deals with a cultural tradition outside the United States; provided the mini-term is associated with a pre-departure and/or post-return set of seminars it may satisfy both courses, otherwise just one.
4. Complete any two courses at Union listed in the course schedule as LCC.

Clusters of courses built around a common theme demand that students transcend boundaries of subjects and disciplines, classrooms and communities, present and future.

Complete the three-course Cluster requirement in one of these ways:

1. Complete a major or a minor in an Interdisciplinary Program (not Interdepartmental) or Organizing Theme
2. Complete three courses in at least two departments from an existing Cluster or in an approved Student Organized Cluster (STOC). Details of the STOC and specific courses associated with each approved Cluster can be found at the Common Curriculum website.

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 Science, Policy and Engineering

Global Cultures

International Narratives: Personal and Historical

International Affairs and Global Studies

Japan: From Amaterasu to Anime

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

Student Organized Cluster**

Theater Studies
Women's and Gender Studies

** Students may work with their advisors to create a Student Organized Cluster (STOC). A STOC should follow the normal guidelines for clusters: at least three courses that relate to a common theme from two or more departments, no more than one from the department of the major (one from each department for interdepartmental or double majors). A STOC may not be used to complete the cluster requirement in place of what is essentially the same topic or subject as an existing Cluster. For example, an advisor cannot approve 'Women's Issues' as a STOC given we have a 'Women and Gender Studies' Cluster. The STOC must be defined by the student and approved by the student's advisor before the end of the junior year; i.e. approval should be completed no later than the pre-registration advising period at the end of the junior year. No student may declare a STOC in the senior year.

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 academic 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

WAC/S: fulfills WAC or Senior Writing

Divisions

Departments of instruction are grouped into divisions as follows. For courses in interdisciplinary programs not listed below, students should consult with their advisor or with the Director of Interdisciplinary Studies.

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

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

Social Sciences (Division II)

Africana Studies
Anthropology
Economics
History
Political Science
Psychology*
Sociology
Women's and Gender Studies

Sciences (Division III)

Biochemistry
Biological Sciences
Chemistry
Geology
Mathematics
Neuroscience
Physics and Astronomy
Psychology*

Engineering and Computer Science (Division IV)

Bioengineering
Computer Science
Electrical and Computer Engineering
Mechanical Engineering

* Courses in the Psychology Department may be classified as social science courses (Division II) or Sciences (Division III). Please refer to course listings for clarification.

Academic Course Listing

Africana Studies

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

Faculty: Professor T. Meade (History); Associate Professors B. Peterson (History), C. Ndiaye (Modern Languages), T. Olsen (Music), Robert Hislope (Political Science), L. Cox (Visual Arts); Assistant Professors E. Garland (Anthropology), K. Lynes (English), K. Aslakson (History); Senior Lecturers M. Lawson (History), J. Grigsby (Sociology)

Africana Studies offers a full major, an inter-departmental 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. Students align the current set of Africana Studies course offerings into three tracks: African, Latin American/Caribbean and African-American.

Each of these tracks can be utilized to pursue a 12-course full major, an 8-course ID major, or a 6-course minor.

Requirements for the Major [12 courses]

AFR-100 Intro to Africana Studies

Two-term senior thesis [AFR 498-499]

Two history courses chosen from the relevant track

One literature course chosen from the relevant track

Two courses chosen from the other tracks

Four electives, two of which must be from the same department, chosen from the relevant track and/or courses relevant to multiple tracks

Requirements for the Interdepartmental Major [8 courses]

AFR-100 Intro to Africana Studies

Two-term thesis which includes Africana Studies in conjunction with other departmental major [IDM 498-499]

Two history courses chosen from the relevant track

One literature course from the relevant track

One course chosen from the other tracks

Two electives from the same department, chosen from the relevant track and/or courses relevant to multiple tracks

Requirements for the Minor [6 courses]

AFR-100 Intro to Africana Studies

Two history courses chosen from the relevant track

One literature course chosen from the relevant track

Two electives from the same department, chosen from the relevant track and/or courses relevant to multiple tracks

Africana Studies Courses

AFR-100 Introduction to Africana Studies (Fall). 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. CC: LCC

AFR-295H-296H. Africana Studies Honors Independent Study

AFR-490-491. Independent Study in Africana Studies

AFR-498-499. Senior Thesis

Art History Courses

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

Classics Courses

CLS-110 Ancient Egypt: History and Religion

English Courses

EGL-219 African-American Literature in Historical Context: 1900-Present

EGL-240 Black Women Writers

History Courses

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 History of New Orleans

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-315 Race and Constitution

HST-322 Slavery and Freedom

HST-324 Race in American Memory

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 Courses

FRN-304 Studies in the French Caribbean

FRN-305T Mini-term in Martinique

FRN-307 Negritude Movement (Spring 12)

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 Courses

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 Courses

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-333 Twentieth Century American Political Thought
 PSC-339 Black Radical Politics and the Legacies of Malcolm X

Sociology Courses

SOC-212 Sociology of the American Family: Cross Cultural Perspectives
 SOC-230. African-Americans in Contemporary Society
 SOC-233 Race, Class, and Gender in American Society
 SOC-346. African American Women: Unheard Voices and Contemporary Lifestyles

Theater and Dance Courses

ADA-142(052) Dance in America

Terms Abroad Courses

FRN-305T Mini-term in Martinique
 HST-278T South Africa Mini-term
 SOC-387T Community Service Mini-term
 TAB-344T Ancient and Modern Egypt Mini-term

American Studies

Director: Associate Professor L. Cox (Visual Arts)

Faculty: Professor C. Brown, L. Marso, Z. Oxley (Political Science); Associate Professors A. Feffer, A. Foroughi, A. Morris (History), J. Matsue, T. Olsen (Music), D. Hill-Butler, M. Goldner, (Sociology); Assistant Professors, K. Lynes, J. Murphy, B. Tuon (English), K. Aslakson (History), B. Hays, M. Scherer (Political Science); Senior Lecturer A. Selley (English), M. Lawson (History), T. Lobe (Political Science).

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, including the three required core courses (at least one core course must be from English and one from History) should 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-266, PSC-283, and/or PSC-371. 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 during the 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 American Studies program director by the fifth week of spring term of his or her junior year and submit a thesis proposal listing their preferred 1st and 2nd 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 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 one English and one history core course. (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 or IDM-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 during the 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. The other department or program may also assign the student a thesis advisor. A student must consult with the American Studies program director by the fifth week of spring term of his or her junior year and submit a thesis proposal listing their preferred 1st and 2nd 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 one English and one history core course (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 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 Selection 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 he 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-208 Business of Visual Art and Contemporary Entrepreneurship

AAH-222 History of Photography

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 course in the English Department. Students must take two 200 level courses before enrolling in a 300 level course and four 200 level courses before enrolling in a 400 level course.

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-234 The Beats and Contemporary Culture
 *EGL-240 Black Women Writers
 *EGL-244 Asian American Literature and Film
 EGL-250 Literature and Science
 * 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-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-287 Science Fiction
 EGL-288 Studies in a Major Film Genre
 EGL-293 Studies in a Major Film Director
 EGL-299 Power of Words

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. Topics vary. Please see English Department course listings in the Academic Register.

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. Topics vary. Please see English Department course listings in the Academic Register.

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)
 *SPN-406 Film of the Mexican American Border

Philosophy

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

Theater & Dance

ADA-140 American Musical Theatre and Dance. (ATH-140)
 ADA-142 Dance in America
 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-116 Age of Jackson
- 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-221 Popular Culture and American History
- 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-226 A Novel View of History
- HST-227 Introduction to Oral History
- *HST-231 The Civil Rights Movement

HST-232 History of New Orleans
 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-323 Race and Revolution
 *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-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-237 Music and Politics
 PSC-239 Feminist Political Theory (WGS)
 *PSC-240 Comparative Ethnic and Racial Politics
 PSC-241 Religion & Politics
 PSC-251 American Foreign Policy
 PSC-257 U.S. Empire in Crisis
 PSC-260 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-265 Early American Politics: US Politics from Revolution to Reconstruction
 PSC-266 Women and Politics (WGS)
 PSC-268 Electoral Politics
 PSC-269 Media and Politics
 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 Defense Policy
 PSC-358 (R) Wealth and Power Among Nations
 PSC-362 CIA and the Art of Intelligence
 PSC-366 Presidential Politics
 PSC-369 Seminar: U.S. Politics
 PSC-370 Constitutional Law
 PSC-371 Civil Rights and Civil Liberties
 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-290 Personality, Media and Society
*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

NOTE: The following WGS courses must be approved annually by the American Studies Program Director.

WGS-100 Introduction to Women's and 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 L. Cool

Faculty: Professors K. Brison, S. Gmelch (on leave 2012-13), G. Gmelch (on leave Fall and Winter); Associate Professor S. Leavitt (Dean of Students); Assistant Professors E. Garland (on leave 2012-13), J. Witsoe (on leave Fall and Winter); Visiting Assistant Professors P. Christensen, A. Jarrin

Staff: J. Bazar (Administrative Assistant)

Requirements for the Major: Twelve courses including four Foundation courses (ANT-110, ANT-214 (114), ANT-390 (290), and ANT-363), and a two-term senior thesis in cultural anthropology. We strongly encourage majors to go on a full term abroad, preferably one of the two anthropology field terms, Fiji and Tanzania.

Requirements for the Interdepartmental Major: Eight courses, including ANT-110, ANT-390 (290), ANT-363, an Interdepartmental thesis and four electives or an Anthropology 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-390 (290) or ANT-363, and (3) four electives.

Course Selection Guidelines: The department accepts appropriate AP and transfer credits as electives or in place of ANT-110. In most cases we prefer that students take other required anthropology courses at Union. Students with no previous background in anthropology may take

any 100 or 200 level courses, although ANT-110 is a good first course. 200 level courses generally involve more intensive examination of a particular topic while 100 level courses offer more general surveys of particular sub-fields of anthropology. Students intending to major in anthropology are required to take ANT-214 and ANT-390 in their sophomore or junior year. ANT- 363 must be taken in the spring of the junior year; students anticipating going on a term abroad in spring are strongly encouraged to take ANT-363 in their sophomore year. We strongly encourage students to go on a full term abroad, preferably one of the two anthropology field schools, Fiji and Tanzania.

Field Program in Anthropology: (Fiji – Fall; 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. Fiji participants will receive one credit for an independent study in anthropology (ANT-490T), one credit for ANT-185T (Peoples and Cultures of the Pacific) and one credit for ANT-255T (Culture and Work).

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. *CC: LCC, SOCS*

ANT-214 (114). Language and Culture. (Spring; 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. *CC: 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. Prerequisite: ANT-110

ANT-390 (290). Thinking about Culture. (Winter; Jarrin). 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. Prerequisite: ANT-110 *CC: LCC*

Electives

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

ANT-130. Food and the Self. (Winter; Christensen). 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. *CC: LCC*

ANT-148. Introduction to World Music (Same as AMU 120) (Fall; Matsue). Introduces music from various world areas including Africa, Latin America, Asia, and Europe through live performance, lecture, video and audio. Students will increase familiarity with a wide range of musical styles while also exploring the relationship between music and society. *CC: LCC*

ANT-170. Myth, Ritual and Magic. (Same as REL 170) (not offered 2012-13). 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. *CC: LCC*

ANT-184. Contemporary Japanese Society. (Fall; Christensen). 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. *CC: 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. (not offered in 2012-13). 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. *CC: LCC*

ANT-222 (125). Childhood in Anthropological Perspective. (Winter; Brison). 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. *CC: LCC*

ANT-225. Gender and Society. (Fall; Jarrin). 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. *CC: LCC*

ANT-226 (146). Education and Culture. (not offered 2012-13). 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? *CC: LCC*

ANT-228. Cross-Cultural Perspectives on Race. (not offered 2012-13). 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. *CC: LCC*

ANT-229. Ruminations on Violence. (not offered in 2012-13). 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. *CC: LCC*

ANT-230. Medical Anthropology. (Not offered in 2012-13). 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. *CC: LCC*

ANT-232. Bombs to Buddhism: Fatalism, Technology, and Modern Japanese Culture. (not offered 2012-13). 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. *CC: LCC*

ANT-235. Fundamentalism. (not offered 2012-13). 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. *CC: LCC*

ANT-236. Youth and Popular Cultures. (not offered 2012-13) 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. *CC: LCC*

ANT-239 (139). Family and Kinship. (not offered in 2012-13). 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. *CC: LCC*

ANT-240. Technology, Culture & Society. (Not offered in 2012-13) 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. *CC: LCC*

ANT-241. Environmental Anthropology. (not offered in 2012-13). 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. *CC: LCC*

ANT-242. Economic Anthropology. (not offered in 2012-13). 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? *CC: LCC*

ANT-243. Anthropology and International Development. (Spring; 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. *CC: LCC*

ANT-245. Sport, Society, and Culture. (not offered 2012-13). The comparative study of the role of sport in society. Topics include the meaning of play and sport; the evolution of sport; sport and socialization; ritual in sport; sport and gender; sport and race; sport and education; sport, conflict and violence; and sport and cultural change.

ANT-246. Anthropology of Human Rights. (not offered 2012-13). 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.

ANT-247. Living With Globalization. (not offered in 2012-13). 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. *CC: LCC*

ANT-248. Sustainable Culture (not offered in 2012-13). This course is premised on the contention that the challenge of achieving environmental sustainability is as much a matter of culture as it is of technical capability, or even political will. By exploring a particular environmental topic in depth over the course of the term, the class will gain insight into the ways that our interactions with the natural world are shaped by, and refract through, our core identities, values, and cultural beliefs. As we will see, attempts by policy-makers to promote environmentally sustainable behavior often founder precisely because they fail to consider cultural factors adequately, and one of our key goals will be to think about how to improve environmental policy in this regard. The course will consist of readings and lectures about a particular environmental issue (the issue will change from year to year), considered in a range of ethnographic and geographic contexts, and from a variety of theoretical perspectives – including those of natural scientists, who will be invited to guest lecture in the course as appropriate. Working together, the class will attempt to identify common elements and dynamics that connect the various perspectives and case studies, in effect collectively developing an analytic framework for thinking about the environmental issue in question by synthesizing social and cultural angles with scientific and policy considerations. As part of the course, students will complete an independent research project resulting in a policy position paper. The course is designed to complement ANT 241 (Environmental Anthropology), and the two courses may be taken individually or both, in either order. *CC: LCC*

ANT-250. Humans and Animals. (not offered in 2012-13). 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. *CC: LCC*

ANT-251. Culture, Aging, and Social Policy. (Winter; Cool). 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 through social policies in nations around the world. *CC: LCC*

ANT 252. Global Christianities. (not offered in 2012-13). Although Christianity has its historical roots in the Mediterranean world, during its 2000 year history it has migrated to almost every geographical area of the globe giving rise to many vibrant local Christianities with distinct and culturally specific identities. While many people associate contemporary Christianity with Euro-Americans, scholars point to Christian churches dating from the 5th century in North Africa and in India. Scholars argue that the demographic center of Christianity has already shifted to the Global south. This course investigates the ways Christianity has been shaped by contact with different world cultures and the social processes and religious changes implicit in the acculturation of Christianity in diverse geographical regions and cultural contexts. Questions addresses will include: i) how has Christianity been localized in various areas of the world?; ii) what is the appeal to Pentecostalism in the global south? Is it a conservative force directing attention away from social inequalities or does it challenge social inequalities? iii) what kinds of transnational networks are formed by contemporary Christians and how do these shape new kinds of identities?; iv) what is the appeal of apparently patriarchal and conservative forms of Christianity to women, who form the majority of Christians in most areas? *CC: LCC*

ANT-254 (150). Anthropology of Religion. (not offered in 2012-13). 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. *CC: 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. *CC: LCC*

ANT-260. Tourists and Tourism. (not offered 2012-13). 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. *CC: LCC*

ANT-262 (160). Photographing Culture. (not offered in 2012-13). 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. *CC: LCC*

ANT-265. The Museum: Theory & Practice. (same as HST-265) (not offered 2012-13). 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 2012-13). 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 2012-13). 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. *CC: LCC*

ANT-272. Psychological Anthropology. (Winter; Brison). This course examines the influence of culture and society on individual psychology. Readings and class discussions examine the history of the way anthropologists have thought about the relationship between culture and personality. Issues examined will include: Do cultures produce and favor distinctive personality types? How is mental illness shaped by cultural beliefs and social practices? Are there distinctive "culture bound syndromes" and, if so, what produces them? Do cultures provide tools to help individuals adjust to crises? Do some cultures do this better than others? Are emotions fundamentally the same across cultures or does emotional experience vary significantly with culture? Is there a culture of psychiatry in the US? How do our cultural assumptions and our pharmaceutical industries shape our views of personality and mental illness? Cases will be drawn from Oceania, Asia, North America, and the Middle East. *CC: LCC*

ANT-274. Music and Culture. (Same as AMU 220) (Spring; Matsue). This seminar explores the relationship between music and culture through live performance, discussion, video and audio, 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. *CC: LCC*

ANT-278. Subjectivity in the Age of Biotechnology. (Fall; Jarrin). This course examines how our lives, identities and futures have been and will be transformed by new biotechnologies and their implications. From pharmaceuticals and the human genome to plastic surgery and organ trafficking, our subjectivities are being redefined as exceeding the "natural" limits of our bodies and entering a "posthuman" era of uncharted ethical and political implications. In this course, we will learn the analytical tools developed by anthropology, the history of medicine and science studies in order to understand how medical science approaches the body and produces knowledge about it. We will explore the role that globalization and capitalism are playing within the development of new biotechnologies, and examine how race, gender and sexuality are being reconfigured within this new paradigm. If new subjectivities or forms of citizenship are being created through biotechnology, what do they look like, and how are these new actors engaging with society?

ANT-280. Contemporary India. (Spring; Witsoe). 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.” *CC: LCC*

ANT-281 (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 political movements are analyzed in the context of the European Union. *CC: LCC*

ANT-283 (183). Peoples and Cultures of Latin America. (Spring; Jarrin). 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. *CC: LCC*

ANT-284 (189). East Asia in Motion. (not offered in 2012-13). East Asia has a long history of constantly shifting borders, diaspora populations, and unstable identities. Going beyond the idea of the bounded national cultures such as China, Japan and Korea, this course takes East Asian as region in order to examine how cultural forms and people have changed as a result of globalization forces. The course will cover anthropological categories such as diaspora, race, gender, identity, tourism, memory, and sports, but will reconsider them within the East Asian context(s). *CC: LCC*

ANT-285T (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. *CC: LCC*

ANT-287. Postcolonial Africa. (not offered in 2012-13). 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. *CC: 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. Prerequisite: minimum GPA of 3.2.

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

ANT-498. Senior Thesis. (first term)

ANT-499. Senior Thesis. (second term)

Arabic (see Mod. Languages and Literature)
Art History (see Visual Arts)

Asian Studies

Director: Associate Professor J. Matsue (Music)

Faculty: Professor B. Lewis (Economics); 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), J. Witsoe (Anthropology), Z. Zhang (Modern Languages), S. Lullo (Visual Arts); Visiting Assistant Professor P. Christensen (Anthropology), Visiting Assistant Instructor C.S. Gan (History)

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 taken 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 AIS 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 AIS 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 AIS courses.

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

AIS-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-201 Islamic Art and Architecture
AAH-280 Buddhist 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
CHN-400 The Changing Face of China
CHN-401 Media China

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
MLT-254 Explore Japanese Manga and Anime

Music

AMU-012. Union College Japanese Drumming Ensemble (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 Drumming 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
ANT-280 Contemporary India
ANT-284 East Asia in Motion

Economics

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

History

*HST-181 Confucians and Conquerors: East Asian Traditions
*HST-182 Rebels, Reds, and Regular Folks: The Turbulent History of Modern Asia
HST-281 Samurai to Salarymen: Modern Japanese History
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-213 Contemporary Chinese Politics
PSC-244 Japan: Conflict and Consensus
*PSC-253 International Politics in East Asia
PSC-258 Chinese Foreign Policy

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 Studies Abroad
(See International Programs—Japanese Term Abroad)

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 110, 112, 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 Honors: 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.

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.

Course Selection Guidelines

Descriptions of courses from the Departments of Biology and Chemistry can be found under the department listings. 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.

Since Biochemistry is an interdisciplinary major, students are not required to complete a cluster as part of the Common Curriculum requirements. For detailed advising suggestions see the advising website at <http://www.union.edu/advising> under Department-Specific Advising Tips.

Placement: AP credit is awarded as per current Biology and Chemistry Department guidelines.

Courses for non-majors: Biochemistry 335 is a survey course for non-biochemistry majors who have fulfilled the necessary prerequisites as listed below. It is not appropriate for non-science majors looking to fulfill Common Curriculum requirements.

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

- By completing a senior thesis in conjunction with senior research (Biology 497, 498, 499 or Chemistry 491, 492, 493);
- By selecting the biology senior seminar that emphasizes cellular/molecular topics, Biology 489.
- 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 upper level, molecularly-based biochemistry 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

BCH-335. Survey of Biochemistry (Same as BIO-335 and BCH-335) (Spring; Paulick). A survey of topics in biochemistry including the structure, conformation, and properties of the major classes of biomolecules (proteins, nucleic acids, lipids, and carbohydrates); enzyme mechanisms, kinetics, and regulation; metabolic transformations; and bioenergetics and metabolic control.

Emphasis will be on the fundamentals of biochemistry and our current understanding in the field. Prerequisites: Biology 225 and Chemistry 231; Chemistry 232 is recommended. 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, Paulick). 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: Professor S. Rice (Biological Sciences) and Associate Professor S. Cotter (Electrical and Computer Engineering)

Faculty: Professors L. Fleishman (Biological Sciences), M. Mafi (Engineering), R. Olberg (Biological Sciences); Associate Professor S. Kirkton (Biological Sciences); Assistant Professors J. Currey (Bioengineering), T. Buma (Electrical and Computer Engineering); Visiting Assistant Professor S. Khetan

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 share common foundation and core courses in biology, biomechanical engineering, bioengineering and electrical engineering, and choose among upper-level electives in biomechanical and bioelectrical engineering. Courses in biomechanics focus 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 engineering courses explore the interfaces 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. During senior year, students engage in a bioengineering capstone design and may elect to conduct research under the guidance of a faculty member.

Educational objectives and program outcomes are listed on the program website: union.edu/academic_depts/bioengineering.

Requirements for the Major: The Bioengineering major requires courses in 1) math, science and general engineering, 2) foundation and core courses in bioengineering, 3) bioengineering electives, and 4) a capstone design course.

Required courses in math, science and general engineering: Calculus through MTH-117; MTH-130 (Differential Equations); CSC-10X (Introduction to Computer Science); ESC-100 (Exploring Engineering); PHY-120 (Matter in Motion) and PHY-121 (Principles of Electromagnetics); CHM-101 (Introductory Chemistry I) or CHM-110 (Accelerated Introductory Chemistry).

Required foundation and core courses in bioengineering: BNG-101 (Graphics and Image Processing for Biomedical Systems); BNG-201 (Biomechanics I); BNG-202 (Biomechanics II); two additional courses in biomechanics (BNG-33X or BNG-34X); BIO-112 (Physiology of Cells and Organisms); BIO-225 (Molecular Biology of the Cell); two additional >300-level biology courses,

one with lab, pre-med students may substitute BIO-110 for the non-lab course requirement; ECE-225 (Electric Circuits); ECE-240 (Circuits and Systems); ECE-241 (Discrete Systems); BNG-386 (Introduction to Biomedical Instrumentation).

Bioengineering electives. Five courses from BNG, ECE, CSC-243 or other engineering courses subject to approval (but not BNG-240 or BNG-375), one must have a lab and at least three must be >300 level.

Capstone design: BNG-495 (Bioengineering Capstone Design)

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; (3) final six terms of courses at Union. The major courses are listed under “Required foundation and core courses in bioengineering,” “Bioengineering electives” and also BNG-495.

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

Core Course Requirements: BIO-112, 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 Selection Guidelines

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

Course Sequence. Students should consult with their academic advisor and the following yearly requirements when scheduling courses. Some 300 level courses are not offered every year, and some of these courses will be taken outside of the year indicated.

Senior Projects. Students interested in working with a faculty member on a two-term Senior Project should meet with potential faculty advisors during their junior year to identify a project; students should notify a Program Director when this process is complete. The first course (BNG-497) will count as a Free Elective and BNG-498 will count as a BNG Elective.

First Year:

BIO-112, CHM-101, CSC-10X, ESC-100, FPR-100, MTH-113⁽ⁱ⁾, MTH-115⁽ⁱ⁾, PHY-120⁽ⁱ⁾, PHY-121⁽ⁱ⁾, Elective⁽ⁱⁱ⁾

Second Year

BIO-225, BNG-101, BNG-201, BNG-202, ECE-225, ECE-240, MTH-130, SRS-200, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱⁱ⁾

Third Year⁽ⁱⁱⁱ⁾

BIO-3XX^(iv), BNG-386, BNG-33X or BNG-34X^(v), ECE-241, MTH-117, BNG-Elective^(vi), BNG-Elective^(vi), Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾

Fourth Year

BIO-3XX^(iv), BNG-33X or BNG-34X^(v), BNG-495, BNG-Elective^(vi), BNG-Elective^(vi), BNG-Elective^(vi), Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾, Elective⁽ⁱⁱ⁾

⁽ⁱ⁾ Alternative mathematics and physics sequences are possible depending on the preparation of the student.

⁽ⁱⁱ⁾ The Elective courses must be satisfied as follows: five Common Curriculum courses and five Free Electives. Students planning to attend medical school should take CHM-231/232 (organic chemistry) as electives and BIO-110 as a >300 level Biology course (see note ^{iv} below).

⁽ⁱⁱⁱ⁾ The Linguistic and Cultural Competency component of the Common Curriculum is recommended to be satisfied in the third year through a Term Abroad during Fall Term.

^(iv) Biological Science courses must be >300 level and one requires lab. Pre-med students may use BIO-110 to satisfy the non-lab course requirement.

^(v) Bioengineering courses BNG 330-349 represent courses in the Biomechanics area.

^(vi) The BNG Elective courses include any five courses from BNG, ECE, CSC-243 or other engineering courses subject to approval; one must have a lab and at least three must be >300 level.

Courses for Major

BNG-101. Graphics and Image Processing for Biomedical Systems (Fall; Catravas, Cotter). Students will learn how to create objects, assemblies, and engineering drawings using SolidWorks, a solid modeling software. Students will also be introduced to the fundamentals of image acquisition and processing in biomedical systems and the use of block diagrams to construct more complex processing systems. There is a weekly laboratory.

BNG-201. Biomechanics I (Winter, Mafi). A basic biomechanics course concerned with two- and three-dimensional force systems, equilibrium and distributed forces. These topics will be studied in the context of the musculoskeletal system. This course also introduces strength and elastic deflection of biological tissues due to loads applied axially, in torsion, in bending, and in shear. Shear and bending moment diagrams, friction, and area moments of inertia will be introduced. Prerequisites: MTH-110 or equivalent and PHY-120. There is a weekly laboratory.

BNG-202. Biomechanics II (Spring, Khetan). Kinematics and kinetics of particles and rigid bodies in planar motion with applications to human motion analysis. The course includes Newtonian and energy approaches to problem solutions. Prerequisite: BNG-201. There is a weekly laboratory.

BNG-240. Introduction to Bioengineering (Not offered in 2012-13). 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. Prerequisites: MTH-110 or equivalent and one course in BIO, CHM or PHY that counts towards the major.

BNG-311. Advanced Mechanics (Not offered in 2012-2013). Advanced biomechanics topics in stress analysis, deflection and stiffness, failure analysis, fracture mechanics, fatigue. Prerequisite: BNG-202.

BNG-331. Cell-Tissue-Material Interaction (Spring; Same as BIO-231, Khetan). 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-112.

BNG-338. Mechanobiology (Winter, Currey). This course will focus on the mechanical regulation of biological systems. The topics covered include principles and concepts of mechanobiology; embryogenesis and histogenesis of tissues with a focus on the skeletal system; physical forces at the cellular, tissue, and organ level; mechanical regulation of cellular behavior, tissue growth and organ development. Prerequisite: BNG-201 or MER-214.

BNG-344. Biomechanics of Human Motion (Fall; Khetan). 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: BNG-202 or MER-212.

BNG-345. Orthopedic Biomechanics (Winter, Same as MER-345, Currey). This course will examine issues in the field of Orthopaedic Biomechanics. We will explore the current state of knee, dental, spinal, and other orthopaedic implants. We will also look at treatments available for fracture healing. Prerequisite: BNG-201 or MER-214.

BNG-346. Soft Tissue Mechanics (Winter; Same as MER-445, Ramasubramanian). This class will cover the mechanical behavior of soft tissues with focus on the musculoskeletal system and the circulatory system. From a mechanics stand point, we will deal with topics such as viscoelasticity, muscle mechanics, large strain elasticity, and pressure vessels. From a biological stand point, we will deal with tissues such as muscles, blood vessels, tendons, and ligaments. Pre-req: MER 214 or equivalent.

BNG-375. Animal Locomotion (Not offered in 2012-13). 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. Prerequisites: BIO-112 and PHY-110 (or PHY-120).

BNG-386. Introduction to Biomedical Instrumentation (Winter; Same as ECE-386, Buma). 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-240.

BNG-397 Biometric Signal Processing (Winter; Same as ECE-377, Cotter). 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. Prerequisites: ECE-241 and CSC-103, 104, 105, 106, 107 or 109. One lab per week.

BNG-487. Biomedical Signal and Image Processing (Spring, Buma). 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 and CSC-109, 103, 104, 105, 106, or 107.

BNG-495. Bioengineering Capstone Design (Winter; Currey, Khetan). 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.

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 S. Horton

Faculty: Professors L. Fleishman, R. Olberg, S. Rice; Associate Professors Q. Chu-LaGraff, J. Corbin, B. Danowski, S. Kirkton, R. Lauzon, K. LoGiudice, J. Salvo; Assistant Professors N. Theodosiou, R. Yukilevich; 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), G. Schweizer (Administrative Assistant)

Requirements for the Major: Ten courses in biology, including Biology 110 (102), 112 (101) and 225. Students who have Advanced Placement credit for biology will receive credit for Biology 050, which does not count toward the major or minor, but fulfills the CC Science with Laboratory requirement. The remaining courses must include at least one in each of the following areas:

Sub-cellular (Biology 335, 352, 354, 355, 363, 378, 380, 384);

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

Population or community (Biology 201, 314, 320, 322, 324, 325, 345, 350).

Of the ten courses, only one may be an independent study, research, or honors course (Biology 490-496 or 497-499). Students must take at least five courses numbered 240 or above and students must take three lab courses numbered 300 or higher. 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 first 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 interdepartmental major listed as Biology/Other are required to take eight biology courses. Those wishing to have their interdepartmental major listed as Other/Biology 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 110 (102) and 112 (101). 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 110 (102) and 112 (101). 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 CC course toward the minor if it is their first course in the minor.

See relevant listings for requirements for a major in biochemistry, environmental sciences & policy, bioengineering, or neuroscience.

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 110 (102), 112 (101), and 225; at least four 200 or 300 level courses, including 350; and at least one course each from the areas of field biology (Biology 250, 314, 315, 320, 321, 324, 328), functional biology (Biology, 330, 355, 362, 370, 375), and morphological biology (Biology 321, 332, 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 Psychology 246, Structured Field Experiences EDS 500A and 500B (see Educational Studies for the appropriate requirements to complete the Field Experiences), and one year of a foreign language.

Course Selection Guidelines

Placement: Students who received a score of 4 or 5 on the Advanced Placement exam may receive credit for Biology 050. The Biology 050 credit received from the A. P. exam does not count as one of the biology courses toward the major or minor.

Courses Suitable for Non-Majors: Biology 050, 055, 058, 065, 077, 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. IDM 080, which requires permission from the instructor, is also suitable for selected non-majors, but it does not count for CC science credit.

Senior Writing Requirement: Biology majors can satisfy the Senior Writing requirement (WS) by conducting research under the direction of a faculty member and writing a thesis (see Biology 497) or by taking one of the Senior Seminar courses in their senior year (see Biology 487, 488, or 489).

Common Curriculum Courses (CC)

BIO-050. Topics in Contemporary Biology (Spring; Willing). Recent developments in biology are pertinent to human health and to concerns of the nature of life and of human social values. This course will focus on human genetics, human genetic diseases, the genetic component of

other diseases, the genetics of cancer, and the immune system. Fulfills CC science with laboratory requirement (SCLB).

BIO-055. Evolution of Animal Behavior (not offered in 2012-13). 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. Not open to science majors. Fulfills CC science with laboratory requirement (SCLB).

BIO-058. Astrobiology (same as AST-058) (Winter; Horton and Koopman). 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 both 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. Fulfills CC science requirement (no lab) (SET).

BIO-065. Food and Health in the 21st Century (Fall; Willing). 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, and pollution); sustainability of our modern food supply system; and causes and remedies of hunger in the world. Fulfills CC science requirement (SCLB).

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 CC science requirement (no lab) (SET).

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 110 (102) or Biology 112 (101). Fulfills CC science requirement (no lab) (SET).

IDM-080 (BIO-080). Practicum in Hospital Health Care (Fall, Winter, Spring; Beaton, Hospital Staff). A field course combining supervised observation and/or service learning experiences in various health care settings with study of problems and means of health care delivery. On-campus seminar meetings are required. Does not fulfill CC science credit.

