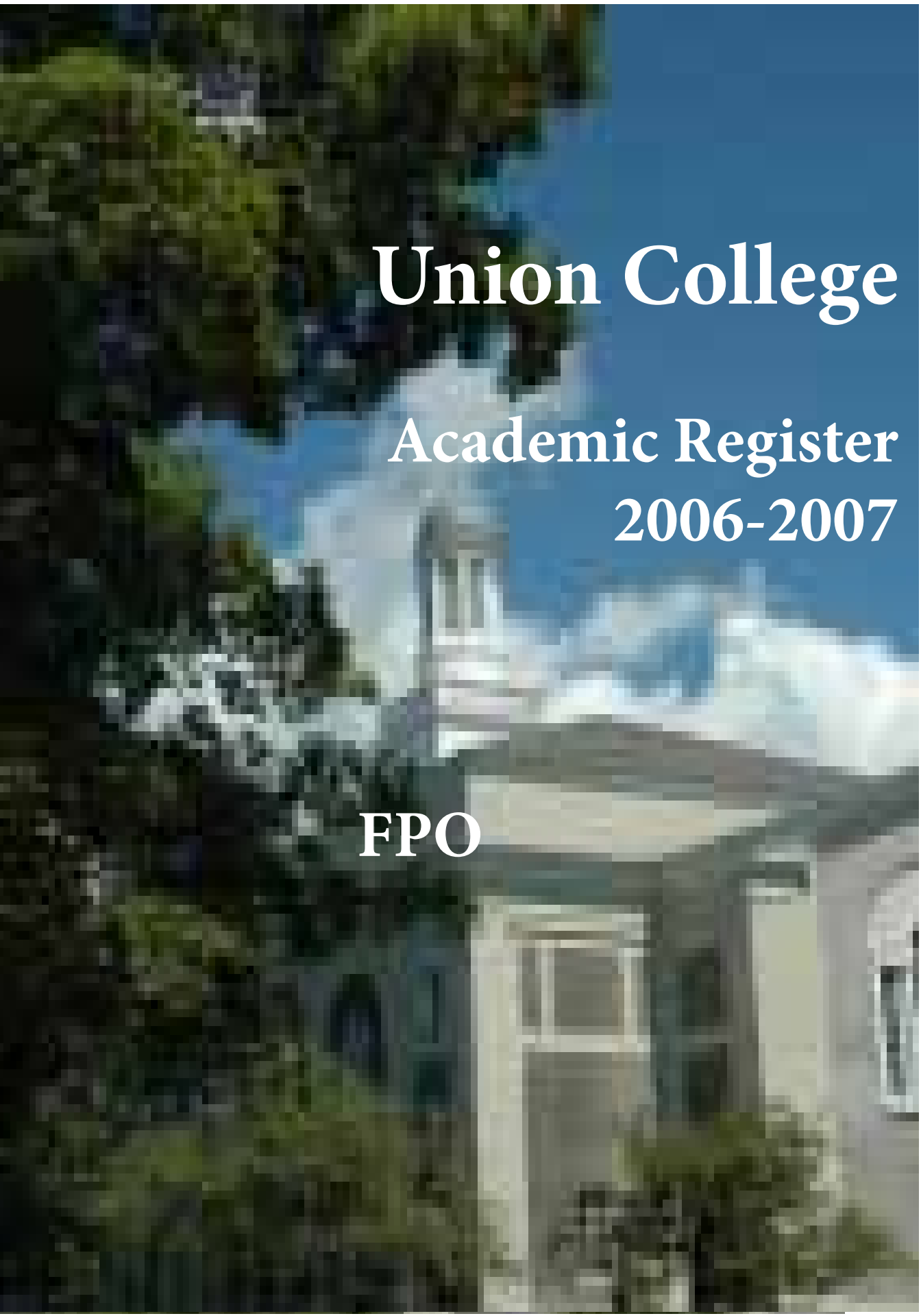
Union College
Academic Register
2006-2007
FPO

Admissions Timetable

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

School Transcripts: Forms are included in the application and should be completed and filed by school authorities by Feb. 1. Supplementary records should be requested from the schools at the mid-year and in June.

Entrance Examinations: SAT I: Reasoning Test *or* two SAT II: Subject Tests *or* the American College Testing examination 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 end of January.

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.

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 for Option I will be announced by Dec. 15. Option II provides for receipt of applications and credentials by Jan. 15. Decisions for Option II 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 1 p.m., September through January.

Guided Campus Tours: Weekdays from the Admissions Office, 10:00 a.m. to 3:00 p.m. on the hour. Selected Saturday tours, September through January.

Union College, August 2006. Third-class postage is paid at Schenectady, N.Y., and an additional mailing office. Postmaster: Send form 3579 to Office of Communications, Union College, Schenectady,

Union College

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Contents

The information in this *Academic Register* was prepared as of July 1, 2006. 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.

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.

Union College is committed to assisting all members of the Union College community in providing for their own safety and security. 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 as reported to the U.S. Departmentof Education, and disciplinary procedures, is available from the Director of Campus Safety at 807 Union Street, Schenectady, N.Y. 12308. The phone number is 518-388-6911. This information is also available from the following Union College website: http://www.union.edu/PUBLIC/SAFETY/CommunityReport.html

The 2006-07 Calendar

August 2006

7	Fall tuition due

September 2006

3	Residence halls open at 9 a.m. (First Year Students only)
3-5	First-year student orientation
4	Residence halls open for returning upperclass students
5	First-year student advising and schedule adjustments
6	Fall term classes begin; add/drop begins for upperclass students
6-8	Off-campus and commuter student registration data verification
12	Last day to add an open course without instructor written approval
19	Last day to drop a course without a "W
19	Last day to finalize course registrations without a late fee
26	Last day to declare a course "Pass-Fail"

October 2006

11	Freshman mid-term grades due
11	Winter term prescheduling materials available at Registrar's Office
11-26	Academic advising for winter term; students must consult faculty advisors
13-15	Homecoming and Family Weekend
27	Graduation application due for Class of 2007
27-Nov. 2	Winter term prescheduling appointments
31	Last day to drop a course with a "W"

November 2006

14	Last day of fall term classes
15	Reading period
16-21	Fall term final exams
22	Residence halls close
29	Fall term grades due

December 2006

1	Winter tuition due

January 2007

2	Residence halls open
3	Winter term classes begin; drop/add starts
3-5	Off-campus and commuter student registration data verification
9	Last day to add an open course without instructor written approval
16	Last day to drop a course without a "W"
16	Last day to finalize course registrations without a late fee
23	Last day to declare a course "Pass-Fail"

February 2007

7	Freshman mid-term grades due
7	Spring term prescheduling materials available
7-22	Academic advising for spring term; students must consult faculty advisors
23- March 1	Spring term prescheduling appointments
27	Last day to drop a course with a "W"

March 2007

9	Spring tuition due
13	Last day of winter term classes
14	Reading period
15-21	Winter term final exams
22	Residence halls close
26	Winter term grades due

April 2007

1	Residence halls open
2	Spring term classes begin; drop/add starts
2-4	Off campus and commuter student registration data verification
6	Last day to add an open course without instructor written approval
13	Last day to drop a course without a "W"
13	Last day to finalize course registrations without a late fee
20	Last day to declare a course "Pass-Fail"

May 2007

4-5	Spring Parents' Weekend, including Steinmetz Symposium and Prize Day
7	Freshman mid-term grades due
9	Fall term prescheduling materials available at Registrar's Office
9-25	Academic advising for fall term; students must consult faculty advisors
25	Last day to drop a course with a "W"
28-31	Fall term prescheduling appointments
31-June 3	Alumni Weekend – ReUnion 2007

June 2007

8	Last day of spring term classes
11-14	Spring term final exams
15	Residence halls close for students not participating in graduation
16	Baccalaureate service
17	Commencement

The Mission of the College

The Union College mission statement was approved by the faculty on January 13, 1992, and by the Board of Trustees on January 15, 1992.

Union, a college of liberal arts and engineering, is committed to three basic beliefs about individual development through learning.

First, the College believes it is obligated to create in students a lifelong commitment to truth and joy in learning, so that students weave the pursuit of knowledge into the fabric of their lives, and develop a historical awareness and intellectual integrity that will support a resolve to defend the dignity of all people.

Second, the College believes that knowledge of the self is an important goal of liberal education, a goal that is best attained as one learns more about other cultures and one's own. Consequently, we offer extensive opportunities for study abroad, and curricular and residential experiences that enable students to see the ways in which they are part of something larger — a community, a culture, and a world of many cultures.

Third, the College believes that the close relationship between its faculty and students motivates students to learn, as manifested most clearly in undergraduate research and other forms of independent study. We therefore maintain a community of inquiry, discourse, and experiment in which it is clear that scholarship and teaching are parts of a single enterprise. Consistent with the belief that professional education is best done in the context of the liberal arts undertaking, the College supports the oldest such engineering program in the nation.

In many respects, then, Union is distinctive, but in an important sense it is like other good liberal arts colleges, with strong departments, staffed by a scholarly faculty with an exacting care for the students' accuracy of understanding and for the improvement of their ability to do their work well. One conviction underlies life at Union, its common beliefs, and its long heritage: in citizenship as well as work, a liberal education is the best path to personal fulfillment.

A Statement on Academic Honesty

Union College does not tolerate dishonest academic behavior. Any work that students represent as their own — exams, papers, etc. — is their own; students understand that it is their responsibility if they have questions about what constitutes their own work to seek advice from the appropriate faculty member.

A Tradition of Experience, Reflection and Innovation

Throughout its history, Union has been distinguished by its commitment to the idea that both experience and reflection are necessary to a proper education — that to focus on one to the exclusion of the other is to impoverish one, whether a poet or an engineer. Eliphalet Nott (president of Union from 1804 to 1866, the longest tenure of any American college president) may have been an inventor, a "politician," and a man of the world, but he also taught the senior course in moral philosophy and strongly supported the development of the study of classics at the College. Union has also been committed to innovation throughout its history, going back to 1827, when the College instituted the "scientific course" of study, which played a major role in displacing the traditional classical curriculum from its dominant role in higher education. Subsequently, Union became the first college of arts to introduce engineering in 1845.

In seeking to expose students to a broad range of perspectives, the College recognizes that one learns from everyday life as well as the classroom. The College's seven Minerva Houses create an environment that blends the intellectual, social and residential spheres with wide participation by students, faculty and staff. The Minervas, inaugurated in 2004, are the focus of interaction between all members of the Union College community.

Perhaps it is Union's commitment to its international study program that best reflects this tradition of linking experience and reflection. The College offers formal term-long programs in a dozen countries, programs that with one exception are supervised on the scene by a Union faculty member. All terms abroad incorporate a full complement of course work, and all require students to prepare for their experience through foreign language preparation or, when appropriate, other prerequisites. Whether students go to China, Mexico, France, Japan, or some other country, they are enriched and transformed by their experience.

Somewhat different in character, but similar in providing students direct opportunities to link experience and reflection, are the many avenues for students to carry out research in close association with faculty. In addition to the opportunities represented by the senior project required of majors in many departments, the College vigorously promotes student research. Using funds available from its Internal Education Foundation as well as grants from foundations, the College supports research by substantial numbers of students from a wide range of disciplines. The fruits of student work appear in a variety of forms, including conference papers and journal articles, often jointly authored with faculty; publications in Union's student-edited journals; papers delivered at the National Conference on Undergraduate Research (which Union hosted in 1990 and 1995); and presentations at the annual Charles P. Steinmetz Symposium for student scholarly, creative and research achievement. More than 300 students participated in the symposium in 2006.

Student experience is enriched by the various internship opportunities available through the College, including a term in Washington that offers placement in Congressional offices and internships supervised by a variety of departments.

While emphasizing the mutually supportive tenets of experience and reflection, Union has continued its tradition of curricular innovation. The College has received recognition for its leadership role in general education, study abroad, and undergraduate research. This tradition continues with the introduction of Converging Technologies into the undergraduate curriculum. Converging Technologies takes advantage of the presence of an engineering program at a liberal arts college to provide an interdisciplinary approach that encompasses disciplines across the liberal arts and engineering. Union is especially suited to offer courses in a number of converging disciplines including bioengineering, nanotechnology, neuroscience and mechatronics.

Because the College believes that a proper curriculum is the best base upon which students can undertake a commitment to learning that will become a lifetime habit, it takes seriously its responsibility for the quality of the curriculum. In addition to providing strong major programs, Union has periodically refined its general education requirement. We are now entering into a new General Education program, designed to ensure that students have the skills needed to analyze and integrate knowledge from a wide variety of areas and to be able to communicate the results of this learning effectively. The core remains the First-Year Preceptorial, taught to small groups of students by faculty drawn from a variety of disciplines. The Preceptorial focuses on making students more effective at reading, analyzing, and

writing by requiring them to read and discuss substantial works in a variety of fields and to do extensive writing and rewriting. This will be followed by a Sophomore Seminar, emphasizing the research skills necessary to assess the enormous varieties of information available.

Because of the importance of integrating information, we require a three-course cluster allowing students to bridge and integrate information on a common topic from diverse perspectives. We also insist on the breadth that defines a liberal arts education through requirements in linguistic and cultural competency, quantitative reasoning, and science and technology.

The General Education Curriculum comprises approximately one-third of the total number of courses required for graduation. (The revised GenEd curriculum is to take effect in the Fall 2006.)

The Writing Across the Curriculum program also incorporates the First-Year Preceptorial as its base. The program requires that all students take a certain number of courses that use writing as a key element of the teaching process as well as a "writing experience" in the senior year in the form of a thesis, project, or seminar. Underlying the program is the belief that writing can be made an integral part of learning in a wide range of disciplines and should not be restricted to those disciplines typically associated with "teaching writing."

The Undergraduate Program

Union College offers studies in the humanities, the social sciences, the sciences, and engineering. Perhaps the most distinctive feature of Union's academic program is the existence within the liberal arts framework of a strong engineering program. Union was the first college of arts to offer engineering (in 1845) and its curriculum has a range that is unusual among small colleges.

Major fields of study may be centered in one of the College's 21 academic departments. Or a student may choose an interdepartmental major involving work in two or more departments; an organized interdisciplinary program; or a personally-designed "organizing theme major" organized around a central, unifying topic cutting across disciplinary lines. Students may also elect to take two minors.

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 (see "Accelerated Joint Degree Programs" for details).

As a college committed to liberal education. Union requires that a substantial portion of each student's education be devoted to study far outside the area of the major. Through the Core Components general education curriculum, students are encouraged to strive for a breadth of learning that will complement the expertise acquired through studies in the major. Intellectual curiosity may also be served by the selection of purely elective courses.

The College is also committed to ensuring that all students become good writers. The College's program of Writing Across the Curriculum constitutes a systematic way of ensuring that students pay close attention to writing in courses scattered throughout the curriculum. The First-Year Preceptorial, which has been required of students for a number of years, is the foundation of Union's writing requirements. It is followed by the newly instituted Sophomore Research Seminar. The College's Writing Center is described in the previous section, "Courses of Instruction."

Degree Requirements

Union offers the following undergraduate degrees: bachelor of arts, bachelor of science, bachelor of science (computer engineering), bachelor of science (electrical engineering), and bachelor of science (mechanical engineering).

A Union education is a four-year integrated living/learning experience. Our curriculum is put together 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 may require up to 40 courses (in two-degree programs, nine courses beyond the requirements for the professional degree);

2. Satisfactorily complete requirements in the General Education Curriculum;

3. Satisfactorily complete requirements in the major field, degree program, or interdepartmental major, including the major field examination and/or thesis, as applicable;

4. Attain minimum cumulative indices of 1.80 overall and 2.00 in the major (and 2.0 in the minor if a minor has been declared).

To graduate, a student also must have paid all sums due the Finance Office, must have made satisfactory provision for payment of any other financial obligations assumed while in college, and must have returned all books borrowed from the library. The individual student is solely responsible for assuring that the program presented for graduation fulfills all requirements, both in general and in specialized study. The Office of the Registrar should be consulted when questions arise about the satisfaction of graduation requirements. Notice of intent to graduate must be sent to the Registrar not later than October 27, 2006.

Accelerated Graduation: The Union Scholars may use the additional course credits they earn as Scholars to graduate early, should they so wish. Furthermore, any student entering the College with three or more pre-matriculation credits (see Advanced Placement) can petition the College to graduate one trimester early, provided they have not used these credits to make up deficiencies incurred during their

time at the College. This petition must be filed in the Office of the Dean for Undergraduate Education by the end of junior year.

In all other cases, it is expected that students will be in full-time residence through the spring term prior to graduation. However, the College does afford the opportunity for students who are successful at the College to take additional courses to enhance their Union education. These course credits will be considered beyond the 36 required for graduation (see Fourth Course Policy).

All transfer students must spend at least two years pursuing full-time studies (a minimum of half the required number of credits for their degree) at the College. After matriculation, students who are behind in credits can transfer in a maximum of three course credits and incoming first-year students can bring in a maximum of the equivalent of four course credits.

The Academic Calendar and Course Load

Union divides the nine-month 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. Credits are computed on a course-unit system. With few exceptions, each course unit is complete within itself, concluding with an examination period. Many courses are, of course, parts of a continuing sequence and, while it is quite possible to take isolated segments of the overall sequence, most students find it advantageous to complete the sequence in order.

The General Education Curriculum

An important underlying assumption of the College's General Education Curriculum is that as a liberal arts college, Union is devoted to offering the sort of education that will allow students to flourish in this rapidly changing world, a world with melting geographic, intellectual and cultural boundaries. Accordingly, the College has adopted a new General Education curriculum that will formally go into effect for students entering in 2006. The new program is called "Core Components: Analysis, Integration and Breadth."

The new curriculum seeks to create 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, and that one cannot produce an educated person in four years.

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 and incentives.

Union has designed a liberal learning curriculum that ensures that students analyze and integrate knowledge from a wide variety of areas, communicate the results of their learning and, most important, continue to learn, an essential skill in today's world. To accomplish this, we start with a first-year seminar that emphasizes critical reading and writing using the perspectives of multiple disciplines, and a sophomore 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 know the importance of integrating information, we require a three-course cluster in which students learn to bridge and integrate information on a common topic from diverse perspectives. We also insist on the breadth that defines a liberal arts education through requirements in linguistic and cultural competency, quantitative reasoning, and science and technology. Our curriculum is designed to enable students to truly become life-long learners—the most critical ability in today's world. We do this by teaching them to: analyze, synthesize (integrate), communicate at the highest level, and obtain an appreciation of different disciplines and areas of knowledge.

A brief description of the new program, as well as a detailed description of the previous one, can be found under "Courses of Instruction."