Courses for Majors

BIO-110 (102). Heredity, Evolution, and Ecology (Fall, Winter; 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 recitation period per week.

BIO-112 (101). Physiology of Cells and Organisms (Winter, Spring; 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 and neural function, and the physiology of movement. One lab per week. Prerequisite: BIO-110 (102) or permission of the instructor.

BIO-201. Food Ecology (Same as ENS-201) (not offered 2012-13). This course will examine the environmental issues related to food; it will include food derived through agriculture (e.g., grain crops, fruits, and vegetables), and also food from domesticated or wild animals (dairy, beef, chicken, pork, or fish). We will compare production methods in the technologically advanced West with those in more traditional systems (past and present). We will look at how and why food production was transformed into an enormous user of fossil fuel in the twentieth century. We will look at how and why food production causes environmental problems, such as: loss of soil fertility, reductions in fresh water supplies, and the pollution of ground water, rivers, and oceans. Finally, we will explore whether current methods of food production are sustainable and adequate for a growing population; we will discuss new ideas that could help ensure food production, while also reducing pollution and use of fossil fuel. Prerequisite: BIO-110 (102) or declared ENS major.

BIO-208. Paleontology (Same as GEO-208).

BIO-210. Introduction to Cognitive Neuroscience (Same as PSY-210).

BIO-211. Brain and Behavior (Same as PSY-410).

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-110 (102) and BIO-112 (101) or permission of instructor.

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

BIO-240. Introduction to Bioengineering (same as BNG-240).

BIO-243 (283). Bioinformatics: Information Technology in the Life Sciences (same as CSC-243) (Spring; Horton and Fernandes). The disciplines of biology and information technology are intersecting with 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 personalized medicine. Prerequisite: BIO 225 or one course from CSC-103 to 109.

BIO-250 (203). Vertebrate Natural History (not offered 2012-13). 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 (exclusive of fish). 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 six 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-110 (102) and BIO-112 (101) or permission of the instructor. Preference will be given to second year students.

BIO-256T. Coastal Biology (not offered 2012-13). 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 instructor is required. Associated courses are Marine Policy and the Maritime Environment (SOC-358T) and Images of the Sea (TAB-355T).

BIO-264. Epigenetics, Development, and Diseases (Spring; Chu-LaGriff). 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-291, 292, 293. Biology Research Practicum (Fall, Winter, Spring; Staff). The Biology Research Practicum is designed to allow students to engage in research in the biological sciences early in their undergraduate careers. Students will work under the direction of a member of the biology

faculty, often collaborating with seniors who are completing their research. Expectations include a minimum of four hours per week of lab work and attendance at Biology Department seminars and/or weekly lab meetings. This course requires advance permission of the individual research advisor, who may have additional requirements. To receive Pass/Fail credit equivalent to one course, the student must earn three terms of passing grades for the practicum experience. Not open to students currently enrolled in a sophomore scholars projects in the Biology Department or in BIO-490 to 499. Does not count as a major elective.

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-314. Ornithology (Spring; Bishop). Birds are excellent subjects to study all levels of biological organization, from biochemistry to genetics through physiology, ecology, and evolution. This course emphasizes the evolution, morphology, physiology, ecology, and conservation biology of avifauna. A conservation management perspective on birds will highlight proactive measures to maintain and restore bird populations. One lab per week. Prerequisite: BIO 110 (102) or permission of the instructor.

BIO-315. Biology of Plants (not offered 2012-13). A survey course of land plants, with emphasis on diversity, physiology, ecology, field identification, economic importance, and natural history of these organisms. One lab per week. Prerequisites: BIO-110 (102) and BIO-112 (101) or permission of the instructor.

BIO-320. Ecology (Fall; LoGiudice). Organisms and their environment, population and community ecology, and the structure and integration of ecosystems will be discussed along with a focus on animal community ecology. One lab per week with frequent field trips. Occasional meetings may be required outside of normal class time for field excursions. Prerequisites: BIO-110 (102) and BIO-112 (101) or permission of the instructor.

BIO-321. Herpetology: Biology of Amphibians and Reptiles (Fall; 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 groups and among other vertebrate groups. Special emphasis will be given to local fauna. Students must be available for one evening and one Saturday field trip. Prerequisites: BIO-110 (102) and BIO-112 (101) or permission of the instructor.

BIO-322. Conservation Biology (Spring; Rice). 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-110 (102) or permission of instructor.

BIO-324. Plant Ecology (not offered 2012-13). 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 to Saturday overnight trip to a field station in the Adirondack Park. Prerequisite: BIO-110 (102) or permission of the instructor.

BIO-325. Animal Behavior (Same as PSY-311) (Winter; Fleishman). An introduction to the study of animal behavior. The mechanisms and evolutionary processes underlying animal behavior under natural conditions will be examined. One lab per week. Prerequisites: BIO-110 (102) and BIO-112 (101) or permission of the instructor.

BIO-328. Aquatic Biology (not offered 2012-13). 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-110 (102) and BIO-112 (101) or permission of the instructor.

BIO-330. Comparative Animal Physiology (Spring; Fleishman). A study of internal physiological systems (e.g., respiration, circulation, and muscle systems). 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-110 (102) and BIO-112 (101).

BIO-332. Comparative Vertebrate Anatomy (Fall; Kirkton). Comparative analysis of vertebrate structure with emphasis on evolution and function. One lab per week. Prerequisites: BIO-110 (102) and BIO-112 (101).

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-345. The Illustrated Organism (Same as AVA-345) (not offered 2012-13). Descriptive graphic and written analysis of plants and animals; direct observation in field, studio, and laboratory settings 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 departments. Credit for biology and arts majors.

BIO-350. Evolutionary Biology (Spring; Yukilevich). Major concepts and mechanisms of biological evolution, including history of life, population genetics, molecular evolution, Darwinian medicine, and an emphasis on the processes of speciation. One lab per week. Prerequisites: BIO-110 (102) and BIO-112 (101) or permission of the instructor.

BIO-352. Microbiology (Fall; Lauzon). An overview of microbiology with emphasis on bacteria and viruses. Lectures will focus on the structural and functional characteristics of prokaryotes, the diversity, growth, and control of bacteria, and the structure and infectious cycle of DNA and RNA viruses, 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 (Winter, 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 and concepts emphasizing morphological identification of leukocytes, phagocytosis, 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) (Winter; 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 2012-13). 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. Prerequisites: BIO-112 (101) and one of the following: BIO-210, 330, 362, or 363, 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 (not offered 2012-13). 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-112 (101) and PHY-110 or 120.

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, and 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 BCH-380) (Fall; Cohen). An in-depth investigation into some of the macromolecules that are essential to life's processes. The course focuses on non-protein molecules and their unique chemical properties. One lab per week. Prerequisites: BIO-225 and CHM-232, or permission of the instructor. Not open to students who have completed BIO-335.

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

BIO-384. Molecular Genetics (Winter; 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, human genetic disease, and apoptosis, amongst others. Laboratory will emphasize the use of modern molecular biological techniques and will involve group projects of the students' choice. One lab per week. Prerequisites: BIO-225 and CHM-102.

BIO-487, 488, 489. Senior Writing 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. A paper is required to fulfill the WS requirement. Enrollment is optional for interdepartmental Biology/Other majors.

BIO-487. Senior Writing Seminar: Topics in Ecological and Evolutionary Biology (Winter; Yukilevich).

BIO-488. Senior Writing Seminar: Topics in Organismal and Physiological Biology (Fall; Fleishman).

BIO-489. Senior Writing Seminar: Topics in Cellular and Molecular Biology (Fall; Theodosiou).

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, III (Fall, Winter, Spring; Staff). A sequence that 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: Associate Professor M. Hagerman

Faculty: Professors J. Adrian, J. Anderson (on leave in fall), M. Carroll, D. Hayes (Dean of Academic Departments and Programs); Associate Professors K. Fox, J. Kehlbeck, L. MacManus-Spencer (on leave winter and spring), L. Tyler; Assistant Professors A. Huisman (as of Jan. 2013), M. Paulick; Senior Lecturer K. Lou; Lecturer S. Kohler.

Staff: K. Ryan (Stockroom Supervisor), M. Howley (Administrative Assistant)

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. Union College strongly supports terms abroad but careful planning is required. For sample four-year schedules, please see the Chemistry Department website.

Requirements for the Basic Chemistry 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). 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). 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 the A.C.S. Chemistry Major: There are four different tracks that build on a common core of courses. Each track includes one Introductory Course (CHM-110*), six Foundation Courses (CHM-231, 232, 240, 260, 351 and 382), four In-Depth courses (as outlined below) in chemistry and related areas**, three terms of thesis research in chemistry (CHM-491, 492, and 493), plus mathematics through MTH-115 and two terms of introductory physics (PHY-110 or 120, and PHY-111 or 121). In-depth course requirements for each track follow:

Chemistry Track: Three required in-depth courses (CHM-340, 352, and either 360 or 365) and one elective in-depth course (chosen from CHM-330, 332, 354, 360, 365, BIO-380). Also recommended: additional courses in chemistry, physics, computer science, and/or engineering, and knowledge of a foreign language.

Chemical Biology Track: Two required in-depth courses (BIO-380 and CHM-340) and two elective in-depth courses (chosen from CHM-330, 332, 352, 365, BIO-378, 384, PHY-200). Also recommended: additional courses in chemistry, biology, physics, computer science, and/or engineering, and knowledge of a foreign language.

Environmental Chemistry Track: One required in-depth course (CHM-340) and three elective in-depth courses (chosen from BIO-320, 328, CHM-352, ENS-251, GEO-200, 301, 302, 304). Also recommended: additional upper-level chemistry courses, additional selections from the in-depth course electives for this track, courses in environmental ethics, history, literature and/or policy, and knowledge of a foreign language.

Materials Chemistry Track: Two required in-depth courses (CHM-352 and -360) and two elective in-depth courses (chosen from CHM-224, 340, MER-213, 214, 240, 354, BIO-245, GEO-200, 302, PHY-311). Also recommended: additional courses in chemistry, biology, physics, computer science, and/or engineering and knowledge of a foreign language.

*Students without sufficient preparation for CHM-110 may substitute the two-course CHM-101/102 sequence.

**Some of the elective choices for these tracks are offered by other academic departments. There is no expectation that other departments will guarantee space in their courses for chemistry students. In addition, there is no expectation that those departments will waive any prerequisites for their courses.

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: CHM-110*, 231, 232, 240, 382 and one additional 200-level chemistry course with lab, or any 300-level chemistry course, excluding BCH/CHM-335. *Students without sufficient preparation for CHM-110 may substitute the two-course CHM 101/102 sequence.

Requirements for Honors: 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 that 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: 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 CC 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 GEO 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 Selection Guidelines

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.]

Common Curriculum Courses: CHM-050, 060 and 080 and 090 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 CC course toward the minor in chemistry, and only if it is their first course in the minor. CHM-101, 102, and 110 are also appropriate courses for students wishing to complete their Common Curriculum requirements.

Prerequisites: There is a strict prerequisite structure for the chemistry curriculum, so it is very important to review individual course descriptions when planning when to take the various courses. Every 200-level course has at least one 100-level chemistry course prerequisite, and some have other 200-level chemistry courses and/or cognate courses as prerequisites. Every 300-level course has at least one 200-level chemistry course prerequisite, and some have other 300-level chemistry courses and/or cognate courses as prerequisites.

Courses

CHM-050. Topics in Chemical Analysis – Forensic Chemistry (CC; Not offered 2012-13). 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 (CC; Not offered 2012-13). 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 (CC; Not offered 2012-13). 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-090. The Art & Science of Painting (Same as AAH-205) (CC; Winter; Carroll, Matthew). A historical and chemical grounding in the topic of painting and its impact on society, with focus on the 14th to 17th centuries. Topics include inorganic and organic pigments and binders used in the late medieval workshop, fresco, the tempera tradition, and oil painting in the Renaissance (properties of oil, mixing with pigments, glazing, drying). Students will work with primary sources and the secondary literature, and engage in laboratory experimentation.

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, aqueous chemical reactions, and the properties of gases, liquids, solids and solutions. 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. See Course Selection guidelines for more information on placement.

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. 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; Kohler, 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 who have scored 4 or 5 on the AP chemistry exam will be automatically placed into Chemistry 110; see Course Selection guidelines for more information on placement. 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; Amanuel). 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; Carroll, Lou). A course that focuses on the quantitative analysis of samples. Classroom and laboratory emphasis on statistical treatment of data, classical and instrumental methods of chemical analysis, and chemical equilibrium. Six lab hours each week. Prerequisite: CHM-231.

CHM-260. Inorganic Chemistry. (Fall; 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, 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 Independent 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, 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 (Spring; 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 2012-13). 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). See Biochemistry 335.

CHM-340. Chemical Instrumentation (Fall; Carroll, MacManus-Spencer). 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; Anderson, Huisman). 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; Huisman, Kohler). 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 2012-13). 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 2012-13). 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 (Not offered 2012-13). 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. Expectations include a minimum of twelve hours per week of lab work, in addition to other requirements to be determined by individual research advisors. 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 Mod. Languages and Literature)

Classics

Chair: Professor H. Mueller

Faculty: Professor M. Toher; Associate Professor S. Raucci; Assistant Professor T. Wareh; Visiting Assistant Professor J. Tan

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 CLS 126 Roman Republic or 129 Roman Empire (students are strongly advised to take both); and 134 Ancient Art & Architecture; 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 CLS 121 History of Greece and 134 Ancient Art & Architecture; two courses in Latin may be substituted for two of the Greek courses;
3. At least four courses in the ancient languages and eight courses in classics, including CLS 121 History of Greece; 126 Roman Republic or 129 Roman Empire (students are strongly encouraged to take both); 134 Ancient Art & Architecture; and 143 Classical Myth or 178 Ancient World Myth.

All tracks 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 PHL 150 Ancient Philosophy for options 2 and 3. Students may substitute the following courses in Art History for CLS 134 (also AAH 200) Ancient Art & Architecture: AAH 101 Introduction to Art History I (Prehistory to Romanesque); AAH 206 Introduction to the History of Architecture: The Renaissance Tradition, 15th-18th Centuries; AAH 223 The Nude; and AAH 309 The History of Gardens and Landscape Architecture. 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; completion of one language course at the 230-level or higher with a grade of “B plus” or better.
2. 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 CLS 121 History of Greece, if the language courses are in Greek, or CLS 126 Roman Republic or CLS 129 Roman Empire, 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 Selection Guidelines

Course Numbering: 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 Common Curriculum (CC) 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 2012-13) 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. *CC: LCC*

CLS-111. Ancient Iraq: History and Religion. (Spring; 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 religion-political ideas. *CC: LCC*

CLS-121. The History of Greece to the Death of Alexander the Great. (Fall; Toher) 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. *CC: LCC*

CLS-125. History of Rome. (Not offered 2012-13) The history of Rome, its rise from earliest times through the Republic and its decline under the Empire to disaster in A.D. 410. *CC: LCC*

CLS-126. The Rise of the Roman Republic. (Winter; Tan) 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? *CC: LCC*

CLS-129. History of the Roman Empire. (Spring; Tan) 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? *CC: LCC*

CLS-132 (232). Religion in the Pagan World. (Not offered 2012-13) 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. *CC: LCC*

CLS-134. Classical Art and Architecture. (also AAH-200) (Not offered 2012-13). 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. CC: LCC

CLS-135 (235). In Search of the Past: Greek and Roman Historiography. (Not offered 2012-13) An introduction to the origins, purpose, and methodology of the writing of history in the classical world. CC: LCC

CLS-137 (237). Greek and Roman Biography. (Not offered 2012-13) 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. CC: LCC

CLS-139. City of Rome. (Winter; Raucci) This course examines the city of Rome, addressing sites in their historical and cultural contexts. The focus is the ancient city, but we also examine the city at various periods in history, including World War II and the present day. We consider how and why a city gets built, what it means to live in a city, and who we can “read a city.” Topics covered include venues of spectatorship, religious sites, the city of the emperors, water systems and roads, the political city, and travel and tourism. All readings are in English.

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. CC: LCC

CLS-142. Special Topics in Classics. (Winter; Wareh; Spring; Tan) CC: LCC

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

CLS-146. Sex and Gender in Classical Antiquity. (Not offered 2012-13) 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. CC: LCC

CLS-151 (231). The Ancient World in Film and Literature. (Not offered 2012-13) 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. CC: LCC

CLS-153 (243). The Environment in the Ancient World. (Not offered 2012-13) Students will discover how ancient Mediterranean societies interacted with the natural world, as revealed by history, art and literature, and archaeology. Some of the questions we will investigate include: how did the Mediterranean environment affect and determine everyday life, both in cities and in rural areas? How did ancient societies manage their food supply? What was their view of nature? How did they react to ecological crisis? And, finally, how can we use their outlook on and treatment of the environment to inform our own approach? CC: LCC

CLS-154 (244). Poetry and the Cosmos. (Not offered 2012-13) 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. CC: LCC

CLS-157 (227). Entrepreneurship in the Ancient World. (Fall; Tan) “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. *CC: LCC*

CLS-158 (248). The Ancient “Other”: Greeks, Romans, and Barbarians. (Not offered 2012-13) 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. *CC: LCC*

CLS-160. The Individual in Ancient Society. (Not offered 2012-13) 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. *CC: LCC*

CLS-161. The Heroic Journey: Survey of Ancient Epic. (Not offered 2012-13) 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. *CC: LCC*

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

CLS-163. Greek and Roman Comedy in Translation. (Not offered 2012-13) Readings from the Greek comedies of Aristophanes and Menander, the Roman comedies of Plautus and Terence. *CC: LCC*

CLS-168. Ancient Novel. (Not offered 2012-13) 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. *CC: LCC*

CLS-178 (278). Ancient World Mythology. (Fall; Wareh) 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. *CC: LCC*

CLS-186. Roman Law and Society. (Not offered 2012-13) 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. *CC: LCC*

CLS-190. Science and Technology in the Ancient World. (Not offered 2012-13) 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-230. Judaism and the Origins of Christianity. (Not offered 2012-13) We know that Jesus of Nazareth was Jewish, so how is it that Christianity and Judaism became separate religions? This course attempts to answer this question by investigating the nature of the relationship between earliest Christianity and Rabbinic Judaism, drawing out their shared roots in the religion and literature of ancient Israel, and exploring the diverse expressions of second temple Judaism among which the two religious traditions emerged. It also explores their distinctive religious teachings and scriptural interpretations with a particular interest in understanding how and why Christianity and Judaism, despite their commonalities, parted ways and became independent religions.

CLS-242. The Philosophy of Aristotle. (also PHL-242) (Not offered 2012-13) 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-250. Death in the West. (Not offered 2012-13) 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. *CC: LCC*

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

CLS-320. Early Christian Thought. (Not offered 2012-13) Christianity emerged in the context of late antique Greco-Roman culture with its roots in ancient Judaism. It drew on both of these in developing distinctive teachings regarding Christ, God, salvation, the church, ethics, and society. This course examines how over the period 50-450 CE debates around these topics led to the articulation of the normative Christian tradition.

CLS-361. Seminar in Classical Studies. (Not offered 2012-13)

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. One-term senior project. *WS*

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. *CLS-499; WS*

Courses in Greek

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

GRK-102. Beginning Ancient Greek II. (Spring; Molinari). Continuation of GRK-101. Prerequisite: GRK-101 or one year of secondary school Greek.

GRK-103. Greek Reading. (Fall; Molinari). Selected readings from the works of a variety of Greek authors. Prerequisite: GRK-102 or equivalent. CC: LCC

GRK-230. Homer: The Iliad. (Not offered 2012-13) 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. CC: LCC

GRK-231. Homer: The Odyssey. (Winter; Toher) 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. CC: LCC

GRK-235. Plato. (Not offered 2012-13) 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. CC: LCC

GRK-243. New Testament Greek. (Spring; Toher) 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. CC: LCC

GRK-320. Attic Prose. (Not offered 2012-13) Readings from the major prose authors of Athens. May be repeated with change in author. Prerequisite: GRK-103 or equivalent. CC: LCC

GRK-331. Herodotus and Thucydides. (Not offered 2012-13) A study of several books of Herodotus and Thucydides with relevant secondary readings. Prerequisite: GRK-103 or equivalent. CC: LCC

GRK-333. Greek Tragedy. (Not offered 2012-13) 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. CC: LCC

GRK-337. Greek Oratory. (Not offered 2012-13) Readings of various Athenian orators, with secondary reading on Greek legal practice and rhetorical style. Prerequisite: GRK-103 or equivalent. CC: LCC

GRK-338. Greek Lyric and Elegiac Poetry. (Not offered 2012-13) 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. CC: LCC

GRK-339. Greek Comedy. (Not offered 2012-13) 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. CC: 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 Biblical Hebrew

HBR-111. Biblical Hebrew I. (Fall; Bedford) Study of elementary Biblical Hebrew grammar with selected readings from the Hebrew Bible.

HBR-112. Biblical Hebrew II. (Winter; Bedford) Continuing study of elementary Biblical Hebrew grammar with selected readings from the Hebrew Bible.

HBR-113. Biblical Hebrew III. (Spring; Bedford) Completion of the study of elementary Biblical Hebrew grammar with selected readings from the Hebrew Bible. CC: LCC

Courses in Latin

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

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

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

LAT-230. Catullus and Horace. (Not offered 2012-13) 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. CC: LCC

LAT-237. Latin Epic. (Winter; Molinari) 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. CC: LCC

LAT-240 Vergil's Aeneid. (Not offered 2012-13) 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. CC: LCC

LAT-338. Lyric and Elegiac Poetry. (Not offered 2012-13) 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. CC: LCC

LAT-339. Roman Satire. (Spring; Wareh) 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. CC: LCC

LAT-341. Roman Historiography. (Not offered 2012-13) 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. CC: LCC

LAT-343. Roman Drama. (Not offered 2012-13) 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. CC: LCC

LAT-345. Cicero. (Fall; Toher) 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. CC: LCC

LAT-358. Mediaeval Latin Literature and Culture. (Not offered 2012-13) 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. CC: LCC

LAT-371. Reading Rome: Textual Approaches to the City. (Not offered 2012-13) 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. *CC: LCC*

LAT-447. Latin Prose Composition. (Not offered 2012-13) 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. *CC: 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 engineering and in the natural and social sciences. 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 computational component into their senior project.

Computer Engineering

Chair: Professor C. Traver

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 with significant parts of the curriculum supported by the Department of Computer Science. The major is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. Educational objectives and program outcomes are listed on the 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 Common Curriculum (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 common curriculum 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

ESC-100, MTH-113 MTH-115, PHY-120, CSC 103-109** MTH-130, PHY 121, Electives(3)*

Second Year

Fall: ECE-118, ECE-225, MTH-197 or MTH-199**, CSC-150, ECE-240, Science elective CSC-250, ECE-241***, Electives(2)*

Third Year****

ECE-351, ECE-336/CSC 236 or 337/237, CSC-260, CSC-270, ECE/CSC-318, ECE/CSC 352, CSC-335, ECE-497 (1/2), Electives(2)*

Fourth Year

ECE or CSC elective, ECE or CSC elective, ECE-498 (1/2), ECE-499, ECE or CSC elective, ECE-248, Math elective, Electives(4)*

* Electives should be chosen to enhance one or more of the program objectives and meet remaining Common Curriculum (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.

*** ECE-241 may be taken in the fall or spring term of the junior year.

**** The fall term of the third year is the most common term for going on a full term abroad. With appropriate planning, students may go on winter and spring terms abroad as well. Students who do go on a fall term abroad may take ECE-351 and ECE-336/CSC-236 during the fall term of their senior year.

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: Associate Professor C. Fernandes

Faculty: Professor V. Barr; Associate Professors A. Cass; Assistant Professors J. Rieffel, K. Striegnitz; Visiting Assistant Professor N. Webb

Staff: L. Galeo (Administrative Assistant)

The department offers a B. S. in computer science, supports the B.S in computer engineering offered by the Electrical and Computer Engineering Department , and collaborates 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 least 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 from Biology, Chemistry, Geology, Physics, Environmental Science, or ESC-100, and one non-CSC 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, 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

The senior writing requirement is satisfied by CSC 499.

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 CSC 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 Selection Guidelines

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).

Prerequisite: For prerequisite structure of all courses in the CS major, please visit cs.union.edu/media/csmajorgraph.pdf

General Interest Courses

CSC-055. Working with the Web (not offered 2012-2013). 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 (Cross-listed as HST 292) (not offered 2012-2013). 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. Taming Big Data: 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.

CSC-104. Robots Rule! Introduction to Computer Science (Spring, Webb). 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, Striegnitz; Spring, Barr). 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, Webb). 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. Computer Programming for Engineers (Fall, Webb; Winter, Almstead; Spring, TBA). 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, Traver). See ECE-118.

CSC-150. Data Structures (Winter, Cass & Fernandes; Spring, Striegnitz). Basic concepts of data organization and abstraction, software design, stacks, queues, trees, and their implementation with linked structures. Programming in Java. Prerequisites: one course from CSC-103 to CSC-109. A grade of C- or better is required in order to continue with any course that requires CSC-150 as a prerequisite.

CSC-206. Natural Language Processing (to be offered 2013-2014). 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-235. Modeling & Simulation (Winter, Barr). This course will study modeling and simulation as they occur in and apply to a number of different disciplines. It will cover system dynamics models which address major systems that change with time, and cellular automaton simulations that look more narrowly at individual affecting individuals. Other topics will include rate of change, errors, simulation techniques, empirical modeling, and an introduction to high performance computing. Prerequisite: CSC-10X or permission of the instructor.

CSC-236. Computer Network Protocols (Fall, Spinelli). See ECE-336.

CSC-237. Data Communications and Networks (not offered in 2012-2013). (See ECE-337).

CSC-240. Web Programming (Fall, Striegnitz). 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) (Spring, Fernandes and Horton (Biology)). 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 2013-2014). 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 and MTH-197 or 199, 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 and MTH-197, or permission of the instructor.

CSC-270. Computer Organization (Winter; Rieffel). The architecture and operation of the digital computer. CPU design, input/output, computer arithmetic, assembly language. Prerequisite: CSC-150. Includes a laboratory.

CSC-280. User Interfaces (Fall, Cass). 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.

CSC-318. Digital Design (Winter, Hedrick). (See ECE-318).

CSC-320. Artificial Intelligence (to be offered 2013-2014). 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 or permission of the instructor.

CSC-325. Robotics (Spring, Webb). 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-250 or permission of the instructor.

CSC-329. Neural Networks (Spring, Cotter). (See ECE-329).

CSC-333. Introduction to Parallel Computing (to be offered 2013-2014). 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 and junior standing.

CSC-340. Introduction to Databases (Winter, Fernandes). 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 and MTH-197.

CSC-350. Theory of Computing (to be offered 2013-2014). 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 and MTH-197.

CSC-352. Embedded Microcontroller Systems (Spring, Hedrick). See ECE 352.

CSC-360. Software Engineering (not offered 2012-2013). 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 (Winter, 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 and junior standing.

CSC-385. Computer Graphics (not offered 2012-2013). 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 and MTH-197.

CSC-483. Selected Topics in Computer Science (not offered 2012-2013).

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, Cass) 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 C. Fernandes (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 **or** CSC 245 The Computer Science of Computer Games
- 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: Associate Professor Y. Song

Faculty: Professors H. Fried, J. Kenney, D. Klein, B. Lewis, T. McCarty (Dean of the Faculty), Shelton S. Schmidt, Stephen J. Schmidt, M. Sener, S. Yaisawarng; Associate Professors L. Davis, T. Dvorak, E. Motahar; Lecturer E. Foster; Visiting Assistant Professor Y. Ren

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 and Interdepartmental 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 before enrolling in Economics 499 or IDM 499.

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 thesis work; (3) pass an honors oral examination on their senior thesis in the second term of thesis 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 Sequence: 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. They should also take one or more 200-level electives in the first or second year, since these courses are not open to junior and senior majors. 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 as juniors prior to enrolling in senior thesis, including where possible courses in the area of economics in which the thesis will be written; interdepartmental majors should complete at least one such course in the junior year, and preferably more.

Placement: The economics department gives credit for Economics 101 to students receiving a score of 5, 6, or 7 on the Higher Level International Baccalaureate exam, a grade of A or B on the economics A-levels, and 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-123. Values, Norms, and Economic Justice (also Philosophy 123) (Winter; S.J. Schmidt). This class considers the goals economic policy might pursue and how different theories of the good lead to particular choices about desirable or undesirable economic policies. We consider mainstream economic thinking, which has roots in utilitarianism and liberalism, and alternative ideas such as libertarianism, Austrian economics, feminist, communitarian, and religious philosophy and economics. We apply these ideas to relevant policy issues, such as free trade, globalization, unemployment, income distribution, affirmative action, care of the environment, health care, and famine relief.

ECO-211. Consumer Finance (Winter; Dvorak). This course examines how consumers make decisions about borrowing, saving, and managing risk. The goal of this course is to learn how to think critically about these decisions. We will learn concepts such as time value of money, risk, and consumption smoothing. We will examine the markets for credit (credit cards, student loans, mortgages), saving/ investment (mutual funds, retirement plans, annuities), insurance and financial advice. We will ask why these markets sometimes fail and how regulation can help. Finally, we will examine how psychological biases influence consumers' financial decisions and how private and public sectors can help in achieving better outcomes. Prerequisite: ECO-101 or permission of instructor.

ECO-225. Economics of Sin (Not offered 2012-13). 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 (Fall, Spring; 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 (Not offered 2012-13). 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. Prerequisite: ECO-101.

ECO-234. Japanese-American Finance and Trade Relations (Not offered 2012-13). 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.
Common Curriculum: LCC

ECO-236. Comparative Economies (Not offered 2012-13). 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 (Spring; 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-290-293. Independent Study (Fall, Winter, Spring; Staff). For projects which do not require use of the material from Economics 241, 242, 243.

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 2012-13) 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. (Not offered 2012-13). 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-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 2012-13). 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 2012-13). 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-341. Current Topics in Microeconomics (Spring; Ren). 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 (Fall; S.J. Schmidt). 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 2012-13). 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 (Fall; 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 (Spring; S.J. Schmidt). 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. Common Curriculum: LCC

ECO-355. Monetary Economics (Winter; Lewis). 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 2012-13). 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 (Not offered 2012-13). 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 (Not offered 2012-13). 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-378. Labor Economics (Not offered 2012-13). 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-380. Seminar in Economic Growth and Development (Not offered 2012-13). 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-381. Economics of Culture (Fall; Davis). Students will read and discuss the emerging literature on the economics of culture, become familiar with commonly used sources of data on cultural values and beliefs, and address the empirical challenges of using this data to evaluate economic theories of culture. Topics will include 1) the measurement of cultural values, 2) theories of socialization, 3) religion and economic outcomes, 4) cultural beliefs, attitudes toward government redistribution and the welfare state, 5) culture as informal institutions: trade and exchange in the absence of law, management of collective goods, and informal risk-sharing arrangements, 6) family and kinship networks as economic institutions, 7) the economic role of trust, 8) trust, social capital and political institutions, 9) immigration and theories of acculturation, 10) cultural values and institutional quality. Students will conduct a significant independent research project on the economics of culture. Prerequisites: ECO-241 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 (Not offered 2012-13). 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-387. Seminar in Labor (Not offered 2012-13). 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; Yaisawarng). 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: Professor C. Traver

Faculty: Professors Y. Chang, J. Spinelli; Associate Professors P. Catravas, S. Cotter; Assistant Professors T. Buma, H. Hanson; Senior Lecturer J. Hedrick; Post-doctoral Fellow R. Smith

Staff: G. Davison (Engineering Assistant), L. Galeo (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 the Engineering Accreditation Commission of ABET, <http://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 approved engineering course outside of ECE (a list of approved courses is published on the department website)

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 Common Curriculum (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 common curriculum 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

ESC-100, MTH-113 MTH-115, PHY-120, one of CSC-103 to CSC-109 MTH-117, PHY-121, Electives (3)*

Second Year

ECE-118, ECE-225 ECE-240, MTH-130, Engineering Elective ECE-241***, ECE-248, Electives (3)*

Third Year**

ECE-351, ECE-363, ECE-343, ECE-366, ECE-350, ECE-497(1/2), Math/Science elective, Science elective, Electives (3)*

Fourth Year

ECE-498(1/2) ECE 499, ECE electives 1,2,3, Electives (5)*

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

** The fall term of the third year is the most common term for going on a full term abroad. With appropriate planning, students may go on winter and spring terms abroad as well. Students who do go on a fall term abroad may take ECE 351 and ECE 363 during the fall term of their senior year.

***ECE-241 may also be taken during the fall or spring term of the junior year.

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 Minor: ECE 118, 225, 240, 248; Electives: one from (ECE 241, 318, 341, 363, 366), and one from (ECE 333, 348, 350, 352, 360 or an upper-level course approved by the department chair).

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-011. Practicum: Electrical and Computer Engineering (Fall, Winter, Spring). Hands-on exercises, lectures and guest speakers will demonstrate practical applications of ECE and how these applications are related to the core curriculum. Each offering of the course will have a central theme, such as audio engineering, speech acoustics, energy and the environment, power systems, digital signal processing, global communications, nanotechnology, microscopy (scanning electron microscopy, atomic force microscopy), optics, robotics, etc. This practicum will be of interest to students who would like more information about career paths that are possible with an Electrical and Computer Engineering degree. Students must pass three terms of the practicum in order to receive one course credit. The course is graded pass/fail.

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, Winter). 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, Spring). 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 (Fall, 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 2012-13). 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-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 2012-13). 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 (Spring). 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-333. Transmission Line Circuits and Applications (Fall). Topics include sinusoidal sources, impedances, admittances, and basic circuit analysis; voltage and current as traveling waves; RLC circuit models and transmission line equations; characteristic impedance and propagation constant; reflection coefficient and power transfer; introduction of using matching circuits to reduce power loss; analysis and design of lumped-parameter (RLC) and distributed-parameter (transmission line) matching circuits; Smith Chart as an analysis/design tool. Includes a weekly studio session. Pre-requisite: ECE-225 or equivalent. .

ECE-336. Computer Network Protocols (Fall) 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 2012-13). 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 2012-13). Theory of electromechanical energy conversion; characteristics of transformers and DC induction; and synchronous machines. Prerequisite: ECE-225.

ECE-342. Power Electronics (not offered 2012-13). 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 2012-13). 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 2012-13). 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) or CSC-270.

ECE-354. VLSI System Design (not offered 2012-13). 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). Covers the basic concepts needed to develop electromagnetic devices in communication circuits/systems. Wave propagation and transmission, antenna concepts, design considerations, Friis transmission formula and radar equation, transmission line theory and guided waves. Pre-requisite: Physics 121 or equivalent.

ECE-360. Power System Analysis I (Winter). Power and energy in single-phase and polyphase circuits; transformer characteristics; single-line and three-line diagrams; load flow; per-unit analysis; instrument transformers; power system fault duty and x/r ; switching and lightning transients; power factor correction; power quality standards. Prerequisite: ECE-225.

ECE-361. Power System Analysis II (not offered 2012-13). 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, 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 2011-13). 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 (not offered 2012-13). 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 (Winter). 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-386. Introduction to Biomedical Instrumentation. (Winter). See BNG-386.

ECE-463. Fundamentals of Wireless Electronics (not offered 2012-13). 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-487. Biomedical Signal and Image Processing (Not offered 2012-13; Same as BNG-487)

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 Ann Anderson (Mechanical Engineering)

This program of study is available to students as a minor. Students take two core technical courses, two core policy courses and then choose two additional courses from a list of electives. This minor is designed for students in any major who are interested in energy related issues. Students completing this minor will gain both a technical and policy background which will help them to understand the technical, economic, sociological and policy issues surrounding energy and energy usage. 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:
 - MER-231 Thermodynamics (offered Fall, Winter) Prerequisites: PHY-120, MTH-112 or MTH-113 or IMP-112. Co-Requisite: CHM-101, or
 - PHY-123 Heat, Light, and Astronomy (offered Fall) Prerequisites: PHY-121 or IMP-113.

Required Policy Core Course: (2) (alternative courses must be approved by minor advisor):

1. ECO-228 Environmental and Natural Resource Economics (offered every spring).
Prerequisites: ECO-101 or permission of instructor.

2. One of the following:

- ANT-241 Environmental Anthropology. Prerequisites: None
- 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: SOC-100
- SOC-359 Environmental Policy and Resource Management. Prerequisites: SOC-100

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

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: PSC-111, PSC-112 or
Sophomore standing

SOC-270 Social Movements, the Environment, and Society. Prerequisites: SOC-100

SOC-359 Environmental Policy and Resource Management. Prerequisites: SOC-100

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 will be submitted for accreditation during 2012-13. Major and minor programs that include engineering components include bioengineering, computer, electrical and mechanical engineering, energy studies, environmental science, environmental engineering, and nanotechnology. Please see the relevant sections of the catalog for descriptions of these areas of study.

Course Selection Guidelines

Course Sequence: 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 project. Students are encouraged to choose an engineering major early in the first year since program curricula begin to diverge in the winter term. Engineering students complete the College's Common Curriculum (General Education) 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 Common Curriculum (General Education).

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 Common Curriculum (General Education).

ESC-100. Exploring Engineering (Fall). An introduction to engineering including fundamental topics core to engineering. 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-324. Advanced Topics in Nanoscience: Microscopy of Self-Assembled Nanostructures (Spring) In depth coverage of micro and nanoscale microscopy, including scanning electron microscopy and atomic force microscopy and their related modes and diagnostic methods. The course will feature special topics in nanoscience/nanotechnology, such as self-assembled nanostructures for sensors, solar cells and nanoelectronics. Prerequisites: CHM224/ESC224; or prereqs for CHM224/ESC224 and undergraduate research in nanoscience; or permission of the instructor.

ESC-370. Engineering Economics (Spring). 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 Common Curriculum (General Education) 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 http://www.union.edu/academic_depts/engineering/academic_opportunities/eta/index.php or email Professor Jewell, Director of International Programs for Engineering Students, at jewellt@union.edu.

English

Chair: Associate Professor K. Doyle

Faculty: Professors P. Heinegg, H. Jenkins (Term Abroad Fall), J. Smith, R. Stevenson (on leave Fall and Winter), B. Wineapple (on leave Fall and Winter); Associate Professors B. Kuhn (Term Abroad Fall), J. Lewin (Term Abroad Fall); Assistant Professors C. Bracken, A. Burkett, K. Lynes, J. Murphy, B. Tuon, P. Wareh; Senior Lecturer A. Selley; Lecturers A. Pease, J. Sargent

Staff: D. Nebolini (Administrative Assistant)

Course Selection Guidelines

Placement: The English Department does not assign any credit for AP English courses, either for majors or for non-majors. AP English will not be accepted as a substitute for EGL 100 or 101 under any circumstances.

Courses Suitable for Non-Majors: Non-majors and majors alike should take EGL 100 or 101 first; after that requirement has been met, any student may take any 200-level course. 300 and 400 level EGL courses are petition courses intended mainly for majors, and majors will be given priority in enrollment (at the discretion of the instructor).

Prerequisites:

- EGL 100 or 101 is a prerequisite for any 200-level course.
- To enroll in a 300-level EGL course, a student must have taken EGL 100 or 101 and two 200-level EGL courses.
- To enroll in a 400-level EGL course, a student must have taken **both** 100 **and** 101, and **four** 200-level EGL courses.

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.

Requirements for the Major:

12-course requirement, consisting of the following:

1. Two Introductory Courses:

- EGL-100 Introduction to Literary Studies: Poetry
- EGL-101 Introduction to Literary Studies: Fiction

These two courses emphasize 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 instructor. 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:

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 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 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 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 focus on the writing of a particular author or group of authors. (EGL-291 to EGL-294)

3. Three Advanced Courses:

Advanced courses are Junior Seminars and Senior Seminars. These seminars are writing intensive, typically research oriented, and usually 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 Interdepartmental (ID) Major: Students who declared an ID English major before the Fall of 2012 have a 7 course requirement: one Introductory Course and six others, including at least one pre-1700 Historical Studies Course and Shakespeare. **Any student declaring an ID English major in the Fall of 2012 or later** has an 8 course requirement: one Introductory Course and seven others, including at least one pre-1700 Historical Studies Course, a Shakespeare course, and a Junior seminar (EGL-300 to EGL-306).

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, and share ideas and writing, as they work toward completing their individual theses under the direction of the seminar instructor. Prospective Honors thesis writers are required to take the Literary Theory Seminar in Winter of their Junior year, prior to applying to write a thesis, whether proposing a creative or an analytical thesis. Students proposing creative theses are strongly encouraged to participate in a creative writing workshop in the proposed genre.

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 and writing sample in Spring of their junior year, for review by the department's Honors selection committee.

Students seeking interdepartmental honors in English have a 10 course requirement, the additional two beyond the requirements for the English ID major being the two-term thesis seminar. **Be advised that for Honors ID majors, the Literary Theory course is required.**

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.

Introductory Courses

EGL-100. Introduction to the Study of Literature: Poetry (Fall, Pease, Sargent; Winter, Sargent, Smith; Spring, Lynes, Stevenson, Smith, Wareh). 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. *CC: HUL*

EGL-101. Introduction to the Study of Literature: Fiction (Fall, Selley, Tuon, Bracken, Murphy, Calandra; Winter, Burkett, Doyle, , Heinegg, Pease, Sargent; Spring, Bracken, Burkett, Jenkins, Kuhn, Lewin). 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. *CC: HUL*

Intermediate Courses

EGL-100 or 101 is prerequisite for all Intermediate courses.

Writing Workshop Courses

EGL-200. Workshop in Poetry (Fall, Smith). 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. *CC: HUL*

EGL-201. Workshop in Fiction (Winter, Selley). A first course in the writing of fiction, intended for students with good writing skills. Some class time will be devoted to the discussion of published fiction and to lectures/instruction about constructing the “well-made” short story. However, most of the course will be devoted to workshop critiques of students’ stories. Students will be asked to write at least five short stories outside of class, as well as several in-class exercises; to write one or more essays on published works of fiction and on their own writing experiences; and to provide both written and oral critiques of classmates’ work. *CC: HUL*

EGL-202. Workshop in Non-fiction Prose (Spring, Wineapple).. A first course in the writing of nonfiction prose, emphasizing critiques of student work and workshop-like critiques of such nonfiction stylists as Didion, Dillard, Emerson, D’Agata, Sebald, Montaigne. We will focus on point of view, pacing, tone, and other such prose techniques. Students will write and revise several short pieces, only one of which may be autobiographical. *CC: HUL*

Historical Studies Courses

Courses Before 1700

EGL-203. British Literature in Historical Context: The Age of Heroes (Winter, Doyle). In 410 the Romans abandoned Britain, withdrawing to the continent just as pagan Germanic invaders began to challenge the island’s native Picts and Celts. In 1066 the Duke of Normandy crossed the Channel and kicked a Danish king off the throne of a fully Christianized England. In between these two events lies the matter of this course: the literature of the Anglo-Saxon era, which, despite (or perhaps because of) successive waves of foreign invasion and political disunity, developed arguably the most distinctive and sophisticated culture in all of early medieval Europe. *CC: HUL*

EGL-204. British Literature in Historical Context: Plague, Revolt, Religion, and Nation. 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 (1337-1400), 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. *CC: 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. *CC: HUL*

EGL-206. British Literature in Historical Context: The 1590s (Fall, Wareh) **Early modern** London was a place in which everyone—from the queen to courtiers to poets—could see herself or himself as an "actor on the stage." It was a culture in which role-playing was a necessary and dangerous art, one that led to both paranoia and creativity. In this course we'll explore a wide variety of Renaissance poses and impersonations: portraits and speeches of Queen Elizabeth (as well as recent film treatments of her); sophisticated and scandalous love poetry; the advice given to young ladies and courtiers on how to protect themselves from vicious gossip and dazzle their onlookers; and audacious works of theater. Course authors include Sidney, Marlowe, Spenser, Shakespeare, Castiglione, and Queen Elizabeth. *CC: HUL*

EGL-207. British Literature in Historical Context: 17th Century. 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. *CC: HUL*

EGL-208. British Literature in Historical Context: The Restoration. 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. *CC: HUL*

EGL-209. American Literature in Historical Context: Beginnings to 1800. This course focuses on beginnings of American literature and culture, with an emphasis on writings prior to 1700. Selections will vary 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. *CC: HUL*

Courses Before 1900

EGL-210. British Literature in Historical Context: The 18th Century. 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. *CC: HUL*

EGL-211. British Literature in Historical Context: Romanticism "The Romantic Revolution" (Fall, Burkett) The Romantic period was one of Britain's most "revolutionary" eras in a number of important ways. For England, the age was marked by dramatic social, political, literary, and scientific upheaval and change. In this course we will investigate the various causes that were envisioned, promoted, and enacted during this era and trace their often wide-ranging and revolutionary effects.

Readings will likely include selections from the following authors: W. Wordsworth, S.T. Coleridge, W. Blake, M. Shelley, and J. Keats. CC: *HUL*

EGL-212. British Literature in Historical Context: 19th-Century Victorian Literature. 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. CC: *HUL*

EGL-214. European Literature in Historical Context: Enlightenment and Romanticism (Spring, 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. CC: *HUL*

EGL-215. American Literature in Historical Context: The 19th Century (Spring, Murphy). 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. CC: *HUL*

EGL-216. African-American Literature in Historical Context: Beginnings to 1900: Vision and Re-Vision. 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. CC: *HUL, LCC*

Courses After 1900

EGL-217. American Literature in Historical Context: 1900-1960 (Fall, Selley). 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. CC: *HUL*

EGL-218. American Literature in Historical Context: 1960-Present. This course will survey American poetry and fiction, and possibly drama and nonfiction, of the postmodern era. Poets will be generously represented on the syllabus and might include Elizabeth Bishop, Gwendolyn Brooks, Allen Ginsberg, James Dickey, Galway Kinnell, W. S. Merwin, Anne Sexton, Adrienne Rich, Sylvia Plath, Billy Collins, Simon Ortiz, Joy Harjo, Rita Dove, Alberto Rios, Cathy Song, and Li-Young Lee. Fiction writers might include Toni Morrison, Raymond Carver, Alice Walker, Louise Erdrich, James Baldwin, Amy Tan, Tim O'Brien, Sherman Alexie, Jhumpa Lahiri, and Alfredo Vea. CC: *HUL*

EGL-219. African-American Literature in Historical Context: 1900-Present (Winter, Lynes). 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. *CC: HUL, LCC*

Shakespeare Courses

EGL-223. Shakespeare to 1600 (Fall, Wareh). We'll explore in this course some of the most entertaining, moving, and provocative theater the world has ever known. Focusing mainly on Shakespeare's comedies and histories, we'll discover characters who offer us complicated and engaging perspectives on topics such as love, magic, revenge, family relationships, "outsiders," and political power. We will work together to appreciate both the nuances of Shakespeare's poetry and the excitement of his works in performance (whether on stage or screen). *CC: HUL*

EGL-224. Shakespeare after 1600 (Winter, Jenkins; Spring, Stevenson). We will look at Shakespeare's great tragedies and romances with particular attention to the dramatic practices of his time. In this we will be helped by performances and workshops conducted on campus by the American Shakespeare Center, so be prepared to chew (or at least nibble on) the scenery as well as paying close textual attention to the artistry of the plays. *CC: HUL*

Cultural Studies Courses

EGL-225. Humanities: The Origins. Readings of selected masterworks from Hebrew, Greek, and Latin literature. *CC: 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. *CC: HUL*

EGL-228. The American Renaissance. 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. *CC: HUL*

EGL-229. American Realism and Naturalism (Winter, Murphy). Realism and naturalism were aesthetic movements that emerged in American fiction between approximately 1865 and 1925. This course examines these two literary movements to show how writers of this era explored the trauma created by war (the Civil War and WWI), the moral consequences of freedom and sexual awareness, rapid urbanization and the Great Northern migration, inconsistencies between wealth and poverty, and innovative discoveries in science and technology. The purpose of this course, then, is to investigate how the authors of this period practiced their art both collectively and individually and the ways in which American social life informed the ideologies of realism and naturalism. Possible writers we will study include William Dean Howells, Stephen Crane, Frank Norris, Theodore Dreiser, Kate Chopin, Mary Wilkins Freeman, Mark Twain, Edith Wharton, Henry James, and Paul Laurence Dunbar. *CC: HUL*

EGL-234. The Beats and Contemporary Culture. 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. *CC: HUL*

EGL-237. Women Writers, 18th to 20th Century. 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). *CC: HUL*

EGL-238. Jewish Women Writers (Winter, 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. *CC: HUL*

EGL-240. Black Women Writers. (Spring, Lynes). This course provides an introduction to the major themes and concerns of twentieth- and twenty-first century African American women writers. Using a variety of genre (novels, poetry, essays, plays) 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 ³black women's writing.² Though we will focus on current writers, we will spend a short time with nineteenth-century writers as background. Possible writers include Frances Harper, Sojourner Truth, Anne Spencer, Zora Neale Hurston, Gwendolyn Brooks, Toni Morrison, Audre Lorde, Gloria Naylor, Octavia Butler, and others. CC: HUL, LCC

EGL-244. Asian American Literature and Film (Spring, Tuon). A study of Asian American literature in its historical context beginning with the first wave of Asian immigration in the nineteenth century, moving to the anti-Asian Exclusion Acts, Japanese internment during the Second World War, the 1960s Civil Rights Movements and the emergence of Asian American Studies, Southeast Asian refugee experience, and concluding with contemporary Asian America. CC: HUL, LCC

EGL-247. Irish Literature and Film (Fall, Bracken). 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*. CC: HUL, LCC

EGL-248. Yiddish Literature in Translation. 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. CC: HUL

EGL-249. Literature of the Holocaust (Spring, Heinegg). 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. CC: HUL

EGL-250. Literature and Science (Winter, Kuhn). 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. CC: HUL

EGL-251. Nature and Environmental Writing. 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. CC: 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 Martin McDonagh's *In Bruges*, Anne Enright's novel *The Wig My Father Wore*, and the poetry of Leanne O'Sullivan. CC: HUL, LCC

EGL-253. Desire, Incest, Cross-dressing, and Homo-erotica: Identity Politics In 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? *CC: HUL*

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. *CC: HUL, LCC*

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. *CC: HUL*

EGL-257. 19th- Century Novel. 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. *CC: HUL*

EGL-258. Modern British Fiction. 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. *CC: HUL*

EGL-259. British Fiction Since WWII. 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. *CC: HUL*

EGL-260. Modern American Novel. 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. *CC: HUL*

EGL-261. American Fiction Since 1960 (Spring, Selley). This course examines short stories and novels written since 1960 by U.S. and perhaps one or two Canadian writers. A few older works that influenced these works might be studied for comparison. Possible authors include Sherman Alexie, Margaret Atwood, James Baldwin, John Barth, Saul Bellow, T. Coraghessan Boyle, Ray Bradbury, Raymond Carver, John Cheever, Edwidge Danticat, Louise Erdrich, Gish Jen, Ha Jin, Jamaica Kincaid, Jhumpa Lahiri, Ursula LeGuin, Clarice Lispector, Arthur Miller, Toni Morrison, Bharati Mukherjee, Alice Munro, Vladimir Nabokov, J.C. Oates, Tim O'Brien, ZZ Packer, Leslie Silko, Amy Tan, Kurt Vonnegut, Alice Walker, Tobias Woolf, and others. The course will cover different works from those studied in English 218.

EGL-263. European Novel in Translation. 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. *CC: HUL*

EGL-264. Novels of Education (Winter, Pease). 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. *CC: HUL*

EGL-265. Governess Tales. 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. *CC: HUL*

EGL-266. Detective Fiction (Winter, Lewin). 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? *CC: HUL*

EGL-267. Philosophical Fiction. 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. *CC: HUL*

EGL-269. Poetry in the Renaissance. 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. *CC: HUL*

EGL-270. Modern Poetry (Spring, Wineapple). 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. CC: HUL

EGL-271. British Poetry Since WWII. 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. CC: HUL

EGL-272. American Poetry Since 1960. 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. CC: HUL

EGL-274. Introduction to Black Poetry. 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. CC: HUL, LCC

EGL-275. Renaissance Drama. 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*). CC: HUL

EGL-277. Tragedy. 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. CC: HUL

EGL-278. Comedy (Fall, Heinegg). 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. CC: HUL

EGL-279. Epic (Fall, Sargent). In this course students will be introduced to epic poetry, long narrative poems on a serious subject. We will study both traditional oral epic poetry and literary epic poems and read most of the Homeric *Iliad* and *Odyssey* as well as Virgil's *Aeneid*, Milton's *Paradise Lost*, *Beowulf*, and *The Song of Roland*. The course will emphasize close reading as the basis for getting to know these works and becoming familiar with the language, epithets, similes, and other stylistic conventions that characterize epic. Students will be expected to develop critical skills in several short and longer papers and learn how to write about epic poetry in a clear and articulate way. CC: HUL

EGL-280. Satire. 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*. CC: HUL

EGL-282. Gothic. 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. CC: HUL

EGL-283. Autobiography. “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*. CC: HUL

EGL-284. Gender and Genre. 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. CC: HUL

EGL-285. Film as Fictive Art. A study of the formal, technical, and ideological elements of selected American films. CC: HUL

EGL-287. Science Fiction. 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. CC: HUL

EGL-288. Studies in Major Film Genre: Horror. A survey of the horror film genre with emphasis on its origins, development, seminal examples, and historical/cultural/ideological resonances. CC: HUL

Author Studies Courses

EGL-291 The Brontë Sisters. This course will examine five first-person narratives by Charlotte Brontë and her sisters Emily and Anne. Readings will include *The Professor*, *Jane Eyre*, *Villette*, *Wuthering Heights*, *The Tenant of Wildfell Hall*, and Elizabeth Gaskell’s 19th-century biography *The Life of Charlotte Brontë*. We will consider biographical, interpersonal, and inter-textual relations alongside questions of gender, class, religious vocation, communal authorship, pseudonymous publication and the cult of genius. CC:HUL

EGL-292. Milton. 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. CC: HUL

EGL-293. Studies in a Major Film Director: David Lynch. 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.).

EGL-294. Studies in Modern Poets: Frost and Stevens (Fall, Smith) This course will take a close look at the work and the cultural context of two modern poets. Pairings will include Wallace Stevens and Robert Frost, Hart Crane and Elizabeth Bishop, William Carlos Williams and Robert Lowell.

EGL-299. Power of Words (Fall, Pease) This course is designed for all students, in any major, who wish to hone their professional communication skills. It is a general education overview of the many roles of human language and an intensive review of writing conventions (structures, grammar, and punctuation), with an emphasis on formal/professional communication. CC: HUL

Advanced Courses

Junior Seminars

EGL-300. Poetry Workshop A workshop course for students with some experience and a serious interest in the writing of poetry.

EGL-301. Fiction Workshop (Spring, Selley). A workshop course for students with some experience and a serious interest in the writing of fiction. It is strongly recommended, although not required, that students have already taken EGL-201. Most of the course will be devoted to workshop critiques of students' stories. Students will be asked to write at least five short stories outside of class, as well as several in-class exercises; to write one or more essays on published works of fiction; and to provide both written and oral critiques of classmates' work.

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. *CC: HUL*

Junior Seminar Topic Courses:

Winter:

EGL-304. Tolstoy (Heinegg) A reading of *War and Peace* along with some of his shorter masterpieces. This course will survey Tolstoy's astonishing career as artist, prophet, and impossible person.

Spring:

EGL-304. American Heartbeat: Ginsberg, Kerouac, Snyder. (Smith) This seminar will take a close look at the writers of the Beat generation as well as some of the writers who were influenced by them in the context of the cultural history of the 1950's and 1960's. Writers will include Allen Ginsberg, Jack Kerouac, Joanne Kyger, Gary Snyder, Alice Notley.

Senior Seminars

EGL-400. Poetry Workshop. An advanced workshop course in the writing of poetry.

EGL-401. Fiction Workshop. An advanced workshop course in the writing of fiction.

EGL-402, 403. Honors Thesis Seminar I & II (Fall, Lynes; Winter, Lynes). 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.

Senior Seminar Topic Courses:

Winter:

EGL-404. Shakespeare in the 20th and 21st Centuries (P. Wareh) This course will move from a study of a small number of Shakespeare's best-known plays (*Romeo and Juliet*, *Hamlet*, and *Macbeth*) to a consideration of their reception in the literature and film of recent times. We'll also consider the place of Shakespeare himself in the popular imagination. Modern course texts may include *West Side Story*, *Shakespeare in Love*, *Equivocation*, and the graphic novel *Kill Shakespeare*; students will also have a lot of freedom to develop projects of their own choosing.

Spring:

EGL-404. Kingston, Morrison (Tuon). A comparative study of the major works of Maxine Hong Kingston, considered by critics to be one of the most important Asian American writers of the twentieth century, and Toni Morrison, the first African American woman to win the Nobel Prize in literature. Some questions to consider: how and why do the histories of Asian and African American “haunt” the artistic productions of Kingston and Morrison? How does gender influence both the writing and reception of the works of these two authors? How do Kingston and Morrison view their role as writers from a particular ethnic group? Topics include: official history versus collective memory; ethnic identities and gender relations; the legacy of slavery, the coolie trade, and immigration; family and the community; Africa, Asia, and the search for home; psychological dimensions of racism; writing, resistance, and healing.

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. For use by ID English majors who do not meet the requirements for an English Honors thesis but who are required to complete a two-term interdepartmental thesis by their other ID department.

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-151 The Ancient World in Film and Literature

CLS-157 Entrepreneurship in the Ancient World

Economics

- ECO-230 The Mind of the Entrepreneur
- ECO-332 Eco of Technological Change
- ECO-232T Fiji Culture and Entrepreneurship

History

- HST-143 Entrepreneurship in Medieval and Renaissance Europe

Mechanical Engineering

- MER-439 Thermal/Fluid Sys Design w/Lab

Political Science

- PSC-351 Global Politics of Corruption and Organized Crime

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. 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.

Environmental Science, Policy and Engineering

Director: Professor T. Jewell (Engineering)

Faculty: Professors S. Rice (Biological Sciences), J. Kenney (Economics), J. Garver, K. Hollocher, D. Rodbell (Geology), A. Ghaly, M. Mafi (Engineering), R. Wilk (Mechanical Engineering), I. Kaplan (Sociology); Associate Professors J. Corbin, K. LoGiudice (Biological Sciences); M. Hagerman L. MacManus-Spencer (Chemistry), A. Morris (History); Assistant Professors E. Garland (Anthropology), D. Gillikin (Geology), K. Lynes (English), H. Frey (Geology); Visiting Assistant Professor J. Bishop (Biological Sciences); Senior Lecturer J. Grigsby (Sociology)

The Environmental Science, Policy and Engineering (ESPE) program is focused on students with an interest in the science and policy 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 ESPE 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 typically 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 1 or 2 thesis (research) credits, for a total of 18-21 courses. Specific requirements are listed below:

A. 8-10 required core courses (ENS-100; BIO-110; BIO-315 or BIO-320 or BIO-324 or BIO-350T; CHM-101 and CHM-102 or CHM-110; GEO-110(100), GEO-120(101), GEO-112(102), GEO-106, GEO-117(107), or GEO-109; ENS-204; MTH-113 or MTH-110 and MTH-112 or PSY-200)

B. 2 environmental policy courses (ANT-241; CLS-153(243); ECO-228, ENS-222; HST-138, HST-225; PHL-272, 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-250, BIO-257T, BIO-315, BIO-320, BIO-322, BIO-324, BIO-325, BIO-350, BIO-350T, BIO-352T; ENS-201; GEO-202, GEO-209(254), GEO-300, GEO-203(301), GEO-207(315), GEO-355T.

- Environmental Geosciences (BIO-315, BIO-320, BIO-324, BIO-350T, BIO-352T, CHM-231, CHM-240, CHM-340; GEO-202, GEO-208, GEO-209(254), GEO-206(255), GEO-207(315), GEO-300, GEO-203(301), GEO-302, GEO-307(253), GEO-207(315), any Geology miniterm)

- 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, ENS-209; 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-207, ENS-208, ENS-209, ENS-247, ENS-250, ENS-252, ENS-253, ENS-310, ESC-370; MER-231; TAB-333T.

D. Senior Seminar (ENS-460)

E. 2 terms of thesis research (ENS-498 and ENS-499) or a one term senior research project (ENS497)

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 are listed below:

A. Introductory course (ENS-100);

B. 4 required policy courses (ECO-228; and 3 from: ANT-241; HST-225; PHL-272, 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, PSY-200, SOC-300, or ENS-204)

D. 3 required science courses (BIO-110; and BIO-320, or BIO-324, or BIO-350T; and GEO-109, GEO-110(100), GEO-112(102), GEO-106, GEO-117(107) GEO-120(101), or GEO-355T)

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 (CLS-153/243; ENS-208; GEO-109, GEO-209(352), GEO-335T; HST-225; PHL-272, PHL-273, PHL-274; PSC-260, PSC-264, PSC-272, PSC-273; SOC-240, SOC-270, SOC-358T, SOC-359)

- Environmental Problems and Response (ANT-241; CLS-153/243; EGL-251; ENS-201, ENS-208, ENS-222, ENS-247, ENS253; GEO-109, GEO-209(254), GEO-355T; HST-225; PHL-272, PHL-273, PHL-274; SOC-202, SOC-270, SOC-271, SOC-359, SOC-370, SOC-387T; TAB-333T)

- Marine Studies (BIO-256T, BIO-328, BIO-352T; SOC-358T, SOC-359)

- Energy and Sustainability (BIO-322; ENS-200, ENS-201, ENS-208, ENS-209, ENS-222, ENS-247, ENS-253; PSC-272; SOC-359; TAB-333T)

Up to two internships may be counted toward any of the tracks above, 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, Policy, and Engineering program.

F. Environmental Services and Policy (SOC-450) (Junior seminar for Environmental Policy majors)

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. Either two science courses and three policy courses, or three science courses and two policy courses. Courses must be selected from the following lists. 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.

Science Courses

Biology: BIO-320, BIO-322, BIO-324, BIO-328

Chemistry: CHM-101

Envir Science: ENS-200, ENS-204, ENS-207, ENS-208, ENS-209, ENS-247, ENS-250, ENS-252, ENS-253, ENS-310

Geology: GEO-112(102), GEO-106, GEO-117(107), GEO-109, GEO-202, GEO-209(254), GEO-206(255), GEO 300, GEO-203(301), GEO-302, GEO-207(315), GEO-355T

Policy Courses

Anthropology: ANT-241

Economics: ECO-228

Envir. Science.: ENS-208

Geology: GEO-109, GEO-355T
 History: HST-225
 Philosophy: PHL-273, PHL-274
 Political Science: PSC-272
 Sociology: SOC-202, 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. ENS-100: 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-207: Hydrology
 - ENS-208: Waste Management and Recycling
 - ENS-209: Renewable Energy Systems
 - ENS-247: Sustainable Infrastructure
 - ENS-250: Water Resources and the Environment
 - ENS-252: Environmental Geotechniques
 - ENS-253: Environmentally Friendly Buildings
 - 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. (not offered 2012-13) 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-201. Food Ecology. (same as BIO-201) (not offered 2012-13)

ENS-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 archeology, 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. Prerequisite: A good background in the use of modern computer software .

ENS-207. Hydrology. (Winter, Jewell) 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: Sophomore standing.

ENS-208. Waste Management and Recycling. (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-110 (100).

ENS-209. Renewable Energy Systems. (Fall, Wicks) 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) (not offered 2012-13) 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 GEO-112 (102) (Environmental Geology).

ENS-253. Environmentally Friendly Buildings. (Spring, Mafi) (not offered 2012-13) 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.

ENS-460. Senior Seminar in Environmental Studies. (Winter) This capstone course for the environmental science and policy 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.

ENS-497. Senior Research in Environmental Science. Senior-level independent research on an environmentally related topic. Substantial writing is required for ENS 497 (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 senior research advisor. The results of senior research are presented to an audience of faculty members and peers. Prerequisite: Senior standing in the environmental science program and permission of the project advisor. (NOTE: This option is not open to environmental policy majors.)

ENS-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 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.

Art History

AAH-208: Business of Visual Art and Contemporary Entrepreneurship

Chemistry

CHM-260: Inorganic Chemistry

Classics

CLS-146: Sex and Gender in Classical Antiquity

CLS-178(278): Ancient World Mythology

Computer Science

CSC-106: Can Computers Think? Introduction to Computer Science
(ethics component included when taught by K. Striegnitz).

Economics

ECO-101: Introduction to Economics

ECO-225: Economics of Sin

ECO-226: Financial Markets

ECO-230: The Mind of the Entrepreneur

ECO-331: E-Commerce Economics

ECO-334.: Financial Analysis

ECO-375: Efficient Management of Technology

Engineering

SMT-123 (IDM-123): Ethics, Technology and Society

English

EGL-101: Introduction to the Study of Literature: Fiction

EGL-215: Survey of American Literature: 19th Century

EGL-219: African American Literature 1900-Present

EGL-250: Literature and Science

EGL-255: Discourses on the Vietnam War

EGL-299: The Power of Words: Professional Writing

Environmental Science

ENS-110: 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: Associate Professors M. Chilcoat (Modern Languages and Literatures), A. Feffer (History); Visiting Assistant Professor J. DeSeve

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; 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
- EGL-244 Asian American Literature and Film
- EGL-247 Irish Literature and Film
- EGL-252 Changing Ireland
- EGL-286 Film: The American Western
- GER-402 German Film Studies
- HST-333 Hollywood Film: An American History
- HST-364: British Cinema: From Music Hall to Multiplexes
- MLT-201 Chinese Cinema
- MLT-203 Asian American Film and Performance
- MLT-215 What is French Cinema? (Also FRN 312)
- 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

II. Film: Disciplines, Theory, Criticism

- ANT-111 Cultures Through Film
- ANT-240 Culture and Technology
- ANT-262 Photographing Culture
- CLS-151 The Ancient World in Film and Literature
- EGL-285 Film as Fictive Art: American and European Films
- EGL-288 Genre: Horror Film
- EGL-293 Studies in a Major Director
- FRN-402 Sex Lives and Videotape: Casting Sexuality in French and Francophone Film
- HST-331 Representing America: United States History in Film
- 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)
- PHL-135 Philosophy in Film
- PSC-275 Law and Film
- PSC-340 Politics and Film
- PSC-434 Feminist Film
- SPN-402 Dressing Up the Canon: Cross-Dressing in Hispanic Literature and Film
- SPN-433 Latin American Colonial Crossroads at the Movies

III. Film Technologies

- AVA-120 Photography I
- AVA-220 Photography II
- AVA-320 Photography III
- AVA-160 Digital Art
- AVA-262 Real and Recorded Time
- CSC-385 Computer Graphics
- ECE-347 Image Processing
- ECE-370 Engineering Acoustics
- EGL-304 Junior Seminar in Screenwriting

• **FLM-201. Documentary Filmmaking: Filtering Your World** (Spring; De Sève) 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 entire student body.