The Major

Depth of knowledge and understanding in a particular field of study is provided by the major. Courses in this area of special study will also count toward meeting some General Education

requirements, but the prescribed program of study for a major is primarily intended to develop competence in the scholarship represented by an academic department or a group of closely related departments.

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 freshman year. At the end of the year, the major may still be 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.

Interdepartmental Programs

The College offers formal interdepartmental programs in Africana Studies, American Studies, East Asian Studies, Latin American and Caribbean Studies, Russia and Eastern Europe Studies, and Women's and Gender Studies, all of which combine history, literature, and other disciplines; a new program in Science, Medicine, and Technology in Culture; in Biochemistry; in Environmental Studies, involving studies in environmental engineering, environmental science, and environmental policy; in Managerial Economics, which includes work in economics, mathematics, engineering, and sciences; and in Neuroscience, involving work in psychology and biology.

The Departments of Biological Sciences and Political Science have developed a program designed to serve the interests of students wishing to combine those two fields. The aim is to provide a broader background in both areas for students seeking careers that involve questions of biology and public policy, e.g., in law and environmental protection or health services.

In addition, subject to the requirements listed below, other interdepartmental major combinations of two fields may be arranged, but they will be approved only if the student presents a clear and sufficient rationale for the scholarly relationships among the various components of the major. Computer Systems, Electrical Engineering, or Mechanical Engineering may not be used as a component of interdepartmental majors.

Requirements for the Interdepartmental Major in Humanities or Social Sciences: Subject to the requirements set by the departments, at least 16 courses in the Divisions of Humanities and Social Sciences, with at least eight courses from each of two departments. An interdepartmental program may consist entirely of work from one division, or it may include departments in both divisions.

Requirements for the Interdepartmental Major in Science: At least 18 courses in the Division of Science, distributed (1) so that at least eight courses are from a single department, and not fewer than six are from a second department, or (2) so that at least eight courses are from a single department and not fewer than four courses are from each of two other departments. Normally, two courses in mathematics will be included.

Requirements for the Interdepartmental Major in Any Two Divisions: In special circumstances, interdepartmental programs may be developed to include work in departments drawn from any two divisions of the College; work in computer science may be included in such a program. Such a major will require eight courses in one department; six in another; and four from departments closely allied to one or both of the principal departments; or eight courses from each of two departments. As is the case with all interdepartmental majors, such a program must be worked out with the student's advisor and then approved by the chairs of the principal departments.

Students, at the time of declaring an interdepartmental major, should indicate how they plan on fulfilling any senior thesis or comprehensive exam requirement. Where a student and his or her advisors determine that special requirements exist which can be met only by a distribution of courses differing from the foregoing, a petition for waiver of the normal requirements may be made to the Dean for Undergraduate Education.

The Organizing Theme Major: The student with a well-defined intellectual curiosity in a particular topic involving multiple disciplines may develop and request permission to pursue an "organizing theme" major. Such a program, which requires the approval of the advisor, the Organizing Theme major

committee and the Dean for Undergraduate Education, may be proposed no sooner than the third term of the freshman year and no later than the second term of the junior year. The approved program, which must be filed with the Registrar, shall consist of at least 12 courses related to the organizing theme and a senior project based upon the integration of knowledge and skills contributed by various courses in the major. The program must conform to disciplines already established at Union. No organizing theme major will be approved that requires students to study elsewhere to meet the requirements for the major.

Dual-Degree Programs: Union offers a variety of two-degree programs permitting a student to receive a general bachelor's degree and an engineering degree, or two engineering degrees. Also offered are two-degree programs in cooperation with Union Graduate College, leading to a bachelor of science in a science or engineering field and a master of science in engineering or computer science; to a bachelor of arts or bachelor of science and a master of business administration; 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. There is also a two-degree program leading to a bachelor of arts degree from Union and a law degree from Albany Law School.

Changes in Major Program: Students may change their major program upon application to the Registrar, but the change must have the consent of the department chairman or the Dean for Undergraduate Education. If questions arise, the final decision rests with the Dean. A request for a change of major submitted after the first week of the final term of study at the College will not be approved. Students should realize that changes may entail extra course work.

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 or program.

For students who wish to declare one minor, there can be no overlap in the courses that they use to satisfy the minor requirements and the major field requirement. For students who wish to declare two minors, there can be at most one course that is double-counted for fulfilling the requirements of the two minors and the requirements of the major (excluding cognate courses). 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. No changes will be made once the degree is conferred.

Special Curricular Opportunities

Union Scholars Program

The Union Scholars Program offers selected students the opportunity to take full advantage of the diverse intellectual experiences at Union. The program provides an enriched educational experience by allowing students to take more classes, smaller classes, and more intensive classes. Specific features of the Scholars Program are an enriched two-term sequence of Honors courses beginning with a special Scholars Preceptorial (FPR 100H) followed by a Research Seminar (SCH 100), which is also taken in the first year; a two-term (one course credit) sophomore independent study project (295-296H) with a professor of the student's choosing; and, in the senior year, a Scholars Colloquium (SCH 400), where students invite faculty to present their research. Union Scholars need 38 course credits to graduate and use their additional courses to create an enriched program that meets their specific needs and interests. There is also an option for accelerated study. New opportunities for scholars, such as summer research fellowships and special classes, are available in selected years. The Admissions Office selects the preliminary pool of potential candidates for the program, and a faculty committee makes the final selection of those invited to participate.

Seward Interdisciplinary Fellows

The Seward Interdisciplinary Fellows program gives students an opportunity to develop their own

program of study exploring connections between disciplines. The program is open to students from any discipline who have demonstrated excellence in their first year at Union College. Seward Fellows build an interdisciplinary minor that includes a faculty-supervised independent project, ORT 295-296H. The program includes the privilege of taking extra courses. By exploring important ideas from diverse perspectives, the Seward Fellows exemplify the values embodied in a liberal arts education.

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.

Independent Study and Undergraduate Research

With the approval of a faculty advisor, a student who has shown the requisite depth of interest and the necessary intellectual skills may register for independent study, a plan designed to free the student from the mechanics of conventional course work. 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 successfully completed. These courses cannot be taken Pass/Fail.

International Programs

The College considers its commitment to study abroad 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.

Terms Abroad Programs: The most extensive and popular of the College's formal arrangements for foreign study are the Terms Abroad programs. Most involve credit in General Education and language study, as well as regular course credit for additional study performed abroad. Currently, terms abroad are offered for study in Brazil, China, England, France, Germany, Greece, Israel (currently suspended), Italy, Japan, Mexico, and Spain. A Marine Term Abroad is offered biennially, and an anthropology field research term is offered in Fiji and Tasmania in alternate years. During the summer, Union offers the opportunity for the study of National Health Systems in several European countries.

Exchange Programs: The College has six formal exchange programs:

The Barbados Exchange is an exchange for students interested in educational studies. The students practice teaching in Barbadian schools.

The Czech Exchange, at the Czech Technical University in Prague, is for engineering majors only.

The India Exchange is at Hyderabad Sind National Collegiate Board in Bombay. Preference is given to engineering majors.

The Japan Exchange is operated in conjunction with the Kansai Gaidai University of Foreign Studies. The Union exchange student participates in the Asian Studies Program, which gives students with no previous training in Japanese an opportunity to study the culture and mores of the people of East Asia. All classes are conducted in English.

The Korean Exchange is a reciprocal program with Yonsei University in Seoul. Union students spend the fall term in Seoul, studying Korean language and culture.

The Swansea Exchange is a reciprocal program with the University College of Swansea in Wales. Students are enrolled in three regular Swansea courses. Preference is given to engineering majors and sociology/anthropology majors.

Fees for exchanges are the same as for a regular Union term abroad program. Interested students should contact the Terms Abroad Office in the Humanities Building.

Questions about foreign study plans should be addressed to the director of Union International Programs. Reference should also be made to the Study Abroad Center in Room 211 of the Humanities Building.

Converging Technologies

While emphasizing the mutually supportive tenets of experience and reflection, Union has continued its tradition of curricular innovation. The College has received recognition for its leadership in general education, study abroad and undergraduate research. This tradition continues with the introduction of Converging Technologies into the undergraduate curriculum. As technology reshapes our world, the forces of change are increasingly emerging at the boundaries of traditional disciplines. Converging Technologies programs bring together faculty from engineering and the liberal arts so that students can graduate with an understanding that goes beyond that provided by a traditional disciplinary major and are prepared to communicate, work, and think within and beyond their area of specialty. Students may explore such areas as bioengineering, mechatronics, nanotechnology, neuroscience, or pervasive computing, learning about the new technologies and their implications for society.

Combined Degree Programs

In conjunction with Union Graduate College, students may choose combined degree programs. A five-year program leading to an undergraduate degree from Union College and an M.B.A. degree from the School of Management of Union Graduate College is available. There is also a five-year program leading to an undergraduate degree from Union College and an M.A.T. degree from the School of Educational Studies of the Union Graduate College, as well as five-year programs in mechanical engineering, electrical engineering, and computer science, combining a Union College degree with a degree from Union Graduate College. The decision to enter all such programs must be made by the end of the winter term of the senior year.

Application for master's degree status is made to Union Graduate College. A fifth year is usually needed to complete the double-degree requirements and a combination of undergraduate and graduate credits is taken in the students' fourth year. The normal term of most two-degree programs would be five years. In some circumstances, it is possible for up to three upper-level courses taken in fulfillment of undergraduate degree requirements at Union College to be credited toward the master's degree from Union Graduate College upon approval by the student's graduate department chairman or program director.

Union undergraduate students who want to enter combined bachelor's-master's degree programs should apply for graduate admission no later than the end of the winter term of their senior year and must have a grade point average of 3.0. Acceptance into a program may enable students to apply up to three graduate courses at Union Graduate College for credit in fulfillment of both undergraduate and graduate degree requirements, depending upon their program of study. A petition requesting overlapping degree credit must be approved by the undergraduate and graduate advisors and filed with the graduate office.

Union also 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 maybe permitted only with the concurrence of the department.

Students may also pursue any two recognized undergraduate departmental majors, with the exception of interdepartmental majors. Except as indicated above, a student satisfactorily completing such a program does not earn two degrees. The double major will be noted on the permanent record of the student, who will be eligible for departmental honors in both majors. A student in such a program will be eligible for his or her degree whenever the requirements for both majors, along with those in the General Education program, are satisfied and a minimum of thirty-six course credits has been earned. Normally an overlap of at most three courses is allowed for the two majors.

The Educational Studies Program

Students at Union can become certified to teach at the secondary school level through two different paths: a one-year graduate program through the School of Educational Studies of Union Graduate College leading to the master of arts in teaching (M.A.T) degree following completion of the undergraduate program; and a five-year, combined-degree program in cooperation with Union Graduate College. Students can be certified to teach grades 7-12 in the following academic areas: English,

languages (French, German, Greek, Latin, and Spanish), mathematics, science (biology, chemistry, earth science, physics, and general science), and social studies.

Accelerated Joint Degree Programs

Union and Albany Law School have established a six-year program that leads to the B.A. and J.D. degrees. Ten freshmen each year are admitted jointly by the two institutions and major in law and public policy at Union. If at the end of three years a student has maintained a cumulative average of at least 3.00 and has comported himself or herself 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.

An accelerated Leadership in Medicine/Health Systems program leading to a B.S. degree from Union College, an M.S. or M.B.A. degree from Union Graduate College, and the M.D. degree from Albany Medical College has been organized by the three institutions. Work leading to the degrees is completed in eight calendar years. Each year a group of secondary school seniors will be selected for participation. Admission leads automatically to entrance into Albany Medical College after four calendar years of study at Union College and Union Graduate College (completion of 41 courses), provided that the student maintains satisfactory standards of academic achievement. Students are expected to maintain minimum cumulative grade point averages of 3.40 both in overall course work and in their mathematics and science courses. Students falling below this standard at the end of any term may be given warnings, put on formal probation, or asked to leave the program by the Union College-Albany Medical College Policy and Promotions Committee, which oversees the program and reviews student records regularly.

At the completion of the fourth winter term (the 11th term), a minimum cumulative grade point average of 3.40 is required both in overall course work and in the sciences for "promotion" to the medical portion of the curriculum; these averages must be maintained through the following spring and summer terms, including the two courses at Albany Medical College. Required course work may not be taken on a pass/fail basis. A grade of "D" or "F" in any science course can lead to dismissal from the program. Grades of "I" (Incomplete) or "W" (Withdrawal) will not be acceptable without justification involving illness or extenuating circumstances. Promotion to the medical portion of the curriculum is based not only on academic achievement but also on the fitness of the student to enter the profession of medicine. Students may transfer into the regular four-year undergraduate program at Union at any time during the premedical portion of the Medical Education program.

HMAC (Consortium) 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 trimester. 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. ROTC courses do not carry credit toward graduation. Such ROTC students may be eligible for scholarships and other benefits available under two- and three-year programs of the several services. Interested students should contact the respective branches of ROTC. Students must work the scheduling of these courses around their course work at Union College.

Members of the consortium, in addition to Union and Union Graduate College, are Adirondack Community College, Albany College of Pharmacy, Albany Law School, Albany Medical College, The College of Saint Rose, Columbia-Greene Community College, Empire State College, Fulton-Montgomery Community College, Hartwick College, Hudson Valley Community College, Junior College of Albany, Maria College, Massachusetts College of Liberal Arts, Rensselaer Polytechnic Institute, Russell Sage College, Schenectady County Community College, Siena College, Skidmore College, the State University of New York at Albany, and the State University of New York College at Cobleskill.

Students with 18 or more credits toward graduation may not cross-register for courses at a two-year college unless specifically approved by the Dean for Undergraduate Education.

Summer School

Students who wish credit for summer school attendance at other colleges must have courses individually approved by the appropriate Union department chairman and the Dean for Undergraduate Education. Students are allowed to transfer in at most three course credits during their study at Union for work taken at other institutions. Normally, permission is granted only when the student is behind in credits or if there are programmatic needs. If a student is not behind in credits, they may take courses over the summer to enhance their Union education. However these course credits will be beyond the 36 normally required for graduation. A form for this purpose is available at the Office of the Registrar and should be returned to that office. Students with 18 or more credits toward graduation may receive degree credit for courses taken at a two-year college only if specifically approved by the Associate Dean for Undergraduate Education.

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 full graduation course credit at Union. 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.

Advanced Placement

Union participates in the Advanced Placement program of the College Entrance Examination Board. Students who pass examinations taken under this program with a grade of four or higher (three for calculus) are given credit for the corresponding course in the college curriculum and exempted from any requirements to take it. Freshmen who have taken Advanced Placement examinations should consult their academic advisors before fall term registration to ascertain what advanced placement and credit they have received. (For college courses taken by high school students and for policies on Advanced Placement/GenEd and Mathematics Placement, see "Advanced Placement Program" in the chapter on Admissions.)

Under no circumstances may a student receive credit toward graduation for any course in a foreign language that duplicates the level of material already covered in secondary school. The Departments of Classics and of Modern Languages and Literatures should be consulted about language placement before enrolling in a course in which the student already has experience.

Students matriculating at Union are allowed to bring in a maximum of four course credits, including any AP credits.

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 $125 for each examination. Credit may be obtained through such proficiency examinations and the College Entrance Examination Board Advanced Placement program for no more than two years of academic

work (18 courses).

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 130 and above. Students may not take proficiency examinations in subjects in which they have already taken courses at a higher level for credit.

Admissions

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

Four factors are considered in evaluating each application:

— the candidate's record in secondary school, including grades, rank in class and the quality of courses taken;

— the recommendations of the secondary school;

— the personal qualities and extracurricular record of the applicant;

— the candidate's scores on the tests given by the College Entrance Examination Board or the American College Testing Program.

The Admissions Committee attempts to meet the desire of the Board of Trustees for broad 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, it depends heavily on the constructive participation of each individual in the life of the College.

Application and Admission Procedures

Applications should be filed by Jan. 15 of the final year in secondary school, with the exception of applications to the six-year Law and Public Policy and five-year B.A./B.S. and M.B.A. programs, which must be filed no later than Jan. 1. Applications to the Leadership in Medicine program are due by Dec. 15. 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. 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 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: The student planning to major in liberal arts 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's Graduate College, and Albany Medical College must present at least four years of English; one year each of biology, chemistry, and physics; and at least three years of college preparatory mathematics.

Interviews and Group Information Sessions: Interviews are strongly recommended. Appointments should be made two weeks in advance of the proposed visit by calling (518) 388-6112 or 888-843-6688. Arrangements for interviews with alumni may be made by calling the alumni admissions coordinator at (518) 388-6084. Personal interviews are scheduled on weekdays from May 1 to August 15 and from

Sept. 1 to Feb. 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.

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 packet. 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 recommendations are confidential and should be sent directly to the Admissions Office by the teacher. All materials must be on file with the Admissions Office by Feb. 1.

College Entrance Examinations: Candidates must take *one* of the following: the SAT I (Reasoning) Test *or* two SAT II tests (mathematics and science preferred for engineering and science candidates) *or* the American College Testing examination (ACT). The SAT I and two SAT II exams are required of those applicants considering the accelerated programs in law or medicine.

Applicants taking the SAT I and SAT II tests can learn more about and register for these tests at www.collegeboard.com. Applicants taking the ACT can learn more at www.act.org. Information on these tests is also available from guidance and counseling offices.

The Admissions Committee requires that candidates complete their SAT or American College tests by January of their senior year. June SAT II tests are advised for any subjects juniors may be studying and in any others in which they feel competent. These scores may be submitted for admission purposes.

Applicants to the Law and Public Policy and the Leadership in Medicine programs must take both SAT I and two SAT II subject tests. For the Leadership in Medicine program, SAT II tests must be completed in both mathematics and a science. The ACT may be submitted for any of the accelerated programs. The December date is the last available to applicants to Leadership in Medicine; students applying to the five-year B.A./B.S. and M.B.A. or the Law and Public Policy programs also must complete tests no later than December.

Applicants must arrange to have official score reports sent to the College by the College Board or by the American College Testing Program. Under terms of its membership in these organizations, the College cannot honor reports sent by the candidate or secondary school.

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

Applications and requests for Early Decision must be received by the College by Nov. 15 for Option I, 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, 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.

There is no Early Decision Program for the five-year B.A./B.S. and M.B.A., the six-year Law and Public Policy, or the eight-year Leadership in Medicine programs.

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.

Advanced Placement Program: Union participates in the Advanced Placement program of the College Entrance Examination Board. Students who pass examinations taken under this program with a grade of three or higher in calculus and four or five in other subject areas (not Statistics) are considered for college course credit and are exempted from any requirement to take the equivalent college courses. Those students must elect a more advanced course if they take work in the department in which credit has been granted. Repetition of work for which credit has been granted will not be

permitted.