• **FLM-202. Digital Filmmaking** (Fall; De Sève) 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.

• **FLM-303. Cinematic Montage** (Spring; De Sève) 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.

IV. Film Project or Internship

• **FLM 490-492.** Film Studies 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; Assistant Professors H. Frey; D. Gillikin

Staff: W. Neubeck (Technician), D. Klein (Administrative Assistant)

Requirements for the Major: A minimum of eleven courses in the department including: one of GEO-110 (100), 112 (102), or 117 (107); and GEO-120 (101); and each of GEO-201, 202, 220 (200), 307 (253), 320 (250), 405, and 495. Students in the *Traditional Geology Track* must choose two courses from the following: GEO-205, 206 (255), 208, 302, 303, 304; students in the *Environmental Geology Track* must choose two courses from the following: GEO-203 (301), 207 (315), 209 (254), 300, 302. All students must choose two elective courses from the geology curriculum or from: ENS-100, BIO-320 (or BIO-350T), BIO-328 (or BIO-352T), CHM-231, or CHM-240; of these, no more than one may be at the 100 level, and 100 level courses cannot count as an elective if taken after a student declares the Geology major. Also required are two terms each of Mathematics (any two courses numbered 100 or higher, or equivalent such as MTH 113), Chemistry (CHM-101 required, and either CHM-102 or any CHM course numbered 102 or higher), and Biology or Physics (any two courses numbered 100 or higher). 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; preference for GEO-110 (100), 112 (102), 117 (107), and 120 (101) will be given to first- and second-year students. Senior Geology majors may not take any introductory course 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 (495-497). Only one senior level research credit may count toward the two 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 110 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 two terms of 495-497 (independent research with a faculty member). Theses involving Geology 497 must be completed by the end of the 6th week of the Spring term.

Requirements for the Minor: A minor in geology requires six courses including any introductory level course numbered 110 or higher, GEO-220, and any four electives numbered 200 or higher. 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 Selection Guidelines: None of the 100-level courses in Geology have prerequisites, but only GEO-110 (100), 112 (102), 117 (107), and 120 (101) serve as entry points into upper level

courses. Preference for GEO-110 (100), 112 (102), 117 (107), and 120 (101) is given to first-year students and sophomores. Students should take GEO-201, 202, 203 (301), 205, 206 (255), 207 (315), 208, and 209 (254) after taking an introductory course, ideally in the second year. Students should have completed CHM-101 before taking GEO-220, and GEO-220 is a prerequisite for GEO-320 (250). All Geology majors are required to take GEO 405 in the senior year, which satisfies the senior writing requirement (WS).

Courses

GEO-103. Great Moments in The History of Life (Not offered 2012-13). 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, CC: SET.

GEO-106. Introduction to Oceanography (Winter, Gillikin). The oceans cover 71% of the planet and hold 97% of the earth's available water and 50% of the planet's species, but more than 95% of the ocean remains unexplored. This course covers physical, chemical, and biological oceanography. The course involves an examination of plate tectonics, ocean currents and the forces driving them, the role of the oceans in climate change, coastal processes and sea level change, biological productivity, and the ocean fishing industries. May require a weekend field trip. No prerequisites, CC: SCLB

GEO-108. Earth Resources. (Not offered 2012-13). 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, CC: SCLB.

GEO-109. Geologic Perspectives on Global Warming (Winter; Rodbell). Global climate change is one of the defining issues of our time. This course covers the basics of the climate system; topics include: the radiation balance of Earth, the role of greenhouse gases on Earth's surface temperature, atmospheric and oceanic circulation, and natural oscillators in the climate system. A significant portion of the course is dedicated to understanding natural climatic variability on Ice Age and postglacial timescales, and the perspective that this understanding gives us when predicting future temperature trends on Earth and the likely impact that these trends will have on human society. No prerequisites, CC: SET

GEO-110 (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, CC: SCLB; preference given to first and second year students.

GEO-112 (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, CC: SCLB; preference given to first and second year students.

GEO-117 (107). Natural Disasters. (Spring; Garver). An introduction to the geologic processes causing floods, earthquakes, volcanoes, landslides, and other natural hazards and how hazards affect people and society. 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, CC: SCLB; preference given to first and second year students.

GEO-120 (101). The Earth and Life Through Time (Spring; Gillikin). An investigation of Earth's dynamic history and evolutionary changes over the past 4.5 billion years. Topics include 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 origin of life, mass extinctions of dinosaurs and other organisms, paleoclimate, and the geologic history of New York State. The link between geology, chemical cycles and life is highlighted, as is the relation of past biogeochemical changes to current global environmental change. May require a weekend field trip. No prerequisites, CC: SCLB; preference given to first and second year students.

GEO-201. Stratigraphy and Depositional Environments of New York (Fall; Garver). 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 Geology course numbered 110 or higher; weekly lab.

GEO-202. Geomorphology (Fall; Rodbell). 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 glaciers, rivers, hillslopes, and wind, and the geochemical reactions responsible for the formation of soils and caves. These topics are covered within the context of the geologic evolution of the Mohawk Valley since the end of the last Ice Age. Prerequisites: Any Geology course numbered 110 or higher; weekly lab.

GEO-203 (301). Lakes and Environmental Change (Not offered 2012-13). Modern limnology and the record of environmental change as recorded in the physical and chemical properties of lake water and lake sediments. Includes a term-long research project on two local lakes, and the interpretation of the proxy paleoenvironmental indicators contained in sediment cores from these lakes. Prerequisites: Any Geology or Biology course numbered 110 or higher; weekly lab.

GEO-206 (255). Volcanology (Spring; Frey). 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 Geology course numbered 110 or higher; weekly lab.

GEO-207 (315). Stable Isotopes in Environmental Science (Fall, Gillikin). Stable isotopes have become a fundamental tool in many biogeoscientific studies, from reconstructing past climates to tracking animal migration or unraveling foodwebs and even to study the origin of life on Earth and possibly other planets. This course highlights the applications of stable isotopes in biological, ecological, environmental, archeological, and geological studies. Students learn the fundamentals of stable isotope biogeochemistry in order to understand the uses and limitations of this tool. This course starts with an introduction to the fundamentals of stable isotope geochemistry and then moves on to applied topics such as paleoceanography and paleoclimatology proxies, hydrology, sediments and sedimentary rocks, biogeochemical cycling, the global carbon cycle, photosynthesis, metabolism, ecology, organic matter degradation, pollution, and more. Prerequisite: Any Geology or Biology courses numbered 110 or higher, or CHM 101, or ENS 100, or permission of the instructor; weekly lab.

GEO-208. Paleontology, Paleobiology, and Paleocology (same as BIO-208) (Spring; Staff). Nearly all species that have existed on Earth are now extinct and are only known through the fossil record. This course examines the evolution and history of life on Earth as interpreted from the fossil record. Topics include fossil preservation, taphonomy, ontogeny, diversity trajectories through geologic time, evolutionary mechanisms, extinction, paleobiology, paleocology, and paleoclimate. Special emphasis will be placed on using fossils to interpret ancient environments as well as deciphering past climates. The course focuses on the fossil record of marine invertebrates, but major groups of vertebrates and plants are also covered. Prerequisite: Any Geology or Biology course numbered 110 or higher; weekly lab.

GEO-209 (254). Paleoclimatology (Winter; Staff). 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, and natural climatic records, which 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. Past climate variability is used to highlight possible scenarios of future climate change. Prerequisite: Any Geology course numbered 110 or higher, or permission of the instructor; weekly lab.

GEO-220 (200). Mineral Science (Winter; Frey). 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 and any Geology course numbered 110 or higher; weekly lab.

GEO-300. Glacial and Quaternary Geology (Spring; Rodbell). 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: Any geology course numbered 200 or higher, 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. Geophysics (Winter; Staff). 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.

GEO-304. Carbonate Sedimentology (Not offered 2012-13). 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 numbered 110 or higher; and ii) Geology 201 or 202 (may be concurrent), or permission of instructor. Option 2: i) Any Geology course numbered 110 or higher; 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-305. Biogeochemistry (Not offered 2012-13). Biology, geology and chemistry are intricately linked to form the world around us. John Muir was aware of this in 1911 when he wrote his famous quote "When we try to pick out anything by itself, we find it hitched to everything else in the Universe." Biogeochemical cycles set the stage for life on Earth. This course explores the nitrogen, phosphorus, sulfur, water, and carbon cycles at the surface of the Earth. We investigate how biological (e.g., primary production, respiration), anthropogenic (e.g., urbanization, pollution)

and geological processes (e.g., tectonics, rock weathering) influence these chemical cycles. Field studies focus on tropical marine biogeochemistry of coral reefs, mangrove forests, seagrass meadows, lagoons, estuaries, hypersaline lakes, and tidal flats. Course includes a required week-long field trip to San Salvador Island, Bahamas. There are additional costs associated with field trip expenses. All students must meet basic term abroad requirements and submit an application. This course is open to all students, but preference will be given to those with a declared major in geology, environmental science or biology.

GEO-307 (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-320 (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-220 (200); weekly lab and three all-day trips.

GEO-352 (209). Field Geology (Not offered 2012-13). 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-355T. Living on the Edge (Not offered 2012-13). 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 2012-13). 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 is 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-495-497. Research in Geology (Fall, Winter, Spring; Staff). Geological research under the direction of a faculty member. Two terms are required for honors. Only one term can be counted toward the two geology electives. Prerequisite: Permission of the instructor.

German Studies

(see Modern Languages and Literatures)

Greek (see Classics)

Hebrew, Biblical (see Classics)

Hebrew, Modern

(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, B. Peterson; Assistant Professor K. Aslakson; Senior Lecturer M. Lawson; Lecturer D. Brennan; Visiting Instructor C. S. Gan

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); two of the following: HST 118; HST 226; HST 227; HST 265 (same as ANT 265); HST 270; HST 324, HST 331, HST 481, the Civil Rights Public History miniterm, or the South Africa miniterm; and one other relevant history course chosen from the previous list or in cooperation with Melinda Lawson.

400-level 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. 400-level 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 400-level seminar before beginning the thesis. Two of the following classics courses may be counted toward the history major, but not toward a core: 110, 111, 121, 125, 126, and 129.

Requirements for the Interdepartmental Major: Eight courses, including the core requirement or thematic concentration for majors, one 300-level course, the 400-level seminar, and the senior thesis. Students must complete a 400-level 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) a grade of “A minus” or higher on the senior project; and (3) 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); one of the following: HST 118, HST 226, HST 227, HST 265 (Same as ANT 265), HST 270, HST 324, HST 331, HST 481, the Civil Rights Public History miniterm, or the South Africa miniterm; and either an additional course drawn from the previous list or one course drawn from the following: any Art History course; Anthropology 265 (same as HST 265); Studio Fine Arts 262, Computer Science 055; Modern Language in Translation 200, 263, 339; Political Science 260, 340. 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.

Course Selection Guidelines

Placement: We accept the following AP courses: World History, United States History, and European History. If the score is 4 or 5, then we assign credit for one of our introductory courses, HST 105 for World History, HST 102 for United States History, and HST 147 for European History, all of which will count towards the major.

Courses Suitable for Non-Majors: Although 300 and 400 level courses are designed with History majors and minors in mind, all History courses are suitable for non-majors.

Course Numbering: 300- and 400-level courses have as a prerequisite any 100- or 200-level course or permission of the instructor.

Courses in African and Middle Eastern History

HST-107. Africa to 1800 (Not offered 2012-13). 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. CC: LCC

HST-108. Africa since 1800 (Not offered 2012-13). 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. *CC: LCC*

HST-194. The Modern History of the Middle East (Not offered 2012-13). 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 (Winter; Berk). History of the Jewish people in its first 1600 years from tribal beginnings to the destruction of the second Commonwealth.

HST-201. Contemporary Africa (Fall; 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. *CC:LCC*

HST-302. Comparing Muslim Cultures (Not offered 2012-13). 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. *CC: LCC*

HST-401. Seminar in Africa/Middle East: Islam in Africa (Not offered 2012-13). 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. *CC: LCC*

HST-402. Seminar in Africa/Middle East: French Empire (Not offered 2012-13). 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. *CC: LCC*

Courses in Asian History

HST-181. Confucians and Conquerors: East Asian Traditions (Not offered 2012-13). 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. *CC: LCC*

HST-182. Rebels, Reds, and Regular Folks: The Turbulent History of Modern Asia (Spring, Madancy). An analytical overview of the major themes and historical processes that shaped China, Japan, and Korea from the nineteenth century to the present. *CC: LCC*

HST-183. Introduction to South Asian Civilizations (Not offered 2012-13). 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. *CC: LCC*

HST-184. Making Modern India 1800-1947 (Winter; Gan). 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. *CC: LCC*

HST-281. Samurai to Salarymen: Modern Japanese History (Not offered 2012-13). 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. *CC: LCC*

HST-283. The Mao Years (Winter; Madancy). 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. *CC: LCC*

HST-284. Women in China and Japan: Power and Limitations (Spring; 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. *CC: LCC*

HST-285. The Samurai: Lives, Loves, and Legacies (Fall; Madancy). 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. *CC: LCC*

HST-286. Women in South Asia: (Not offered 2012-13). 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. *CC: LCC*

HST-380. Special Topics in East Asian History (Not offered 2012-13). Prerequisite: any 100-level or 200-level history course or permission of the instructor. *CC: LCC*

HST-381. Asian Encounters with the West: Commerce, Conquest, and Conversion (Not offered 2012-13). 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. *CC: LCC*

HST-383. The Last Dynasty: The Glory and Fall of the Qing Empire, 1644-1911 (Not offered 2012-13). 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. *CC: LCC*

HST-384. Historical Foundations of South Asian Religions. (Not offered 2012-13). 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. *CC: LCC*

HST-481. Seminar in East Asian History: World War II in Asia (Winter; Madancy). 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. *CC: LCC*

Courses in European History

HST-141. Medieval Europe (Not offered 2012-13). 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 2012-13). 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 (Fall; 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 (Fall; Ellis). 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 2012-13). 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 2012-13). 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 (Not offered 2012-13). 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 2012-13). 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 (Winter; Berk). 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 2012-13). 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 (Spring; Berk). 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-162. The Making of Modern Scotland (Not offered 2012-13). 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. Wales and the Welsh. (Not offered 2012-13). 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 164. The Peoples of Britain. (Not offered 2012-2013). Images of royalty, Wimbledon, fish and chips, or ‘Rule Britannia’ sometimes come to mind when we think of Britain. Typically, England has received disproportionate attention in histories despite the fact that four ‘nations’ have existed within the geographical bounds of the ‘British Isles’ (Ireland, Wales, Scotland, England) and many peoples have found their way to those islands: Celts, Romans, Angles, Saxons, Jutes, Danes, Norse, Normans, Afro-Caribbeans, Southeast Asians, peoples of South Asia, Africa, and the Middle East. This introductory course explores the remarkable interactions among these people who defined the British Isles from the first settlements right through to the present. The course includes a changing variety of special subjects that include the influence of Celtic Christianity, the ethnic hodgepodge that was medieval Wales, the impact of the English Reformation in a remote Cornish parish, the towering intellectual achievements of Enlightenment Scots like David Hume and Adam Smith, the diaspora of Britons and the making of a global Empire, the might of industrial Britain and the politics of its ethnically diverse working classes, the misery of the Great Depression as experienced by George Orwell, and the rise of multicultural Britain in the twentieth century. Upon completion of this course you will have obtained a working knowledge of British History from which to explore the subject in more depth and also be able to demonstrate understanding and appreciation of cultural complexity through the cross-cultural comparisons made in the course. CC: LCC

HST-165. Orwell’s Britain 1900-1950 (Not offered 2012-2013). The English writer George Orwell did far more than give us the famous novel *1984*. Just 47 years old when he died, Orwell

lived through the decades that defined both his England and the 20th century. Too young to fight in the Great War, Orwell became a colonial administrator in Burma before answering the call to write. Orwell's pen interrogated English society, championed social justice, and denounced totalitarian ideologies of the Right and Left. He chronicled the epic history through which his generation lived: British imperialism, the Great Depression, Stalinism and the rise of Fascism, Britain's 'finest hour' in World War II, and the challenges of building a just, peaceful order in a world dominated by two rival superpowers. This course examines the history of England and the first half of the twentieth century through a selection of Orwell's novels, non-fiction books, essays, and reportage combined with standard historical accounts, film, and critical analyses of Orwell's literary record. The course will end by considering how Orwell's life and works resonated beyond his own lifetime. By the time you complete this course you will have studied the works of an important literary figure and used your critical literary and historical analysis of them to broaden and deepen your understanding of Britain and the Twentieth Century. *CC: HUL*

HST-240. The Crusades: Christianity and Islam in Conflict (Not offered 2012-13). 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 2012-13). 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 (Not offered 2012-13). 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-256 (353). Modern European Ideas (Fall; 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.

HST-260. Medieval Britain 1000-1509. (Not offered 2012-13). Britain in 1000: 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. (Spring; 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 travelled 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. (Not offered 2012-13). 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 2012-13). 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 2012-13). 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 (Not offered 2012-13). Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-361. The British Empire: (Spring; Cramsie). 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? Through an analysis of history, literature, and film, 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. The course format emphasizes the creative and critical examination of topics through scholarly reading and active discussion. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-364. British Cinema: From Music Halls to Multiplexes. (Winter; Cramsie). 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: Black Death (Fall; Sargent). A detailed examination of the origins, characteristics, and effects of the great pandemic that struck Europe in late 1347. Particular attention will be paid to current debates about the nature of the disease, its social, economic, and religious consequences, and its role in bringing the Middle Ages to an end. Students will write a research paper.

Courses in Latin American and Caribbean History

HST-171. Europe and the Americas in the Era of Columbus (Not offered 2012-13). 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. CC: LCC

HST-172. Reform and Revolution in Latin America and the Caribbean (Not offered 2012-13). 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. CC: LCC

HST-270. History of Latin American Popular Culture (Fall; Meade). 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. CC: LCC

HST-271. History of Mexico (Not offered 2012-13). 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. *CC: LCC*

HST-272. History of Brazil (Not offered 2012-13). This is a survey interpretation of Brazilian history from the days of Portuguese expansion to the present, including the contrast between the urban and rural areas, the Atlantic slave trade, slavery and the resistance to it, the plantation system and post-abolition race relations, the destruction of the rainforest, the emergence of democratic structures in modern Brazil, and the rise of Brazil as a 21st century economic powerhouse. *CC: LCC*

HST-273. History of the Caribbean and Central America (Not offered 2012-13). This course covers the history of the Caribbean and Central America from pre-colonial times to the present. It includes a survey of the impact of both extinct and enduring indigenous cultures, the rivalries among Spanish, Dutch, French, and British powers for control of the Caribbean, and the history of slavery, the plantation system, rebellions and revolutions against enslavement, colonialism, and modern imperialism. The course ends with the early 21st-century struggles for self-determinism among the nations of the region. *CC: LCC*

HST-274. Social and Political Movements in Latin America (Not offered 2012-13). 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. *CC: LCC*

HST-370. Special Topics in Latin American History (Not offered 2012-13). Prerequisite: any 100-level or 200-level history course or permission of the instructor. *CC: LCC*

HST-372. History of Latin American Women (Winter; Meade). 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. *CC: 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. *CC: LCC*

Courses in United States History

HST-101. History of the United States to the Civil War (Not offered 2012-13). 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 2012-13). Political, economic, and social developments: continuity and change in modern America.

HST-113. The Origins of American Society (Not offered 2012-13). The evolution of American society from its 17th-century origins through the aftermath of the Revolution.

HST-114. The American Revolution (Not offered 2012-13). The causes and consequences of the American Revolution (1763-1815).

HST-116. Age of Jackson (Fall; 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 2012-13). 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 Emergence of Modern America, 1877-1918 (Not offered 2012-13). 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 (Not offered 2012-13). 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 2012-13). 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 2012-13). 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 2012-13). 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 (Not offered 2012-13). 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?" *CC: LCC*

HST-132. African-American History II (Winter; Aslakson). 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. *CC: LCC*

HST-135. Latinos(as) in U.S. History (Winter; 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. *CC: LCC*

HST-211. American Indian History (Not offered 2012-13). 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 (Not offered 2012-13). 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 (Spring; Foroughi). 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 (Winter; Wells). 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 2012-13). 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-221. Popular Culture and American History (Not offered 2012-13). The popular arts and entertainments of the late nineteenth and twentieth centuries are placed in historical context and studied as a means to rediscover the intellectual and emotional life of ordinary Americans.

HST-222. Other Voices: Women in the History of American Ideas (Not offered 2012-13). 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 2012-13). An overview of the major social and political issues that shaped and unshaped American liberal thought from John Dewey to Andrea Dworkin.

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-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 (Winter; 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-227. Oral History (Spring; Lawson). This course is an introduction to the theories, practice, and uses of Oral History. Students will learn theories of memory and perspective as they relate to oral history, listen to and watch audio and visual oral history interview, read and analyze published works grounded in oral histories, discuss the ethical and legal issues surrounding oral history, and learn how to perform, record, and edit an oral history interview. Students will spend a significant portion of their time working on individual projects wherein they will conduct and interpret oral history interviews and write an essay based on that work.

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. *CC: LCC*

HST-232. History of New Orleans (Spring; Aslakson). This class examines the history of New Orleans from its founding in 1718 to the present day. The course will proceed chronologically and will focus on the recurring and interrelated themes of Race, Geography, and Culture. In the process we will unravel the extent to which the crescent city is or is not representative of the history of urban America in general. *CC: LCC*

HST-310. Special Topics in United States History (Not offered 2012-13). Prerequisite: any 100-level or 200-level history course or permission of the instructor.

HST-311. Frontiers in the Americas (Not offered 2012-13). 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. *CC: LCC*

HST-312. History of Women's Rights in the United States (Fall; Foroughi). 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 2012-13). 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 2012-13). 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. *CC: LCC*

HST-323. Race and Revolution (Spring; 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. *CC: LCC*

HST-324. Race in American Memory (Not offered 2012-13). “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. *CC: LCC*

HST-331. Representing America: United States History in Film (Spring; 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 (Winter; Feffer). 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 2012-13). 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 2012-13). 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: History of New York City (Not offered 2012-13). Larger than many states, with an economy that exceeds that of many small nations the City of New York has occupied the center of American financial, cultural, and political life since the Civil War. This course will trace the history of New York City from the early 19th century to the end of the 20th, as it rose to become the preeminent urban center of the United States and, for some, the world. We will look at the city’s political, social, and cultural history in all its dimensions, including its service as the primary port of disembarkation for European immigrants, its role as a cultural capital and its history as a center of political dissent.

HST-412. Seminar in US History: The Old South (Not offered 2012-13). This class examines the history of the Old South, focusing on the period from 1800 to 1861. The lectures and readings cover a variety of topics, including myths and facts about southern society and culture, slavery and the strengthening of southern distinctiveness, and political events that eventually lead to the creation of a separate (short-lived) southern nation in 1861.

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.

Courses in Special Topics

Global History

HST-105. Comparative Global History to 1800. (Winter; Sargent). Provides a “bird’s-eye” view of human history from the emergence of human “civilization” in the Fertile Crescent to the European conquest of the Americas. Surveys the comparative development of the world’s continents, regions, and empires and investigates how expansion of the “human web” facilitated both cooperation and conflict among the world’s peoples. Pays particular attention to environmental and ecological determinism, the influence of technology on economic growth, the rise of “portable” religions, and the interaction of culture and politics.

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.

History of Science, Technology, and Medicine

HST-193. Science, Medicine, and Technology in Culture (Not offered 2012-13). 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-242. The Scientific Revolution, 1400-1700 (Not offered 2012-13). 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-253. Physics and Politics (Same as PHY-053). (Not offered 2012-13). 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. *CC: SCIE*

HST-256 (353). Modern European Ideas (Fall; 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.

HST-291. Construction for Humanity (Not offered 2012-13). 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. *CC: SCIE*

HST-292. History of Computing. (Same as CSC-080) (Not offered 2012-13). 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.

Public History

HST-221. Popular Culture and American History (Not offered 2012-13). The popular arts and entertainments of the late nineteenth and twentieth centuries are placed in historical context and studied as a means to rediscover the intellectual and emotional life of ordinary Americans.

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-227. Oral History (Not offered 2012-13). This course is an introduction to the theories, practice, and uses of Oral History. Students will learn theories of memory and perspective as they relate to oral history, listen to and watch audio and visual oral history interview, read and analyze published works grounded in oral histories, discuss the ethical and legal issues surrounding oral history, and learn how to perform, record, and edit an oral history interview. Students will spend a significant portion of their time working on individual projects wherein they will conduct and interpret oral history interviews and write an essay based on that work.

HST-265. The Museum: Theory and Practice (Same as ANT-265) (Not offered 2012-13). 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.

Religion

HST-203. Judaism/Christianity/Islam (Same as REL-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.

HST-240. The Crusades: Christianity and Islam in Conflict (Not offered 2012-13). 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-245. Occult Sciences and Societies (Not offered 2012-13). 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.

Women's and Gender History

HST-212. Women in Colonial and Victorian America (Not offered 2012-13). 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 (Spring; Foroughi). 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-222. Other Voices: Women in the History of American Ideas (Not offered 2012-13). The contribution of women to the development of American intellectual and cultural life, from Charlotte Perkins Gilman to Angela Davis.

HST-267. The Tudor and Stewart Queens. (Not offered 2012-13). 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-284. Women in China and Japan: Power and Limitations (Spring; 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. *CC: LCC*

HST-286. Women in South Asia: (Not offered 2012-13). 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. *CC: LCC*

HST-312. History of Women’s Rights in the United States (Fall; Foroughi). 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-363. Women in British History (Not offered 2012-13). 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-372. History of Latin American Women (Winter; Meade). 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. *CC: LCC*

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 Thesis in History (Fall, Winter, Spring).

Interdepartmental/Interdisciplinary Courses

IDM-008 Internship. Students who have secured an internship that meets College guidelines may apply for an Internship Transcript Notation. “IDM008 Internship Transcript Notation” is 0.3 course credits and is graded Pass/Fail. For more information please contact Director of Internships Maggie Tongue.

IDM 010 Practicum Art & Med Ceramics. (Summer: Niefeld/Weisse) This course will introduce students to the art of medicine through ceramics. Projects will encourage exploration of human form and function. Students will engage in reflective exercises comparing potter and physician and patient as “project”.

IDM-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 biology major credit nor Common Curriculum science credit.

IDM-360 Humanities Super Seminar. (Spring) A multidisciplinary course taught by three different humanities faculty. Based on a different overarching topic every year, students from all disciplines across campus engage in the reading and analysis of visual and written material, in deeply challenging conversations, in the synthesizing of ideas, and in the creation of a host of different projects, such as podcast interviews, photographic journals, webpage designs, video projects, set designs, sculptures, visual installations, debates and presentations. Each Humanities Super Seminar includes speakers or workshops open to the larger Union and Schenectady community. Course syllabi, student blog discussions, and class projects will be showcased every year on the class website.

IDM-295H & 296H Interdepartmental Honors Independent Project 1 & 2.

IDM-487-489 Double Major Thesis I, II, and III.

IDM-490 Interdepartmental Independent Study

IDM-498 & 499 Interdepartmental Senior Thesis 1 & 2.

International Programs

Director: L. Atkins

Staff: G. Casper (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, are available from the International Programs office. The application, application instructions, policies, and waiver and liability forms are available on the International Programs 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. cumulative index of at least 2.5 (3.0 for Independent Study Abroad, 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 complete at least two courses at Union 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 program description.
6. Have a clear account balance, as verified by the Office of Financial Services.

Please consult the Common Curriculum 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.

Union College International Programs (Study Away) Withdrawal Policy

The success of study away programs from the Union campus requires student commitment well in advance of the anticipated dates of the term of study. When a student withdraws after having made a commitment to such a program, it may be too late to offer the spot to another student who was willing and able to participate. Also, Union College incurs expenses well before a program begins that cannot be recovered when students withdraw. In the case of mini-terms, withdrawals can jeopardize the viability of the program. The International Programs Withdrawal Policy is designed to prompt students to consider their commitment to the program to which they have applied in light of the financial consequences of withdrawal. This policy applies to all Union -and non-Union study away programs, including mini-terms.

Initial Deposit A deposit of \$350 is required for all programs. Payment of the deposit signifies the Union College student's commitment to participate in the program.

The deposit will be credited on the student's billing account provided that:

- The student fully completes the program, OR
- Union College cancels the program (e.g. on account of security concerns)

The student will forfeit the deposit if the student withdraws from a program or cannot participate in the program, either partially or entirely, for any reason other than Union College canceling the program.

Additional Withdrawal Fee

Unless one of the exceptions listed below applies, a student who withdraws from participation in a program or is no longer allowed to participate because of Union College disciplinary sanctions will be charged a withdrawal fee in addition to the aforementioned forfeited deposit. The withdrawal fee is based on the date of official withdrawal, as indicated in the table below. Official withdrawal occurs when a student informs the International Programs office of the withdrawal in writing or the International Programs office informs the student of his or her ineligibility to participate.

<u>When Official Withdrawal Occurs</u>	<u>Withdrawal Fee</u>
More than 60 days before the start	\$0
59-31 days before the start*	\$2000
30 days before the start*	\$3150 (mini-term), \$3500 (all other programs)
During the first two weeks of the program	\$3150 (mini-term), \$5000 (all other programs)

*If a student withdraws before the start of a program, Union College will make a good faith effort to replace the student with another qualified student or to obtain a refund from its overseas providers; the withdrawal fee will not apply if a replacement student is found or to the extent that the College obtains a refund.

Exceptions to Withdrawal Fee:

- Students will not be charged the withdrawal fee if any of the following occurs:
- Student withdraws from Union College for medical reasons during the program in accordance with Union College's medical withdrawal policy.
- A documented medical situation occurs before the start of the program that prevents the student from participating in the program.
- Student becomes ineligible to participate because of insufficient overall GPA.
- A student becomes ineligible to participate if, in spite of following the proper procedures in a timely manner, the student was denied a visa by the host country.

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 Common Curriculum (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 Common Curriculum (General Education) section on how international programs relate to various requirements.

The following term abroad programs are offered at Union College and include three courses, unless otherwise indicated:

Argentina (Córdoba): 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 Paulo): 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

England (York): Fall. Faculty Member in Residence

Fiji: Fall. Offered in even years. Faculty Member in residence.

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

Mexico: Winter. Offered odd years. Faculty in Residence (Mexico will be substituted with Argentina in Winter 2013)

National Health Systems (Canada, Denmark, & England): Spring & Summer. Faculty Member in Residence for Canada portion of program

Spain (Seville): Winter. Offered even years. Faculty Member in Residence

Tanzania: Winter. Offered even years. Faculty Member in Residence

Vietnam: Fall, 4 courses. Offered as part of the Partnership in Global Education. Faculty Member in Residence.

Exchange Programs

The College has four formal exchange programs:

Belgium (Antwerp): Fall, 4 courses, at the University of Antwerp in Belgium, for Economics majors.

Czech Republic (Prague): Fall, 4 courses, at the Czech Technical University in Prague, for Engineering majors only.

France (Lille): Winter, 4 courses, at the Catholic University of Lille in France, for Economics majors.

Japan (Osaka): Fall, 4 courses, at the Kansai Gaidai University of Foreign Studies in Japan.

Independent Study Abroad

(Program requirements are under review for Independent Study Abroad programs and changes are expected during 2012-13. Please inquire in the International Programs Office before applying.)

Independent Study Abroad programs allow students who are primarily juniors and 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 Faculty Director.

Non-Union Study Abroad

Non-Union Study Abroad programs allow students who are primarily Juniors 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. 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 courses.

1. If the host institution will allow a fifth course for an additional fee, Union College will pay that fee.
2. If a student is ahead in credits, then he/she may count one or two of these credit towards graduation at no cost.
3. The student may take one or two fourth courses without charge upon returning to Union College.
4. 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.
5. 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 encouraged to apply for at least three mini-terms. You are guaranteed entry into one.
6. 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, Bali, Brazil, China, Egypt, England, France, Iceland, India, Martinique, Marine Studies, New Zealand, Peru, Russia, Senegal, South Africa, Spain, Thailand, and domestic locations such as the Adirondacks, Alaska, New Hampshire, New Orleans, on the Mexican-American border and a Civil Rights program in the South. 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.

Italian (see Modern Languages and Literatures)

Japanese (see Modern Languages and Literatures)

Jewish Studies

Director: Professor P. Bedford (Religious Studies)

Requirements for the Minor: The Jewish Studies Minor allows students to examine aspects of Jewish history, culture, and Hebrew language in an interdisciplinary manner, drawing on relevant classes taught in various departments and programs. Students require seven classes to complete the Minor, which must include three classes in either Biblical Hebrew (HBR 111, 112, 113 Biblical Hebrew I, II, III) or Modern Hebrew (HEB 100, 101, 102 Basic Hebrew I, II, III) and at least two classes at the 200-level or above taken from the list below. Independent Study classes can be counted towards the Minor with the permission of the Director.

- AMU-125 World Religions and Music
- EGL-226 World of the Bible
- EGL-238 Jewish Women Writers
- EGL-248 Yiddish Literature in Translation
- GER-403 Literary, Artistic and Filmic Representations of the Holocaust
- HBR-111, 112, 113 Biblical Hebrew I, II, III
- HEB-100, 101, 102 Basic Hebrew I, II, III
- HST-128 The American Jewish Experience
- HST-157 Modern Jewish History
- HST-158 The Holocaust
- HST-194 Modern History of the Middle East
- HST-195 Early History of the Jews
- MLT-339/GER 339 The Shoah in Film: Cinematic Treatments of Holocaust Trauma and Memory
- PSC-249 Middle East Politics
- PSC-254 Politics of the Arab-Israeli Conflict
- REL-203 Judaism/Christianity/Islam: Comparative Perspectives
- REL-230 Judaism and Christian Origins
- SPN-434 Christians, Jews and Muslims: Cultural Exchanges in Early Modern Spain and "Converso" Culture in the Americas

Latin (see Classics)

Latin American and Caribbean Studies

Director: Associate Professor D. Mosquera (Modern Languages)

Faculty: Professors L. Fleishman (Biological Sciences), T. Meade (History), V. Martínez, P. Moyano (Modern Languages), D. Rodbell (Geology); Associate Professors A. Foroughi (History), C. Batson, M. Chilcoat, W. García, C. Henseler, C. Ndiaye (Modern Languages), T. Olsen (Music), L. Cox (Visual Arts); Assistant Professors E. Garland (Anthropology), G. Seri (Political Science); Senior Lecturer M. Osuna (Modern Languages), Visiting Assistant Professors A. Jarrin (Anthropology), S. Silvestre (Modern Languages).

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 Common Curriculum (CC), 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, Independent Study Abroad, and shorter mini-term options as well to various countries in Latin America (some of the countries visited are Argentina, Mexico, Brazil, Martinique, among others. Consult with the LACS director for possibilities).

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 (two-term for double majors or one-term for ID majors) senior project; and (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 (Fall, Spring) or Prof. Meade (Winter, Spring), co-directors of LACS during the 2012-2013 year, for more information.

Course Selection 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-225 Gender and Society

ANT-230 Medical Anthropology

ANT-260 Tourists and Tourism

ANT-283 Peoples and Cultures of Latin America

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

Spanish

SPN-325 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-406 Film of the Mexican American Border
 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-236 Police, Security, and Biopower
 PSC-243 Latin American Politics
 PSC-342 Challenges to Democratization in Latin America
 PSC-358 Wealth and Power among Nations
 PSC-359 Seminar: Human Rights

Terms Abroad & Mini-Terms (2012-13)

- MLT-286T.** Gender and Identity in Contemporary Brazilian Cinema, Term Abroad to Brazil, Fall break.

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. One-Term Senior Project (Fall, Winter, Spring).

LAS-498-499. Two-Term Senior Thesis (Fall, Winter, Spring).

Law and Humanities

Director: Professor L. Zaibert (Philosophy)

The Law and Humanities minor is designed for students considering law school. Satisfying the requirements for the minor would ensure that students have a deep understanding of the foundations of legal systems in general. Moreover, the minor provides students with the unusual opportunity to learn about law from multi-disciplinary and cross-cultural perspectives which highlight the rich and varied ways in which the law interacts with the liberal arts and humanistic disciplines. Many of the courses that count for the minor are courses that highlight the connections between law and other disciplines, such as classics, philosophy, political science, and religious studies.

Requirements for the Minor: Six of the following courses, at least three of which are in the Humanities.

Anthropology

ANT-246 Anthropology of Human Rights

Classics

CLS-186 Roman Law and Society

Philosophy

PHL-105 Introduction to Ethics

PHL-231 Symbolic Logic

PHL-235 Reasoning and the Law

PHL-237 Introduction to Political Philosophy

PHL-250 Ethical Theory

PHL-305 Relativism in Ethics and Politics

PHL-444 Current Political Philosophy

PHL-476 Philosophy of Law

Political Science

PSC-113 Introduction to Political Thought

PSC-273 The Supreme Court and Judicial Politics

PSC-275 Law and Film

PSC-370 Constitutional Law

PSC-371 Civil Rights and Liberties

Sociology

SOC-240 Political Sociology

SOC-261 Crime and Justice in Society

SOC-265 Sociology of Human Rights

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 first-year students 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 3.3 and acted 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, 260, 261, 263, 264, 272, 273, 275, 281, 282, 283, 369, 370, 371;
Economics 101, 225, 228, 233, 242, 243, 335, 339, 344, 352, 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: R. Beaton (Health Careers Counselor), J. Clifford (Program Assistant), A. 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 (UGC), 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 toward either graduate degree.)

Important curricular requirements include:

- an interdepartmental major, one part of which is in the natural sciences (Biology, Chemistry, Math, Physics) and the other part of which is in the social sciences (including Psychology) or humanities;
- coursework 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 the following minimum 16 Union College Math/Science courses:

- BIO 110, BIO 112, BIO 210, BIO 225, CHM 101, CHM 102, CHM 231, CHM 232, MTH 110, MTH 112, PHY 110, PHY 111 and one of the following upper level biology courses (BIO 330, 332, 354, 363, 378, or 384) plus 3 or more additional courses designated by their science ID major:
- Chemistry ID: CHM 240, CHM 382, CHM elective ≥ 200 level with lab or any ≥ 300 level except BCH335
- Biology ID: Biochemistry (BCH335, or CHM 382 or BIO 380), plus 2 BIO electives ≥ 200 w/ lab
- Math ID: see Math ID requirements in consultation with math advisor.
- Physics ID: see Physics ID requirements in consultation with physics advisor.

In addition, students must take 15 Social Science and Humanities courses including:

FPR 100, Statistics, LIM 500, LIM 544, three non-science electives, plus 8 additional courses to fulfill an ID major in Social Sciences or Humanities. LIM students are not required to complete the full Common Curriculum (General Education), 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, 553, 571, MBA 510, 512, HCM 501, HCM: 617, 656, 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 a 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.

Requirements for Honors: Leadership in Medicine students are not subject to the restrictions for ID majors and may receive departmental honors in one department if they satisfy the requirements of that major. The thesis does not need to integrate both majors as it must for non-program students.

Managerial Economics

Director: Professor J. Kenney

Faculty: Professors H. Fried, D. Klein, B. Lewis, Shelton S. Schmidt, Stephen J. Schmidt, M. Sener, S. Yaisawarng; Associate Professors L. Davis, T. Dvorak, E. Motahar, Y. Song; Lecturer E. Foster; Visiting Assistant Professor Y. Ren

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 Selection Guidelines: See guidelines under Economics.

Master of Arts in Teaching (MAT)

Dean: P. 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 (Chinese, 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 M.B.A. in Healthcare Management

Dean: B. Musits (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. programs. Students in the accelerated MBA programs typically complete the MBA with only one additional year of study. Students may earn an M.B.A. or an M.B.A. in Healthcare 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 and for those students seeking financial aid. 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 first, sophomore, or junior years.

Students are required to complete 20 graduate courses, three of which will 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). Any courses that are waived reduce the number of courses required to complete the MBA. 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, available at uniongraduatecollege.edu.

MBA-500. Managing Ethically in a Global Environment

MBA-510. Financial Accounting

MBA-512. Managerial Accounting and Finance

MBA-551. Managing People and Teams in Organizations

HCM-500. Introduction to Health Systems

Master of Science in Electrical Engineering, Master of Science in Mechanical Engineering, and Master of Science in Energy Systems

Dean: R. 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, Masters in Mechanical Engineering, and Masters in Energy Systems. 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 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 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 with Union Graduate College, Dean School of Engineering (Robert Kozik).

Mathematics

Chair: Professor A. Taylor

Faculty: Professors J. Barbanel, D. Cervone, B. Johnson, K. Lesh, S. Niefield, K. Rosenthal, K. Zimmermann, W. Zwicker; Associate Professor C. Tønnesen-Friedman; Assistant Professors R. Hoerl, L. Khatami, J. Wang; Visiting Assistant Professor K. Plofker; Senior Lecturer: P. Friedman

Staff: L. Jorgensen (Administrative Assistant)

Requirements for the Major: Twelve courses in the mathematics department at the 101 level or higher including Math 113 (or 110 and 112 or 100, 101, and 102), 115, 117, 199, 332, 336, 340, 497 or 498–99; at least one course at the 200 level; 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. Mathematics majors who wish to apply to a master's program in teaching are advised to incorporate Math 128, 224 and Computer Science into their undergraduate program. 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 at the 101 level or higher, including Math 113 (or 110 and 112 or 100, 101, and 102), 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 at the 101 level or higher 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.

Course Selection Guidelines

Placement: Students who receive a score of 5 on the AB Advanced Placement exam, or a score of 4 or 5 on the BC Advanced Placement exam may receive credit for MTH 110 and MTH 112. Students who receive a score of 3 or 4 on the AB Advanced Placement exam, or a score of 3 on the BC Advanced Placement exam, or a 6 or 7 on the Higher Level Math IB (International Baccalaureate) exam may receive credit for MTH 110. Students with a 4 or a 5 on the Advanced Placement Statistics exam can also earn credit.

Mathematics Placement Exam: All incoming students are required to take a Mathematics Placement Exam (MPE). Students receive a recommendation concerning their first mathematics course based on the information they provide and their performance on the MPE. Students should consult this recommendation and their academic advisor before enrolling in a mathematics course

Common Curriculum 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 2012–2013). 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 (Not offered 2012–2013). 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 2012–2013). 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-056. History of Mathematics (Spring). Traces the development of mathematical ideas and methods in literate cultures from ancient Egypt and Mesopotamia, to Hellenistic Greece and medieval China, India and the Islamic world, up through the dawn of calculus at the start of the Scientific Revolution in early modern Europe. Topics include the interlinked changes and intercultural transmission of basic numeracy, arithmetic, geometry, trigonometry, algebra, practical computation and approximation, and concepts of the infinitely large and small.

MTH-057. Game Theory and its Applications in the Humanities and Social Sciences (Not offered 2012–2013). 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 2012–2013). 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 2012–2013). 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.

MTH-061. Math in the Public Interest (Not offered 2012–2013). In what ways do advertisers, politicians, and other propagandists try to trick the public by exploiting our ignorance of or aversion to mathematical reasoning? This course explores key mathematical topics including statistics, probability, exponential and logarithmic functions, and visual/graphical representation of numbers, in the context of contemporary public policy issues such as the 2008 financial crisis, gaming institutions, population demographics, and climate change.

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-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). Self-contained treatment of the main topics in MTH-110 and MTH-112. Intended for first-year students 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 2012–2013). 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-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 (Winter). 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 (Spring). 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 (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 and MTH 197 or MTH 199.

MTH-325. Knot Theory(Not offered 2012–2013) . 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 2012–2013). 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 2012–2013). Continuation of MTH-332. Certain topics will be selected for more intensive study. Prerequisite: MTH-332.

MTH-436. Topology (Spring). Topological spaces, connectedness, compactness, continuous mappings and homeomorphisms. Prerequisite: One 300-level course or permission of the instructor.

MTH-448. Differential Geometry (Not offered 2012-2013). 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 2012–2013). (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 B. Bruno

Faculty: Professors A. Anderson, R. Wilk; Associate Professors R. Bucinell, W. Keat, A. Rapoff, F. Wicks; Assistant Professors R. Cortez, D. Hodgson, A. Ramasubramanian; Visiting Assistant Professor G. Sanders; Lecturer A. Tchako; Visiting Instructor S. Kalista

Staff: S. Gorski (Technology Coordinator), R. Becker (Administrative Assistant)

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 <http://me.union.edu/>

Requirements for the Major: First-year, sophomore, junior, and senior requirements are given for the Class of 2016 below. Students should consult their academic advisor about scheduling courses.

First Year*

*ESC100 (Exploring Engineering), MER101 (Engineering Graphics), MTH113 (AP Calculus II), MTH115 (Calculus III), MTH117 (Calculus IV), PHY120, Physics 121, 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****

* Students *must* declare their ME Major prior to or during the sixth week of their first year spring term (prior to registering for courses for the following Fall). Students not declared as ME Majors will likely not be admitted to 200 level ME courses.

** 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: Core Curriculum (1 Social Science, 2 Humanities, 2 Linguistic and Cultural Competency), 1 Math/Science Elective (This course is intended to count toward the ABET math/science requirements. This course must be a math/science course and count toward a Mathematics, Physics, Chemistry, Biology, or Geology major to qualify), 3 Free Electives, and 2 Engineering Depth Electives (defined as any course in mechanical engineering, electrical engineering, computer engineering, bioengineering, or any approved course 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 Core 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 Core 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 Core 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 Five-Year Combined BS/MS in Mechanical Engineering: Union undergraduate students may apply to this program offered in conjunction with Union Graduate College 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 required 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.

Requirements for the Minor: The Mechanical Engineering Minor is composed of MER 201, 231, and any four additional courses in Mechanical Engineering except MER 010 and MER 490 and higher.

Course Selection Guidelines

Current Mechanical Engineering Major worksheets can be found at: http://me.union.edu/index_files/Page1064.htm. It is strongly suggested that students and their advisers consult with these worksheets prior to selecting courses (even during the first year). Please consult with a Mechanical Engineering faculty member if additional information or clarification is required.

Minimum grades in Prerequisite Courses: In order to qualify to take any mechanical engineering course, a minimum grade of C- must be earned in all mechanical engineering (MER) and mathematics (MTH) courses that are listed as prerequisites for the course. Mathematics courses with the IMP designation are excluded from this requirement.

Union Graduate College: Selected graduate courses in engineering mathematics, solid mechanics, and the thermal fluid sciences offered by the School of Engineering and Computer Science of the Union Graduate College are available to qualified undergraduates. For further information, please consult the catalog of the Union Graduate College for the MS program in Mechanical Engineering.

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 (Fall, 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

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 (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: 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: CSC109 (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 (or BNG202 for BNG majors only), 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, Spring). 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 MER311, MER333, or permission of the faculty advisor, and concurrent registration and participation in senior seminar MER010.

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-332. Fluid Mechanics II. (Spring) Emphasis on the computational approach to fluid mechanics (CFD). Coverage includes advanced topics such as: turbulence modeling, turbo machinery analysis, and compressible flow,. Prerequisite: MER331 or equivalent.

MER-421. Mechatronics Design. (Fall) This course emphasizes the fundamental technologies on which contemporary mechatronic designs are based; sensors and actuators, system dynamics and control, analog and digital electronics, microcontroller technology, interface electronics and real-time programming. The laboratory sessions focus on, hands-on design projects in which small teams of students configure, design, and implement a succession of mechatronic subsystems, leading to system integration in a final project. Prerequisites: MER 212, ECE222 or ECE225, and CSC109 or equivalent

MER-445. Soft Tissue Mechanics. Crossed with BNG-346 (Winter) This class will cover the mechanical behavior of soft tissues with focus on the musculoskeletal system and the circulatory system. From a mechanics stand point, we will deal with topics such as viscoelasticity, muscle mechanics, large strain elasticity, and pressure vessels. From a biological stand point, we will deal with tissues such as muscles, blood vessels, tendons, and ligaments. Pre-req: MER 214 or equivalent.

MER-453 Computational Methods in Solid Mechanics. (Spring) An introduction to the theory and practice of classical numerical methods in solid mechanics. Goal is to equip the student with the theoretical understanding, modeling experience and programming skills needed to address a wide range of problems encountered in mechanical engineering, with special focus on applications related to solid mechanics. Topics to be covered include matrix methods, finite differences, finite elements, boundary elements and optimization techniques. Prerequisites: MER214, CSC109

MER-471. Solar Energy Analysis and Design. (Winter) . Analysis and design applicable to the use of solar energy for heating, cooling, and electric power generation. Solar geometry, solar collector positioning, energy storage, component and system design. Prerequisites: MER 333 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 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.

MER-499. Mechanical Engineering Senior Project Continuation (Spring). Optional follow-on to MER-497, MER-498, for students who wish to go above and beyond their completed objectives for MER-497, MER-498. Can be counted as a free elective in the Mechanical Engineering curriculum. Prerequisites: MER-498, permission of the MER-498 project advisor and the department chair. Consult the Mechanical Engineering Department Chairman for additional requirements.

Modern Languages and Literatures

Chair: Associate Professor C. Ndiaye

Faculty: Professors K. Bidoshi, V. Martinez, P. Moyano; Associate Professors C. Batson, M. Chilcoat, M. Ferry, W. Garcia, C. Henseler, D. Mosquera, E. Nelson, J. Ueno; Assistant Professors M. Ricci Bell, Z. Zhang; Visiting Assistant Professors S. Silvestre; Senior Lecturer M. Osuna;

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 and Francophone, German and Spanish and Hispanic Studies. 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 Asian Studies. Introductory courses are also offered in Arabic, Hebrew, Italian and Portuguese.

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:

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.

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.

Interdepartmental, interdisciplinary, and dual majors must complete all requirements listed for the individual major to qualify for the program.

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.

Requirement for taking a course without its prerequisites

In order to be placed at the proper level for their first language course at Union or to be assigned to any other course without having completed its prerequisite, students should contact the Departmental office for an appointment with the appropriate professor to get a signed permission slip or petition on the necessary waiver.

French and Francophone Studies Requirements

Requirements for the Major in French and Francophone Studies: 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 and Francophone Studies: 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 Studies: 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 Studies: 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 and Hispanic Studies: 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 or interdepartmental major. 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 and Hispanic Studies: 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 "Literature, Culture, and Cinema in Translation" (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 Selection Guidelines

Students should be aware that all of the courses in Modern Languages and Literatures carry HUM and LCC credit for Common Curriculum (CC) 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)

Faculty in the Department of Modern Languages & Literatures offer a variety of courses on works of literature, culture, cinema, and media that have been translated into English. “MLT” courses allow English-speaking students to engage with texts and other cultural artifacts from around the world to help them to develop the awareness of cultural diversity that is needed to be a global citizen in the twenty-first century.

Chinese

MLT-200. Modern Chinese Literature (Not offered 2012-13). 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. *CC: HUL, LCC*

MLT-201. Chinese Cinema (Not offered 2012-13). 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. *CC: HUL, LCC*

MLT-202. Gender and Sexuality in Modern China (Also WGS 202) (Not offered 2012-13). 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. *CC: HUL, LCC*

MLT-203. Asian American Film and Performance (Also WGS 268) (Not offered 2012-13). 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. *CC: HUL, LCC*

MLT-204. Literary Traditions in East Asia (Not offered 2012-13). 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. *CC: HUL, LCC*

MLT-205. Perspectives in Modern East Asian Literature (Not offered 2012-13). 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. *CC: HUL*

MLT-209. The New Wall of China (Also ENS 222) (Spring, 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. *CC: HUL, LCC, SET*

French

MLT-211. Histoire de la danse, Danse de l'histoire / History of Dance, Dance of History (Also FRN 421, ADA-153) (Not offered 2012-13). 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). *CC: HUL, LCC*

MLT-212. Sex Lives and Videotape: Casting Sexuality in French and Francophone Film (Also FRN-402) (Not offered 2012-13). 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. *CC: LCC, HUL*

MLT-213. West African Oral Literature (Also FRN 430) (Spring, Ndiaye). 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. *CC: HUL, LCC*

MLT-215. What is French Cinéma?/Qu'est-ce que le cinéma français? (Also FRN-312) (Not offered 2012-13). 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. *CC: LCC, HUL*

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-234. Femmes fatales? Women in 19th- and 20th-Century German Culture and Society (Also GER-334) (Not offered 2012-13). 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 sexuality. *CC: HUL, LCC*

MLT-235. Voices from Abroad: German Exile Culture, 1933-1990 (Also GER-335) (Not

offered 2012-13). 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. *CC: HUL, LCC*

MLT-236. Poetry, Performance, Protest & Power: A History of Twentieth-Century Germany. (Also GER-338) (Not offered 2012-13) This course explores the legacy of 20th century German literature and cultural history through its poetic tradition of performance and protest, while analyzing the political, social, and cultural climate and the shifts in understandings of gender, race, class and generational relations during this critical century in contemporary German history. *CC: HUL, LCC*

MLT-336. The Thrill of Victory: Reading German Sports (and) Culture (Also GER-336) (Not offered 2012-13). 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. *CC: 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. *CC: LCC, HUL*

Japanese

MLT-250. Japanese Sociolinguistics (not offered 2012-2013). 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. *CC: LCC, HUL*

MLT-254. Explore Japanese Manga and Anime (Fall; Ueno). This course examines the rich world of Japanese *manga* (comic books) and *anime* (animation), one of the most significant cultural products in Japan and a dominant global media export. The topics include the issues of the relationship between humans and nature; gender relations; humans and technology; "Japaneseness" of *anime*; and globalization of *manga*. This course will be taught in English and no prior Japanese language knowledge is required. *CC: HUL*

Russian

MLT-260. The Vampire as Other in East European and American Culture (Spring; Bidoshi). 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. *CC: HUL, LCC*.

MLT-262. Russia: Magnificence, Mayhem, and Mafia (Not offered 2012-2013). 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? *CC: HUL LCC*

MLT-264. Illness and Its Representation: Madness, Disease and Death in 19th- and 20th-Century Russian Culture (Not offered 2012-2013). 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. CC: HUL, LCC

MLT-265. Soviet and Russian Film Revolutions: Political, Social, Cultural. (Not offered 2012-2013). 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. CC: LCC, HUL

Spanish

MLT-270. The Way of St. James: An Interdisciplinary Study (Also AAH-212) (Not offered 2012-2013). 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. CC: HUL, LCC

MLT-271T. Hiking the Trail in Spain (Also AAH-213T) (Not offered 2012-13). 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. CC: LCC, HUL

MLT-272. Art and Politics in Spain: From the Civil War to Postfrancoism and Postmodernity (Not offered 2012-13). 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. CC: HUL, LCC

MLT-273. Re-Viewing Spanish Cinema: From Dictators, Bullfighters and Flamenco to Nationalisms and Globalization (Not offered 2012-13). 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. CC: LCC, HUL

MLT-281. Screening Identities in Latin American Cinema (Fall, Garcia). 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). CC: HUL

MLT-282. North/South Relations and Diasporic Politics (Not offered 2012-13). 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. CC: HUL, LCC

MLT-283. Beyond the Sunny Paradise: Literature and Politics in the Caribbean (Not offered 2012-13). 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. CC: HUL, LCC

MLT-284. Popular Religion and Politics in Latin America (Not offered 2012-13). 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. *CC: LCC, HUL*

MLT-285. From Virgin to Sex Goddess: Re-Envisioning the Chicana Experience Through Art and Literature (Not offered 2012-13). 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. *CC: HUL, LCC*

MLT-286T. Gender and Identity in Contemporary Brazilian Cinema (Not offered 2012-13). The course is a survey 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. *CC: LCC, HUL*

MLT-287. Filming Margins: Cinema Verité and Social Realism in Latin America (Not offered 2012-13). 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. *CC: LCC, HUL*

MLT-288. Torture and Dictatorship in Latin American Literature (Winter, Martínez). 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. *CC: HUL, LCC*

MLT-289. Literature of the Mexican-American Border (Not offered 2012-13). 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. *CC: HUL, LCC*

MLT-293 Made in New York: Puerto Rican and Dominican Transnational Identities in American Literature & Cinema (Not offered 2012-2013) The course is a survey of the cultural production and representation of the Dominican and Puerto Rican communities in New York City

from the late 1950's to the present. Through the analysis of literary texts (narrative, poetry, theater), and films, students are encouraged to reflect on the forging of transnational identities and other issues (race, cultural identity, gender and masculinities) related to these two Caribbean diasporic communities in the U.S., and on the politics of their representation within the American cultural economy. *CC: HUL*

MLT-294. Generation X: Global Youth Culture in Fiction and Film (Winter, Henseler) In this course we will examine the production of Generation X literature and culture worldwide. We will begin the course by gaining an understanding of the roots and meaning of "Generation X" since the US post-war period, to its various outgrowths around the world. We will examine how the axis of a "GenX" consciousness plays itself out in countries around the world in narrative, film, art, and music. Possible authors, artists and directors include Canadian Douglas Coupland, American Richard Linklater, Spaniard Ray Loriga, Chilean Alberto Fuguet, Bolivian Edmundo Paz-Soldán, Australians Andrew McGahan and Justine Ettler, Icelandic author Hallgrímur Helgason, British artist Sarah Lucas, Chinese writers Mian Mian and Wei Hui, Russian Viktor Pelevin, Czech writer Jáchym Topol, and others. In this course, students will create their own short films through a careful, task-by-task research and creative idea generation process, they will receive training using iMovie, and they will learn about the ethical and lawful use of digital media material. For MLT Spanish credit, students must engage in a research / film project related to the Hispanic world. *CC: 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 (Fall). 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 instructor.

CHN-103. Chinese for the Term Abroad (Not offered 2012-13). 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. Chinese Language Studied Abroad (Fall term in China). See International Programs. *CC: LCC*

CHN-250T, 251T. Chinese Language Studied Independently Abroad. *CC: LCC*

CHN-320T. Chinese Civilization (Fall). *CC: LCC*

CHN-300. Advanced Intermediate Chinese I (Fall). Continued formal study of the Chinese language. Prerequisite: CHN-202 or equivalent.

CHN-301. Advanced Intermediate Chinese II (Winter). A continuation of CHN-300. Prerequisite: CHN-300 or permission of instructor.

CHN-302. Advanced Intermediate Chinese III (Spring). A continuation of CHN-301. Prerequisite: CHN-301 or permission of instructor.

CHN-400. The Changing Face of China (Not offered 2012-2013). This course is designed for students who have completed three years of Chinese at the college level or the equivalent. More advanced authentic texts of diverse topics will be introduced to students that cover the socio-political, economic, and cultural dimensions of a drastically changing China sitting in the whirlwind of commercialization and globalization. Students will gain insight into contemporary China and develop a higher level of Chinese proficiency through class discussions, written compositions, TV news clips and film analyses. Class will be conducted entirely in Chinese. Pre-requisite: CHN-302 or equivalent. Enrollment with the consent of the instructor. CC: LCC

CHN-401. Media China (Not offered 2012-2013). The course is designed for students who have completed three years of Chinese at the college level or the equivalent. Through analysis of more advanced and up-to-date authentic materials from China's mass media, students will not only develop a higher level of Chinese proficiency through class discussions, written compositions, research presentations, but also gain insight into contemporary China, as well as develop strong media literacy skills. Class will be conducted entirely in Chinese. Pre-Requisite: CHN-302 or equivalent. Enrollment with consent of the instructor. CC: LCC

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 2012-13). 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. CC: LCC

FRN-300. Modern France/La France actuelle (Spring; Chilcoat). Studies of contemporary French culture through authentic material, texts, films, radio, and television broadcasts dealing with current historical, political, sociological, and aesthetic issues. CC: LCC

FRN-301. A Survey of French Literature I (Not offered 2012-13). The evolution of French literature from the earliest writings through the age of Enlightenment. Readings of major works from each period to illustrate trends. CC: HUL, LCC

FRN-302. A Survey of French Literature II (Not offered 2012-13). 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. CC: HUL, LCC

FRN-304. Studies in the French Caribbean (Not offered 2012-13). 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. CC: HUL, LCC

FRN-305T. Mini-term in Martinique (Not offered 2012-13). See Terms Abroad Program. Continuation of the themes of FRN-304, studied and experienced on the island of Martinique. Prerequisite: FRN-304. CC: 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. CC: HUL, LCC

FRN-307. Negritude Movement: Point of Departure in Black African and Afro-Caribbean Literatures in French (Not offered 2012-13). 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. CC: HUL, LCC

FRN-308. Women on Top: Great Women Writers and Characters of French Narrative Fiction (Fall, Silvestre). 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 Chédid 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. CC: HUL, LCC

FRN-309. Identifying Desire, Desiring Identity: French and Francophone Non-Narrative Literature (Not offered 2012-13). 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. CC: HUL, LCC

FRN-311. Studies in Francophone North America: Quebec (Winter, 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. CC: HUL, LCC

FRN-312. What is French Cinéma?/Qu'est-ce que le cinéma français? (Also MLT-215) (Not offered 2012-13). 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. CC: LCC

FRN-400. Whose Enlightenment? (Not offered 2012-13). 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'Épinay, Olympe de Gouges, Condorcet, Marie Antoinette, and Sade. Prerequisite: One course at the 300 level. CC: HUL, LCC

FRN-401. The Writers of Romanticism. (Not offered 2012-13). Writers of personal and imaginative prose, poetry, and drama following the French Revolution. The beginning of Realism. Prerequisite: One course at the 300 level. *CC: HUL, LCC*

FRN-402. Sex Lives and Videotape: Casting Sexuality in French and Francophone Film (Not offered 2012-13). 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.

FRN-403. Studies in the French Theater (Not offered 2012-13). Studies of French-language theatrical texts and performances from the classical period to the present. *CC: HUL, LCC*

FRN-410. War Stories; 100 Years of French Literature (Not offered 2012-13). This course focuses on works in French about war, from memories of the Napoleonic wars to World War II. 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. *CC: HUL, LCC*

FRN-411. The 20th Century Novel (Not offered 2012-13). 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, Dariesussecq. *CC: HUL, LCC*

FRN-421. Histoire de la danse, Danse de l'histoire / History of Dance, Dance of History (Also ADA-153, MLT-211) (Not offered 2012-13). 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).

FRN-430. West African Oral Literature (Also MLT-213) (Spring, Ndiaye). 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. *CC: 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. *CC: HUL, LCC*

FRN-489. Senior Project (Winter; Chilcoat). 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.

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 (Fall, 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 2012-13). 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. CC: LCC

GER-301. German Culture and the Professions (Not offered 2012-13). 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. CC: LCC

GER-302. German Prose: A Survey (Not offered 2012-13). 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. CC: HUL, LCC

GER-303. German Drama: A Survey (Not offered 2012-13). Theory and practice of German theater from the Enlightenment to the Present. Prerequisite: GER-201 or permission of the instructor. CC: HUL, LCC

GER-304. Once Upon a Time: German Fairy Tales, Folklore, and Fantasy (Spring, Nelson.). 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. CC: HUL, LCC

GER-306. Twentieth Century German Literature (Not offered 2012-13). Representative works by major writers, read as expressions of concern about their times. Prerequisite: GER-201 or permission of the instructor. CC: HUL, LCC

GER-334. Femme fatales? Women in 19th and 20th Century German Culture and Society (Also MLT-234) (Not offered 2012-13). 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. CC: HUL, LCC

GER-335. Voices from Abroad: German Exile Culture, 1933-1990 (Also MLT-235) (Not offered 2012-13). 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. CC: HUL, LCC

GER-336. The Thrill of Victory: Reading German Sports (and) Culture (Also MLT-336). (Not offered 2012-13). 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. CC: HUL, LCC

GER-337. Flashy Erotics to Forbidden Laughter: German Cabaret through the 20th Century (Not offered 2012-13). 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. CC: HUL, LCC

GER-338. Poetry, Performance, Protest & Power: A History of Twentieth-Century Germany (Also MLT-236) (Not offered 2012-13). This course explores the legacy of 20th century German literature and cultural history through its poetic tradition of performance and protest, while analyzing the political, social, and cultural climate and the shifts in understandings of gender, race, class and generational relations during this critical century in contemporary German history. CC: HUL, LCC

GER-339. The Shoah in Film: Cinematic Treatments of Holocaust Trauma and Memory (Also MLT339) (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. Prerequisite: German 201 or permission of the instructor. CC: LCC

GER-401. Meeting the Other: Multiculturalism in Contemporary Germany (Not offered 2012-13). 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. CC: 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. CC: LCC

GER-403. Shoah: Literary, Artistic and Filmic Representations of the Holocaust (Not offered 2012-13). Comparing and contrasting works of German and German-Jewish writers. Prerequisite: Any 300-level course or permission of the instructor. CC: 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 (Winter). This is the first series of courses in Japanese designed for students with no knowledge of the language. The emphasis is on speaking, listening, reading, writing, and culture supported by communicative practice.

JPN-101. Basic Japanese II (Spring). A continuation of JPN-100. Prerequisite: JPN-100 or equivalent.

JPN-102. Basic Japanese III (not offered 2012-13). A continuation of JPN-101. Prerequisite: JPN 101 or equivalent.

JPN-200. Intermediate Japanese I (Fall). This course will further develop the student's Japanese proficiency by introducing more complex grammatical structures, idiomatic expressions, and additional kanji characters. Lesson materials incorporate various forms of Japanese culture. Prerequisite: JPN-102 or equivalent. CC: LCC

JPN-201. Intermediate Japanese II (Winter). A continuation of JPN-200. Prerequisite: JPN-200 or equivalent.

JPN-202. Intermediate Japanese III (Spring). A continuation of JPN-201. Prerequisite: JPN 201 or equivalent.

JPN-204T. The Japanese Language Studied Abroad (Fall; Term in Japan). Emphasis on communicative skills. See International Programs.

JPN-205T. Written Japanese Abroad (Fall; Term in Japan). Emphasis on communicative skills. See International Programs.

JPN-250T-252T. The Japanese Language Studied Independently Abroad.