Union College will consider granting transfer 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 offering the course and the course is available for enrollment by the students of that college and the grade was C or better. No other courses will receive Union College course credit. Students presenting courses that do not meet these conditions may, upon recommendation of the appropriate department, be placed in a more advanced course or may be exempted from some requirements, or both. Similar exemption or advanced placement (but not College course credit) may also be given for superior performance in New York State College Proficiency Examinations or in the College-Level Examination Program. Inquiries regarding Advanced Placement should be directed to the registrar.

Advanced Placement and Core Components: Advanced Placement credit applies in the Core Components curriculum when it has been designated for a specific course that carries Core Components credit. Undesignated Advanced Placement credit does not apply. A matriculating first year student can transfer in a maximum of four course credits through any combination of Advanced Placement examinations, the International Baccalaureate program, or college courses taken at other post-secondary institutions. Appropriate scores for granting credit for AP examinations or IB courses are determined by the individual academic departments at the College. For students completing the Full Diploma in the IB program, see this *Academic Register* under "International Baccalaureate."

Transfer Students

Union will consider the applications of students wishing to transfer from other two-year and four-year colleges. In making its decisions, the Admissions Committee leans heavily upon the work completed and upon the recommendations of appropriate officials at the college presently attended. Students should arrange for transcripts of all college work and recommendations to be sent to the Admissions Office at Union. A secondary school transcript should also be sent to the Admissions Office. An interview is recommended. Financial aid for transfer students depends on the academic and extracurricular promise and the economic need of the student. 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 at least two months before the application deadline. On-campus residential spaces are available but not guaranteed.

After reviewing transcripts of work completed at other colleges, the Admissions Office will indicate to admitted transfer students those courses for which credit will be given at Union. 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. Two-year college graduates holding the associate degree in arts or sciences, if accepted for transfer, may normally anticipate receiving two full years of credit and junior standing at Union.

To facilitate the transfer process, Union has an affiliation program with several community colleges in New York State.

Transfer students must complete two years of study at Union College to qualify for a Union degree.

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

International Students

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

the PROFILE form with the appropriate agency before Feb. 1.

English is the language of instruction at Union. All students from abroad must be proficient in reading, writing, and speaking English. The Admissions Committee requires that all international students (for whom English is not the first language) submit the results of the Test of English as a Foreign Language examination for consideration in the application procedure. All first-year students and most advanced-standing students must start the academic program in September.

All non-U.S. citizens who matriculate must complete the Foreign Students' Certification of Finances upon enrollment.

International Baccalaureate

Union College welcomes the International Baccalaureate diploma as a credential for admission and tends to favor successful participants in the admissions process. Credit may be awarded for higher-level examination scores of six or better upon approval by the appropriate academic department. Total credit granted will not exceed four courses, unless a student has enrolled in and completed the full diploma in which case credit may be granted to the equivalent of a full year of Union College course work.

Academic Opportunity Program

The Academic Opportunity Program (AOP) and Higher Education Opportunity Program (HEOP) assist students who, because of educational and economic circumstances, would otherwise be unable to attend Union College. Special features of the program include a prerequisite summer session, tutoring services, and academic, career and personal counseling by Academic Opportunity Program staff.

The program is open to candidates who have graduated form high school with either an academic diploma or its equivalent, and to transfer students who have participated in an opportunity program at the college from which they are transferring. For additional information regarding eligibility requirements, please contact the Academic Opportunity Program office.

Part-Time Undergraduate Study

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

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

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

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

Registration for courses normally occurs during the tenth week of the term. Registration materials are available from the Registrar's Office during the seventh week of the term. Students registering for the first time must do so in person and should meet with an academic advisor prior to registration. In most

instances, the department chair is responsible for advising part-time students. Proof of immunization must be on file at the Health Services Office prior to registration. Continuing, part-time students may register in person, by mail, or by fax.

Some courses intended for part-time students are offered in the evening, but matriculated students will generally need to take courses that meet during the daytime in order to complete degree requirements. Many day courses have restricted enrollments. In some cases, it may be necessary to obtain a permission card from the academic department offering the course during the seventh or eighth week of the preceding term. All students in the part-time undergraduate program both matriculated and non-degree will be charged $3,887 per course.

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. With the addition of several new options, engineering students can now satisfactorily complete the full General Education curriculum, including section IV. Students intending to graduate by June of the current academic year must submit a letter of intent to the Union College Registrar's Office by Nov. 1.

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

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 may inquire about that possibility at the Admissions Office.

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 2006-07, is $44,043. 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.

Each additional course above the normal course load will cost $2,590 in 2006-07. Students who, by virtue of their academic major, are required to have more than 36 courses for graduation will be exempt from additional course charges, but only to the extent warranted by this requirement. (For example, if 38 courses are required for graduation, a student may take without extra charge up to two extra courses.) Students who are making satisfactory progress in their program of study are allowed to enroll in one fourth course per academic year at no extra charge, provided they have a grade point average of at least 3.3. These courses can be used to enhance the student's academic experience at Union, as can any additional fourth courses, for which there will be a fee. All such courses will appear on the transcript and can be used to fulfill program requirements; however, they cannot be used for the purposes of accelerated graduation. Fourth courses can also be used to make up a deficiency in credits because of withdrawals or failure. This requires the written approval of the Dean of Undergraduate Education and there will be a fourth course fee.

Should a student drop or withdraw from a course for any reason and, as a result, take less than a full course load for the term in question, tuition will not be prorated for that particular term. If a student drops or withdraws from a course for documented medical reasons, he or she may take an additional fourth course during the academic year, at no extra charge, if he or she paid for the original course in full. Should a student drop or withdraw from a course for any other reason, he or she may take an additional fourth course during the academic year, at no extra charge, with approval from the appropriate academic dean at the time of the drop or withdrawal.

Food Services: All resident students are required to be on one of the following meal plans: 19 meals per week plus $125 declining balance, 15 meals per week plus $200 declining balance, 10 meals per week plus $265 declining balance, seven meals per week plus $300 declining balance, or five meals per week plus $325 declining balance. All freshmen are required to be on the 19-meal plan. Upperclass students may choose any of the meal plans offered. Each meal plan includes declining balance credit per term. Full time undergraduate students living off campus may elect the declining balance meal plan, which includes $200 per term, for a total of $600 per year. Students who choose this meal plan will receive a rebate on their student bill equal to $938 per term, for a total of $2,814 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. The declining balance credit can be used in any of the College's dining service facilities:

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

Rathskellar - operates Monday through Friday from 11 a.m. to 7 p.m., and for "Late Night" on

Friday and Saturday, from 9 p.m. to 1 a.m. Declining Balance cards will be honored any time for all items including the purchase of prepackaged snacks or deli items.

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

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

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

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

1. A letter from the student's physician must be submitted detailing the specific diet, the reason for the diet, and the expected duration of the diet.

2. A copy of the diet must be sent to Health Service.

3. A follow-up letter from the student's physician must be sent at the end of each term stating the results of the diet and whatever changes, if necessary, must be made in that diet.

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

College Housing: Union is a residential college, and all students are expected to live on campus during the course of their undergraduate years, provided housing is available. Each year, prior to the spring housing lottery, the Office of Residence Life will publish guidelines for requesting permission to live off campus. Students living off campus will receive a rebate of $1,345 per term, for a total of $4,035 per year. Students who are married or who commute can be exempted from the on-campus requirement. (There are no housing facilities for married students.) Once the residence contract is signed, the student is bound to all College policies as outlined in this *Academic Register,* the College's *Student Handbook,* and the terms and conditions of the residence hall contract.

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

Bookstore Charges: Students may open a charge account at the Bookstore at any time, with a parent as co-signer on the account agreement. These charge accounts will be established with a charge limit per term. These charges will be included on the student account bill.

Student Health Insurance: All full-time undergraduate students are required to be covered by health insurance. Students who are covered by their parents'/responsible party's insurance must provide information indicating such coverage on the waiver form which is to be submitted each academic year by August 7 to the Cashier's Office. Students will be enrolled for insurance provided through the College and billed accordingly if such waiver information is not provided. Completing and filing the waiver form is the only means students have of avoiding compulsory enrollment under the College-sponsored plan.

Witbdrawal 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.

1. All students who intend to withdraw from Union must notify the Dean of Students Office in writing.

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

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

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

The refund percentage is as follows:

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

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

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

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

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

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

Fees

Admission and Security Deposit — $500

— $200 will be applied to the orientation program

— $100 will be retained as a housing deposit for the year; housing fines may be assessed

against this deposit with any balance credited to the student account at the end of the year

— $200 deposit is retained until graduation or withdrawal. If the student does not attend Union, this $200 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.)

Group Programs Abroad (includes tuition, room, board, and group excursions, but excludes transportation. Deposits are required for these programs to reserve a place in the group. Exchanges are billed the comprehensive fee. All other programs are billed the comprehensive fee plus a $600 International Program fee)

Late Fees — $50 (assessed for failure to pay bills or check-in on schedule, make-up, or special examination, term examination).

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

College Residences

Minerva Houses (2004) – Seven houses make up the student-run Minerva House System (see About Union College section for more on the Minerva System). Up to 45 students live in each of these houses: Beuth House, Golub House, Sorum House, Wold House, Blue House, Green House, and Orange 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 men and women in suites and men in double rooms on the garden level. Also the home of Sigma Phi.

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 men and women students in suites, men in double rooms on the garden level, as well as Delta Kappa Epsilon and Psi Upsilon.

Hickok House (1957) — Named for Laurens P. Hickok, Union's fifth president (1866-1868). Home of 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 Blue House and Wold House.

Potter House (1961) — Named for Dr. Eliphalet Nott Potter, grandson of Eliphalet Nott and the seventh president of the College (1871-1884). Tri Delta sorority is housed here.

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

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

South College (1814) — Oldest residence hall still in use as a residence in New York, South College was home to Chester Arthur, William Seward, and most of Union's oldest alumni. Sorum House and Green House are now 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 men and women as well as one of the College dining halls.

Financial Aid

Throughout its history, Union College has welcomed all students of superior academic ability. For those whose personal resources plus aid from parents and other sources are not sufficient to meet the expense of a Union education, various forms of financial assistance are available to both new students and students already in course.

Financial aid is awarded to students on the basis of demonstrated need. Scholarships will be renewed if need continues and if the student meets the filing deadlines. Because of changing situations; from other family members attending college, outside awards, changing income, and other related factors, a student cannot be guaranteed the same aid from year to year. Most can count on some form of aid throughout the four years, however, providing need exists and the criteria for financial aid consideration are met.

On-campus jobs are given to most aid recipients as part of a financial aid package. Recipients will earn about $1,500 - $1,800 a year in return for an average of eighty hours of work a term. Other job opportunities are available both on campus and in surrounding communities. The College conducts a student employment program to assist students seeking work.

A limited number of loans are available from the College's own loan funds and from the Perkins Loan, which the College administers and which are awarded on a funds-available basis. No interest is charged while the borrower is pursuing a college education, undergraduate or graduate. The interest rate is five percent under the Perkins Loan program. The Board of Trustees has set interest on other College loans at eight percent for loans made after June 30, 1983. Repayment of these loans may be made over a period of up to fifteen years following completion of College studies.

Scholarship and grant assistance awarded is taxable income if the aggregate amount received exceeds tuition and fees. The portion in excess of required tuition and fees is taxable income for the student.

Academic Standing and Financial Aid

Recipients of state, federal, and Union College financial aid must adhere to the College's definition of good academic standing to continue to receive aid. The State of New York has defined good academic standing in two parts:

1. "satisfactory academic progress" — a student must have accrued a certain number of courses toward a degree with a certain cumulative grade point average, and

2. "pursuit of program" — freshmen and sophomores must complete at least two courses per term and juniors and seniors at least three courses per term.

Students receiving Tuition Assistance (TAP) or other New York State grants who fail to meet both of these criteria will be ineligible for state aid in the next term unless exceptional circumstances warrant a one-time waiver. Waiver information is available in the Office of Financial Aid.

All students receiving federal and Union College aid must also meet the "academic good standing" criteria outlined in the chapter on "The Undergraduate Program" in this *Academic Register* or risk the loss of financial aid for the next term. Further information is available in the Office of Financial Aid.

Students receiving a grade of "I" in a course will not be eligible for financial aid until the course is completed if the lack of the course puts the student behind schedule as stated above. For regulations governing grades of "Incomplete," see the section "Attendance" in this Academic Register.

Recipients of financial aid must conform to these standards of good academic standing. If an aid recipient is judged not to be making academic progress, or is required to take a disciplinary leave of absence, the student will begin a one-year probationary period. If the student is still not meeting academic progress standards after the probationary period, aid for the next term will be withdrawn. For academic withdrawals, aid will be withheld until the student is again judged to be progressing satisfactorily. An appeal of any decision regarding progress and aid eligibility may be made in writing to the director of financial aid. Prolonged illness or family problems or other serious extenuating circumstances may be grounds for an appeal.

Charts showing satisfactory academic progress for federal and New York State aid recipients appear in this section

How to Apply

Applicants for aid in the freshman year must apply for admission and have their parents submit the College Scholarship Service's PROFILE Form and the Free Application for Federal Student Aid (FAFSA) to the appropriate agencies no later than February 1. The FAFSA and the PROFILE Registration Form may be obtained from the student's secondary school. Dependent students whose parents' current marital status is "divorced" or "separated" must submit a CSS Non-Custodial Parent Statement (to be completed by the non-custodial parent). Students whose parents own a business or farm must also submit a Business/Farm Supplement. These forms will be sent to the student by the College Scholarship Service (CSS) upon receipt of the PROFILE Registration Form.

All applicants for financial aid are required to provide verification of family income estimates as presented on the PROFILE and FAFSA. The purpose of the requirement is to ensure that College funds are used equitably to aid as many students as possible to the fullest extent of their need and to meet federal and state requirements in providing verification data as it is applied to those programs. By June 1, therefore, pre-Freshman applicants and parents are required to submit to the Office of Financial Aid a copy of all schedules of their latest federal income tax returns and to supply other documentation as deemed necessary by the Financial Aid Committee.

Upperclass students may obtain application forms from the Office of Financial Aid in Grant Hall. Parents of upperclass students also are required to submit a FAFSA to the federal government and CSS Profile to the College Board each year. Applications are usually made available in January and must be filed no later than March 1. Under unusual circumstances, however, applications for aid may be submitted at any time during the academic year, although funds will be very limited after the posted deadline date (April 15th).

All forms of financial aid are approved by the Financial Aid Committee for one year only, but may be renewed according to need for subsequent years upon application. Students registered at Union for a College-sponsored term abroad or an independent study at an off-campus site will be considered for a scholarship and loan aid package based on the needs relevant to the particular program of study. Undergraduate students may receive aid for twelve terms (four years) or until degree completion, whichever comes first.

Student Responsibilities

1. Pay special attention to the applications for student financial aid, complete them accurately, and submit them on time to the right place. Errors can delay receipt of financial aid. Intentional misreporting of information on application forms for federal financial aid is a violation of law and is considered a criminal offense subject to penalties under the U. S. Criminal Code.

2. Return all additional documentation, verification, corrections, and/or new information requested by either the Office of Financial Aid or the agency to which applications were submitted.

3. Read and understand all forms that you are asked to sign and keep copies of them.

4. Accept responsibility for all agreements you sign.

5. Notify the lender of changes in name address, or school status, if you are a loan recipient.

6. Perform in a satisfactory manner the work that is agreed upon in accepting a federal work-study award.

Refunds

In some cases the total amount of financial aid will exceed the amount of the bill. This most often occurs for off-campus residents. If this is the case, a student may elect to leave the surplus on the account for future terms or to request a refund from the Finance Office. It is important to note, however, that refunds are based only on amounts that have actually been credited to the account. If funds have not been received by Union for a particular source of aid, the amount will not have been credited to the account and cannot be refunded even though notification of the award has been received. Any payments or other credits to the student account are first applied toward any balance due to Union.

Billing and Student Accounts

The Office of Financial Aid does not handle student accounts. This is done by the Union College Finance Office. The Office of Financial Aid does provide information to that office about the

financial aid awarded to each student. This is then credited to the student account. (Students who have a work study job on campus will receive biweekly paychecks for all hours worked.) If any of the forms of assistance that have been awarded for any given term have not already been posted on the statement of account, simply include the name and amount of the award(s) on the statement and deduct these amounts when paying the balance due. For programs which make the full yearly award in one payment, such as some local scholarships, the entire awarded amount may be deducted from the statement. Although a student can deduct these types of aid, the account will not be credited until funds are actually received from the organization sponsoring the award. Account statements are generally mailed to the home address during July for the fall term, during November for the winter term, and during February for the spring term.

In the case of estimated TAP awards, an application must be completed by the student and processed by the New York State Higher Education Services Corporation before the student account will be credited. Union College will not make up for any "loss" of state and/or federal grants due to a student's failure to file the necessary forms and/or supply the appropriate documentation to the state/federal agency.

Academic Requirements and Honors

Registration Confirmation: Every student must personally confirm his or her registration each term on the dates indicated in the College calendar, and in accordance with any special instructions announced by the Registrar, to avoid payment of a late registration fee or other penalties. Students who fail to confirm their registration according to instructions will not be considered to have been in attendance at the College for the term in question. Students returning from leaves of absence may confirm their registration only with the prior approval of the Dean of Students.

Enrollment in Courses: Each term the Registrar holds prescheduling for continuing students who, with the help of their advisors, select three courses for the coming term. Prescheduling must be completed during 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. With written permission from the instructor, a student may enter a course as late as the second week of the term. Failure to finalize their course schedule will result in assessment of a late charge on the students' bill. 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 for Undergraduate Education.

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

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

Fourth Courses: In each academic year, students are allowed to enroll in one fourth course at no charge, provided they have a grade point average of at least 3.3 and are making satisfactory progress in their program of study. These courses, meant to enhance the student's academic experience at Union, will appear on the transcript with the grade factored into the cumulative GPA. 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. If these credits are used towards graduation, a fourth course fee will be charged.

Note: This policy includes fourth courses taken on a Term Abroad. Students going on a Term Abroad which requires four courses may use this course as an additional credit beyond the 36 required for graduation. It can only be used towards graduation should the student fall behind in credits. If this credit is used for graduation, a fourth course fee will be charged.

Fourth courses can also be used to make up a deficiency in credits because of withdrawals or failure. This requires the Dean's approval if the student's academic index is below 2.5, and entails a fourth-course fee of $2,590. There is also a fourth course charge if students do not have the requisite GPA. Any exceptions to these rules must be granted by the Dean for Undergraduate Education.
A student in good standing may audit a course if the instructor gives permission. An audit is not made a part of the student's permanent record.