JPN-300. Advanced Intermediate Japanese I (Winter). The primary goal of this course is the development of a broad competency in speaking listening, reading, and writing in a culturally coherent way. Materials will cover a wide range of academic and cultural interests. Prerequisite: JPN-202 or equivalent.

JPN-301. Advanced Intermediate Japanese II (Spring). Continuation of Japanese 300. Prerequisite: JPN-300 or equivalent.

JPN-302. Advanced Intermediate Japanese III (not offered 2012-13). Continuation of Japanese 301. Prerequisite: JPN-301 or equivalent.

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 (Fall). A continuation of Basic Portuguese I. Prerequisite: POR-100. See International Programs.

POR-200. Intermediate Portuguese I. (Winter, pending approval). 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. CC: LCC

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 2012-2013). 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. CC: LCC

RUS-300. Survey of Russian Literature I: From Pushkin to Revolution (Not offered 2012-2013). 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. CC: HUL, LCC

RUS-301. Survey of Russian Literature II: From Revolution to Present (Not offered 2012-2013). Readings ranging from the great revolutionary writers (Mayokovsky, Babel, Platonov, etc.) to contemporary writers of interest. Prerequisite: RUS-300. CC: HUL, LCC

RUS-302. The Russian Short Story: Pathologies of the Everyday (Not offered 2012-2013). A survey of Russian short prose, with emphasis on its reflected/distorted images of Russian everyday life. Includes Gogol, Tolstoy, Gorky, Kharms, Petrushevskaya, and others. CC: HUL, LCC

RUS-330. Special Topic in Russian Culture: The Forbidden: Eroticism, Passion and Death in Russian Culture (Not offered 2012-2013). 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? CC: 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 AP Spanish credit in high school

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: Spanish 201 or a score of 3+ on AP Spanish exam.

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. *CC: LCC*

SPN-204T-207T. The Spanish Language Studied Abroad (Winter). See International Programs.

SPN-208T. Spanish Civilization (Not offered 2012-13). See International Programs.

SPN-209T. Mexican Civilization (Not offered 2012-13).

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 2012-13). 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. *CC: HUL, LCC*

SPN-301. Pop, Punk, and Rock & Roll: Spanish Generation X Writers of the 1990s and the Mass Media (Not offered 2012-13). 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. *CC: HUL, LCC*

SPN-303. Bodies and Souls: Saints, Sinners, and Spectacles in Early Modern Spain (Not offered 2012-13). 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. CC: *HUL, LCC*

SPN-304. Performing Identities in Contemporary Spanish Theater (Not offered 2012-13). 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. CC: *HUL, LCC*

SPN-306. Spanish Mutant Fictioneers: Mutant Fiction & Media Mutations in Twenty-First Century Spanish Literature. (Spring, Henseler). The contemporary authors known as the *Mutantes* are well-connected and savvy users of new media and social networking sites. They maintain their own web pages, they write blogs, they produce videos, book trailers, electronic hypertexts, and post photographs on Flickr. They directly address and dialogue with their fans and foes alike. This course examines how authors such as Agustín Fernández Mallo, Jorge Carrión, Alberto Olmos, Juan Francisco Ferré, Javier Fernández, among others use new media technologies to mutate words in print and print across media platforms. To understand the role of media in print, this course includes a series of hands-on workshops and a series of digital assignments. Students will read, watch, and analyze the work of these authors by engaging in research projects, reading short stories, book chapters, newspaper articles, blogs, and watching trailers, presentations, even spoken word DJ performances. Prerequisite: SPN-203 or permission of the instructor. CC: *HUL, LCC*,

SPN-311T. Otherness and Citizenship in Contemporary Spanish Theater and Cinema (Not offered 2012-13). 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. CC: *LCC*

Studies in Latin American Literatures and Cultures (325-349)

SPN-325. Staging Conflict: Studies in One-Act Mexican Theater (Not offered 2012-13). 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. SPN-203 or permission of the instructor. CC: *HUL, LCC*

SPN-326. Women Weaving Histories: Short Narratives by Latin American Female Writers (Not offered 2012-13). 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. *CC: HUL, LCC*

SPN-327. The Nation at Home: Family and Nationhood in Spanish American Theater

(Not offered 2012-13). An introduction to the study of the dramatic genre through the analysis and discussion of representative works by Spanish American playwrights (Triana, Wolff, Diaz, 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. *CC: HUL, LCC*

SPN-328. Inquiring Latin American Identities: Reading Context, Space & Cultural Artifacts

(Not offered 2012-13). This course reflects on how Latin American identities are constructed through the lenses of written, visual, and oral texts. Latin-American cultural identities 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. SPN-203 or permission of the instructor. *CC: LCC*

SPN-329. Interruptions: The Paradox of Tradition in Spanish American Poetry (Winter,

Martinez). 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. SPN-203 or permission of the instructor. *CC: HUL, LCC*

SPN-330T. Mexican Women’s Contemporary Short Fiction. (Not offered 2012-13). 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. SPN-203 or permission of the instructor. *CC: HUL, LCC*

SPN-332. An Introduction to Afro-Hispanic Literatures and Cultures (Not offered 2012-13).

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 locations that problematize and enrich our perceptions of social, cultural, economic, religious, gender, and sexual social orders and identities related to the black experience. SPN-203 or permission of the instructor. *CC: HUL, LCC*

Studies in Latina/o Literatures and Cultures (350-360)

SPN-350. Visions and Voices: Chicana Icons from Myth to Matter (Not offered 2012-13). 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. CC: *HUL, LCC*

Studies in Comparative Perspectives (375-399)

SPN-375. Dreams, Mirages and Delusions in Peninsular and Latin American Fiction (Not offered 2012-13). 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, Garcia Lorca, García Márquez, Cortázar, and Ana Lydia Vega. Prerequisite: SPN-203 or permission of the instructor. CC: *HUL, LCC*

SPN-376. Down to Earth: Cross-Cultural Explorations of the Hispanic World (Not offered 2012-13). 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. CC: *HUL, LCC*

SPN-378. Short Fiction: From Naturalism to Neoliberalism (Not offered 2012-13). 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. SPN-203 or permission of the instructor. CC: *HUL, LCC*

SPN-380 What's Love Got to Do with It: Gender and Nation in Hispanic and US Latino Literatures (Fall, Garcia) An introduction to the study of literary genres thematically anchored in the intersection of gender dynamics, national politics, and the construction of identity (sexual, cultural, national). Students will read narrative, poetry, and drama from Spain, Spanish-America, and U.S. Latino communities. Theoretical readings and diverse critical approaches to literature frame the course around the portrayal of romantic/sexual relationships that acquire broader dimensions when scrutinized from the perspective of gender and national politics. How are gender and sexual identities inscribed in national identity? How cultural artifacts project and reflect the gendered body of the nation? SPN-203 or permission of the instructor. CC: *HUL*

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 2012-13). 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. CC: *HUL, LCC*

SPN-401. Bodies and Power in Latin American Narrative (Not offered 2012-13). 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 Garcia Marquez, Laura Esquivel, among others. Prerequisites: Two 300-level courses. CC: *HUL, LCC*

SPN-402. Dressing Up the Canon: Cross-Dressing in Hispanic Literature and Film (Not offered 2012-13). 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. *CC: HUL, LCC*,
SPN-403. The “Second Sex” in Latin America: Women’s Writing in the Twentieth Century (Not offered 2012-13). 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. Prerequisites: Two 300-level courses. *CC: HUL, LCC*

SPN-406 Film of the Mexican American Border. (Fall; Martinez). Through the study of 9 films, students will gain an understanding of cinematic techniques and the ways in which the directors of these films use them to convey differing perspectives of the Mexican-American border, with emphasis on the Mexican side. The films will be presented thematically in reference to the border as the perceived locus of perversion and violence, emigration/immigration, and identity. Readings for the course will come from texts on film, and from book chapters and articles. By the end of the term students will have a better understanding of the history and social dynamics of the Mexican-American border. They will also better understand how to “read” film through different theoretical approaches. They will also be able to discuss and write analytically about what a director does and why. *CC: LCC*

SPN-416. “Testimonio” and Resistance Writings in Central America as Literary Discourse (Not offered 2012-13). 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. *CC: HUL, LCC*

SPN-417. Death and Revenge in the Southern Cone (Not offered 2012-13). 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. *CC: HUL, LCC*

SPN-418. Of Cock Fights and Crowded Elevators: Readings in Contemporary Mexican Theater (Winter, García). 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. *CC: HUL, LCC*

SPN-431. Colonial Latin America 1492-1800 (Not offered 2012-13). 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. *CC: HUL, LCC*

SPN-432. Islands Adrift: Race, Politics, and Diasporas in the Hispanic Caribbean (Not offered 2012-13). 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. CC: *HUL, LCC*

SPN-433. Latin American Colonial Crossroads at the Movies (Not offered 2012-13). 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. Prerequisites: Two 300-level courses. CC: *LCC*

SPN-447. Virtual Embodiments: Video Games, Video Clips and Reality TV in Contemporary Spanish Narrative (Not offered 2012-13). In this course we will analyze three contemporary Spanish novels *Ático* by Gaby Martínez (2004), *Héroes* by Ray Loriga (1993), and *Veo 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. CC: *HUL, LCC*

SPN-448. Trash and Transgression: Spanish Surrealism and Popular Culture in Dalí, Lorca and Buñuel (Not offered 2012-13). 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 conflicts and repressed sexual longings. Prerequisites: Two 300-level courses. CC: *HUL, LCC*

SPN-473. Re-Viewing Spanish Cinema: From Dictators, Bullfighters and Flamenco to Nationalisms and Globalization. (Fall 2012). This course examines the works of such well known artists/filmmakers as Medem, Almodóvar, Bigas Luna, de la Iglesia, and 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. Two 300 level courses. CC: *HUL*

SPN-489. Honors Senior Seminar (Spring; García). 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 (on leave Fall); Associate Professors J. Matsue, T. Olsen; Lecturer J. Cox

Staff: L. Goodman (Office Assistant), K. Herrington (Administrative Assistant)

Requirements for the Major: Twelve courses, including the theory sequence (AMU 101, 102, 200 (301)); 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, 102 (201), 200 (301)); 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, 102, 200 (301)); 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; AMU 220/ANT 274; 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 320); 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 Selection 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 2012-2013). 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 (Not offered 2012-2013). 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. *CC: HUL.*

AMU-061. Beethoven to Bernstein (Not offered 2012-2013). 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. *CC: HUL.*

AMU-110. Class Piano (Spring; McMullen). 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 (Not offered 2012-2013). 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 (Winter; Tann). Traditional harmony and modulation: compositional techniques of Baroque and early Classical composers approached through short written exercises and listening assignments.

AMU-102. Music Theory II (Spring; Tann). Chromatic harmony: 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) (Fall; Matsue). Introduces musics from various world areas including Africa, Latin America, Asia, and Europe through live performance, lecture, video and audio. Students will increase familiarity with a wide range of musical styles while also exploring the relationship between music and society. *CC: LCC*

AMU-125. World Religions and Music (Not offered 2012-2013). 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 (Spring; Olsen). 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. *CC: LCC.*

AMU-132. The History of Jazz (Not offered 2012-2013). A study of the important personalities and trends in the evolution of jazz, approached through reading, video and sound recordings, and live performance. Not open to students who have taken AMU-131. *CC: LCC.*

AMU-133. Music of Latin America (Not offered 2012-2013). 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. *CC: LCC.*

AMU-134. Music and Culture of Africa (Winter; 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. *CC: LCC.*

AMU-136. Popular Music in Modern Japan (Winter; Matsue). Explores the development of popular music in modern Japan from Meiji period military music to contemporary urban popular musics. Intended for students interested in Japanese cultural history and Japanese music, as well as popular music and culture more broadly. No prerequisite. CC: LCC.

Intermediate Music Theory and Composition

AMU-200 (301). Music Theory III (Winter; Tann). Phrase and form: the larger features of music approached through close listening, analysis of scores, and composition. Prerequisite: AMU-102 or permission of the instructor.

AMU-204. Introduction to Composition. (Spring; Tann). The creation and notation of freestyle compositions with emphasis on individual instruction. Prerequisite: AMU 101 or permission of the instructor.

Music History and Cultural Studies

AMU-212. Baroque Music (Not offered 2012-2013). 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. CC: HUL.

AMU-213. Haydn, Mozart, Beethoven (Fall; 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. CC: HUL.

AMU-214. Romanticism (Not offered 2012-2013). 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. CC: HUL.

AMU-215. Music in the 20th Century (Not offered 2012-2013). 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) (Spring; Matsue). This seminar explores the relationship between music and culture through live performance, discussion, video and audio, 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. CC: LCC.

AMU-320. Encounters with East Asian Music Cultures (Not offered 2012-2013). Through live performance, discussion, and composition, this course explores key characteristics of East Asian Music Cultures. Particular attention is paid to the processes of cultural exchange between China, Korea, Japan and the rest of the world that have resulted in the rich breadth of performance traditions expressed today. Prerequisite: AMU-101 or permission of the instructor. CC: 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. CC: HUL.

Performance Workshops

AMU-230. Vocal Workshop (Not offered 2012-2013). Performance and historical study of music written for small vocal ensembles. Repertoire from many eras.

AMU-231. Chamber Music Workshop (Not offered 2012-2013). Rehearsal and performance of chamber music primarily from Classical and Romantic periods.

AMU-232. Jazz Workshop (Not offered 2012-2013). Performance, analysis, and composition of music written in jazz idioms.

AMU-233. Japanese Drumming Workshop (Not offered 2012-2013). Study of Japanese music and culture, with an emphasis on the performance of Japanese ensemble drumming. No prior musical experience necessary. *CC: LCC.*

AMU-234. Balinese Gamelan Workshop (Not offered 2012-2013). 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. *CC: LCC.*

Special Topics in Music

AMU-302. Special Topics: Global Popular Music (not offered 2012-13). This seminar explores popular music around world, considering the processes involved in the development of culturally-specific interpretations of global popular forms such as pops, hip-hop, reggae, and rock.

AMU-303. Special Topics: Conducting (Not offered 2012-2013). 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 2012-2013). Self-selected group and individual projects in composition or performance or both. Instrumental ability not necessarily a prerequisite.

AMU-305. Special Topics: Vocal Arranging (Not offered 2012-2013). Writing and arranging for the voice, in folk, classical, jazz, and popular contexts. Prerequisite: AMU 102 or permission of the instructor.

AMU-306. The Evolution of Popular Song (Not offered 2012-2013). 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 Japanese Drumming Ensemble. The Union College Japanese Drumming Ensemble (Zakuro-Daiko) rehearses weekly on a variety of Japanese drums and related percussion. The ensemble regularly performs both on- and off-campus. No previous musical experience is required, though members need to audition/interview to determine participation at the discretion of the instructor. See Professor Matsue.

AMU-013. Union College and Community Gamelan Ensemble. (Not offered 2012-2013). The Union College and Community Gamelan Ensemble (Gita Semara) meets weekly to rehearse music for Balinese gong kebyar, a type of Indonesian orchestra featuring gongs, xylophones, drums, and cymbals. The ensemble offers one concert each term. No previous musical experience is required, though members need to audition/interview to determine participation at the discretion of the instructor. See Professor Matsue.

AMU-014. Union College 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. See Professor Cox.

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, a select group of twelve to sixteen singers, rehearses twice a week and offer one formal concert each term. See Professor Cox.

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 Cox.

AMU-018. Early Music Ensemble. The Early Music Ensemble, open to both singers and instrumentalists, is devoted to the study and performance of music from the Middle Ages through the Early Viennese Era. Participants will play on both modern instruments and reproductions of historic instruments, including the harpsichord, organ, and recorder. Emphasis will be placed upon historical performance practices, as described in music treatises and other documents and as understood by scholars and performers today. The Ensemble, open by audition, rehearses twice a week. See Professor McMullen.

Nanotechnology

Directors: Associate Professors M. Hagerman (Chemistry), 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 expand their knowledge of science and technology.

Requirements for the minor:

1. Required courses for all minors (three courses):
 - CHM-/ESC-224 Frontiers of Nanotechnology and Nanomaterials
 - ESC-324 Advanced Topics in Nanoscience
 - MER-213 Materials Science
2. Elective physical science course: any course outside of the student's major department that counts toward that department's major.
3. Elective social science or humanities course: any course from the following list
 - ANT-240 Culture and Technology
 - HST-193 Science, Medicine and Technology in Culture
 - HST-253/PHY-053 Physics and Politics
 - PHL-232 Philosophy of Science
 - PHL-247 Technology and Human Values
4. The student's senior writing, research, or design project should involve elements of nanoscience or nanotechnology.

This senior project should be approved by one of the Nanotechnology program directors.

We also strongly recommend that minors complete MER354 (Advanced Materials).

Neuroscience

Directors: Associate Professors C. Chabris (Psychology), Q. Chu-LaGriff (Biological Sciences)

Faculty: Professors L. Fleishman, R. Olberg (Biological Sciences), D. Burns, C. Weisse (Psychology); Associate Professors S. Kirkton (Biological Sciences), C. Fernandes (Computer Science), C. Anderson-Hanley, S. Romero (Psychology); Assistant Professors J. Rieffel, K. Striegnitz (Computer Science), T. Buma (Electrical and Computer Engineering), J. Wang (Mathematics); Visiting Assistant Professors N. Webb (Computer Science), C. Perilloux, E. Wells (Psychology)

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, biopsychology, physiology, neurology, philosophy, 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 phenomena that are 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.

Requirements for the Major: The neuroscience major consists of four parts: (1) a core of required courses that all majors must take; (2) required courses in one of three tracks—bioscience, cognitive, or computational; (3) general electives; (4) a senior writing requirement. Unless noted below, course descriptions are listed under their home departments.

1. Required courses for all neuroscience majors:

BIO-110 and BIO-112 (Introductory Biology); BIO-225 (Molecular Biology of the Cell); either BIO-362 (Introduction to Neurobiology) or BIO-363 (Introduction to Cellular Neurosciences); PSY-200 (Statistical Methods in Psychology); PSY-210 (Introduction to Cognitive Neuroscience); PSY-220 (Psychology of Memory and Thinking); PHL-231 (Symbolic Logic); CSC-106 (Can Computers Think?)

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 (Comparative 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 (or MTH-112, MTH-

113, MTH-115, or MTH-117), CHM-101, and CHM-102. MTH112 and one term of physics are 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); CSC-320 (Artificial Intelligence).

Students must also take the following cognate Courses: MTH-110 (or MTH-112, MTH-113, MTH-115, or MTH-117), CHM-101 and PSY-300. MTH112 and one term of physics are recommended.

Computational track:

Required Courses:

Any TWO from the following list: CSC-206 (Natural Language Processing); CSC-243 Bioinformatics), 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 (or MTH-112, MTH-113, MTH-115, or MTH-117), MTH-197 (or MTH-199), and CSC-150. MTH112, CHM-101, and one term of physics are recommended.

3. Electives. TWO additional courses from the following list:

BIO-325 (Animal Behavior); BIO-330 (Comparative Animal Physiology); BIO-332 (Comparative Vertebrate Anatomy); BIO-354 (Developmental Biology); BIO-362 (Neurobiology); BIO-363 (Introduction to Cellular Neuroscience); BIO-365 (Neural Circuits and Behavior); BIO-370 (Endocrinology); BIO-375 (Animal Locomotion); BIO-380 (Biochemistry: Membranes, Nucleic Acids, and Carbohydrates); BIO-384 (Molecular Genetics); CSC-206 (Natural Language Processing); CSC-243 (Bioinformatics); CSC-320 (Artificial intelligence); CSC-325; (Robotics); CSC-329 (Neural Networks); ECE-487 (Medical Imaging Systems); PHL-232 (Philosophy of Science); PHL-365 (Philosophy of Mind); PHL-442 (Advanced Logic); 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); PSY-300 (Research Methods in Psychology); PSY-410 (Seminar in Brain and Behavior); PSY-411 (Seminar in Clinical Neuropsychology); PSY-420 (Seminar in Learning and Memory).

4. Senior writing requirement. Either:

- (a) One of the following senior seminars: PSY-410, PSY-411, PSY-420 BIO-487, BIO-488, or BIO-489; or
- (b) A two- or three-term senior thesis. Students must register for senior thesis courses in the department of their thesis advisor:
 Biology thesis advisors: BIO-497, BIO-498, and BIO-499.
 Psychology thesis advisors: PSY-498 and PSY-499; or PSY-487, PSY-488, and PSY-489.
 Thesis advisors from other departments: Contact the Neuroscience program director(s) first.

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 in sections 1 and 2 above. For Biology majors at least four of these courses must come from the cognitive and/or computational tracks (section 2 above). For Psychology majors, at least four of these courses must come from the bioscience and/or computational tracks (section 2 above).

Course Selection Guidelines for the Neuroscience Major: It is recommended that students in this major start with BIO-110, BIO-112, and PSY-210 as these courses are prerequisites for Neuroscience students to take the neuroscience-related courses in the Psychology department without taking PSY-100 (Introduction to Psychology), which does not count toward the Neuroscience major. After completing PSY-210, Neuroscience students may take other Psychology courses without first completing PSY-100. Students are strongly encouraged to take PSY-210, PSY-200, BIO-225, and CSC-106 as early as possible. Students are also advised to take CHEM-101 prior to taking BIO-225.

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: Professor L. Zaibert

Faculty: Professor R. Baker; Associate Professor F. Davis; Assistant Professors J. Barnett; Instructor K. Scheiter; Visiting Assistant Professor C. Clark.

Staff: M. Snowden (Administrative Assistant)

Requirements for the Major: Eleven courses in philosophy, of which seven should be numbered 200 or above; of these seven courses, three (excluding PHL-408/418, PHL-498/499, and Independent Study) should be 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; of these four courses, two (excluding PHL-408/418, PHL-498/499, and Independent Study) should be 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 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 Selection Guidelines

Course Numbering: While our course numbers reveal levels of difficulty (so that 100-level courses are introductory, 200-level and 300-level courses are intermediate, and 400-level courses are advanced), philosophy courses afford great flexibility. In other words, students, including non-majors, can sometimes take courses at the 200 and 300 level, even if they have not taken an introductory in philosophy. Please contact the professor offering any given course for further information and advice.

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 Website.

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 (Not offered in 2012-2013). 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 -during the academic year. Petition required.

Issues-oriented Courses

PHL-100. Introduction to Philosophy (Winter: Scheiter). 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: Krueger). 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: Death and Dying (Winter: Baker). 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-120. First-Year Seminar (Fall: Barnett, Scheiter). 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 (Not offered in 2012-2013). 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 (Spring: Zaibert). 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: Scheiter). 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 in 2012-2013). 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 in 2012-2013). 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 in 2012-2013). 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. *CC: LCC*

PHL-167. Chinese Philosophy (Not offered in 2012-2013). 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. *CC: LCC*

PHL-170. Philosophy in America (Not offered in 2012-2013). An introduction to philosophy by way of the works of major American philosophers.

PHL-180. Theories of the Good Life (Not offered in 2012-2013). 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. *CC: 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: Barnett, Barnett). 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. *CC: QMR*

PHL-232. Philosophy of Science (Spring: 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 in 2012-2013). 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 (Fall: 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 2012-2013). 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 in 2012-2013). 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 in 2012-2013). 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 (Not offered in 2012-2013). For description see CLS 242)

PHL-245. Buddhist Ethics (Not offered in 2012-2013). 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 in 2012-2013). 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 in 2012-2013). 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 (Spring: 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. First-year students 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 2012-2013). 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 (Winter: 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 in 2012-2013). 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 2012-2013). 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 (Not offered in 2012-2013). 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. (Spring: Vitek). 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 in 2012-2013). 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 in 2012-2013). Mahayana Buddhist philosophy explains the nature of reality as emptiness, which means that the nature of reality is beyond (and thus empty of) words, concepts and characteristics. Mahayana Buddhism also regards compassion as the primary motivation for ethics. This course focuses on the metaphysical theories of two schools of Mahayana Buddhist philosophy: Chinese/Japanese Zen Buddhism and Tibetan Buddhism. The course examines Zen Buddhist theories of No-Self and the nature of mind that makes sudden enlightenment possible, as well as Tibetan Buddhist theories of interdependent arising and emptiness. This course is cross-listed with Asian Studies and Religious Studies.

PHL-340. Applied Philosophy Internship (Not offered in 2012-2013). 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. (Fall: Davis). A study of 20th century European or American philosophies: phenomenology, existentialism, or analytic philosophy.

PHL-359. Postmodernism (Cross-listed with WGS-359) (Not offered in 2012-113). 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. 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 (Spring: Barnett). Philosophical examination of problems and issues surrounding our concepts of knowledge, justification, memory, and perception.

PHL-375. Biomedical Ethics (Not offered in 2012-13). 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; 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 in 2012-2013). 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 in 2012-2013). 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 in 2012-2013). May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

PHL-446. Topics in Epistemology. (Spring: Barnett). May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

PHL-447. Topics in Logic (Not offered in 2012-2013). May be repeated, if topic changes. Prerequisite: PHL-231 or permission of instructor.

PHL-448. Topics in Ethics or Value Theory. (Not offered in 2012-2013) 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: Aristotle's Psychology (Spring: Scheiter).

PHL-462. Philosophy of Language. (Not offered in 2012-2013). 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: Baker). 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. (Not offered in 2012-2013). 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 in 2012-2013). (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: Associate Professor C. Orzel

Faculty: Professors S. Maleki, J. Newman, G. Reich, R. Surman, M. Vineyard; Associate Professor R. Koopmann; Assistant Professor S. Amanuel; Visiting Associate Professor J. Marr; Visiting Assistant Professor E. Halstead; Senior Lecturer S. LaBrake; Lecturer F. Wilkin

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 or 493); Math 115 and 117; and two other science courses numbered 100 or above, at least one of which must be taken outside the department. Students are expected to attend the weekly departmental colloquium series to gain an appreciation for current research 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 or 493, 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 110(102) and 112 (101)), chemistry (Chemistry 101 and 102 or Chemistry 110), and earth science (any geology course or Astronomy 100).

Requirements for the Leadership in Medicine Program: Students in the Leadership in Medicine program whose science emphasis is in physics should take the following seven courses: PHY -110, 111 (both already core courses), 122, 123, 200, 210, and one additional 200- or 300-level physics course or 490 or 495. Students with AP credit for 110 (and 111) should take one additional physics elective (and one additional math course) in consultation with their physics advisor.

Course Selection Guidelines

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.

Courses Suitable for Non-Majors: The following courses are designed to fulfill the Science and Technology Common Curriculum requirement (some of these courses have labs and some do not): AST 050, 051, 052, 058, PHY 051, 053, and 054. Life-science students should take PHY 110-111. Engineering and physical-science students should take PHY 120-121. Other courses suitable for selected non-majors include AST 100, 200, 210, 220, 230, 240, PHY 122, 123, 200, and 210.

Prerequisites: There are no placement test requirements for courses in the Department of Physics and Astronomy. All courses numbered 100 or above have prerequisites. Please review the course descriptions below to identify the requirements.

Astronomy Courses

Common Curriculum (CC) Courses

Courses numbered in the 050s are designed particularly for non-science majors seeking to satisfy Common Curriculum requirements, and all of these courses carry Common Curriculum 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 (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. *CC: SCLB*

AST-051. Introduction to Astronomy (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. *CC: SCLB*

AST-052. Relativity, Black Holes, and Quasars (Not Offered 1012-13). 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. *CC: SET*

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. *CC: SET*

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 2011-13). 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 (Winter). 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 2012-13). 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 2012-13). 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; Recommended: Math-115.

AST-290, 291, and 292: Available to students on an individual basis, students undertake activities that provide on-the-job experience relevant to possible careers for astronomy majors. The particular set of experiences for each term is chosen by the student with consultation with the academic advisor. The activities available include, but are not limited to: internship with the planetarium at the Schenectady Museum or with the Dudley Observatory; running monthly open houses at the Union College Observatory; writing regular science columns for the college newspaper; giving presentations at the bi-weekly Astronomy News Discussion group in the Physics and Astronomy Department; and undertaking a research-oriented independent study in astronomy under the supervision of a professor. Each term is graded on a pass-fail basis with one course credit granted after completion of three terms. To receive a passing grade, the student is expected to work the equivalent of four hours per week and submit a summary report at the end of each term.

Physics Courses

Common Curriculum Courses

Courses numbered in the 050s are designed particularly for non-science majors seeking to satisfy Common Curriculum requirements, and all of these courses carry Common Curriculum 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) (Not offered 2012-13). 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. *CC: SCLB*

PHY-053. Physics and Politics (Same as HST-253) (Not Offered 2012-13). 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. *CC: SET*

PHY-054. Laser Technology and Modern Optics (Not Offered 2012-13). 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. *CC: SCLB*

Courses for Science and Engineering Majors

Integrated Math/Physics IMP-111, IMP-112, IMP-113 (Not offered 2012-13). 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: By invitation. *CC: SET*

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). *CC: SCLB*

PHY-121. Principles of Electromagnetics (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 2012-13). 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, Condensed Matter Physics). 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 2011-12). 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: Professor C. Brown

Faculty: Professors L. Marso, Z. Oxley; Associate Professors M. Angrist, R. Hislope; Assistant Professors M. Dallas, B. Hays, M. Scherer, G. Seri; Visiting Assistant Professor A. Dell'Aera; Senior Lecturer T. Lobe;

Staff: C. Fortsch (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 (courses numbered in the 230s or 330s), U.S. Politics (courses in the 260s, 270s, 280s, 360s, or 370s), Comparative Politics (courses in the 210s, 240s, or 340s) and International Politics (courses in the 250s or 350s). Introductory courses may not be used to satisfy these distribution requirements.

Students must take two courses to fulfill the department's research requirement and to prepare for the senior project. First, all students must take at least one "R" course. The presence of the "R" designation next to a course number in the registration materials (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; (3) a grade of "A minus" or higher on the senior project, and (4) deliver an oral presentation of the senior project research at the Steinmetz

Symposium unless exceptional circumstances warrant an alternative forum. 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. Please note: you must take a seminar to get 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).

Course Selection Guidelines

Placement: Students who received a score of 4 or 5 on the Advanced Placement exam for U.S. Government and Politics may earn credit for PSC-111. Students who earned a 4 or 5 on the Comparative Government and Politics Advanced Placement exam may earn one political science course credit (specifically, PSC-005; the course topic is thus unspecified). Credits earned from Advanced Placement exams can count toward the Political Science major or minor.

Course Numbering: These guidelines are offered so that students may make informed choices in the selection of courses appropriate to their level of education. 200-level political science courses are oriented towards a wide student audience from across the College whereas 300-level courses are focused more on advanced political science issues and therefore are more appropriate for upper-class political science majors as well as interested juniors and seniors from other majors. More specific descriptions of 200- and 300-level courses in specific subfields of political science appear below.

It is important for students to know that 200-level courses are not “easier” than 300-level courses in terms of reading load, course assignments, or the amount of work and effort expected of students. That said, as a general rule, 300-level courses will be more theoretically and/or conceptually challenging. Non-majors are welcome, but should understand that such courses typically will demand that students embrace key theories, concepts, frameworks, and/or methods in the discipline.

Courses

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; Winter, Dell'Aera; 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, Hislope; Winter, Lobe; Spring, Angrist) 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, Seri; Winter, Marso; Spring, Scherer) 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 (Same as SOC-201). (Winter; Oxley) 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. What does a convincing explanation in political science look like? This course will focus on how to make good comparative explanations in political science. We will explore how to do this by studying and applying key concepts, such as culture, social movements, elites, institutions, hegemony, and the state. This course will help prepare students for writing the senior thesis.

Political Theory Courses

Unless otherwise indicated the prerequisites for the following courses are PSC-113 or sophomore standing.

200-level theory courses tend to survey a wide range of classic texts and questions in historical context. In these courses, you can expect to learn about major conceptual questions relevant to the history of political thought as well as become familiar with the arguments of key authors.

300-level theory courses tend to cover special themes and tightly focused topics. You may read texts out of historical order, or across historical moments. Given their more specific focus, these courses may be geared towards students with some basic (or advanced) knowledge in key texts and issues.

Students from across the college are welcome in 200- and 300-level courses; you may, however, want to speak with the instructor about whether knowledge beyond 113, Introduction to Political Thought, is expected.

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. (Winter; Marso) 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. 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-236 (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-237. Music and Politics. This class explores the multiple relationships between music and politics with a specific focus on the following dimensions: (1) the use of music as a lens to perceive the world, to frame injustices, to inform political discourse, to raise consciousness, and to mobilize public opinion; (2) the political context in which critically significant music is produced; (3) biographical details of artists that bring understanding to the art they produce; (4) the impact of class, race, ethnicity, and gender on music; (5) the interpretation of political messages found in music; and (6) the intentional and unintentional political consequences of popular music.

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. 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-337 (232) Theories of Modern Secularism. (Spring; Scherer) 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: Winthrop, Spinoza, Jefferson, Kant, Tocqueville, Durkheim, Weber, Rawls, Connolly.

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 2012 Seminar Topic: Black Radical Politics and The Legacies of Malcolm X. This seminar will explore the legacy of Malcolm X as an icon in Black radical politics. It will dissect and compare his vision with other Black radicals that both draw on and depart from Malcolm’s. First it will explore Malcolm’s history and legacy to see how class politics, ideological differences and perspectives on sex and gender within the Black community impact how Malcolm is described, remembered, and lionized. Second, it will explore Malcolm’s legacy through an internationalist lens. Finally, it will examine how Black nationalists and Muslims the world over have claimed Malcolm as their own, with their own emphases and nuanced narratives.