Choice of Courses: Keep in mind the requirements of the General Education program and the regulations in the major field. Those courses required in the departmental majors, including related courses offered by other departments, appear at the head of each departmental course listing. See requirements for interdepartmental and organizing theme majors in "The Undergraduate Program" section. The major should be viewed as a coherent series of courses providing a solid background in the field as well as an introduction to advanced study. Beyond the requirements specifically listed for the particular major, a student may choose other courses within the department, as long as the total number of major courses and related courses does not exceed two-thirds of the number required for the normal four-year program. The College recommends that students give serious consideration to electives in fields other than the area of concentration.

Some departments offer a modified major for students interested in the field but also wanting to take courses in related fields. The same spirit pervades the interdepartmental major. In many programs,

a student need not begin a major during the freshman 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 freshman year. Students in premedicine also need to consider taking the requisite courses in their freshman year. Students should consult academic advisors.

Academic Honesty

The College assumes that students will 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. Normally the penalty for academic dishonesty is failure in the course. Additional information is found in the booklet *Plagiarism: A Cautionary Word to Students*, furnished to all entering students and available from the Dean's Office.

Attendance

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, excused absences. An instructor may lower a grade or assign a failing grade for excessive absence.

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. It is the student's responsibility to be present during the examination period. In cases of a student's absence caused by verified personal misfortune, the Dean 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.

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 is a showing of extraordinary circumstances beyond the student's control that prevented him or her from completing the course. The Dean for Undergraduate Education 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.

Should a student elect to drop or withdraw from a course or not register for a full load, and as a result take less than a full course load for the term in question, tuition will not be prorated.

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

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

Repeat Course Policy: Students who repeat a course that they have previously failed will have both grades listed on their transcript. 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 transcript, 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 if 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.

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.

Summer Study: After matriculation at Union College, a student may transfer in a maximum of three course credits for courses taken through other institutions (in non-Union approved programs of study). Prior approval must be obtained for these courses from the appropriate department chair and the Dean for Undergraduate Education. Permission is normally granted only if the student is behind in credits. Such students may be approved for summer course work to enhance their Union education; however, these credits are 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. Normally students are not allowed to take courses at other institutions during the academic year. Students who withdraw and take courses elsewhere will not be allowed to transfer in the credits.

Suspension: Students are not allowed to take courses at other institutions while under suspension from the 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.

Standing

Academic Ratings: Instructors submit grades at the end of each term. A report of a student's academic standing is sent to the student and their parent or guardian if the student entered with the Class of 2007 or earlier. The grades of scholarship and their associated quality points are A (4.0), A minus (3.7), B plus (3.3), B (3.0), B minus (2.7), C plus (2.3), C (2.0), C minus (1.7), D (1.0), P (pass), and F (failure). A course in which a student receives the grade of "F" does not count toward graduation. If the course is required to complete a sequence in the major or otherwise required for graduation, a student must repeat this course and obtain a satisfactory mark. Some courses do not carry graduation credit and a few earn double credit.

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

(1). No course registered as "pass/fail" may be used in fulfilling a requirement for the major, for a minor, for General Education or Writing Across the Curriculum, or for a term abroad.

(2). The "pass/fail" option is not open to students in their first two terms.

(3). A student may take no more than one "pass/fail" course per academic year (defined as the fall, winter, and spring) in the first three years.

(4). A student may take up to two "pass/fail" courses in the senior year (defined as the fall, winter, and spring), and may register for no more than one "pass/fail" course per academic term.

(5). A student may register for no more than one of the four "pass/fail" courses in any academic department and no more than two of the four "pass/fail" courses in any academic division.

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 absolutely 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.

Independent study courses may not be taken Pass/Fail. The only exception might be independent studies taken in conjunction with an off-campus internship.

Academic 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). At least three regular courses in each of the three terms, with no fewer than seven courses included in the index.

(3). No grades of "D" or "F."

A student who spends part of an academic year at the College may be declared a Dean's List student by the Dean for Undergraduate Education if extraordinary circumstances prevent full-time attendance or if the student is on a Union-sponsored term in industry or special Union-sponsored internship, has taken at least six courses for a grade, and the academic index for the courses taken is at least 3.50 with no grades of D or F. Normally, such a student would be expected to take eight courses at Union to qualify for Dean's List.

Graduation with Distinction: Union College recognizes academic distinction by awarding some degrees *summa cum laude*, *magna cum laude*, and *cum laude*, these Latin honors signifying 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 minus has been earned (4) satisfy any other requirements set by the major department, and (5) have taken the final six terms of their program at Union or elsewhere in a study program approved by Union. Students should consult their departments for complete information. In the case of interdepartmental majors, students must satisfy the above for each department, except that for (2), they need to have at least two (not three) grades of A- or better in each department. Interdepartmental majors also must submit to the Honors Committee, through the major departments, evidence of independent work of substance and distinction, in the form of a thesis or some other written or documented work on which a grade not lower than A minus has been earned, and they must be nominated by the major departments.

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. However, a student who fails to maintain a cumulative grade point index of 2.00, or whose prior term grade point index was below 2.00, will be warned of the need to improve by being placed on "Academic Warning," as explained below. An exceptionally weak record in a single term or a failure to improve after warning may result in suspension or dismissal from the College, also as explained below. It should be noted that for graduation, 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:

(1). 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).

(2). 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.

(3). 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, he or she may be suspended. The subcouncil may recommend a one- or two-trimester suspension. The student then may petition the Dean of

Students for readmission. The subcouncil may deny readmission in some cases.

(4). Dismissal: In certain cases the subcouncil may dismiss a student permanently.

Petitions for readmission or for waivers to college-wide graduation requirements must be submitted in writing to the subcouncil through the Office of the Dean of Students. Requests to the subcouncil for reconsideration of its decisions must be submitted in writing. Reconsideration will occur only when information not previously available to the subcouncil is submitted and, in the judgment of the subcouncil, that information 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.

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 beginning with the Class of 2008 grades will not be disclosed to parents without the student's formal written consent (for students in the Class of 2007, grades will be disclosed to parents without the student's consent in accordance with College policy then existing when the student enrolled). 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.

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.

Chi Epsilon: The Union chapter of Chi Epsilon was reestablished in 1980 to recognize scholarship and character in the field of civil engineering.

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.

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 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.

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 84 percent based on the first-time freshman cohort entering in September, 1999. This calculation does not include students who have transferred to the College from other institutions.

The Union College Campus Safety Department has been a contributor to the Uniform Crime Reporting System since 1991. Information can be obtained form the Dean of Students office.

Courses of Instruction

Course listings begin on page 35. Departments and multidisciplinary programs are listed alphabetically, with individual courses listed by department or program. A comprehensive list of subjects offered at Union is included immediately before the course listings.

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 Core Components Curriculum (CCC) (see below), including Writing Across the Curriculum (WAC) requirements (see page 33) and other requirements that pertain to the undergraduate degree. GenEd categories from the old curriculum, if applicable, are listed following the course description (see list of abbreviations on page 33).

Recently, the College renumbered its courses. The new numbers appear, with the old number in parentheses. Courses are numbered according to the following scheme.

0-49 – Non-credit courses.

50-99 - 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.

Selected graduate courses at Union Graduate College are open to advanced undergraduates with the approval of the student's advisor and the chairman of the department offering the course. For a list and descriptions of such courses, consult the course catalog of Union Graduate College.

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. Because the time and frequency of class and laboratory meetings vary considerably among the different courses, no schedule of hours appears in the listings.

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

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

The Core Components Curriculum

(for the Class of 2010)

The program consists of anywhere between 10 and 13 courses. Students can double-count courses taken in Part B with Part C but are required to take at least 10 courses total to complete general education.

NOTE: Students may satisfy any of the requirements in Parts B and C with appropriate courses taken on Terms Abroad.

Part A: Core (two courses)
1. First-Year Preceptorial
2. Sophomore Seminar

Part B: Distribution requirements (eight courses)

1. **One Social Science course** including psychology, anthropology, history, sociology, economics, and political science.

2. **Two Humanities courses** including studio and performing arts courses; one course must be a literature course.

3. **Two courses in Linguistic and Cultural Competency**, including courses in any discipline covering:

— Term Abroad courses that deal with a cultural tradition outside the United States
— cross-cultural comparison and theories about cultural complexity
— one or more cultural traditions outside of the United States
— one or more "minority" cultural tradition within the United States
— a sequence of 2 courses in a foreign language at level 102 (12) or higher.

4. **Three courses in quantitative and mathematical reasoning (QMR), natural and applied science, engineering, and the impact of science and technology on society**, including.

— one course in natural sciences, with lab
— one course in quantitative and mathematical reasoning (QMR) - includes courses in math or those offered in a number of departments, listed under QMR GenEd
— one course selected from the following categories:
i) same as in first bullet, but need not have a lab
ii) a course from engineering (includes CS), to foster understanding of technology
iii) a team-taught interdepartmental course (including at least one faculty from Division III or IV), with significant science or engineering content, about the impact of science and/or technology on the human world: includes Converging Technologies courses listed as "CT GenEd."

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

Prompts awareness of interdisciplinary connections by requiring students to take 3 courses in an approved cluster, from at least 2 different departments. Possibilities would include 3 courses in any of the existing ID programs and/or clusters of courses proposed by faculty groups and approved by the General Education Board such as "Ancient studies," "Globalization," or "Media Studies." The committee envisions that the list of approved clusters will change over time, with new clusters being proposed and older ones, possibly disappearing over time.

For a list of Clusters, see Extradepartmental Programs.

The General Education Curriculum

(applies to Classes of 2007, 2008 and 2009; members of 2009 may take Sophomore Research Seminar in lieu of one of the courses in Section I)

The core of Union's General Education curriculum (GenEd) is the First-Year Preceptorial, a seminar for small groups of students offered by faculty drawn from a variety of departments. The Preceptorial focuses on making students more effective at reading, analyzing, and writing. They are required to read, discuss, and extensively write about substantial works in a range of fields and from culturally diverse sources.

All regular degree candidates must complete Gen Ed Sections I, II, III, and IV. (Students in the Leadership in Medicine/Health Systems program, because of the breadth of their own special curriculum, take FPR 100 but are otherwise not affected by GenEd requirements.) Engineering students are especially encouraged to consult early with their advisors concerning GenEd Section IV requirements because of their heavy major requirements, and because their choices are somewhat different from those available to arts and sciences majors.

The courses should normally be completed by the end of junior year. Students wishing to study a foreign language are urged to get an early start. In many cases, courses fulfilling the GenEd curriculum also count toward majors and minors.

I. History, Literature, Civilization

— FP100. (10) First-Year Preceptorial (Fall, Winter). An introduction to general education, with the goals of improving student writing; developing critical reading skills; stimulating class discussion; becoming knowledgeable about cultural differences; and being exposed to varieties of good writing.

— Two courses in history, normally completed during the freshman year — either Classics 121 (21) and 125 (25) (Ancient) or History 103 (35) and 104 (36) (European) or History 101 (13) and 102 (14) (American).

— Two courses that associate with the elected history sequence — either two courses in literature

(GenEd: L), at least one of which is a survey course (GenEd: LS), or one course in literature and one course in civilization (GenEd: C), at least one of which is a survey course (GenEd: LS or CS). These courses are to be taken in timely association with the history courses to which they relate.

II. Social or Behavioral Science

— One course from among Anthropology 110 (10); Economics 101 (12); Political Science 111 or 112 or 114 (11 or 12 or 14); Psychology 100 (10); Sociology 100 or 202 (10 or 22).

III. Mathematics and Natural Science

— One credit-bearing course in mathematics (excluding Mathematics 100 (11A); and

— Two courses in basic or applied science, one of which must include laboratories. Students who take a laboratory course in biology, chemistry, geology, or physics as part of their major in those departments are excused from this second science course requirement.

IV. Other Languages; Other Cultures; Other Disciplines

One of the following tracks in foreign language and culture, with appropriate double-counting for majors and for GenEd:

— Foreign Language Track: Any sequence of three courses in a classical or modern foreign language. Students may begin a new language or be placed at the appropriate level in a language of which they have prior knowledge. Students placed at the 102 level or higher earn the waiver of one of the three courses.

— Cultural Diversity Studies Track: Any related group of three courses in Africana Studies, East Asian Studies, or Latin American Studies.

— Foreign Study Track: Any Union Term Abroad with associated prerequisites, or equivalent foreign study.

—Miniterms Abroad: Union offers certain Miniterms Abroad during the summer and the month of December. These carry one course credit, which can be used towards partially fulfilling Section IV credit when combined with other course work at the College. Students will be charged $3000 for the cost of the mini-term. This is in addition to their regular tuition. The course is considered extra credit, and tuition is not deducted from the tuition of their last term at Union College. Students who are behind by a credit may use this credit to get caught up. Students who have enough credits may choose to take two courses, rather than three, in their last term as a senior; however, they must pay full tuition (as must any student registering for two courses). Note that last-term seniors will not be allowed to register for only one course.

Engineering students may use any of the above to fulfill Section IV requirements and may also qualify for a "virtual term abroad," working on a senior design project with students in a foreign university; an international term in industry; or an international engineering exchange program. Because the availability of these options varies from year to year, and some are highly competitive and may have prerequisites, engineering students should consult early with their advisors on how best to satisfy Section IV requirements.

The Key to GenEd Abbreviations:

Am — American
An — Ancient
Eu — European
L — Literature
C — Civilization
S — Survey
CDAA — Cultural Diversity Africana Studies
CDEA — Cultural Diversity East Asian Studies
CDLA — Cultural Diversity Latin American Studies

Writing Across the Curriculum

Every student will also be required to complete Writing Across the Curriculum requirements, including (1) the First-Year Preceptorial; (2) five courses from at least two different divisions that have been certified as WAC courses; and (3) a Senior Writing Experience such as a senior thesis or a senior seminar paper. The program of Writing Across the Curriculum (abbreviated as WAC in the course listings that follow) became effective for the class entering in 1990 and brought together traditional elements of a Union education and new courses and methods in a systematic effort to promote

improvement in student writing skills. It was revised in 2000-01.

The First-Year Preceptorial, the first requirement, has for several years been required of all first-year students and is described in the section above titled "The General Education Curriculum." The WAC courses that fulfill the second requirement fall within the normal disciplinary offerings and have writing built in as an important and clearly evaluated part of the coursework.

This *Academic Register* lists courses currently certified by the College Writing Board as meeting WAC requirements. Additional courses are certified each year by the Writing Board, and course syllabuses change regularly. Because of this, it is to be expected that the roster of WAC courses will change 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.

Key to WAC Abbreviations:
WAC – course certified by the Writing Board
WS — Fulfills senior writing requirement

The Writing Center

Located in Schaffer Library, the Writing Center is open at announced hours during afternoons and evenings for students, faculty, and staff. The director or student tutors are available to aid writers in getting started, writing drafts, and final editing, in academic or nonacademic tasks. The Writing Center encourages visits from writers of all abilities and degrees of experience.

Program for Health Professions

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

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

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

Director: Professor Weisse
Health Professions Advisor: Rhona Beaton

Special Support Services

The College provides a small number of developmental courses, normally noncredit, in English, mathematics, and other subjects. These courses are sponsored by the Academic Opportunity Program office but are open, by permission of the instructor, to other students as well. These courses are not for credit except by special arrangement for those students enrolled in the full Academic Opportunity

Course Listings

The course listings below are in order by department or program. Courses in separate subdisciplines 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 departments and subdisciplines below. For purposes of governance and the General Education requirements, the departments of instruction are also grouped into divisions as follows:

The Walter C. Baker Faculty of the Humanities (Division I)
- Classics
- English
- Modern Languages and Literatures
- Music
- Philosophy
- Theater and Dance
- Visual Arts

Social Sciences (Division II)*
- Anthropology
- Economics
- History
- Political Science
- Sociology

Sciences (Division III)*
- Biological Sciences
- Chemistry
- Geology
- Mathematics
- Physics and Astronomy
- Psychology*

Engineering and Computer Science (Division IV)
- Computer Science
- Electrical and Computer Engineering
- Mechanical Engineering

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

Comprehensive Listing of Departments, Multidisciplinary Studies, and Subdisciplines

- Africana Studies
- American Studies
- Anthropology
- Art History (See Visual Arts)
- Astronomy (See Physics & Astronomy)
- Biochemistry
- Bioengineering
- Biological Sciences
- Chemistry
- Chinese (See Modern Languages and Literatures)
- Classics

Computer Science
Computer Engineering (See Electrical and Computer Engineering)
Dance (See Theater)
East Asian Studies
Economics
Educational Studies
Electrical and Computer Engineering
Engineering
English
Environmental Studies
French (See Modern Languages and Literatures)
Geology
German (See Modern Languages and Literatures)
Greek (See Classics)
Hebrew (See Modern Languages and Literatures)
History
Italian (See Modern Languages and Literatures)
International Programs
Japanese (See Modern Languages and Literatures)
Latin (See Classics)
Latin American and Caribbean Studies
Law and Public Policy
Leadership in Medicine/Health Systems Program
Managerial Economics (See Economics)
Mathematics
Mechanical Engineering
Modern Languages and Literatures
Music
Nanotechnology
Neuroscience
Philosophy
Physics and Astronomy
Political Science
Portuguese (See Modern Languages and Literatures)
Psychology
Quantitative Economics (See Economics)
Religious Studies
Russia and Eastern Europe
Russian (See Modern Languages and Literatures)
Science, Medicine, and Technology in Culture
Sociology
Spanish (See Modern Languages and Literatures)
Studio Fine Arts (See Visual Arts)
Terms Abroad
Theater and Dance
Visual Arts: Art History and Studio Fine Arts
Women's and Gender Studies

Extradepartmental Programs

The First-Year Preceptorial

The interdisciplinary First-Year Preceptorial is the one intellectual experience that is shared by all students at Union. Each first-year student at Union takes Preceptorial during one term of the first year. The course is taught by faculty from all disciplines and has as its focus the development of students' critical reading, thinking, and writing abilities. The current course themes are Nature and Culture and Ways of Understanding.

First-Year Preceptorial is unlike any other course at Union in its breadth, the fundamental importance of the issues it engages, and the community it creates. By means of reading, writing, and discussing important ideas from diverse perspectives, we seek to awake and nurture in students an appreciation for the values embodied in the liberal arts. These include a deep curiosity about the social, ethical, cultural, political, and natural world in which we live, habits and skills of critical inquiry, a tolerance for diverse points of view, and an awareness of ambiguity. All of this takes place in an environment that cultivates skills in analytical reading, clear and vigorous writing, and convincing argumentation. We seek through the First-Year Preceptorial to create a strong sense of community among first-year students by means of a vigorous program of co-curricular activities, such as musical and theatrical performances, talks by distinguished speakers, and recreational outings. Finally, because the First-Year Preceptorial brings together faculty from across the college, it contributes importantly to Union's goal of creating more cooperation between faculty from different disciplines.

For more information about this course and for descriptions of the many different sections of the course, please consult the Preceptorial web site at www.union.edu/Precept.

Sophomore Research Seminar

The sophomore research seminar is intended to be a course focusing on learning research methods, as well as a WAC foundational course following the Preceptorial. As a result, faculty teaching the seminars will need to integrate the teaching of content with instruction and guidance in research and writing.

Each sophomore seminar will require students to write a research paper of 12-18 pages. Other shorter writing assignments may be assigned as well. Instructors must provide instruction and guidance in planning and writing the research paper. Students in the Seminars should learn basic research skills, including, but not limited to, how to frame a research question, construct an argument, create a thesis, identify and analyze secondary and (depending on the discipline) primary sources, use online and other resources in the library, and draw conclusions. Sophomore seminars, like the Preceptorial, are taught by faculty from a variety of departments and the courses do not have prerequisites and thus are open to all sophomores.

Clusters

Clusters represent the part of the Core Components general education program where students are asked to make connections across disciplines and departments by selecting three courses related to a central intellectual theme. Courses must be chosen form at least two different departments. Below are the approved topics for Clusters. More details about each cluster and their individual courses can be found at www.union.edu/Clusters

Approved Clusters

Africana Studies
Arts and Technology
Asia in Motion
China: From Yao to Mao to Yao
Creative Arts
Critical Film and Photography Studies
Critical Race and Ethnic Studies

Design
Entrepreneurial Thinking
Environmental Policy
Environmental Science
Global Studies
Japan: From Amaterasu to Anime
Latin American and Caribbean Studies
The Life Course and Society
Ordering the West from Ancients to Moderns
Public Policy
Religious Studies
Science, Medicine, Technology and Society
Theater Studies
The Western Classical Tradition and its roots
Women and Gender Studies

Converging Technologies

Converging Technologies at Union focuses creative thought from engineering and the liberal arts on new ideas that are changing the landscape of global society. We believe that these ideas, which spill across disciplinary boundaries, will define innovation in the 21st century. Students will find courses, programs and research opportunities in such emerging interdisciplinary fields as bioengineering, mechatronics, nanotechnology, neuroscience, and pervasive computing.

The following is a sample of courses offered in these Converging Technologies areas. For full course descriptions, see the course listings of the respective departments.

Biology 363. Introduction to Cellular Neurosciences.
Economics 230. The Mind of the Entrepreneur.
Engineering Science 100. Exploring Engineering.
Engineering Science 224 / Chemistry 224. Frontiers of Nanotechnology & Nanomaterials.
Mechanical Engineering 240 / Biology 240. Introduction to Bioengineering.
History 193. Introduction to Science, Technology, Medicine and Society.
Mechanical Engineering 421. Mechatronics Design.
Philosophy 130. Cyberfeminism.
Philosophy 247. Technology and Human Values.
Philosophy 249. The Self In Cyberspace.
Psychology 312 / Biology 362. Introduction to Neurobiology.
Psychology 210 / Biology 210. Introduction to Cognitive Neuroscience.
Visual Arts 345 / Biology 345. The Illustrated Organism.

Students interested in Converging Technologies fields are encouraged to pursue undergraduate research and senior projects in their areas of interest. Students may earn minors in Bioengineering or Science, Technology, Medicine and Society. For the most current information about Converging Technologies at Union, visit the CT web site at www.union.edu/CT.

Union Graduate College

Through Union College's non-degree granting partnership with Union Graduate College, students are able to take graduate coursework in the following departments and programs at the Graduate College.

The School of Management: Students may take selected coursework in Accounting, Statistics, Business Administration, Management, and Health Systems Management.

The School of Educational Studies

The School of Engineering: Coursework is available in Computer Science, Electrical and Computer Engineering, and Mechanical Engineering.

Africana Studies

Africana Studies offers an interdepartmental major and a minor involving the study of the history, culture, intellectual heritage, and social development of people of African descent. With a core curriculum centered in North America, studies consider connections to locations on the continent of Africa, and places in the diaspora such as the Caribbean, Latin America, and Europe. The program features a variety of approaches to intellectual, creative, and practical interests, and draws upon the arts, humanities, and social and behavioral sciences.

Requirements for the Interdepartmental Major: Eight courses. At least four courses must be from the core in English/History/Modern Languages/Music/Sociology. Up to three courses may be from those listed below as additional offerings. One term of senior thesis (AFR 498-499) must be combined with a second term in the other departmental major. Students are advised to select courses with a view toward preparing for the area of their thesis.

Requirements for the Minor: Six courses. Three courses must be from the same department or discipline. Three must be core courses. Two courses must be taken from those listed below as additional offerings.

Director: Professor Olsen (Music)

Advisors: Professor Fay (Anthropology), Hill-Butler (Sociology), Peterson (History), Romero (English), Morales-Cox (Art History), Wainaina (English)

Africana Studies core courses offered 2006-07

English: 219 (236b) African-American Literature in Historical Context: 1900-Present (Winter; Lynes; Spring; Romero); **274 (236d) Introduction to Black Poetry (Spring, Lynes)**

History: 131 (28) African-American History I (Fall; Lawson); 132 (29) African-American History II (Winter; Lawson); 322 (184) Slavery and Freedom (Spring; Lawson)

Modern Languages and Literatures: FRN 431 (149b) Special Topic in Francophone Culture and Literature: Voices of Francophone Literature from French-Speaking Countries and Territories other than France (Spring; Ndiaye)

Music: 134 Music and Culture of Africa (Winter; Olsen)

Sociology: 230 (080) African-Americans in Contemporary Society (Winter; Hill Butler); 346 (176) African American Women: Unheard Voices and Contemporary Lifestyles (Also Women's Studies 376) (Spring; Hill-Butler)

Additional Africana Studies offerings taught during 2006-07

Art History: 460 (90) Seminar: Visual Culture, Race, and Gender (Same as Women's Studies 460) (Spring; Cox)

English: 246 (239e) Modern African Literature (Spring, Wainaina); 268 (239h) Contemporary African Fiction (Winter, Wainaina); 302 (239a) Junior Seminar: Post-Colonial Literature and Theory (Winter, jain)

History: 272 (77) History of Brazil (Spring; Meade); 362 (185) "Black Britain:" Race and Ethnicity in British History (Fall; Cramsie)

Africana Studies core courses not offered 2006-07

English: 216 (236a) African-American Literature in Historical Context: Beginnings to 1900: Vision and Re-Vision; 240 (236e) Black Women Writers; 242 (236c) As a dance is it obscure: Black Music in American Literary Culture; 304 Junior Seminar: Caribbean Diasporas; 412 (488) Senior Seminar: Toni Morrison

History: 231 (25) The Civil Rights Movement

Modern Languages and Literatures: FRN 304 (134) Studies in the French Caribbean; FRN 430 (149a) Special Topic in Francophone Culture and Literature: West African Oral Literature (Also MLT 213)

Music: 131 (31) Music of Black America; 132 (32) The History of Jazz; 133 (35) Music of Latin America

Sociology: 233 (083) Race, Class, and Gender in American Society (Same as Women's Studies 283); 323T (155A) A Survey of Brazilian Society (Part of Brazil Term Abroad)

Additional Africana Studies offerings not taught during 2006-07

History: 171 (61) Europe and the Americas in the Era of Columbus (Also Women's and Gender Studies 161); 172 (62) Reform and Revolution in Latin America and the Caribbean (Also Women's and Gender Studies 163); 273 (63) The History of the Caribbean and Central America

Sociology: 245 (092) Sociology of Developing Countries; 265 (165). Sociology of Human Rights; 320 (152) Africa: Social and Demographic Trends

Modern Languages and Literatures: FRN 305T (135A) Mini-term in Martinique; FRN 307 (137) Negritude Movement: Point of Departure in Black African and Afro-Caribbean Literatures in French; MLT 283 (93) Beyond the Sunny Paradise: Literature and Politics in the Caribbean; MLT 284 (94) Popular Religion and Politics in Latin America; SPN 432 Islands Adrift: Race, Politics, and Diasporas in the Hispanic Caribbean

American Studies

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. Students are encouraged to explore the diverse character of the American experience, shaped by gender, race, class, geography and ethnicity, and to situate that experience in a context of global economic, cultural and political relations. Students are asked to develop a coherent approach to the study of American culture, politics and society, past and present. To accomplish these tasks, American Studies majors collaborate closely with an 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.

American Studies majors develop a 13-course program with their advisor. The program must include:

1. Three courses on any American topics in the English and History departments, one of which must be in American history, one of which must be in American literature. History 101 and 102 cannot be counted toward the major, but any other Gen Ed courses on American topics can be.

2. A thematic concentration of four additional courses that form (with the junior seminar and the senior thesis) the heart of the major. A concentration can involve the intensive study of an era (e.g., antebellum America, the United States since the Cold War, the Americas during the Conquest) or a topical focus (e.g., the emergence of mass culture, borderlands in American history and life, film studies, women in American life, ethnicity and race in American life, the legacy of American republicanism). For example, a concentration on the United States since the Cold War might include History 125, History 126, Political Science 331, Political Science 251, English 236c, English 377, and/or English 379. A concentration on Women in American life might include History 212, History 213 History 222, Sociology 201 and/or English 236e. The program encourages the distribution of courses across several disciplines.

3. A seminar on a topic related to the thematic concentration. Relevant seminars are given regularly in history, English, political science, sociology, anthropology, and art history.

4. A two-term senior project related to the thematic concentration. To fulfill requirements for Writing Across the Curriculum, the senior project must have a substantial written component. Ordinarily students spend two terms writing a senior thesis on a topic chosen with their thesis advisor (who need not be the same person as the student's regular advisor). Students have the option of producing senior projects partially in non-text media (in audio, video, or multi-media). Senior projects must still fulfill the College's WS requirement. Please consult with the program director about senior project proposals.

5. A methods or theory course related to the thematic concentration. For example, English 380, Economics 101, Women's Studies 100/Anthropology 220, Anthropology 115, Political Science 220/Sociology 202, Political Science 222/Sociology 204. The choice of this course should be made in consultation with the student's advisor.

6. Additionally, at least one course must cover questions of race and ethnicity in American life, and at least one course must address the experiences of women in American life.

Anthropology

Professor S. Gmelch, Chair; Professors L. Cool, G. Gmelch; Associate Professors K. Brison, S. Leavitt (on leave, Dean of Students); Visiting Assistant Professors D. Fay, R. K. Tierney; Assistant Professor J. Matsue (in Music); Research Professor C. Bishop; Lewis Henry Morgan Institute, D. Foley.

Requirements

Major: Twelve courses including four "Foundation" courses (Ant 110, 114, 290, and 363), a Term Abroad* (Anthropology Field Program in Fiji or Tasmania preferred), and a two-term senior thesis in cultural anthropology.

**If necessary, accommodations will be made.*

Interdepartmental Major: Eight courses, including Ant 110, 290, 363, a senior thesis, and three electives.

Minor: Six courses including Ant 110, 290 or 363 and four electives.

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 minus" on the senior thesis.

Department-Sponsored Term Abroad

Field Program in Anthropology (Fiji-Fall; K. Brison). This anthropology field school-held alternative years in Tasmania, Australia or Suva, Fiji- gives students an intensive, firsthand experience studying another culture. Students live with local families while carrying out full-time field research. Fiji participants are enrolled in Anthropology 185T (People and Cultures of the Pacific), 223T (Culture and Entrepreneurship in Fiji), and 490T (Independent Study) or 498/499 (Senior Thesis).

Foundation Courses

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

114. (014) Language and Culture (Fall; Cool). 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.

290. (055) Thinking about Culture (Winter; Cool). A broad overview of major anthropological approaches to studying individuals and societies. Students examine the strengths and weaknesses of contemporary and historical paradigms through critical reading and through conducting field exercises. *GenEd: Eu-C; WAC*

363. (063) Research Methods and Design (Spring; Cool). An introduction to qualitative research in the social sciences. The course examines the ways social scientists, especially anthropologists, collect data (e.g., interviews, questionnaires, field studies) and the various methods they use to analyze data. Students learn how to formulate research questions and a research project, apply the best methods to a particular research design, and write a proposal.

Electives

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

111. (011) Ethnographic Film (Fall; G. Gmelch). Examines the field of anthropology as it presents itself through film. Raises questions about anthropological knowledge and ethics by looking at how anthropologists and documentary filmmakers have depicted other cultures. Includes an introduction to the history of ethnographic film.

112. (027) Crossing Cultures (Not offered 2006-07). Deals with the theory and practice of living and studying in cultures other than your own. Designed to help students understand the cross-cultural experience, explore learning and coping strategies when abroad, and give students a better understanding of their own culture so that they can understand others. Designed for students going on or returning from a term abroad and for international students. *GenEd :SOCS*

115. (015) Introduction to Archaeology (Not offered 2006-07). Introduction to the history, methods, techniques, and theories used to recover and interpret archaeological data (i.e., material remains). Students get hands-on experience in archaeological survey work at local sites. *GenED: SOCS*

125. (025) Childhood in Anthropological Perspective (Not offered 2006-07) (Same as WGS 192) The comparative study of childhood: examines child-rearing practices in various cultures including the U.S. Topics include theories of gender difference, playas socialization, education across cultures, and socialization practices.

130. Food and the Self (Spring; Tierney). 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.

139. (039) Family and Kinship. (same as WGS 173) 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.

141T. Cultural Ecology. Explores the diversity of human relationships to the environment, ranging from traditional indigenous communities to the industrialized world. Emphasizes direct experiences with people who are intimately connected with the land (e.g., ranchers, loggers, park rangers, researchers, nature writers, and conservation activists) .

146. (046) Education and Culture. 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?

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

150. Anthropology of Religion. Comparative study of religious behavior and ideology. Examines ritual, magic, witchcraft, pilgrimage, and other religious phenomena, primarily in non-Western societies.

160. (070) Photographing Culture (Not offered 2006-2007) (Same as WGS 291)**.** 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.

174. (089) Human Evolution and Prehistory. (Same as HST 254; Biology 089). This course will provide both a historical perspective on, and our current biological understanding of, human evolution and early human societies. *GenEd: Sci-Math;*

180. (080) North American Indians (Not offered 2006-07). A survey of North American Indians including their prehistory, the historical changes they have experienced, and a discussion of their current lifestyles, government policies, and problems.

182. (082) Anthropology of Mediterranean Europe. Sources of similarity and diversity in the rural and urban cultures of Mediterranean Europe from Spain to Greece. Emphasis on modes of social

relationships such as patronage and on cultural formulations such as honor and shame. Economic development and change in rural communities, urban life and the urbanization of migrants, and the rise of ethnic and regional movements are analyzed.

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

184. (084) Contemporary Japanese Society (Fall; Matsue) (Same as WGS 135). An anthropological introduction to contemporary Japanese society and culture. Provides an historical overview, then explores in greater depth of such topics as family structure, education, religious traditions, the work place, women, and contemporary social problems. *GenEd: CDEA*

185T. (085A) Peoples and Cultures of the Pacific (Fiji) (Fall; Brison). An overview of the cultures of Polynesia (including Hawaii, Tahiti, Samoa), Micronesia, Melanesia (Papua New Guinea, Vanuatu) and Aboriginal Australia. Topics include cultural shaping of gender rules, government in egalitarian societies, and changes in cultures through history. *WAC*

188. (047) Pacific Cultures Through Film. Examines film portrayals of Pacific cultures, novels by Pacific Islanders, and anthropological accounts of Pacific cultures in order to dispel myths about the Pacific and to study the effects of American mass media on Pacific identity and culture. *GenEd: Am-C; CDEA;*

189. (068) East Asia in Motion (Spring; Tierney). East Asia has a long history of constantly shifting borders, diasporic 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).

220. (050) Women's Lives Across Cultures (Fall; S. Gmelch) (Same as WGS 231). 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.

225. (012) Gender and Society (Same as WGS 232). 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.

228. Cross-Cultural Perspectives on Race. Does race matter in today's world? Has race always existed as a human category of difference? Is race just a black and white thing? How do other cultures outside the U.S. configure race? To address these and other questions we will focus on the historical and cultural peculiarities of race. This course asks students to move conceptually from the era of European colonialism and the invention of the modern conception of "race" to the U.S. Civil War period to the ascension of negritude, and, finally, race in contemporary times. We will investigate the diversity and complexity of "racialization" in various places, such as Detroit, Rio de Janeiro, Martinique, China, Paris, and Capetown. *GenEd: CDLA*

229. Ruminations on Violence. 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.

230. (030) Medical Anthropology (Not offered 2006-07) (Same as WGS 293). 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.

232. Bombs to Buddhism: Fatalism, Technology, and Modern Japanese Culture (Not offered 2006-07). 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.

236. Youth and Popular Cultures. 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.

240. (040) Culture and Technology. 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.

244. (44) Urban Anthropology. Cross-cultural analysis of urbanization and urban life: the origins and evolution of cities, transnational media and migration, global cities and globalization, rural and urban contrasts in lifestyles, and the images and reality of urban violence and oppression. Involves three field projects in the local area.

245. (45) Sport, Society, and Culture (Fall; G. Gmelch). 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.

251. (51) Anthropology of Aging (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 in the U.S.

260. (76) Tourists and Tourism (Not offered 2006-07). This course briefly examines the history of tourism and typologies of tourism, before applying an anthropological perspective to the study of people's behavior as tourists and the impact tourism has (socially, economically, environmentally) in different parts of the world. It also discusses different forms of tourism (e.g., cruise ships, all-inclusive resorts, eco-tourism, heritage tourism, adventure tourism, sex tourism), the extent to which local people benefit, and considers the issue of responsible travel.

265. (65) The Museum: Theory and Practice (Spring; S. Gmelch) (Same as HST 191). This seminar examines the role of the museum through readings, fieldtrips, and a student internship at the Schenectady Museum. Topics covered include the historical development of the museum, issues in the representation of culture, public history debates, the repatriation of Native American artifacts, and exhibit design. Students spent 6-8 hours interning and 1-2 hours in seminar each week.

272. (72) Psychological Anthropology. Explores the emotional force of culture. Topics include socialization, religion, self, gender, and sex. These and other issues are addressed in case studies from East Asia, the Amazon, and the Pacific.

274. (74) Music and Culture (not offered 2006-07) (Same as AMU 220). Introduces students to the discipline of ethnomusicology, with particular emphasis on ethnographic methods, through readings on the history and development of the field, considering the major theoretical approaches, and supplemented by readings on specific world music areas. Students will conduct an extensive fieldwork project on music-making in the community. Prerequisite: AMU 12 or permission of the instructor.

275. (075) Biology of Homo Sapiens (Same as BIO 275). A survey of the contributions from many disciplines (paleontology, physical anthropology, ecology, genetics, molecular biology, and demography) to our understanding of the biology and evolution of our own species. Topics include both descriptive material and quantitative analysis; because of the latter, one college level math course is a prerequisite. Fulfills GenEd science with mathematics prerequisite.