PSC-434. Feminist Film. (Spring; Marso) 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.

200-level courses in comparative politics generally cover political issues that are regionally concentrated (such as Latin America, Europe, China, and the Middle East), or they focus on themes (such as democracy, nationalism, social movements) that are framed at a conceptual level accessible to students from across the college.

300-level courses in comparative politics have a special topics theme (women and politics, the Marxist political tradition, democratization, genocide, and Film) and/or a strong methodological component. The course materials are more conceptually and theoretically complex, and involve a more sophisticated set of intellectual problems.

PSC-213 (345). Contemporary Chinese Politics, Economy and Society. (Winter; Dallas) A survey course on the politics of the People’s Republic of China, with an emphasis on state-society relations. After briefly introducing the Republican and state socialist eras, the heart of the course provides a historical and topical overview of the contemporary political and economic reforms in China. It explores topics in Chinese domestic politics, such as policy-making, center-local relations, inequality, rural transformation, industrialization, village elections, the rule of law and contentious politics, in addition to China’s relationship with the outside world, including its integration into the international economy, the environment, energy and foreign policy.

PSC-214 (346). Democracy and Democratization. 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-240. Comparative Ethnic and Racial Politics. 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-243. Latin American Politics: Facing the World. (Winter; Seri) This course offers a working knowledge of Latin America’s current politics, trends, and challenges. Years after democratization, regular elections are in place, and support for democracy in the region seems widespread. Still, as local traditions infuse the principles of liberal democracy, politics in Latin America reveal unique traits. Exploring the political as an interpretive endeavor, the course’s readings, assignments, and class discussions will help to identify key political institutions, traditions, and cleavages, as well as forms of agency and leadership, both in specific countries and at the regional level.

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. 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-248. The Politics of the New Europe. (Winter; Staff) 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. (Fall; Lobe) 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-340 (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-341 (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-342 (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-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-347. Comparative Left Politics. 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. (Winter; Dallas) 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.

Winter 2013 Seminar Topic: Power, Justice and the Economy. This seminar examines contending approaches and foundational principles in understanding and judging the economy, understood as the set of social and political relations in the production of value. We will examine the economy and economic policy from the perspectives of efficiency, power and justice with the goal of understanding the different implications of each perspective and under what circumstances these approaches complement and contradict each other. Throughout the course, we illustrate these ideas through the use of concrete examples from different time periods and different countries, such as the Industrial Revolution in England, the Depression era, Communism, and the current economic crisis.”

International Politics Courses

Unless otherwise indicated prerequisites for the following courses are PSC-111 or PSC-112 or PSC-113 or sophomore standing.

200-level courses in international relations cover foreign policy oriented courses (China and the USA), regional interstate topics (Asia and the Middle East), and practicum-based courses (Model UN). These courses are framed at a conceptual level accessible to students from across the College.

300-level courses in international relations cover advanced issues in international political economy, institutions of global governance, US security, and transnational actors and trends. The course materials are more conceptually and theoretically complex, and involve a more sophisticated set of intellectual problems.

PSC-251. American Foreign Policy. 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-253. International Politics in East Asia. This course surveys the main currents of international politics in East Asia since World War Two, with an emphasis on events since the end of the cold war. It considers the sequential rise of the economies of Japan, the four East Asian tigers, and finally Southeast Asia and China, and how regional integration across East Asian countries differs from other regions in the world. Furthermore, it examines the foreign policies of the main players in this area, including the important role of the United States, and it explores the evolution of international institutions and norms pertinent to East Asia.

PSC-254. Politics of the Arab-Israeli Conflict. (Spring; Angrist) 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; Angrist) 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, women 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-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-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-352 (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-353. Terrorism and Torture. In this reading, writing, and participation-intensive course, we will explore two related topics. The first is terrorism. We will consider the definition(s) and history

of terrorism, as well as its causes and manifestations in the contemporary era. Next, strategies for combating terrorism will be explored – with a major focus on the so-called “war on terror” the U.S. has been engaged in since 2001. A particularly controversial aspect of U.S. actions in the past decade has been the use of torture against detainees at Guantanamo Bay, Abu Ghraib, and other locations. The course will therefore consider a broad-ranging literature on torture – from its history, to the conditions under which it is used in the contemporary era, to questions regarding whether or not torture is effective (and for what purpose).

PSC-355. Defense Policy. (Fall; 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-358 (259). Wealth and Power Among Nations. (Spring; Dallas) An examination of the tensions between developed and developing countries in the global political economy. First, the course traces the genealogy of thinkers on the issues of development, such as Smith, Marx, Keynes, modernization theory and development economics, as a way to understand the enduring debates within the field. Second, it examines historical transformations in the international economy, such as in trade, global finance and economic crises, in order to understand how the structures and opportunities for developing countries have transformed over time. Finally, although there is no focus on any single region of the world, the course touches upon the oil boom in the Middle East in the 1970s, the debt crises in Latin America and Africa in the 1980s, the rise of Japan and the East Asia tigers, the fall of the Soviet Union and Eastern bloc countries in the 1990s, the new giants of China and India, new forms of post-Fordist production, and the relationship between production and identity.

PSC-359. Seminar: International Politics. 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.

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. 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. (Spring; Dell'Aera) 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-265. Early American Politics. (Winter; Scherer) This course will explore a series of key issues in American political life from the drafting of the Constitution to Reconstruction. We will examine the contentious political debates surrounding the adoption of the Constitution, paying close attention to the contending arguments, interests and ideological formations involved in establishing the federal government. We will then turn to the politics of the early 19th century to explore the development of American democracy, the distinctive contributions of American religious traditions, and the racial conflicts that shaped this period. We will turn to the decades immediately preceding the civil war to trace the new forms of contentious politics emerging in distinctly American modes of social criticism, literature, and political oratory. And finally we will consider the echoes of Reconstruction in American political culture. Throughout the course, we will be occupied with the following series of questions: In what ways have political institutions and political cultures shaped the American national identity? What can we learn from the continual oscillation between national unity and stark division in American politics? To what extent has unresolved racial conflict been constitutive of American political experience? We will address these questions through primary sources.

PSC-266 (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.

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. (Fall; Oxley) 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-272. The Environment, Energy, and U.S. Politics. (Winter; Dell'Aera) 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. 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-274 Political Parties in the U.S. Political System. This course will provide an overview of political parties in the United States. Specifically, it will consider the various major party regimes from the founding to the present. Other topics covered will include the role of third parties, polarization among the electorate, and contemporary questions regarding the role of parties in the 21st century.

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) This class enables students to become politically active and/or gain political experience by working for elected officials, government agencies, election campaigns, interest groups, non-profit organizations, lobby firms, etc. Students draw on their internship experience and related academic work to reach a better understanding of the complexities and dynamics of politics at the state or local level. Students are permitted to enroll in this course twice, although the course will count toward the Political Science major only once. 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. (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. The Modern Presidency. The development of the modern presidency, with a special emphasis on the institution of the presidency. The presidencies of Franklin Roosevelt through Ronald Reagan will be examined.

PSC-367. The Contemporary Presidency. Contemporary development in the institutional presidency, with a focused and close examination of the administrations of Ronald Reagan through the current president.

PSC-369. Seminar: U.S. Politics. (Spring; Dell'Aera) 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-370 (270). Constitutional Law. (Spring; Hays) 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-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.

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.

Portuguese (see Modern Languages and Literatures)

Psychology

Chair: Professor S. Benack

Faculty: Professors D. Burns, K. DeBono, R. Nydegger, L. Stanhope, C. Weisse; Associate Professors C. Anderson-Hanley, G. Bizer, C. Chabris, S. Romero; Assistant Professor J. Hart; Visiting Assistant Professors C. Perilloux, E. Wells; Lecturer G. Donaldson

Staff: S. Hoffman (Administrative Assistant)

Requirements for the Major:

1. 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 the end of the junior year. Only one course numbered 451-497 (independent study/research/internship) may count toward the major; however, students conducting an independent study abroad (ISA) may count two courses numbered 451-497 toward the major.

2. 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

3. 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

4. Two courses numbered 400 or higher. One of these courses must be a seminar (courses numbered 400-450).

5. *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. Any courses which fulfill the Senior Writing Requirement also count toward the requirement of two 400-level courses (see above).

Requirements for the Interdepartmental Major: Interdepartmental majors will normally take eight courses in psychology (not including cognate courses). 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, 225, 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 typewritten page describing the general area of the project, the student's preparation for the project (e.g., related course work), and the proposed faculty supervisor. 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 clusters, and one course from the Social/ Developmental/ Clinical clusters.

Course Selection Guidelines

Common Curriculum(CC): In the Common 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 Common Curriculum science requirement. PSY 200 (Statistical Methods in Psychology) does **not** count toward the Quantitative Methods Requirement (QMR).

Courses Suitable for Non-majors. All psychology courses are suitable for nonmajors who have taken the prerequisite courses, with the exception of PSY 200 and PSY 300, the required methods courses for the major.

For Neuroscience Majors and Minors only, BIO 110 and 112 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.

Course Numbering: Psychology 100 or permission of the instructor is a prerequisite for all other psychology courses unless otherwise noted. 200-level courses typically treat basic topics and are appropriate to take with only Psychology 100 as background. Most 300- and 400-level courses have 200-level courses as a prerequisite; these courses are appropriate for students in any class year, and for majors or nonmajors, as long as they have fulfilled the prerequisites.

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; Hart, DeBono, Chabris, Wells, Perilloux). 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, Romero, Wells). 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. CC Science.

PSY-211. Sensation and Perception (Winter; Wells). 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. CC Science.

PSY-215. Health Psychology (Fall; Weisse). This course will examine psychology's role in the etiology, prevention, progression, and treatment of disease. Topics will include mechanisms by which stress and health-related behaviors such as diet, exercise, smoking and substance abuse contribute to illness, doctor-patient communication, problems of medical compliance, cognitive/behavioral treatment techniques, pain management, and health promotion/disease prevention strategies.

PSY- 220. Psychology of Memory and Thinking (Fall, Spring; Burns,Wells). How humans code, store, remember, and forget information. Related topics include attention, pattern recognition, concept learning, and reading. Weekly lab.

PSY-225. The Psychology of Language (Not offered in 2012-13). 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; DeBono, Perilloux). 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 (Spring; Stanhope). Child behavior and the processes influencing child development. Methods of study and theories.

PSY-242. Death and Dying (Not offered in 2012-13). 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 (Not offered in 2012-13). 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 (Fall, Winter, Spring; Raso). 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,, Spring; Anderson-Hanley, Nydegger, Donaldson). Models and theories of psychology, with description and analyses of forms of abnormality and its modification.

PSY- 251. Personality (Winter, Spring; Donaldson). 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 2012-13). 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). 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-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-330. Attitudes and Social Behavior (Not offered 2012-2013). 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 (Not offered in 2012-13). 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; Benack) 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 psychotherapy. Prerequisite: PSY-250.

PSY-351. Practicum in Human Relations I (Spring; Anderson-Hanley). 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 2012-2013). 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-402, 403, 404. Honors Topic Seminar (Fall, Winter, Spring; Hart, Chabris). A one-credit course 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 2012-2013). 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.

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 (Not offered in 2012-2013). 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 (Not offered in 2012-2013). 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 (Fall, Spring; 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 (Winter; Hart). This course examines and evaluates two lines of inquiry, principally 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 we 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, and as class progresses, class members will assume increased

responsibility for leading discussions and examining contemporary research. 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 empirical project and paper. Prerequisites: PSY 300 or permission of instructor.

PSY-440. Seminar in Human Development (Not offered in 2012-13). 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 2012-2013). 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.

Public History (see History)

Religious Studies

Director: Professor P. Bedford

Faculty: Professors K. Brison (Anthropology), H. Mueller (Classics), P. Heinegg (English), S. Berk (History), J. Barbanell (Mathematics); Associate Professor J. Lewin (English); Visiting Assistant Professor O. Solovieva

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)

SPN-434. Christians, Jews and Muslims: Cultural Exchanges in Early Modern Spain and “Converso” Culture in the Americas

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

ANT-252. Global Christianities

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)
SPN-434. Christians, Jews and Muslims: Cultural Exchanges in Early Modern Spain and
“Converso” Culture in the Americas

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)
SPN-434. Christians, Jews and Muslims: Cultural Exchanges in Early Modern Spain and
“Converso” Culture in the Americas

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-132. Religion in the Pagan World
CLS-154. Poetry and the Cosmos
CLS-161. Survey of the Ancient Epic
CLS-178. Ancient World Mythology
EGL-226. World of the Bible
HST-195. Early History of the Jews

Religion, Culture and Society

- ANT-235. Fundamentalism around the Globe
 ANT-252. Global Christianities
 ANT-254. Anthropology of Religion
 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-241. (R) Religion and Politics
 PSC-262. Damnation, Revolution and the American Experiment
 PSC-337. Theories of Modern Secularism
 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

REL-103. Introduction to Religious Studies (Fall, Solovieva; Spring, Solovieva). 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.

REL-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.

REL-300. Seminar: Theory and Method in the Study of Religion (Not offered 2012-13). 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
REL-498-499. 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 Mod. Languages and Literatures)

Science, Medicine, and Technology in Culture

Director: Professor M. Walker (History)

Science, medicine, and technology 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 six introductory SMT courses, HST-138, HST-193, HST-242, PHL-232, PHL-247, or SOC-228, as well as a two-term interdisciplinary senior thesis. 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-138 Big History
 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-230 Medical Anthropology
 ANT-240 Technology, Culture and Society
 ANT-278 Subjectivity in the Age of Biotechnology

Astronomy

AST-050 The Solar System
 AST-058 Astrobiology

Biology

BIO-050 Topics in Contemporary Biology
 BIO-055 Evolution of Animal Behavior
 BIO-058 Astrobiology
 BIO-065 Food in the 21st Century
 BIO-077 Technology of Biology
 BIO-094 Understanding Cancer
 BIO-201 Food for a Planet
 BIO-243 Bioinformatics: Information Technology in the Life Sciences

Chemistry

CHM-050 Topics in Chemical Analysis – Forensic Chemistry
 CHM-060 Meals to Molecules
 CHM-080 Culinary Chemistry

Classics

CLS-190 Science and Technology in the Ancient World

Computer Science

CSC-055 Working with the Web
 CSC-080 History of Computing
 CSC 103 Taming Big Data
 CSC-104 Robots Rule
 CSC-105 Game Development
 CSC-240 Web Programming
 CSC-243 Bioinformatics: Information Technology in the Life Sciences
 CSC-245 The Computer Science of Computer Games

Economics

- ECO-228 Environmental Economics
- ECO-230 The Mind of the Entrepreneur
- ECO-331 E-Commerce Economics
- ECO-332 Economic of Technological Change
- ECO-335 Health Economics
- ECO-375 Efficient Management of Technology

Engineering Science/Engineering

- ESC-100 Exploring Engineering

Environmental Studies

- ENS-100 Introduction to Environmental Studies
- ENS-207 Hydrology
- ENS-208 Waste Management and Recycling
- ENS-209 Renewable Energy Systems
- ENS-247 Sustainable Infrastructure
- ENS-250 Water Resources and the Environment
- ENS 252 Environmental Geotechniques
- ENS-253 Environmentally Friendly Buildings

English

- EGL-250 Literature and Science
- EGL-251 Nature and Environmental Writing

Geology

- GEO-103 Great Moments in The History of Life
- GEO-104 Global Perspectives on Energy
- GEO-106 Intro to Oceanography
- GEO-108 Earth Resources
- GEO-110 Introduction to Geology
- GEO-112 Environmental Geology
- GEO-117 Natural Disasters
- GEO-120 The Earth and Life Through Time
- GEO-200 Mineral Science

History

- HST-138 Big History
- HST-193 Science, Medicine, and Technology in Culture,
- HST-242 The Scientific Revolution
- HST-253 Physics and Politics
- HST-256 (353) Modern European Ideas
- HST-291 Construction for Humanity

Mathematics

- MTH-051 Cryptology: The Mathematics of Secrecy
- MTH-056 History of Mathematics
- 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-053 Physics and Politics
- PHY-054 Laser Technology and Modern Optics

Political Science

- PSC-123 Mathematics and Politics
- PSC-272 The Environment, Energy, and U.S. Politics
- PSC-282 Health Politics and Policy

Psychology

- PSY-215 Health Psychology

Science, Medicine, and Technology in Culture

SMT-123 (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 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.

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 David A. Cotter

Faculty: Professors S. Ainlay (President), I. Kaplan; Associate Professors D. Butler, M. Goldner; Visiting Assistant Professors L. Mertz, L. Relyea; Senior Lecturer J. Grigsby

Staff: K. Kuon (Administrative Assistant)

Requirements for the Major: Students complete a twelve course major and are required to take Sociology 100, 300, 305 and complete a two term senior thesis. Majors may include within their seven remaining elective courses up to two cognates from political science, psychology, economics, history, philosophy and/or anthropology with approval of the department advisor. Courses in the Sociology Department include a variety of choices in areas such as community, family, health and medicine, public policy, the environment, diversity and change and crime and justice.

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.

Course Selection Guidelines

Common Curriculum (CC): In the Common Curriculum, all sociology courses count towards fulfillment of the social science requirement. Note that Quantitative Social Research Methods does not count toward the Quantitative and Mathematical Reasoning requirement.

Course Sequencing for Majors: Majors are encouraged to fulfill the methods and theory requirements SOC-300 and SOC-305 prior to beginning their senior thesis. Students should note that these courses are generally offered only in the fall (SOC-300) and winter (SOC305) terms each year.

Courses Suitable for Non-Majors: All upper level elective courses are suitable for non-majors who have completed SOC-100.

Course Numbering: SOC-100 or the permission of the instructor is a prerequisite for all other courses in the sociology department unless otherwise noted. While 200-level courses are not “easier” than 300-level courses in terms of workload, the 300-level courses generally assume a greater working knowledge of sociological theory and methods.

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 (Spring; Kaplan). 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; Mertz). 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; Mertz). 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 (Winter; Mertz). 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 2012-13). Sociological analysis of education as an institution over time and across societies.

SOC-223. Sociology of Religion (Spring; Cotter). 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 2012-13). 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 2012-13).

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. (Spring; Goldner) 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 (Winter-Butler). 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. *CC: LCC*

SOC-231. Sex and Gender in American Society (not offered 2012-13). 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 (Fall; 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. *CC: LCC*

SOC-240. Political Sociology (not offered 2012-13) (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 2012-13). 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. *CC: LCC*

SOC-260. Demography: Population and Society (Spring; Grigsby) An introduction to 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 2012-13). 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 (not offered 2012-13). 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. *CC: LCC*

SOC-270. Social Movements, the Environment, and Society (not offered 2012-13) (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 2012-13). 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 (not offered 2012-13). 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. (Winter; Relyea). 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 2012-13). An analysis of theories of societal change and development in terms of the contributions of Third World women in the development process. *CC: 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 2012-13). 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. *CC: LCC*

SOC-326. Discrimination and Marginality (not offered 2012-13). 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. (not offered 2012-13). 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 (Spring; Butler). 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. *CC: LCC*

SOC-358T. Marine Policy and the Maritime Environment (not offered 2012-13) 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 2013-13). 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 2012-13). 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 (Fall; Grigsby). 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 (not offered 2012-13) 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 2012-13). 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 (not offered 2012-13). 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 2012-13). 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 (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. CC: LCC

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 and Technical Director R. Bovard; Visiting Assistant Professor and 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. Students may focus their studies in one of three areas: Performance, Design & Technology or Directing. In addition to required courses (ATH-110, ATH-112, ATH-120, a design course, and ATH-497 or ATH 498 & 499), students choose five or six courses, depending upon whether they take a one or two term senior thesis, from the “menu” of options in consultation with their faculty advisor.

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 2012-2013). 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 (Fall; Culbert). 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 theater, including a study of the professions relating to the creative process: playwriting, acting, directing and design. A variety of forms and styles of theater will be reviewed and discussed through the reading and analysis of three significant plays in the dramatic lexicon. We will study the process of theater production and the demands of theater as a business. You will gain an ability to critically view theater productions.

ATH-105. Special Topics in Theater (Spring; Finlay). Topics chosen from a variety of performance, design and technical areas according to faculty and student interests. Topics may include, but are not limited to, performance art, movement theatre, puppetry, lighting/sound design and costume construction/design.

ATH-110. Stage Craft I (Fall, Spring; Bovard). 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). 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; Bovard). 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-118. Costume Technology (Spring; Belz). This course studies the basics of garment construction and costume shop procedures primarily as they relate to the theatrical world. The focus is on practical application of construction techniques, and will include introduction to and use of hand and machine sewing as well as use of self-made and commercial patterns to create wearable garments.

ATH-119. CAD Drafting for Theater (not offered 2012-2013). Drafting for the Theater, is an introduction to the terminology, tools, techniques and software used in technical and design planning for stage scenery and lighting. It is primarily a lecture-style course but also includes collaborative time to work on projects in a group and share tips and tricks for more efficient drafting. Upon successful completion of this class, students will have a solid foundation in VectorWorks, know how to convey information graphically, know how to read shop drawings, and how to find graphical solutions to geometric and trigonometric problems.

ATH-120. History of Theater (not offered 2012-2013). 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. CC: 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-123. History of Fashion & Dress (Winter;Belz). A study of the evolution of Western fashions from ancient to modern times with a focus on clothing as a reflection of self-expression and relationship to one's society. The class will explore the history of dress through visual examples, practical examination of historical costume items, and individual research into specific fashion topics.

ATH-125. Improvisation I (Spring; 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-128. Stage Combat (Spring; Finlay). An exploration of physical violence on the stage from the classical to the contemporary. The basic techniques of unarmed Stage Combat will be introduced as well the use of the Medieval Quarterstaff and Elizabethan Rapier. Students at the conclusion of the course will be expected to be able choreograph a safely executed fight for the stage from an existing play.

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. CC: LCC

ATH-150. Staging Exploration in Theater and Dance (Same as ADA-150) (not offered 2102-2013). 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; Spring; Bovard). 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 2102-2013). Development of the actor's body as an expressive instrument. Yoga/centering exercises, acrobatics 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 2102-2013). 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 (Not offered 2012-2013) 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 (Not offered 2012-2013). 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. CC: LCC

ATH-295H-296H. Theater Honors Independent Project 1 & 2. For the sophomore scholar student who has demonstrated the ability to work independently, this 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 2102-2013) 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. CC: LCC

ATH-342. Acting II (Spring; Staff). 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 (Winter; Finlay). 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 (Winter; Culbert). 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. CC: 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-130), one history class (ADA-140, ADA-142, or ADA-153) 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, Lyrical, Tap, Broadway, Hip Hop, Dance & Fitness and Pilates for Performers are offered in the Dance Studio each term—these classes may not be offered. 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-130 (050). The Dance Experience (Spring; Moutillet). An experiential survey course introducing the many facets of dance in our contemporary world. Through lectures, performances, 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 and collective dance piece to be performed publicly. A weekly dance technique class is required.

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. CC: LCC

ADA-142 (052). Dance in America (Not offered 2012-13). 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. CC: LCC

ADA-150. Staging Exploration in Theater and Dance (Also ATH-150) (Not offered 2012-13). 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.

ADA-153 (053). Histoire de la danse, Danse de l'histoire/History of Dance, Dance of History (Also FRN-421, MLT-211) (Not offered 2012-13). 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-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-140 Musical Theater and Dance, ADA-142 Dance in America, or ADA-153 Danse de l'Histoire.

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-130-Dance Experience.

Dance Technique Practica

ADA-010. Ballet I (Offered 2012-13; 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 (Offered 2012-13; 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 (Offered 2012-13; 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 (Offered 2012-13; 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 (Offered 2012-13; 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-022. Lyrical Jazz. (Offered 2012-13; Rogers) This class will primarily focus upon dancing ones emotions. Students will be taught to recognize their true feelings and how to express them. They will learn to draw from their own life experience to provide meaning to their dancing. Dancers will learn metaphorical and symbolic movements to convey emotions such as sadness, happiness, hope, joy, euphoria, and more. This class is geared towards the intermediate level dancer looking to broaden his or her horizons with a new-age dance style.

ADA-023. Broadway Dance Practicum. (Offered 2012-13; Rogers) This class is structured on dance styles that use movements done in musicals. Students will learn a variety of numbers from shows including repertoire from both past and present. Different styles will consist of, but not limited to: tap, jazz, character dance, contemporary ballet, and lyrical. Broadway styles will incorporate the work of famous choreographers such as Jerome Robbins, Michael Bennett, Bob Fosse, and Twyla Tharp.

ADA-030. Modern Dance I (Offered 2012-13; Moutillet). 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 (Offered 2012-13; 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 (Offered 2012-13; 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 (Offered 2012-13; 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-037. Zumba. (Offered 2012-13; Cawley) Zumba combines high energy and motivating music with unique moves and combinations that allow the Zumba participants to dance. It is based on the principle that dance steps are fun and easy to follow allowing Zumba participants to enjoy the art of dancing and achieve long-term health benefits. Zumba is a "feel-good" workout that is great for both the body and the mind. ZUMBA is a fusion of Latin and International music - dance themes that create a dynamic, exciting, and effective aerobic/fitness training with a combination of fast and slow rhythms that tone and sculpt the body. This class is for everyone who wants to participate in a body-energizing movement class meant to engage trained and non-trained dancers. Experience a mix of diverse dance styles such as salsa, raggaeton, merengue, cha cha, belly dance, cumbia and more. For all students.

ADA-040. Afro-Dance. (Not Offered 2012-13) 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. (Not offered 2012-13). 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. (Not offered 2012-13). 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. (Offered 2012-13; 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. (Offered 2012-13; 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 & Rogers) 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 and rhythms with the body or with percussive instruments. *For intermediate level.*

ADA-074. Choreography Ballet. (Winter; Moutillet) Choreography-Ballet emphasizes either the traditional or contemporary repertoire to present the lyricism of the classical form. Dancers who have a desire to perform classical dance will be part of a creation that embraces their expertise gain in many years of training. Depending on the dance concert, this practicum focuses on a particular era, technique or master choreographer. *For intermediate 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 Professors L. Cox, F. Orellana; Assistant Professor S. Lullo; Senior Lecturer 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: Students take twelve courses, including: two of the three Western art history survey courses and one of the Asian art history survey courses, four other art history courses (which must cover at least three historical periods, cultures, or geographic regions), a minimum of two studio arts courses, 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 other courses that cover at least three historical periods or geographic regions; three of these four must be advanced courses, and one must be AAH400: Methods of Art History. 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, which include three art history surveys divided between Asian and Western, four intermediate or advanced Art History courses, one of which must be AAH400: Methods of Art History (usually taken in the junior year), and one course 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, complete visual documentation 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 one term of the introductory Western art history survey (AAH101-103) and one of the Asian Art History surveys (AAH104-105). Three of the remaining art history courses should be in areas related culturally, chronologically, or thematically.

Course Selection Guidelines

Placement: Incoming first-year students who score a 4 or 5 on the AP exam in Art History may receive credit for one of the three introductory Art History courses (AAH101-103). Students who plan to major or minor in Art History are nonetheless encouraged to take the introductory courses as a way of deepening their backgrounds.

100-level courses: These courses are designed to be introductions to the study of Art History, and comprise either a chronological sequence of courses on Western art or two geographical introductions to Asian art. Though they are numbered sequentially, students may begin the sequence at any point. These courses are suitable for first-year students, sophomores, juniors, and seniors and many of them carry Common Curriculum (CC) LCC credit. They serve as the prerequisites for many advanced courses.

200-level courses: These courses are focused, thematic introductions to sub-fields within Art History. They are designed to be introductory courses and do not carry prerequisites. Many are cross-listed with other disciplines or interdisciplinary programs, and they may, with approval of the department, count as advanced courses for the major. These courses are suitable for first-year students, sophomores, juniors, and seniors, and many of them carry Common Curriculum (CC) LCC credit.

300-400-level courses: These courses are advanced courses that concentrate on specific historical periods, geographic regions, or themes. They generally have prerequisites drawn from the introductory Art History courses, and are designed for majors and minors. These courses are suitable for advanced sophomores, juniors, and seniors.

Internships, Independent Studies, and Thesis: These courses are generally reserved for advanced Art History students, who must consult with the Art History program and arrange for academic sponsorship prior to registering for them.

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. *CC: LCC*

AAH-102. Introduction to Art History, Part II (Winter; Ogawa). 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. *CC: LCC*

AAH-103. Introduction to Art History, Part III (Spring; Ogawa). Major works of art and artistic traditions from the 17th century to the present, 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. *CC: LCC*

AAH-104. Arts of China (Fall, Spring; Lullo). 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. *CC: LCC*

AAH-105. Arts of Japan (Fall, Winter; Lullo). 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. *CC: LCC*

AAH-200. Classical Art and Architecture (Same as CLS-134) (Not offered 2012-2013). 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. *CC: LCC*

AAH-201. Islamic Art and Architecture (Fall; Matthew). 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. *CC: LCC*

AAH-203. Medieval Art and Architecture of Northern Europe (Winter; Matthew). 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. *CC: LCC*

AAH-205. The Art & Science of Painting (Winter; Matthew). A historical and chemical grounding in the topic of painting and its impact on society, with a focus on the 14th to the 17th

centuries. Topics include inorganic and organic pigments and binders used in late medieval workshops, fresco painting, the tempera tradition, and oil painting in the Renaissance (properties of oil, mixing pigments, glazing, drying). Students will work with primary sources and secondary literature, and engage in laboratory experimentation. *CC: SET*

AAH-206. Introduction to History of Architecture: The Renaissance Tradition, 15th-18th Centuries (Not offered 2012-2013). 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. *CC: LCC*

AAH-207. Artists, Art and Entrepreneurship in Western Europe, 1300-1700 (Not offered 2012-2013). 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-208. The Business of Visual Art and Contemporary Entrepreneurship. (Not offered 2012-2013). In this course students will study and learn the business of the art world and entrepreneurship in the visual arts from the early 20th century through today. Topics to be covered include the economics of the art market and the commodity of art, auction houses, private collectors, art fairs, gallery ownership, art foundations, non-for-profits, and art criticism. Group assignments, field trips and guest lectures form a large component of the course.

AAH-209. The Art of the Book (Spring; Matthew). 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. *CC: LCC*

AAH-212. The Way of St. James: An Interdisciplinary Study (Same as MLT-270) (Not offered 2012-2013). 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. *CC: LCC*

AAH-213T. Hiking the Trail in Spain (Same as MLT-271T) (Not offered 2012-2013). 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. *CC: LCC*

AAH-222. History of Photography (Fall; 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 2012-2013). 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. *CC: 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 (Winter; 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 2012-2013). 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. *CC: LCC*

AAH-280. Buddhist Art (Not offered 2012-2013). 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. *CC: LCC*

AAH-283. Ceramic Traditions of East Asia (Not offered 2012-2013). 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. *CC: LCC*

AAH-286. Art and Religion of the Silk Road (Not offered 2012-2013). 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. *CC: LCC*

AAH-287: Tibetan Art. (Not offered 2012-2013). 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. *CC: LCC*

AAH-294. Visual Culture of Communist China, 1919 to Present (Winter; Lullo). 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. *CC: LCC*

AAH-300. Italian Art and Architecture of the Late Middle Ages (Not offered 2012-2013). 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 2012-2013). 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 2012-2013). 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-309. The History of Gardens and Landscape Architecture (Spring; Matthew). 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. CC: LCC

AAH-320. 17th- and 18th-Century European Art (Not offered 2012-2013). 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 (Not offered 2012-2013). An advanced course examining major artistic movements and developments after 1789. We will examine the stylistic characteristics of these major movements, and consider art-making of this century in the context of the development of industrial capitalism, colonialism, and imperialism. We will also consider the development of such modern art institutions as the art museum and the commercial gallery. Prerequisite: AAH-102 or permission of the instructor.

AAH-340. European Modern Art, 1880-1940 (Not offered 2012-2013). 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 (Spring; Cox). 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 2012-2013). 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. CC: LCC

AAH-380. The Floating World: Edo Prints and Printmaking (Same as AVA-380) (Not offered 2012-2013). 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 of beautiful men and women in *bijinga*; the exotic encounter with the west; and explicit erotic imagery. CC: LCC

AAH-390. The Art Museum: History, Theory, and Practice (Not offered 2012-2013). 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-336T: Three Weeks in the Louvre.

AAH-400. Seminar: The Methods of Art History (Winter; Ogawa). 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 (Not offered 2012-2013). 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. Topics in the past have included: the nude, Leonardo, the French Revolution, Manet and Impressionism, Gender and Race in Contemporary Visual Culture and the history of gardens and landscape architecture. Prerequisite: At least one upper-level art history course or permission of the instructor.

AAH-460. Seminar: Visual Culture, Race & Gender. (Winter; Cox). 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 2012-2013). 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. CC: 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: Students take at least twelve courses in the department, with the following four courses as the core: Design Fundamentals or Drawing (AVA100, AVA110, or, under certain circumstances, AVA345), Sculpture I or Three Dimensional Design (AVA130, AVA140),

Photography I (AVA120), and Printmaking (AVA150 or AVA151). To complete their studio requirements, students take two additional studio courses (AVA160, AVA210-262, or AVA345), two advanced studio courses (AVA300 or above), two art history courses, and two other studio courses chosen in consultation with a visual arts faculty advisor.