373. (73) Self and Life History in Anthropological Research (Not offered 2005-06). How culture

affects the way people reflect on their personal lives and think about who they are. Readings cover life history research, ideas of self, narratives on illness and the body, stories of self-transformation. Students do extended interviews with an informant.

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

490T. Independent Study Abroad (Fall, Winter, Spring). Tutorial for individual students.

498. Senior Thesis (first term)

499. Senior Thesis (second term)

Astronomy (see Physics and Astronomy)

Biochemistry

Associate Professors Fox (Director), Lauzon; Assistant Professor Kehlbeck; Visiting Assistant Professor Cohen

Requirements for the Major: Eleven courses in biology and chemistry: Biology 110, 112, 125 and 380; Chemistry 101, 102 or 110, 231, 232, 240, 351, 382; and three additional courses, two to be chosen from Biology 378, 384, 355, 363, and Physics 200, and the third to be chosen from among the other biology courses in the subcellular or organismal areas or Bio 350. In addition, mathematics through Math 115 and two terms of physics are required. AP credit is given as per current biology and chemistry departmental guidelines. Note that acceptance to graduate school may require additional courses and/or undergraduate research experience.

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.

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

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

1. By completing a senior thesis in conjunction with senior research (Chemistry 491, 492, 493 or Biology 497, 498, 499).

2. By selecting the biology senior seminar that emphasizes cellular/molecular topics, Biology 489.

3. In the event that neither of the above options are available, a student could satisfy the WS requirement by writing a research paper requiring extensive background reading in conjunction with taking Bio 380, Chem 382 or one of the molecularly-based biology electives, in addition to the regular course work. This would require prior approval by both the student's advisor and the course instructor.

Courses for Majors

Descriptions of courses from the Departments of Biology and Chemistry can be found under the department listings. Biochemistry 335 is a survey course for non-biochemistry majors. Biochemistry 380 and 382 comprise a two-term biochemistry sequence for biochemistry majors.

BCH 335. Survey of Biochemistry (Same as Biology 335 and Chemistry 335) (Spring; Fox). A survey of topics in biochemistry including buffers, protein structure, lipid structure, carbohydrate structure, enzyme mechanism, and enzyme kinetics. The pathways by which biomolecules are synthesized and degraded will be investigated. Specifically we will look at carbohydrate, lipid and nitrogen metabolism. Medical applications will be emphasized throughout the course. Prerequisites: Biology 125 and Chemistry 231.

BCH 380 (180). Biochemistry: Membranes, Nucleic Acids, and Carbohydrates (Same as Biology

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 125 and Chemistry 231 or permission of the instructor.

BCH 382 (182). Biochemistry: Structure and Catalysis (Same as Chemistry 382) (Winter; Fox). 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.

Bioengineering Minor

This program of study is only available to students as a minor and requires a minimum of six courses taken outside the major department. Non-science, science, and engineering students with an interest in interdisciplinary fields emerging at the intersection of the biological and engineering sciences may choose to minor in bioengineering. In addition to developing content knowledge and process skills in biology, engineering, or a related science outside their major field, students will participate in a multidisciplinary core course in bioengineering. The minor will normally culminate with students conducting independent research in bioengineering during their senior year. Students with an interest in biomedical engineering, environmental engineering, biotechnology, ecological or evolutionary biomechanics, neuroscience, and environmental physiology may find this minor attractive.

Requirements for the minor: Course requirements are organized around a common core. All students will take MTH 112 or 113 (or equivalent) and PHY 110 or 120. In addition, the core biology and engineering courses BIO 112 or 113 (but not BIO 110), BIO 125, ESC 100 and MER/BIO 240 are required for all students. This latter course may be chosen to fulfill the student's major requirements.

Engineering Student Upper-level Requirements: Two upper-level biology courses and/or PHY 200 should be chosen with consultation by the program director. Juniors and seniors entering the program may opt to take an additional upper-level course instead of MER/BIO 240. In addition, the two-term senior research project will normally focus on a bioengineering problem.

Biology Student Upper-level Requirements: Three upper-level engineering courses and/or PHY 200 will be taken with consultation by the program director. Juniors and seniors entering the program may opt to take an additional upper-level course instead of ESC 100. Students interested in structural biomechanics may choose the sequence: MER 213, MER 214, and MER/BIO 440 and/or MER/BIO 445. Students interested in biofluid mechanics may choose the sequence: MER 201, MER 212, MER 331, or other upper-level engineering courses in the area. Students interested in information systems and computational science may choose the sequence: EER 118, CSC 105, EER 352 or other upper-level courses in the area. Students will normally complete a two-term senior research project on a bioengineering topic.

Non-Engineering or Non-Biology Requirements: Students not majoring in engineering or biology may also choose to minor in bioengineering. These students will fulfill the core course requirements and take three upper-level courses in biology, engineering and/or PHY 200. These courses should be chosen in consultation with the program director.

Program directors: Professors Rapoff (Mechanical Engineering) and Rice (Biology).

Biological Sciences

Professor Fleishman, Chair; Professors B. Boyer, J. Boyer, Olberg, Tobiessen; Associate Professors Chu-LaGraff, Danowski, Horton, Lauzon, Rice, Jill Salvo, Assistant Professor Corbin, Kirkton, LoGiudice; Visiting Assistant Professor Cohen, Goldman; Adjunct Associate Professor Williams; Emeritus Professors Birecka, George, Smith, Styles, Tobiessen; Adjunct Research Professor Joseph Salvo; Laboratory Coordinator Willing; Lecturer/Special Programs Supervisor Pytel

Requirements for the Major: Ten courses in biology, including Biology 110, 112 and 125. Students who have received Advanced Placement credit for biology will enroll in Biology 113 (replacing Biology 110 and 112) and must take Biology 125 and seven additional courses. The remaining courses must include at least one course from each of the following areas:

— Subcellular (Biology 352, 355, 363, 378, 380, 384);
— Organismal (Biology 240, 315, 316, 321, 330, 332, 336, 354, 362, 365, 370);
— Population or community (Biology 256T, 257, 320, 322, 323, 325, 328,345, 350).

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

Advanced Placement Policy. Students who received a score of 4 or 5 on the Advanced Placement exam may receive credit for Bio 110. Students who wish to continue in Biology or a related area (e.g. pre-health) should then take Bio 113 (instead of Bio 110 and 112). Students receiving credit for Bio 110 through A.P. placement cannot normally go directly to Bio 112. The Bio 110 credit received from the A.P. exam counts as one of the Biology courses towards the major or minor.

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

Requirements for the Minor: Six courses in biology, including Biology 110 and 112. For those students who have received Advanced Placement credit for biology, the minor will consist of Biology 113 and four other courses. The courses must be selected from among those designated for credit toward the biology major (but see below). Students are cautioned that many upper-level biology courses require prerequisites (in biology or other science departments) beyond Biology 110 and 112. Therefore, any student who contemplates a biology minor must register at the Biology Department Office and be assigned a departmental advisor. Students with majors outside Division III or in psychology may count one biology GenEd course toward the minor if it is their first course in the minor.

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

Requirements for Secondary School Certification: Educational Studies strongly recommends that no undergraduate student at Union attempt to seek secondary certification as an undergraduate. However, those students who wish to become public secondary school teachers are urged to visit Educational Studies in Lamont Graduate Center 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, 112, 125; at least four 200 or 300 level courses including 350, and at least one course each from the areas of field biology (Biology

320, 323, 325, 328, 256,); functional biology (Biology 316, 330, 355, 362, 370); one morphological biology (Biology 332, 336, 354).

All science majors are encouraged to seek certification in more than one science and/or in General Sciences. Students wishing to add certification in General Science must include at least two courses each from the areas of chemistry (Chemistry 101 and 102), physics (Physics 111, 113, or 210), and earth science (any geology course or physics 130). 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 to achieve public secondary certification in Biology must complete additional requirements beyond science courses during their undergraduate career. Before the end of winter term of their senior year they must take PSY 246, EDS 500 A, 500 B (Field Experiences; see Educational Studies for the appropriate requirements to complete the Field Experiences), and two terms of a foreign language.

Courses Suitable for Non-Majors: Biology 050, 051, 064, 065 and 089 are designed for the general college community and may not be counted toward the biology major nor toward interdepartmental majors that include biology. Biology 080, which requires permission from the instructor, is also suitable for selected non-majors. Some 200 level courses are also suitable for non-majors (e. g. 275).

Departmental 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.

General Education Courses

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

050(11). Topics in Contemporary Biology (Spring; Willing). Recent developments in biology that are pertinent to human health and to concerns of the nature of life and of human social values. Not open to students who have had Biology 275; fulfills GenEd science with laboratory requirement.

051(43). Seeing the Light: Concepts of Vision (Same as Physics 051) (Not offered 2006-07). An introduction to biology and physics of vision. The workings of the eye and the brain and the properties of light as well as recent advances in the development of robotic vision. Closed to physics majors. No mathematics or science background is required. Fulfills GenEd science requirement (no lab).

064(64). Nature, Ecology, and Wilderness Management (Not offered 2006-07). Land conversion, global change, and loss of biodiversity threaten natural ecosystems. Examines our understanding of ecology, explores how it is influenced by cultural forces, and investigates how their interplay affects management strategies designed to mitigate environmental threats. Draws upon historical and modern examples from the Albany Pine Bush, the Adirondacks, national parks, tropical rainforests, and endangered species. Fulfills GenEd science with laboratory requirement.

065(65). Food in the 21st Century (Fall; Willing). An introduction to basic nutrition and food production. The focus will be on caloric and other nutritional requirements, energy derived from food, and energy required in food production. Potential problems in providing sufficient quantity and quality of food for the world's rising population will be discussed. Long term sustainability of food production will also be discussed. Fulfills GenEd science with laboratory requirement. Not open to those who have taken CHM 60.

089(89). Human Evolution and Prehistory (Same as History 254 and Anthropology 174) (Not offered 2006-07). A historical perspective on, and our current biological understanding of, human evolution and early human societies. Fulfills GenEd science requirement (no lab).

094(94). Understanding Cancer (Not offered 2006-07). 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 BIO 010 or BIO 013. Fulfills GenEd science requirement (no lab).

275(75). The Biology of Homo sapiens (Same as ANT-275) (Not offered 2006-07) A survey of the contributions from many disciplines (paleontology, physical anthropology, ecology, genetics, and molecular biology) to our understanding of the biology and evolution of our own species. Not open to students who have taken Biology 050 or 089. Bio 275 has no pre-requisites and is open to non-science majors for GenEd science credit. Preference will be given to second year students.

Practicum

080(80). Practicum in Hospital Health Care (Fall, Winter, Spring; Beaton, Hospital Staff). A field course combining supervised experience in various hospital departments with study of problems and means of health care delivery. Term paper and on-campus seminar meetings are required. Not for major credit and not for GenEd science credit.

Courses for Majors

110(10). Heredity, Evolution, and Ecology (Fall, Winter; Staff). Introduces students to the methods and thought processes of experimental and descriptive biology. Topics include an overview of DNA structure and function; basic Mendelian genetics; evolution and natural selection at the population level; the process of speciation and the resulting diversity of animal and plant life; interactions between species, the ecology of communities, and their interactions with abiotic factors of the environment. One lab per week.

112(12). Physiology of Cells and Organisms (Winter, Spring; Staff). Examines life in both plant and animal systems from the level of biomolecules through subcellular, cellular, and tissue functions to the structure and function of organs and organisms. Includes study of how cellular structure, interactions, and diversity determine physiological function. Emphasizes how structure and function at each hierarchical level (e.g., molecular, cellular, tissue) governs function at the other levels. One lab per week.

113(13). AP Biology (Fall, Olberg; Winter, Olberg). A studio laboratory course that covers the main topics of Biology 110 and 112. Students who receive an Advanced Placement Exam score (in biology) of 4 or 5 will substitute Biology 113 for Biology 110 and 112. Combined lecture/lab format, meeting twice weekly.

125(25). 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: Biology 110 and 112 or Biology 113 or permission of instructor.

210(46). Introduction to Cognitive Neuroscience (Same as Psychology 210). Basic concepts of brain functioning as they relate to psychological phenomena. Neuroanatomy, neurotransmission, and brain sites important in the mediation of movement, sensation, consummatory behavior, emotions, pleasure, sleep, and memory. Prerequisite: Psychology 100.

240(30). Introduction to Bioengineering (Same as MER 240) (Winter; Rice and Mafi). 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. 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, and sensory information processing. One lab per

week. Prerequisites: Math 110 and one major's course in biology, chemistry, or physics; Physics 110 recommended.

256T(56). Coastal Biology (Spring; B. Boyer). A study of the diversity and adaptations of marine organisms in their environment, with emphasis on subtropical, temperate and subarctic communities. Study sites include Bermuda, Cape Cod, and Newfoundland. Permission of the faculty is required. Associated courses are Marine Policy and the Maritime Environment (Sociology 355A) and Images of the Sea (TAB 355).

257(57). Tropical Biology (Not offered 2006-07). An introduction to the animals and plants and basic ecology of the new world tropics. The laboratory consists of a two-week field experience (during the summer or winter break) in the Republic of Panama which focuses on field work in tropical rainforest and coral reef habitats. This is followed by a seminar style course during the academic term. The field portion of the course is mandatory. Prerequisite: Permission of the instructor.

275(75). The Biology of Homo sapiens (Same as ANT 275)(Not offered 2006-07) A survey of the contributions from many disciplines (paleontology, physical anthropology, ecology, genetics, and molecular biology) to our understanding of the biology and evolution of our own species. Not open to students who have taken Biology 050. Bio 275 has no pre-requisites and is open to non-science majors for GenEd science credit. Preference will be given to second year students.

315(153). Biology of Plants (Not offered 2006-07). A survey course of the land plants, with emphasis on diversity, physiology, ecology, field identification, economic importance, and natural history of these organisms. One lab per week. Prerequisite: Biology 110 and 112 (or permission of instructor).

316(159). Plant Physiology (Not offered 2006-07). The physiological processes of plants, including photosynthesis, water balance, mineral nutrition, and growth and how these processes relate to agricultural and environmental problems. One lab per week. Prerequisite: Biology 110 and 112 (or 113) or permission of instructor..

320(51). Ecology (Spring; LoGiudice). Organisms and their environment and the structure and integration of ecosystems. One lab per week. Prerequisites: Biology 110 and 112 (or 113) or permission of the instructor. WAC

321(121). 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 and among other vertebrate groups. Special emphasis will be given to local fauna. Students must be available for one Saturday field trip. Prerequisites: Biology 110 and 112 (or 113).

322(50). Conservation Biology (Not offered 2006-07). 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. Prerequisites: Biology 110 and 112 (or 113) or permission of instructor.

323(53). Forests of the Northeast (Fall; Rice). A study of the dynamics of the Northeast forest ecosystem emphasizing tree ecology. One lab per week. Prerequisites: Biology 110 and 112 (or 113) or permission of the instructor.

325(164). Animal Behavior (Same as Psy 311)(Winter; Fleishman). An introduction of the study of animal behavior. Lectures will focus on the development, causation, function and evolution of behavior in a range of taxomonically diverse species. Prerequisite: Biology 110 or 113.

328(128). Aquatic Biology (Spring; Tobiessen). 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. Prerequisite: Biology 110 and 112 (or 113) or permission of the instructor.

330(130). Comparative Animal Physiology (Fall; Fleishman). 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. Prerequisite: Biology 110 and 112 (or 113).

332(32). Comparative Vertebrate Anatomy (Winter; Kirkton). Comparative analysis of vertebrate structure with emphasis on evolution, development, and function. One lab per week. Prerequisites: Biology 110 and 112 (or 113).

335.Survey of Biochemistry. (Same as Chemistry and BCH 335) (Spring; Fox). 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. Prerequisite: Chemistry 231 and Bio 125. (CHM 232 recommended) Not open to students who have completed Biology 380 or Chemistry 382.

336(36). Invertebrate Zoology (Not offered 2006-07). Phylogenetic relationships and adaptations of the invertebrate phyla with laboratory study emphasizing morphology and function of living members of each group. Combined lecture/lab sessions, meeting twice weekly. Prerequisites: Biology 110 and 112 (or 113).

345(45). The Illustrated Organism (Same as AVA-345) (Not offered 2006-07). Descriptive graphic and written analysis of plants and animals; direct observation in field, studio, and laboratory integrating biology and visual arts. Culminates with annotated portfolio illustrating organisms studied. Taught jointly by biology and visual arts faculty using combined facilities. Apply through participating department. Credit for biology and arts majors.

350(150). Evolutionary Biology (Spring; J. Boyer). Major concepts and mechanisms of biological evolution, including speciation, extinction, coevolution, adaptive radiation, origin of life, molecular evolution and critical aspects of vertebrate evolution. Prerequisite: Biology 110 and 112 (or Bio 113) or permission of the instructor.

352(125). Microbiology (Fall; Lauzon). An overview of microbiology with emphasis on bacteria and viruses. Lectures focus on the structural and functional characteristics of prokaryotes and the diversity, growth, and control of bacteria with special attention to those organisms that cause disease in humans. Particularly recommended for students planning careers in medicine and other health-related professions. One lab per week. Prerequisite: Biology 125.

354(154). Developmental Biology (Winter; B. Boyer). An introduction to the principles of development, emphasizing classical and contemporary research on the embryos of both invertebrates and vertebrates. Laboratory involves descriptive and experimental analysis of living embryos of several different organisms. One lab per week. Prerequisite: Biology 125.

355(147). Immunology (Winter; Lauzon). The cellular and molecular basis of immunological specificity; regulatory and effector mechanisms of the mammalian immune response and the importance of the innate immune system in the initiation and development of adaptive immunity. Laboratory exercises include basic techniques in agglutination, enzyme[linked immunosorbent assay (ELISA), mouse immunization and antibody titer determination, immune cytolysis, immunofluorescence and western blotting. One lab per week. Prerequisite: Biology 125 or permission of the instructor.

362(162). Introduction to Neurobiology (Same as Psychology 312) (Spring; Olberg). Function and morphology of nervous systems and sense organs, with emphasis on vertebrates. One lab per week. Prerequisite: Biology 125 or permission of the instructor.

363(163). Introduction to Cellular Neurosciences (Fall; 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: Biology 125 or permission of the instructor.

365(165). Neural Circuits and Behavior (Same as Psychology 315) (Not offered 2006-07). Recent findings in neuroethology, the neural basis of natural behavior. We consider how sensory information is obtained and used to control behavior in both vertebrates and invertebrates. Prerequisite: Biology 110 and 112 (or 113) and Biology 210, 330, or 362 or permission of the instructor.