Most majors will do either a two-term senior honors project (AVA498-499) leading to a solo exhibition in the spring term, or a one-term independent senior studio project (with an optional exhibition). These comprise in-depth study in a studio discipline in the senior year. 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 during consecutive terms (first term, 498, pass/fail; second term, 499, with an overall grade for both terms). 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 the required WS component.

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: 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. 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. 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 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 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, complete visual documentation 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: 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.

Architecture Track: Union offers a studio fine arts concentration with a recommended sequence of courses for students who plan to apply for graduate school 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 and strong Studio Art 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

Course Selection Guidelines

Placement: Incoming first-year students with Studio experience who are interested in placement beyond an introductory course should contact the department chair to arrange for a portfolio review with the appropriate Studio Art faculty.

Enrollment Limits: It is important to note that ALL introductory Studio Art courses are petition courses. Due to high demand and limited Studio Art facilities, declared Visual Arts majors and minors have priority in registration for all Studio Art courses, unless otherwise noted in the course listing schedule. Students who are interested in a major or a minor are strongly encouraged to meet with a member of the department and to declare as early as is practical. Most introductory courses reserve some openings for incoming first-year students in the fall term.

100-level courses: These courses are designed to introduce students to the fundamental materials and techniques of the various Studio Art disciplines. They do not carry prerequisites, nor do they require any previous Studio Art experience. These courses are suitable for first-year students, sophomores, juniors, and seniors; please note the enrollment priorities as stated above. Non-majors who are interested in these courses are strongly advised to consult with faculty before petitioning for these courses.

200-400-level courses: These courses are designed to build on the introductory courses, and all have introductory courses as their prerequisites. They are suitable for first-year students, sophomores, juniors, and seniors.

Internships, Independent Studies, and Thesis: These courses are generally reserved for advanced Studio Art students, but may be appropriate for other students as well. All students interested in these courses must consult with the Studio Art faculty and arrange academic sponsorship before registering for them.

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; see MER listing for offerings). 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, Winter; Hatke; Fall, 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, Spring; 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. Course website: <http://minerva.union.edu/photoatunion/photo1/PhotoI.html>

AVA-130. Sculpture I (Fall; Duncan; Spring; Cafritz). 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 (Winter; 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 and critiques.

AVA-160. Digital Art (Fall; 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 the Internet. 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. Outside work required. No previous experience necessary. Course website: <http://cs.union.edu/ava160/>

AVA-200. Design Fundamentals II (Not offered 2012-2013). 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. Course website: <http://minerva.union.edu/photoatunion/photo2/PhotoII.html>

AVA-230. Sculpture II (Fall; Duncan, Spring; Cafritz) 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 (Not offered 2012-2013). 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 – 4D Art (Spring; Orellana). This course will serve as an introduction to the basic concepts of four-dimensional art or time-based artwork, using a variety of processes and media. Students explore concepts in animation techniques, video and audio production, editing, interactivity, 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. Prerequisite: Any Studio Art course or permission of instructor. Course website: <http://cs.union.edu/ava262/>

AVA-270. The Processed Pixel (Winter; Orellana). Utilizing basic aspects of computer programming, this course will explore how artists can experiment with 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:** Any Studio Art course or permission of instructor. Course website: <http://cs.union.edu/ava270/>

AVA-280. Web Aesthetics (Not offered 2012-2013). Focusing primarily on design, this course will cover multimedia arts within the realm of the Internet. Students will explore the Internet as a medium for art and communication, while utilizing the artistic and design possibilities of Dreamweaver, Flash, and Adobe Photoshop. 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. Course website: <http://cs.union.edu/ava280/>

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 (Fall; Duncan, Spring; Cafritz). 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 2012-2013). 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. CC: 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, 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, Poser, and Adobe After Effects. Outside work required. Prerequisite: AVA-160 or AVA-320 or permission of instructor. Course website: <http://cs.union.edu/ava363/>

AVA-370. Physical Computing (Spring; Orellana). This studio art course will explore the creation of robotic art, interactive art, kinetic sculpture, sound works, light art, and performance environments. Using the Arduino micro-controller and basic electronic techniques, the course will include lectures, hands-on studio time, technique demonstrations, discussions, technical exploration, aesthetic inquiry and historical information relevant to the course. Outside work required. Prerequisite: Any Visual Arts course or permission of instructor. Course website: <http://cs.union.edu/ava370/>

AVA-380. The Floating World: Edo Prints and Printmaking (Same as AAH-380) (Not offered 2012-2013). 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 (Not offered 2012-2013) 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.

AVA-405. Special Projects in Painting (Spring; Hatke). Continued study of painting at the advanced level, incorporating exploration of techniques, materials, and expanded concepts. Matters of scale and the evolution of individual direction are emphasized through group and individual critiques. Prerequisites: AVA-260, AVA-261, or permission of the instructor. Special exclusions: may not be taken simultaneously with AVA-497, AVA-498, or AVA-499.

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) Students who have a demonstrated ability to work independently and who propose 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. Students must submit a written proposal well in advance of pre-registration to be considered. Prerequisite: at least three photography courses at Union or permission of the instructor.

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 preregistration 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, 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, 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, Spring; Niefeld). In addition to classroom assignments students will learn kiln firing and glaze preparation.

Women's and Gender Studies

Director: Associate Professor A. Foroughi (History)

Faculty: Professors T. Meade (History), L. Marso, Z. Oxley (Political Science); Associate Professors S. Raucci (Classics), J. Lewin (English), A. Feffer (History), C. Batson, M. Chilcoat (Modern Languages), J. Matsue (Music), D. Butler (Sociology), D. Ogawa (Visual Arts); Assistant Professor C. Bracken (English); Visiting Assistant Professor A. Jarrin (Anthropology); Lecturer G. Donaldson (Psychology)

Women's and Gender Studies is an interdisciplinary program that includes a wide variety of 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 <http://www.union.edu/academic/majors-minors/women-studies>

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 (Fall; Foroughi, Winter; J. Murphy). Whether team-taught or taught by a single professor, this course serves 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 (Spring; Marso). 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 a 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.

Berkly Davis Mechanical Engineering Book Prize. To a sophomore majoring in Mechanical Engineering who has demonstrated exceptional leadership qualities.

Berkly Davis Mechanical Engineering Leadership Prize. To a senior majoring in Mechanical Engineering who has demonstrated exceptional leadership qualities.

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 Energy Steinmetz Award. To a senior in Mechanical Engineering 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 Geo Research Prize. Given to the senior who completes the best research study and reports original results in any geo field (geotechnical, geoenvironmental, geoengineering, geoscience, or geospatial). Recipient is selected by a committee of engineering faculty in consultation with geo faculty. Created by 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.

Harry Guttman Endowed Prize. To an outstanding student of Classics.

Goodnow Neuroscience Endowed Prize. To the graduating Neuroscience student who shows the most promise for success in graduate school and beyond.

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. Alternating annually between music and theater, to the best performer of classical music as a soloist, with accompanist or with a group; or to a student who has written the best short play or to the best actor or actress.

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 a senior who has held a leadership position and has 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 or intellectual climate at Union College.

Hollander Convocation Music Prize. To a musician or ensemble for musical performance.

Roger H. Hull Community Service Award. To a senior who has rendered the greatest sustained service to the greater Schenectady Community and who has initiated 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 the 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, 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. 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 attained 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 in computer engineering chosen for high 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. To a 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. 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. 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 financially deserving 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 the History major 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 outstanding student or students in electrical or computer engineering.

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 (N.Y.) 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 (N.Y.) High School.

Thomas Armstrong (1871) Scholarship. The gift of Thomas Armstrong of Plattsburgh, N.Y. Restricted to residents of Clinton County.

R. Douglas Arnold (1972) Scholarship. Created from the gifts of R. Douglas Arnold, Class of 1972.

Robert D. Arnold (1941) & Miriam H. Arnold Endowed Scholarship. A gift from the estate of Robert & Miriam Arnold.

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.

Rett (1964) & Michele Benedict Endowed Scholarship. created from the gifts of Rettig P. Benedict Jr, a member of the class of 1964, and his wife, Michele A. Benedict. Awarded to students who are majoring in either the fine arts and/or the physical sciences.

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.

Mitchell D. Bernstein '85 Memorial Endowed Scholarship . Created from the gifts of Richard B. Bernstein in memory of his son, Mitchell D. Bernstein, a member of the Class of 1985. Awarded to students with a strong interest in theater arts as demonstrated by a major or minor in Theater.

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.

Gertrude Robinson-Bianchi Scholarship. Created from the gifts of Gertrude Robinson Bianchi.

Alfred F.H. Bischoff (1935) Scholarship. Established by Alfred F.H. Bischoff, Class of 1935. Preference is given to students majoring in electrical engineering.

Shelley Carol Blank Endowed Scholarship. Created from the gifts of Howard Blank, Class of 1970, and Giovannina Perrone to support a student who demonstrates financial need.

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.

Professor Joseph B. Board Endowed Scholarship. Established by family and friends of Professor Joseph B. Board, the Robert Porter Patterson Professor of Political Science from 1965-2003. A committee of political science faculty with choose the recipient.

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 A. Braver Memorial Scholarship . Established by Andrew Braver, Class of 1991 and Marcie Daniels Braver, Class of 1989. Preference to students from the Northeast of the United States, studying liberal arts.

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, N.Y.

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 first-year student. 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.

William (1974) and Barbara (Dewey) (1975) Carmody Endowed Scholarship. Created to honor Bill Scanlon, Head Basketball Coach at Union College for 23 years with the most wins in Union basketball history. Income awarded to a student with financial need who demonstrates the teaching and leadership qualities that Coach Scanlon personifies.

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 first-year student who is a graduate of Johnstown High School, Johnstown, N.Y.

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.

Connelly Family Endowed Scholarship. Created by Thomas (1989) and Laura Connolly to benefit students who are in need of financial aid and are from one of the five boroughs of New York City.

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, N.Y.

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, N.Y., 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, N.Y.

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 (N.Y.) Senior High School.

William Thompson Dewar Scholarship. The gift of William Thompson Dewar for a scholarship in his name.

Harry K. Dewitt (1928) Endowed Scholarship. Award to students who require financial assistance.

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 first 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.

Margaret M. & Charles H. Dyson Memorial Scholarship. A gift from the estate of Margaret M. & Charles H. Dyson.

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. Eismeman 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.

Harry C. Ewens (1914) Endowed Scholarship. A gift from the estate of Harry & Dorothy Ewens.

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, N.Y., 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. Gelslechter Memorial Scholarship. Established by his brother, F.D. Gelslechter, Class of 1933, and supported by gifts from the Gelslechter 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 first-year 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, N.Y.

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, N.Y., 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. Haviland, 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 (N.Y.) 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.

Robert J. Henkel (1976) and Roseanne Chismar Henkel Family Endowed Scholarship. Earnings distributed to a student who demonstrates financial need.

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, N.Y.

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.

IBM Scholarship. Funded by a grant from the International Business Machines Corporation to establish an endowed scholarship for women and minority engineering students.

Indigent Students Scholarship. Established by proceeds of lotteries authorized by the State of New York in 1805.

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.

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.

Harry R. (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.

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, N.Y., 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, N.Y., or Fullerton, Calif.

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.

Ruth Lewin Endowed Scholarship. Established by Ruth Lewin, friend of Union College.

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 30 first-year students 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, N.Y.

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.

Lubart Family Scholarship. An endowed fund created from the gifts of Mitchell R. Lubart (1975) for students in need.

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, N.Y., and from Rensselaer County, N.Y., 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, N.Y.

Meola Family Endowed Scholarship. Created from the gifts of Carol Behrendt Meola, Class of 1976, and Peter Meola Class of 1977. Awarded to a graduate of Schenectady High School.

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.

Robert J. Mielke (1960) Memorial Endowed Scholarship. First preference will be given to students from Montgomery County, NY. Second preference will be given to students from Schenectady County, NY.

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 Scholarships. 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.

Miltimore Scholarship Fund. Established by Frances Ross Miltimore in memory of her husband, Louis D. Miltimore, Class of 1929 and former trustee. Preference given to students majoring in American History or English.

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 first 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.

Charles N. Morrison Memorial Scholarship. Created in memory of Charles N. Morrison, Union College hockey Coach from 1978-1988. Awarded to students involved in extracurricular activities.

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.

William Muirhead '39 & Barbara Jean Boutelle Muirhead Scholarship. Preference given to students from North Haven High School in North Haven, C.T.; Columbia High School in East Greenbush, N.Y.; Hanover High School in Hanover, NH or Lassen Union High School in Susanville, C.A..

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).

Niedermeyer Endowed Scholarship. Established by Thomas Niedermeyer, in honor of Monica Niedermeyer, a member of the Class of 2010. Preference will be given to a student who will participate in a term abroad program during the current academic year.

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, N.Y.

James S. Parson (1919) Scholarship. Awarded to students majoring in one of the natural sciences.

Levi Parsons Scholarship. Established by the gift of Levi Parsons of Gloversville, N.Y. 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, N.Y., 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) 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, N.Y., 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, N.Y. or Catholic Central High School, Troy, N.Y.; 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, N.Y.

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.

Sam & Roslyn Roden and Charles '60 & Leslie Roden Family 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.

Saperstone Family Scholarship. Created by Peter S. Saperstone, Class of 1989, and family. Preference given to students from Northern Virginia.

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.

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, N.Y.

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.

Eric T. Starck '90 Memorial / Alumni Club of Boston Scholarship. Created from the gifts of family and friends of Eric T. Starck '90 and the Union College Regional Alumni Club of Boston. Preference to student(s) from the Greater Boston area, majoring in Political Science.

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.

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. 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 interest in an "applied" field, e.g. industrial, social clinical, counseling or organizational 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, N.Y.

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, N.Y.

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.

Temple Family Endowed Scholarship. Created from the gifts of John E. Temple (1967), his wife Judy T. Temple and their three children. First preference will be given to students majoring in mathematics, the sciences or engineering and are from the states of Oregon, Washington, Idaho, Montana, Wyoming, or Utah. Second preference will be students majoring in mathematics, the sciences, or engineering.

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, N.Y., 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.

Samson O.A. Ullman Endowed Scholarship. Established by Samson O.A. Ullman, Preference will be given to students who are foreign born.

Professor James E. and Jean A. 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.

Union College Club of the Capital Region 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.

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.

Robert Bruce Van Valkenburg Endowed Scholarship. An endowed scholarship created from the gifts of Howard E. Van Valkenburg, Class of 1942, and his wife Betty A. Van Valkenburg, in memory of their son, Robert Bruce Van Valkenburg.

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 first year to a member of the first-year 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.

Luciano & Pasqua Venditti Scholarship. Award to any and all direct linear descendants of Luciano & Pasqua.

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, N.Y., 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.

J. Herbert Watson (1940) Endowed Scholarship. An endowed fund created from the gifts of Rachel Watson in memory of her late husband. Preference will be given to engineering students.

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, N.Y.

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.

Kenneth L. Wyse '72 Endowed Scholarship. First preference given to students who are interested in the fields of fashion and design; second preference to students who study in the visual and performing arts.

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.

Albany Law School and Albany Medical College Scholarships

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.

Goldman Sachs Gives Scholarships. Established through gifts from Goldman Sachs Gives at the recommendation of David Viniar, Class of 1976, and his wife, Susan.

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.

Harriet and Paul (1958) Rosen Endowed Summer Research Fellowship. An endowed fund created from the gifts of Dr. Paul

R. Rosen and Harriet Rosen to provide assistance to underrepresented and/or first generation college students.

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 students who participate in the terms abroad program.

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Edward Summers, Assistant Secretary

The Faculty

The year 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

Ann M. Anderson, Agnes S. Macdonald Professor of Mechanical Engineering and Director of Energy Studies (1992). B.S. 1984, Tufts University; M.S. 1985, Ph.D. 1990, Stanford University (On Leave, Fall, Spring)

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 (On Leave, Fall, Winter)

Cay M. Anderson-Hanley, Associate Professor of Psychology (2004). B.S. 1988, Gordon College; M.S. 1991, Ph.D. 1995 State University of New York at Albany (On Leave, Fall, Winter)

Michele P. Angrist, Associate Professor of Political Science (2000). B.A. 1992, Washington University; M.P.A. 1995, Ph.D. 2000, Princeton University

Kenneth Aslakson, Assistant Professor of History (2007). B.A. 1986, Southwestern University; J.D. 1991, Ph.D. 2007, University of Texas at Austin

Robert B. Baker, William D. Williams Professor of Philosophy (1973). B.A. 1959, City College of New York; Ph.D. 1967, University of Minnesota

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Shelton S. Schmidt, Professor of Economics (1974). B.A. 1969, Ph.D. 1977, University of Virginia (On Leave, Winter)

Stephen J. Schmidt, Professor of Economics (1994). A.B. 1989, Ph.D. 1995, Stanford University (On Leave, Winter, Spring)

April R. Selley, Senior Lecturer in English (2001). B.A. 1976, Providence College; M.A. 1981, Ph.D. 1983, Brown University

Mehmet Fuat Sener, Professor of Economics (1999). B.S. 1993, Middle East Technical University; M.S. 1995, London School of Economics; Ph.D. 1999, University of Florida (On Leave, 2012/13)

Guillermina Seri, Assistant Professor of Political Science (2007). B.A. 1986, Catholic University of Córdoba, Argentina; M.A. 1998 FLACSO, Buenos Aires; Ph.D. 2005, University of Florida

Stephanie Silvestre, Visiting Assistant Professor of French (2009). License 1997, University of Cergy-Pontoise; Maltrise 1998, University of Paris 7; M.A. 2001, University of Miami at Coral Gables; Ph.D. 2008, Northwestern University

Jordan F. Smith, Edward E. Hale Jr. Professor of English (1981). B.A. 1977, Empire State College; M.A. 1978, Johns Hopkins University; M.F.A. 1981, University of Iowa

Robert C. Smith, Mellon Postdoctoral Fellow/Visiting Teaching Scholar of Electrical and Computer Engineering (2012). B.S. 1985, University of Maine; M.S. 2000, University of New Hampshire; Ph.D. 2009, Rensselaer Polytechnic Institute

Olga Solovieva, Visiting Assistant Professor of Religious Studies (2010). B.A. 1996, Omsk (Russia) State University; M.A. 1999, M.Phil. 2002, Ph.D. 2009, Syracuse University

Younghwan Song, Associate Professor of Economics and Chair of the Department (2002). B.A. 1991, M.A. 1993, Seoul National University; M. Phil. 1996, Ph.D. 2002, Columbia University

John M. Spinelli, Horace E. Dodge III Professor of Electrical Engineering (1989). B.E. 1983, The Cooper Union; S.M. 1985; Ph.D. 1989, Massachusetts Institute of Technology

Linda N. Stanhope, Professor of Psychology (1986). A.B. 1976, Wellesley College; M.A. 1980, Ph.D. 1984, University of Virginia (On Leave, Fall, Winter)

Charles N. Steckler, Dwane W. Crichton Professor of Theatre (1971). B.S. 1968, Queens College; M.F.A. 1971, Yale University

Ruth M. Stevenson, Thomas B. Lamont Professor of Literature (1972). A.B. 1961, Smith College; M.A. 1962, University of Richmond; Ph.D. 1972, Duke University (On Leave, Fall, Winter)

Kristina I. Striegnitz, Assistant Professor of Computer Science (2007). Vordiplom 1995, Diplom 2000, Saarland University; Ph.D. 2004, Saarland University and the University Henri Poincaré Nancy 1

Rebecca A. Surman, Professor of Physics and Astronomy (1998). B.A. 1993, State University of New York College at Geneseo; M.S. 1995, Michigan State University; Ph.D. 1998, The University of North Carolina at Chapel Hill (On Leave, 2012/13)

James Tan, Visiting Assistant Professor of Classics (2011). B.A. 2001, M.Phil. 2005, University of Sydney; M.A. 2006, M.Phil 2008, Ph.D. 2011, Columbia University

Hilary Tann, John Howard Payne Professor of Music (1980). B. Mus. 1968, University of Wales; M.F.A. 1978, Ph.D. 1981, Princeton University (On Leave, Fall)

Alan D. Taylor, Marie Louise Bailey Professor of Mathematics and Chair of the Department (1975). B.A. 1969, A.M. 1970, University of Maine; Ph.D. 1975, Dartmouth College (On Leave, Winter)

Abraham Tchako, Lecturer in Mechanical Engineering (2005). Diplom Ingenieur 1992, Technische Fachhochschule Berlin; M.E. 1995, The City College of New York of the City University of New York; Ph.D. 2004, The Graduate School and University Center of The City University of New York

Nicole A. Theodosiou Napier, Assistant Professor of Biological Sciences (2007). B.A. 1991, Swarthmore College; Ph.D. 1999, Yale University School of Medicine

Mark S. Toher, Frank Bailey Professor of Classics (1983). B.A. 1974, Brown University; B.A. 1976, Oxford University; Ph.D. 1985, Brown University

Christina Tønnesen-Friedman, Associate Professor of Mathematics (2001). Cand.Scient. 1995, Ph.D. 1997, Odense University, Denmark

Cherrice A. Traver, David Falk '39 and Elynor Rudnick-Falk Professor of Computer Engineering and Chair of the Department of Electrical & Computer Engineering (1986). B.S. 1982, State University of New York at Albany; Ph.D. 1986, University of Virginia

Bunkong Tuon, Assistant Professor of English (2008). B.A. 2000, California State University at Long Beach; M.A. 2006, Ph.D. 2008, University of Massachusetts at Amherst

Laurie A. Tyler, Associate Professor of Chemistry (2004). B.A. 1996, University of Washington at Seattle; Ph.D. 2002, University of California at Santa Cruz

Junko Ueno, Associate Professor of Japanese (2000). B.A. 1994, Kyusyu University; M.A. 1995, Indiana University

Michael F. Vineyard, Frank and Marie Louise Bailey Professor of Physics and Astronomy (2002). B.S. 1978, Stockton State College; M.S. 1981, Ph.D. 1984, Florida State University

Mark W. Walker, John Bigelow Professor of History and Chair of the Department (1987). B.A. 1981, Washington University; M.A. 1983, Ph.D. 1987, Princeton University

Jue Wang, Assistant Professor of Mathematics (2007). B.S. 2001, Peking University; M.A. 2003, Ph.D. 2007, University of Wisconsin-Madison

Patricia Wareh, Assistant Professor of English (2010). B.A. 1993, University of Florida; Ph.D. 2002, University of California at Berkeley

Tarik Wareh, Assistant Professor of Classics (2005). A.B. 1994, Harvard University; M.A. 1995, Ph.D. 2003, University of California at Berkeley

Nicholas Webb, Visiting Assistant Professor of Computer Science (2011). B.S. 1995, M.Sc. 1996, University of Essex; Ph.D. 2010, University of Sheffield

Carol Silvia Weisse, Professor of Psychology and Director of Health Professions Program (1988). B.S. 1983, Quinnipiac College. Ph.D. 1988, Uniformed Services University

Erika T. Wells, Visiting Assistant Professor of Psychology (2012). B.A. 1985, Wheaton College; M.A. 2009, University of New Hampshire at Durham

Robert V. Wells, Chauncey H. Winters Professor of History (1969). B.A. 1965, Denison University; Ph.D. 1969, Princeton University

Frank E. Wicks, Associate Professor of Mechanical Engineering (1988). B.S. 1961, State University of New York Maritime College; M.S. 1966, Union College; Ph.D. 1976, Rensselaer Polytechnic University; P.E.

Richard D. Wilk, Professor of Mechanical Engineering (1989). B.S. 1980, M.S. 1982, Ph.D. 1986, Drexel University

Francis P. Wilkin, Lecturer in Physics and Astronomy and Observatory Manager (2004). B.S. 1989, University of Massachusetts at Amherst; M.A. 1991, Ph.D. 1997, University of California at Berkeley

R. Paul Willing, Senior Lecturer in Biological Sciences (1989). B.A. Humboldt State College; M.A. University of Hawaii at Honolulu; M.S. University of California at Riverside; Ph.D. 1981, University of Massachusetts at Amherst

Sandra S. Wimer, Senior Lecturer in Visual Arts (1997). B.S. 1974, Pittsburgh State University; B.F.A. 1987, University of Oklahoma; M.F.A. 1990, State University of New York at Albany

Brenda Wineapple, Doris Zemurray Stone Professor in Modern Literary and Historical Studies (1976). B.A. 1970, Brandeis University; M.A. 1972, Ph.D. 1976, University of Wisconsin (On Leave, Fall, Winter)

Jeffrey Witsoe, Assistant Professor of Anthropology (2008). B.A. 1998, University of California at Santa Cruz; M.A. 2000, University of Chicago; Ph.D. 2005, University of Cambridge (On Leave, Fall, Winter)

Suthathip Yaisawarng, Thomas Armstrong Professor of Economics (1989). B.B.A. 1977, Thammasat University, Thailand; M.B.A. 1983, Howard University, Ph.D. 1989, Southern Illinois University

Roman Yukilevich, Assistant Professor of Biological Sciences (2012). B.S. 2000, University of Illinois at Chicago; Ph.D. 2008, State University of New York at Stony Brook

Leonardo Zaibert, Professor of Philosophy and Chair of the Department (2009). LL.B. 1989, Universidad Santa Maria, Caracas, Venezuela; Ph.D. 1997, State University of New York at Buffalo

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 (On Leave, Winter, Spring)

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

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)

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)

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. 1991, Purdue University; M.S. 1993, University of Vermont; D.P.E. 1993, Springfield College

Guillermo Borges, Research Assistant Professor of Chemistry (2012). B.S. 1986, Arcadia University; M.S. 1991, The Pennsylvania State University

Robert Finks, Research Professor of Geology (2003). B.S. 1947, Queens College; M.A. 1954, Ph.D. 1959, Columbia University

John Kekes, Research Professor of Philosophy. B.A. 1961, M.A. 1962, Queen's University; Ph.D. 1967, The Australian National 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

David LeMaster, Research Professor of Chemistry (2012). B.S. 1974, Purdue University; M.S. 1976, Ph.D. 1980, Yale University

Raymond Martin, Research Professor of Philosophy. B.A. 1962, M.A. 1964, Ohio State University; Ph.D. 1968, University of Rochester

Gregory Mercer, Research Professor of Chemistry (2011). B.A. 1997, University of Vermont; Ph.D. 2006 University of Utah

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

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

Joyce S. Zucker, Research Professor (2011). B.A. 1970, State University of New York at Albany; M.A. 1973, Cooperstown Graduate Programs

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
Donald C. Brate '45 – Stanley G. Peschel '52 Assistant Professor of Statistics (2012) – Roger W. Hoerl
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) — John M. Spinelli
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) — Jordan F. Smith
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) – Jillmarie Murphy
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 M. Olberg
Florence B. Sherwood Professor of Physical Sciences (1994) — Janet S. Anderson
Doris Zemurray Stone Professor in Modern Literary and Historical Studies (1976) — Brenda Wineapple
Roger Thayer Stone Professor of Anthropology (1989) — Sharon B. Gmelch
Thomas J. Watson, Sr., and Emma Watson Day Professor of Mechanical Engineering (1989) — Bradford A. Bruno
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) – John I. Garver
John and Jane Wold Professor of Religious Studies (2007) — Peter R. Bedford
David L. and Beverly B. Yulich 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

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

Lester Ko, Research Assistant for the Office of Institutional Studies. B.A. 1998, Vassar College; J.D. 2003, CUNY School of Law at Queens College

Rebecca Schubmehl, Events Coordinator for The Adirondack Center. B.A. 2010, University of Rochester

Edward Summers, Chief of Staff. B.A. 2004, M.P.A. 2006, Marist College

Caitlin Visscher, Senior Administrative Assistant to the Office of the President. B.A. 2008, Becker College

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

David M. Hayes, Dean of Academic Departments and Programs and Professor of Chemistry. B.S. 1966, Massachusetts Institute of Technology; Ph.D. 1970, Cornell University

Mark E. Wunderlich, Dean of Studies. B.A. 1995, Harvard College; Ph.D. 2001, University of Arizona

Nic Zarrelli, Dean of Academic Planning and Resources. 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

Philip Poczik, Director of AOP/HEOP. B.A. 2001, Hobart and William Smith Colleges; M.A. 2002, Carnegie Mellon University

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
- Erik Ackerman**, Assistant Athletic Trainer. B.S. 2010, Central Connecticut State University
- Claudia Asano Barcomb**, 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
- Rick Bennett**, Head Coach of Men's Ice Hockey. B.A. 1990, Providence College
- Alison Boe**, Assistant Women's Hockey Coach. B.A. 2006, Harvard University
- Adam M. Brinker**, Assistant Director of Athletics/Facilities. B.S. 1987, M.A. 1993, Kent State
- Peter W. Brown**, 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 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
- Michelle Connors**, Associate Head Softball Coach. B.A. 2010, State University of New York at Albany
- Jill Crary**, Assistant Trainer. B.S. 1993, Russell Sage College; M.S. 1996, University of Wisconsin at LaCrosse
- Melissa L. DeRan**, Head Volleyball Coach. B.A. 1999, Murray State University; M.A. 2009, St. Lawrence University
- Joseph Dumais**, Assistant Coach of Men's Ice Hockey (2011). M.S. 2007, Ohio University; B.A. 2006, Quinnipiac University
- Peter Durr**, Assistant Men's Basketball Coach. B.S. 2012, Keuka College
- 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
- Daniel Gabelman**, Strength and Conditioning Coach (2010). B.S. 2007, Boston University
- Jeffrey D. Guinn**, Head Men's Soccer and Assistant Track Coach. B.A. 1987, North Carolina State University
- Kelly Harchetts**, Head Field Hockey Coach. B.S. 2005, William Paterson University; M.S. 2012, Salisbury University
- Gary Holtz**, Head Softball Coach, B.S. 1973, University of Vermont, M.S. 1980 State University of New York at Albany
- John Houghton**, Head Cross Country Coach, B.S. 2001, Union College, MBA 2003, Union Graduate College
- Abigail L. Jackson**, Head Women's Lacrosse Coach. B.A. 2003, Williams College
- Joanne M. Little**, Senior Associate Director of Athletics. B.S. 1982, University of New Hampshire at Keene; M.S. 1990, Ithaca College
- Eric C. McDowell**, Assistant Director of Athletics and 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. A.A.S. 1975, State University of New York at Delhi; B.A. 2010, Syracuse/SUNY ESC
- 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 Track and Field 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 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

Jason Tapp, Assistant Coach of Men's Ice Hockey (2011). B.A. 2002, Boston University

Elizabeth M. Tiffany, 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.

Jeffrey Weinstein, Assistant Sports Information Director. M.P.S. 2010, Georgetown University; B.A. 2008, Boston College

Thomas M. White, Head Crew Coach. B.S. 1987, Northeastern University

Information Technology Services

Ellen Y. Borkowski, Chief Information Officer. B.S. 1987, Rensselaer Polytechnic Institute; M.Ed. 1997, University of Maryland

Kelly A. Andolina, Assistant Director, User Support. 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

Christian Cooke, Network Analyst

Mina Evtimova, Senior Web Developer

Eugene Forget, End User Support Analyst. A.A.S. 2006, ITT Technical Institute

Waldemar Kania, Manager, Systems Support. 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 and Networking. 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, End User Support Analyst

Susan Rinaldi, End User Support Analyst

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, Enterprise Applications and Systems. 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, Senior End User Support 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

Marie Costello, Interim Director of the Mandeville Gallery and Interim Curator of the Union College Permanent Collections. B.A. Skidmore College; M.A. Tufts University

Registrar

Penelope S. Adey, Registrar. 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

Frances J. Maloy, College Librarian. B.A. 1980, St. Lawrence University; MLS 1982, State University of New York at Albany

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

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

John F. Myers, Catalog Librarian, Associate Librarian. B.S. 1986, University of Pittsburgh; M.L.I.S. 1995, University of South Carolina

Robyn M. Reed, Head of Access Services/Assistant Librarian I. B.A. 2006, University of Dayton; MLS 2010, University of Pittsburgh

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

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

David Glasser, Enrollment Systems Analyst, B.S. 2006, Lafayette College

Susan Hanks, Associate Dean of Admissions. B.A. 1987, Lehigh University

Abbey L. Massoud-Tastor, Senior Assistant Dean of Admissions/Director of Alumni Admissions Program. B.A. 2007, Union College

Linda Parker, Director of Financial Aid. B.S. 1984, State University of New York at Albany

Aaron R. Ray, Assistant Dean of Admissions/Coordinator of Multicultural Recruitment, B.A. 2010, Union College

Lilia M. Tiemann, Coordinator of Admissions Campus Events, 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

Mary Karen Vellines, Coordinator of International Admissions. B.A. 1970, Mary Washington College of the University of Virginia; M.A. T. 1974, Winthrop University

Jessica Wenger, Assistant Dean of Admissions, B.S. 2010, Union College

Office of College Relations

Stephen A. Dare, Vice President for College Relations. B.S. 1977, M.A. 1980, Rowan University

Office of Alumni Relations

Rhonda L. Engvold, Assistant Director of Alumni Relations

F. Rahde Franke III, Assistant Director of Alumni Relations. B.A. 2010, Union College

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Degrees Offered

Degree Program	Degrees	HEGIS
Africana Studies	B.A.	0305
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 Clinical Leadership in Health Care Management (with Albany Medical College and Union Graduate College)	B.S.	0499
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