370(170). General Endocrinology (Winter; Cohen). Basic principles of endocrine and neuroendocrine regulation in animals, concentrating on vertebrate metabolism, development, and reproduction. Prerequisite: Biology 125

378(136). Cancer Cell Biology (Fall; Danowski). A study of cell-cell and cell-environment interactions, focusing on the biochemical and molecular events that control cell behavior. Topics include cell adhesion, signal transduction, cytoskeletal dynamics, locomotion, oncogenes, growth control, and cancer. Laboratory exercises emphasize modern biochemical and molecular techniques. One lab per week. Prerequisite: Biology 125 or permission of the instructor.

380(180). Biochemistry: Membranes Nucleic Acids and Carbohydrates (Same as Biochemistry 380) (Fall; Cohen). An in-depth investigation into some of the macromolecules which are essential to life's processes. The course focuses on non-protein molecules and their unique chemical properties. Three lab hours each week. Prerequisite: Biology 125 and Chemistry 231, or permission of the instructor.

Not open to students who have completed Chemistry or Biology 335.

382(182). Biochem: Structure & Catalysis (Same as Chemistry 382 and BCH 382).

384(140). Molecular Genetics (Spring; Horton). The molecular genetic approach is currently being applied to an extremely diverse array of questions in biology. This course will expose the student to many of the commonly-used techniques in the "toolkit" of the molecular geneticist. Emphasis will be on recent advances in our understanding of topics of current interest such as development, cellular response to environmental stimuli, tumor formation, and apoptosis, amongst others. One lab per week. Laboratory will emphasize the use of modern molecular biological techniques, and will involve group projects of the students' choice. Prerequisites: Biology 125 and Chemistry 102 or 113.

410(166). Brain and Behavior (Same as Psychology 410). Advanced coverage of the mechanisms of action of psychotropic drugs and a discussion of the effects of certain transmitter systems on behavior. Prerequisite: Psychology 210. *WAC*

487(187), 488(188), 489(189). Senior Seminar (Fall, Winter; Staff). One of these three courses is required by, and limited to, seniors who are not satisfying their WS requirement through either an independent research project or thesis. Each seminar will provide a forum in which a biological topic of current interest and importance is explored in depth. Students will gain experience in giving oral presentations and critically evaluating the written work of both established scientists and fellow students, and they must submit a paper to fulfill the senior writing requirement. Enrollment is optional for interdepartmental biology-other majors. *WAC: WS*

487(187). Topics in Ecological and Evolutionary Biology (Winter)

488(188). Topics in Organismal and Physiological Biology (Not offered 2006-07))

489(189). Topics in Cellular and Molecular Biology (Fall)

490-496(190-196). 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

497(197), 498(198), 499(199). Honors Research I, II, and III (Fall, Winter, Spring; Staff). A sequence which requires a thesis based on original scientific research. May be used to satisfy WS requirement and departmental component for honors in biology, or for WS requirement alone. Research students are required to attend departmental seminars. Prerequisite: Permission of the instructor. *WAC: WS*

Chemistry

Professor Adrian, Chair; Professors Anderson, Carroll, Hayes, Hull, Werner; Associate Professors Hagerman, Fox; Assistant Professors Kehlbeck, Tyler, MacManus-Spencer; Lecturer and Laboratory Coordinator Lou

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

Requirements for the Major: Ten term courses in the department (Chemistry 101, 102 or 110, 231, 232, 240, 260, 340, 351, 352, and one other chemistry course [or Biology 380]) plus mathematics through Math 115 and two terms of physics. Knowledge of a foreign language is strongly encouraged but not required.

Requirements for Certification by the A.C.S.: All of the nine numbered chemistry courses listed above for the major plus Chemistry 360, 491, 492, and 493, and two advanced courses chosen as follows: one from Chemistry 382 or Biology 380 and one from Chemistry 264 or 354. Additional courses in chemistry, physics, computer science, and/or engineering are recommended, as is knowledge of a foreign language.

Requirements for Interdepartmental Majors: Students completing an 8-6 or 8-4-4 interdepartmental program in which the eight courses are in chemistry should take the following courses: Chemistry 101, 102 or 110, 231, 232, 240, 340, 351, and one of the following four courses: Chemistry 260, 264, 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 Chemistry 101, 102 or 110, 231, 23, 240, and 260 or 340, in the former case and any four chemistry courses in the latter. Students in the 8-year medical program whose science emphasis is in chemistry should take the following six courses: Chemistry 101, 102 or 110, 231, 232, 240, and 382 (if CHM 110 is taken a sixth Chemistry elective of 200 level or higher, excluding CHM 335, must also be taken).

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

Requirements for a Major in Biochemistry: Seven courses in Chemistry (101 and 102 or 110, 231, 232, 240, 351, and 382). A total of seven courses in Biology: three (if 113 is the first course) or four (if 110 and 112 are the first courses) including 125 and 380 are requirements; the remainder (four if 113 or three if 110 and 112) are electives. Two electives are to be chosen from Biology 355, 363, 378, 384, and Physics 200. The remaining electives are to be chosen from among the other biology courses in the subcellular or organismal areas of Biology or Biology 350. (For the specific choices of courses, see the detailed description of the biochemistry major elsewhere in the catalog). Additional cognate courses are required in physics and mathematics (see specific guidelines).

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. Courses highly recommended include History 150, 242, 251 or 253; Philosophy 273 and 375 Political Science 281; and Sociology 282. 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 (Biology 110 and 112), physics (Physics 120, 121, or 210), and earth science (any geology course or AST 200).

Chemistry interdepartmental majors seeking secondary school certification must choose all departments from among the Departments of Biology, Chemistry, Geology, and Physics. Interdepartmental majors completing an 8-;6 or 8-4-4 interdepartmental program in which the eight courses are in chemistry would take the following courses: Chemistry 101, 102 or 110, 231, 232, 240, and 351,

Students with chemistry as the minor element in their interdepartmental major, of either six or

four chemistry courses, would include at least Chemistry 101, 102 or 110, 231, and 232. A student wishing to add certification in General Science must include at least two courses each from the areas of biology (Biology 110 and 112), physics (Physics 120, 121, or 210), and earth science (any geology course or AST 200).

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

General Education Courses: Chemistry 50 and 60 are designed for the general college community. They do not count toward the chemistry major nor for interdepartmental majors that include chemistry. Only students with majors in Division I and II departments or psychology can count one chemistry GenEd course toward the minor in chemistry if it is their first course in the minor.

Requirements for Honors in Chemistry and Biochemistry: Candidates for honors in chemistry or biochemistry 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 or biochemistry of substance and distinction in the form of a thesis which shall have been awarded a grade of at least A-. Candidates must fulfill the College-wide criteria for honors and they must be formally nominated by the Chemistry Department.

50 (17). Topics in Chemical Analysis – Forensic Chemistry (GenEd; Not Offered '05-06). 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 Chemistry 101 or 110, or have AP credit in chemistry.

60 (19). Meals to Molecules (GenEd; Fall, Anderson). 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 Chemistry 101 or 110, or have AP credit in chemistry.

101 (10). Matter: Structure and Change (Fall, Winter; Staff). Topics include stoichiometry, the nature of chemical reactions, atomic and molecular structure, chemical bonding, and the properties of gases, liquids, solids and solutions. Three lab hours every other week. Not open to students who have scored 4 or 5 on the AP Chemistry Exam or who have completed Chemistry 110. First-year students who have had a strong high school chemistry background normally take a placement examination to determine whether they will enroll in Chemistry 101 or 110.

101E. Matter: Structure and Change an Environmental Approach (Fall, Winter, Spring; Staff) Chemistry 101E is an introductory chemistry course that focuses on important environmental issues, such as global warming, ozone depletion, acid rain, energy sources and water pollution. Introductory chemistry concepts are introduced on a need-to-know basis by a series of written supplements to the course text, which emphasizes environmental topics. The goal of the course is to provide societal context to the information normally taught in an introductory chemistry course. Three lab hours every other week. Not open to students who have scored 4 or 5 on the AP Chemistry Exam or who have completed Chemistry 110. First-year students who have had a strong high school chemistry background normally take a placement examination to determine whether they will enroll in Chemistry 101 or 110.

102 (12). Matter: Energy and Dynamics (Winter, Spring; Staff). Continuation of Chemistry 101. Topics include thermodynamics, chemical kinetics, chemical equilibrium, acids and bases, electrochemistry, and an introduction to organic chemistry. Three lab hours each week. Prerequisite:

Chemistry 110. Not open to students who have taken Chemistry 130.

110 (13). Matter: An Accelerated Introduction (Fall; Fox, Hagerman). 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. First-year students wishing to take chemistry who have scored 4 or 5 on the AP chemistry exam will be automatically placed into Chemistry 110. Other first-year students are required to take a placement examination to determine whether they will enroll in Chemistry 101 or 110. Students who successfully complete Chemistry 110 will also receive AP credit for Chemistry 101.

224 (24). Frontiers of Nanotechnology and Nanomaterials (Winter; Hagerman). An overview of nanotechnology and nanomaterials including interdisciplinary perspectives from engineering, materials science, chemistry, physics, and biology with applications to photonics, data and energy storage, catalysis, new polymers, biomaterials and drug delivery. Prerequisites: Physics 111 or 121 (or IMP 113 and Math 115, and Chemistry 101 or 110, or permission from instructor. (Cross listed as ESC 224.)

231 (30). 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 are also covered. Four lab hours each week. Prerequisite: Chemistry 102 or 110.

232 (32). 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 important classes of biomolecules. Four lab hours each week. Prerequisite: Chemistry 231.

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

260 (16). Foundations of Inorganic Chemistry. (Spring; Hagerman) Introduction to the interdependence of chemical bonding (including crystal field, ligand field, and molecular orbital theories), spectroscopic properties, symmetry and reactivity of coordination compounds and complexes. Laboratory emphasis will focus on the synthesis and characterization of coordination compounds and investigation of their physical properties. Four lab hours each week. Prerequisites: Chemistry 232 or permission of the instructor.

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

335. Survey of Biochemistry (Same as Biology and BCH 335) (Spring; Fox). 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. Prerequisite: Chemistry 231 and Bio 125. (CHM 232 recommended) Not open to students who have completed Biology 380 or Chemistry 382.

340 (142). Chemical Instrumentation (Fall; Werner, 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: Chemistry 231, 240, and one course in physics or permission of the instructor. *WAC*

351 (150). Kinetics and Thermodynamics (Winter; Anderson). Properties of gases; chemical kinetics; fundamentals of thermodynamics including heats of reactions and phase and chemical equilibria. Four lab hours each week. Prerequisites: Chemistry 240, Physics 110 or 120 and Math 115. *WAC*

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

354 (154). Chemical Applications of Group Theory (Spring; Not Offered '06-07). 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: Chemistry 232 and 352, Math 115, and Physics 121. Chemistry 352 may be taken concurrently.

360 (118). Advanced Topics in Inorganic Chemistry: Bio-Inoganic Chemistry (Winter; Tyler). This course will introduce and emphasize the importance of metals in biological systems. Metalloproteins and enzymes will be discussed in light of the role the metal ion plays. Important metal containing synthetic compounds, including drugs and biomimetic complexes, will also be presented. Prerequisites: Chemistry 260 and 351 or permission of the instructor. *WAC*

382 (182). Biochemistry: Structure and Catalysis (Winter; Fox). (Same as Biology and BCH 382) 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. *WAC* Not open to students who have completed Chemistry or Biology 335.

491 (191), 492 (192), 493 (193). Chemical Research (Fall, Winter, Spring; Staff). Chemical research under the direction of a member of the faculty. Thesis required. Twelve lab hours each week. Prerequisites: Chemistry 232, 240 (Chemistry 340 and 351 are recommended), third-term junior standing, and/or permission of the department chair. *WAC;WS*

Classics

Professors Mueller, Chair; Toher; Assistant Professors Raucci, Wareh; Adjunct Instructors Baum, J. Sargent.

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

(1). Eight courses in Latin; four courses in classics, including Classics 125 (25) or 126 and 129; and 134 (24); two courses in Greek may be substituted for two of the courses in Latin, but not more than three elementary language courses may be counted towards the major;

(2). Nine courses in Greek and three courses in classics, including Classics 121 (21) and 134 (24); two upper-level courses in Latin may be substituted for two of the Greek courses;

(3). At least four courses in one of the ancient languages and eight courses in classics, including Classics 121 (21); 125 (25) or 126 and 129; 134 (24); and 143 (43).

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

Requirements for Interdepartmental Majors: 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 the Minor in Greek or Latin: Four courses in either Greek or Latin and two additional courses, one of which must be Classics 121 (21) if the language courses are in Greek, or Classics 125 (25) if the language courses are in Latin. The remaining course 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.

Placement: Because secondary programs vary, the department is happy to assist students continuing an ancient language in finding the proper course level.

Departmental Honors: To be eligible for departmental honors, the student must fulfill the following requirements: (1) a minimum index of 3.35 in departmental courses; (2) completion of one language course at the 230 (130)-level or higher with a grade of "B plus" or better. The student must achieve a grade of at least "A minus" on the senior thesis and present a distinctive performance in an oral examination based on the senior thesis. In addition, the student must satisfy College requirements for departmental honors.

Classics

121 (21). History of Greece (Fall, Toher). Ancient Greece in all its glory from Heroic (Mycenaean) times to the death of the great conqueror Alexander the Great.

125 (25). History of Rome (Not offered 2006-7). The history of Rome, its rise from earliest times through the Republic and its decline under the Empire to disaster in A.D. 410.

126 The Rise of the Roman Republic. (Winter, Toher). 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?

129 History of the Roman Empire. (Spring, Baum). 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?

134 (24). Classical Art and Architecture (Cross listed with AAH-200) (Not offered 2006-7). A survey of Greek and Roman art and architecture, including attention to origins, development, influences

and the contextual meaning of material culture and its importance to the state and the individual. *GenEd: An-CS*

141T (041A). Classical Greek Archaeology (Fall). An introduction to the study of archaeology with field trips to various sites in and near Athens. Four hours per week. Offered only as part of the Term Abroad in Greece. *GenEd: An-CS*

143 (43). Classical Mythology (Fall, Wareh). Greek and Roman myths, with emphasis on the ancient sources. All readings will be in English. *GenEd: An-CS*

146 (46). Sex and Gender in Classical Antiquity (Cross listed with Women's Studies 149) (Winter, Raucci). The representations and realities of sexuality and gender in classical Greece and Rome. Primary focus on how ancient writers formulated the categories of "feminine" and "masculine" in discussions of ethics, nationality, education, politics, and science. This will enable students to think critically about some of the central literary works in the Western tradition through the socially charged categories of gender. Attention will also be directed to how literary representations compare with the actual social experience of ancient women, insofar as we may reconstruct it through the reading of literary, archaeological, and artistic evidence in social, familial, legal, and religious contexts. *GenEd: An-CS; WAC*

160 (26). Survey of Classical Literature: The Individual in Ancient Society (Not offered 2006-7). A study of the evolving concept of the individual in antiquity and the changing relationship of the individual and the family, state, and nature. Readings in English of major ancient authors. *GenEd: An-LS; WAC*

161 (31). Survey of Ancient Epic (Not offered 2006-7). An examination of four great epics of classical antiquity: Homer's *Iliad* and *Odyssey*, Virgil's *Aeneid*, and Ovid's *Metamorphoses*. All readings in English. *GenEd: An-LS; WAC*

162 (30). Greek and Roman Tragedy in Translation (Not offered 2006-7). Readings in classical Greek tragedy and the tragedies of Seneca and selections from other Roman works. *GenEd: An-LS*

163 (33). Greek and Roman Comedy and Romance in Translation (Spring, J. Sargent). Readings from the Greek comedies of Aristophanes and Menander, the Roman comedies of Plautus and Terence, and the romances of Heliodoros, Longus, and Petronius. *GenEd: An-LS*

168 (38). Ancient Novel (Not offered 2006-7). A survey of the novel and its development in antiquity. Readings include a selection of complete and fragmentary Greek romances by Chariton, Xenophon of Ephesus, Achilles Tatius, Longus, Heliodorus, and Lucian. The Roman comic novels will be Petronius's *Satyricon* and Apuleius's *Metamorphoses*. All readings in English. *GenEd: An-LS.*

186 Roman Law and Society (Not offered 2006-7). 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.

227 Entrepreneurship in the Ancient World. (Not offered 2006-7). "Entrepreneurship" (or seizing upon and exploiting opportunity) is a mindset that has existed at various times and places. Through a variety of ancient sources, including legal, historical, and literary works, students will use the ancient world as a laboratory in which to observe and to assess what may or may not have constituted opportunity in the past and to examine strategies employed (as well as opportunities missed) for taking advantage of available resources in a variety of situations: economic, political, and religious. *GenEd: An-CS*

142 (42). Special Topics in Classics:: The Ancient World in Film and Literature. (Spring, Raucci). Greco-Roman antiquity has been a favorite topic of Hollywood for years. This fascination continues today, with the recent appearance of major blockbusters as well as TV productions. Why do the Greeks and Romans appeal to a modern audience? This course will consider ancient texts in translation alongside their modern film representations. Our goal will not be to consider where the films went "wrong." Instead, we will question how these films recast and reinterpret classical texts to reflect modern interests. This course will include an "entrepreneurship module." We will question

what is entrepreneurship and if Hollywood's commodification of the ancient world is entrepreneurial. *GenEd: An-L*

232 (32). Religion in the Pagan World (Cross listed with REL-201) (Not offered 2006-7). An examination of particular cults and the performance of cult in ancient Greek and Roman societies, and consideration of the relationship of the individual and the state to deity in the pre-Christian world. Emphasis on ancient sources. *GenEd: An-CS; WAC*

235 (35). Greek and Roman Historiography (Not offered 2006-7). An introduction to the origins, purpose, and methodology of the writing of history in the classical world. *GenEd: An-LS*

237 (37). Greek and Roman Biography (Not offered 2006-7). A study of the origin and development of the genre of biography from the fourth century B.C. to the second century A.D., with extensive readings (all in English) of Nepos, Suetonius, and Plutarch. *GenEd: An-LS; WAC*

244 (44). Poetry and the Cosmos (Not offered 2006-7). An examination of Greek and Roman poets' attempts to understand the origin and development of the universe, and of human beings' place in it. Readings (all in English) will include Hesiod, the pre-Socratic philosophers, and Lucretius. *GenEd: An-LS; WAC*

248 (48). Greeks, Romans, and Barbarians (Not offered 2006-7). Investigates the concept of the barbarian in ancient Greek and Roman culture, how the image of the barbarian was "constructed" by the Greeks and Romans and in turn defined their identity. The course will look at depictions both literary and visual of the peoples living on the edges of the Greco-Roman world and discuss the ways in which the barbarian came to invert, reflect, and criticize the Greeks and Romans themselves. Readings in English translation from historians, geographers, poets, philosophers, ancient novelists, and medical writers. *GenEd: An-CS*

250 (60). Death in the West (Not offered 2006-7). 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.

295-296H (195H). Classics Honors Independent Study.

361 (51). Seminar in Classical Studies (Not offered 2006-7).

490-492 (190-192). 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.

497 (197). Classics Senior Project.

498-499 (009-199). 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.

Greek

100 (10). Principles of Beginning Ancient Greek I (Fall; Wareh). Study of elementary Greek grammar with selected readings from classical authors.

101 (11). Principles of Beginning Ancient Greek II (Winter; Wareh). Continuation of Greek 10. Prerequisite: Greek 100 (10) or one year of secondary school Greek.

102 (12). Greek Reading (Spring; Wareh). Selected readings from the works of a variety of Greek authors. Prerequisite: Greek 101 (11) or equivalent.

230 (134). Homer: *The Iliad* (Not offered 2006-7). Readings in *The Iliad*, with relevant secondary readings on Greek epic, its place in the development of Greek literature, and its influence. Prerequisite: Greek 102 or equivalent. *GenEd: An-L; WAC*

231 (130). Homer: *The Odyssey* (Not offered 2006-7). 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: Greek 102 or equivalent. *GenEd: An-L; WAC*

235 (135). Plato (Not offered 2005-06). 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: Greek 102 or equivalent. *GenEd: An-L*

320 (120). Attic Prose (Not offered 2006-7). Readings from the major prose authors of Athens. May be repeated with change in author. Prerequisite: Greek 102 or equivalent.

331 (131). Herodotus and Thucydides (Winter, Toher). A study of several books of Herodotus and Thucydides with relevant secondary readings. Prerequisite: Greek 102 or equivalent. *GenEd: An-L: WAC*

333 (133). Greek Tragedy (Not offered 2006-7). 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: Greek 102 or equivalent. *GenEd: An-L; WAC*

337 (137). Greek Oratory (Not offered 2006-7). Readings of various Athenian orators, with secondary reading on Greek legal practice and rhetorical style. Prerequisite: Greek 102 or equivalent. *GenEd: An-L; WAC*

338 (138). Greek Lyric and Elegiac Poetry (Not offered 2006-7). 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: Greek 102 or equivalent. *GenEd: An-L*

339 (139). Greek Comedy (Spring, Wareh). Readings in the plays of Aristophanes. The criticism and theory, history, and social context of the comedies will be studied. Prerequisite: Greek 102 or equivalent. *GenEd: An-L*

490-492 (190-192). 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.

498-499 (009-199). 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.

Latin

100 (10). Principles of Beginning Latin I (Fall; Raucci). An elementary course introducing all major forms and syntax, with some easy reading from classical authors.

101 (11). Principles of Beginning Latin II (Winter; Raucci). Continuation of Latin 10. Prerequisite: Latin 100 or one year of secondary school Latin.

102 (12). Latin Reading (Spring; Raucci). Reading in a wide variety of classical Latin poetry and prose. Prerequisite: Latin 101 or its equivalent.

230 (130). Catullus and Horace (Not offered 2006-7). Readings in Catullus and Horace, emphasizing vocabulary and syntax review. Traditions and social context of lyric poetry are also studied. Prerequisite: Latin 102 or two years of secondary school Latin. *GenEd: An-L*

237 (137). Latin Epic (Not offered 2006-7). Readings in Virgil's *Aeneid*, Ovid's *Metamorphoses*, Lucan, and others. May be repeated with change in author. The genre, its development and history will be studied. Prerequisite: Latin 102 or two years of secondary school Latin. *GenEd: An-L*

338 (138). Lyric and Elegiac Poetry (Spring, Mueller). Extensive readings from the poems of Catullus, Horace, Propertius, Tibullus, and Ovid. May be repeated with change in author. Prerequisite: Latin 102 or two years of secondary school Latin. *GenEd: An-L; WAC*

339 (139). Roman Satire (Not offered 2006-7). 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: Latin 102 or two years of secondary school Latin. *GenEd: An-L; WAC*

341 (141). Roman Historiography (Fall, Raucci). 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: Latin 102 or two years of secondary school Latin. *GenEd: An-L; WAC*

343 (143). Roman Drama (Not offered 2006-7). Readings in Plautus and Terence along with selections from Seneca. May be repeated with change in author or texts. Prerequisite: Latin 102 or two years of secondary school Latin. *GenEd: An-L; WAC*

345 (145). Cicero (Not offered 2006-7). A selection from Cicero's massive literary output, with emphasis on his speeches and letters. May be repeated with changes in texts. Prerequisite: Latin 102 or two years of secondary school Latin. *GenEd: An-L; WAC*

351. Death in Ancient Rome. (Winter, Raucci). We will survey the theme of death in ancient Rome through a variety of sources, poetry and prose, literary and historical, as well as inscriptions. *GenEd: An-L; WAC*

447 (147). Latin Prose Composition (Not offered 2006-7). Practice in composing Latin prose, based on classical authors, and including the study of prose style and prose rhythms. Prerequisite: At least one Latin course above 102, four years of secondary school Latin, or permission of the instructor.

490-492 (190-192). 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.

498-499 (009-199). 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.

Computer Science

Professor Barr, Chair; Professors Hannay, Hemmendinger; Associate Professor Spinelli; Assistant Professors Burns, Cass, Fernandes, Postow; Visiting Assistant Professor Orellana (Visual Arts); Instructor Spallholz; Lecturer Almstead; Emeritus Professor Williams

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

Requirements for the Major in Computer Science: Eleven and a half computer science courses numbered 105(37) or higher, including CSc 105(37), 140(77), 210(40), 250(136), 260(150), 370(144); 335(135); 350(140); and half-courses 497-499(197-199). Also required: Math 110-112 or 113; Math 197 and 198; one course from Math 115, 127, 128, 131, 221, 235, 340, and Stat 501; one major-level lab science course in a natural science department and one non-CS course meeting the General Education science requirement (courses cross-listed with CS courses are not acceptable). A typical first year major program includes CSc 105(37) and CSc 140(77), Math 197, and first year General Education courses. See www.cs.union.edu/StudyPlans for sample programs for the first two years.

Requirements for the Major in Computer Engineering: See under Engineering Programs.

Requirements for the Minor in Computer Science: Six computer science courses including CSc 140(77) and five additional CSc courses chosen with the approval of an advisor from computer science. Only one of CSc 50(10), 55(15) may be included.

Requirements for the Interdepartmental Major:

Interdepartmental majors that include computer science must contain Math 197 and eight computer science courses including CSc 140(77) and 250(136), and must be designed to integrate the fields composing the major. Only one of CSc 50, 55 may be included.

Requirements for Honors in Computer Science:

Candidates for honors in computer science must have an overall grade point average of 3.3, a grade point average of 3.3 in the major with at least 4 A grades, including the grade for the senior project, and must present the senior project at the Steinmetz Symposium.

50(10). Computers and Computing (Fall, Postow; Winter, Almstead, Postow). Introduction to

spreadsheet and database applications, computer hardware and programming. Not open to computer science or engineering majors, or to students with credit for a computer science course numbered 100 or higher. Only one of CSc 50(10), 55(15) may count toward a CS minor or an interdepartmental major.

55(15). Working with the Web (Spring, Almstead). 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. Prerequisite: Programming experience equivalent to CSc 50(10). Only one of CSc 50(10), 55(15) may count toward a CSc minor or an interdepartmental major.

70(30). Computer Programming for Engineers (Fall, Hannay; Winter, Hannay; Spring, Almstead). Introductory computer programming course. Programming concepts are introduced through engineering applications. Topics include math and logical operations, data types, conditions and decisions, looping, subroutines, numerical methods, plotting, and an introduction to object-oriented design. Not open to students who have taken CSc 105(37).

80(100). History of Computing (Fall, Hemmendinger) 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. Prerequisites: completion of GenEd science and math requirements recommended. WAC, Am Civ.

105(37). Introduction to Computer Science (Fall, Almstead; Spring, Postow). The use of computers in problem solving. Data representation, algorithms, programming techniques, debugging, and program verification, Programming in Java. Students without previous computer experience should consult with the instructor. Includes a laboratory.

118(18). Introduction to Digital Computers (Fall). See ECE 118.

140(77). Data Structures (Winter, Fernandes). Basic concepts of data organization and abstraction, software design, stacks, queues, trees, and their implementation with linked structures. Sorting and searching techniques. Programming in Java. Prerequisites: CSc 105(37). Co-requisite: Math 197 or permission of the instructor. Includes a laboratory.

210(40). Computer Organization (Winter; Hemmendinger). The architecture and operation of the digital computer. CPU design, input/output, computer arithmetic, assembly language. Prerequisite: CSc 140(77). Includes a laboratory.

250(136). Algorithm Design and Analysis (Fall, Cass; Spring, Cass). Fundamental algorithms used in a variety of applications. Includes algorithms on list processing, string processing, geometric algorithms, and graph algorithms. Prerequisites: CSc 140(77); Math 197 or permission of the instructor.

260(150). Large-Scale Software Development (Spring, Barr). 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 140(77), Math 197 or permission of the instructor.

318(118). Digital Design (Winter). (See ECE 318).

320(188). Artificial Intelligence (not offered 2006-2007). 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. Offered alternate years. Prerequisite: CSc 250(136).

329(129). Neural Networks (Spring). (See ECE 329).

335(135). Operating Systems (Spring; Fernandes). Selected topics covering some of the following areas: Batch, interactive, real-time, and distributed operating systems; multiprogramming, multiprocessing, multiplexing, multitasking; concurrent programming; elementary queuing theory; memory management; resource allocation, sharing and protection. Prerequisites: CSc 210(40) and 260(150).

336(172). Computer Network Protocols (Spring, Staff). Design, analysis, and operation of communication protocols for computer networks; TCP/IP, addressing, switching, routing, congestion control, application protocols. Prerequisite: CSc 105(37) or equivalent programming ability.

337(137). Data Communications and Networks (Fall). (See ECE 337).

340(148). Introduction to Databases (Fall; 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 140(77) and Math 198.

350(140). Theory of Computing (Fall; Postow). 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. Prerequisites: CSc 140(77) and Math 198.

352(152). Microprocessors and Microcomputers: Architecture, Programming, and Applications (Spring). See ECE 352.

354(154). VLSI System Design (Fall). See ECE 354.

360(160). Software Engineering (not offered 2006-2007). Strategies for the specification, design, production, testing, and support of computer programs; software development models; programming team structures; documentation; and maintenance. Prerequisite: CSc 260(150).

370(144). Programming Languages (Winter; Hemmendinger). An introduction to issues in programming language design and implementation. Major programming language paradigms: functional, logic, and object-oriented, and their use. Prerequisites: CSc 140(77) and Math 198.

385(146). Computer Graphics (not offered 2006-2007). Algorithms for handling two-dimensional and three-dimensional objects. Interactive graphics hardware and systems. X windows system, engineering workstations. Offered alternate years. Prerequisites: CSc 140(77).

483(183). Selected Topics in Computer Science (Staff). Prerequisite: Permission of the instructor.

490, 491, 492(190,191,192). Independent Study (Fall, Winter, Spring: Staff). Prerequisite: Permission of department chair.

497(197). Computer Science Capstone Seminar (Spring; half-course, Burns) Ethics and professional responsibility; the social context of computing; capstone project background research and proposal. Prerequisite: CS 260(150). Normally taken in the spring of the junior year.

498, 499. Computer Science Capstone Project (Fall, Winter; half-courses, Staff). Design,

Converging Technologies: the Union of Engineering and the Liberal Arts

Interdisciplinary courses and programs at Union which link engineering and the liberal arts have been collectively named "Converging Technologies," or just CT. These programs focus creative thought from engineering and the liberal arts on new ideas that are changing the landscape of global society. Increasingly, innovation is occurring at the convergence of traditional academic disciplines, and we believe that understanding these multidisciplinary ideas will be essential for leaders in the 21st century. Building on Union's strengths in engineering and the liberal arts, we have created new interdisciplinary programs in the following areas (described in detail elsewhere in this Academic Register):

Bioengineering and Computational Biology
Environmental Studies
Nanotechnology
Neuroscience
Science, Medicine and Technology in Culture

In addition, we have created courses in other interdisciplinary areas including:

Digital Art (Computer Science, Visual Arts)
Entrepreneurship (Classics, Visual Arts, Economics, English, History, Mechanical Engineering, Physics, Visual Arts)
Geographic Information Systems (Engineering, Modern Languages, Geology)
Mechatronics (Computer Science, Electrical and Computer Engineering, Mechanical Engineering)

Students can also create their own interdisciplinary major using the Organizing Theme option. To pursue this option, contact the Dean of Undergraduate Studies.

Students interested in linking engineering and the liberal arts are encouraged to pursue undergraduate research and senior projects in their areas of interest, either independently or by joining an interdisciplinary research team. For more information, contact the Director of the Center for Converging Technologies (ct@union.edu) or visit the CT web site at http://www.union.edu/CT.

East Asian Studies

This program provides a broad, interdisciplinary liberal arts education focusing on the language, culture, and the arts of East Asia (with emphasis on China and Japan). We seek to equip students to pursue interest and careers that require exposure to global issues, particularly pertaining to East 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 EAS 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 the 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.) 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 East 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 East Asia by dealing with both China and Japan over a substantial period of time. Of the three remaining EAS courses, one must deal entirely with the 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.) Students are strongly encourages to apply for the terms abroad to China and Japan.

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 East Asian country (listed below with an asterisk), and two additional EAS courses.

Honors in the Program: 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.

Director: Professor Ferry (Modern Languages)

Executive Committee: Professors Madancy (History), S. Gmelch (Anthropology), Lewis and

Motahar (Economics), Ferry and Ueno (Modern Languages), Matsue (Performing Arts), Patrik (Philosophy), and Zhang (Political Science).

498-499 (formerly 009-199). Senior Project (Fall, Winter). Interdisciplinary investigation of a topic in East Asian Studies.

490-492 (formerly 190-192). Independent Study (Fall, Winter, Spring)

Humanities Courses in East Asian Studies

Art History

104 Arts of China

105 Arts of Japan

Modern Languages and Literature

200 Modern Chinese Literature

201 Chinese Cinema

202 Gender and Sexuality in Modern China

*204 Literary Traditions in East Asia

*205 Perspectives in Modern East Asian Literature

206 Traditional Chinese Medicine

207 China's Cultural Revolution

208 Tourism, Culture, and Society in Asia

250 Japanese Sociolinguistics

Music

136 Popular Music in Modern Japan

*221 Encounters with East Asian Music Cultures

233 Asian Percussion Workshop

Philosophy

*165 Asian Philosophy

245 Buddhist Ethics

338 Zen and Tibetan Buddhism

Social Sciences Courses in East Asian Studies

Anthropology

184 Contemporary Japanese Society

232 Bombs to Buddhism: Fatalism, Technology, and Modern Japanese Culture

Economics

234 Japanese-American Finance and Trade Relations

History

*181 East Asian Traditions

*182 Modern East Asia

281 Modern Japan

283 The Last Dynasty: The Glory and Fall of the Qing Empire, 1644-1911

283 The People's Republic of China: Social Change and Political Upheaval, 1949-90s

284 Women in China and Japan: Power and Limitations

380 Special Topics in East Asian History

382 World War II in Asia

481 Seminar in East Asian History

Political Science

*253 International Politics in East Asia

345 China: Revolution and Reform

347 Chinese Foreign Policy

Economics

Associate Professor Motahar, Chair; Professors Fried, Kenney, Klein, Lewis, McCarty, Shelton Schmidt, Yaisawarng; Associate Professors Stephen Schmidt, Sener; Assistant Professors Davis, Dvorak, Song

Requirements for the Major: 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 110, 101, or 113 (or equivalent advanced placement credit) is required prior to enrolling in Economics 241 or 242.

Interdisciplinary 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 department.

Majors and interdisciplinary majors should normally complete the core sequence of 241, 242, and 243 by the beginning of the junior year. This will allow sufficient time to take upper-level courses prior to the senior thesis. Majors who have reached the junior year may not enroll in courses numbered below 240. Students may not count toward the major more than one elective that does not list Economics 101 as a prerequisite. Also, students may not count toward the major more than one internship-related course.

Majors and interdisciplinary majors taking Economics 498-499 or IDM 498-499 with Economics as one component must pass an oral defense of their senior thesis proposal.

Students interested in economics might also consider the Managerial Economics major and the Quantitative Economics track described below. 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.

Departmental Honors: The eligibility requirements for the honors program in economics are (1) a minimum cumulative index of 3.3, and (2a) a minimum grade average of 3.5 in Economics 241, 242, and 243, with no grade lower than a B in these courses OR (2b) a minimum grade average of 3.2 in all economics courses taken through the end of the junior year plus a passing grade on a comprehensive examination on the material covered in Economics 241, 242, and 243. To earn honors, participants in the program must (1) pass an oral examination on their senior thesis; (2) earn a minimum of "A minus" on the senior thesis; and (3) participate in the department's honors seminar. In addition, the student must satisfy College requirements for departmental honors, including a minimum grade average of 3.3 in the major.

Requirements for a Minor in Economics: Six economics courses including Economics 101, 241, 242, and 243 (unless waived by the department chair based on an equivalent course in your major), and at least one course at the 300 or 400-level. Economics 390 may not be used to satisfy these requirements.

Managerial Economics Major

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 Managerial Economics Major: Economics 101, 241, 242, 243, 334, 390, 445, and 498-499; Computer Science 50; Accounting 100; Mathematics 101, 110, or 113; and two other courses in economics. Majors should consider taking additional courses in computer science, especially CSC 105 and CSC 140. Majors are also encouraged to participate in a term abroad.

Director: Professor Kenney

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.

Requirements for the Quantitative Economics Track: 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.

Advisors: Professors Stephen Schmidt, Shelton Schmidt, and Klein

Note: Economics 101 is a prerequisite for all courses in the department, unless otherwise indicated.

101 (12). 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.

222 (22). History of Economic Thought (Not offered 2006-07). A survey of the history of economic thought from 1600 to 1950, focusing on primary works and discussion of their historical context. Major authors covered include Smith, Marx, Marshall, and Keynes. Prerequisite: Economics 101. *GenEd: Eu-C*

224 (24). Competing Philosophies in United States Economic Policy (Not offered 2006-07). A survey of the economic and political philosophies that influenced U.S. economic policy from the American revolution to the Great Depression. Specific policy areas surveyed include internal improvements, money and banking, tariffs, trade, antitrust and regulation. Prerequisites: History 101 and Economics 101. *GenEd: Am-C; WAC*

226 (26). Financial Markets (Fall; Lewis). Study of the historical evolution, economic functions, and efficiency of financial institutions and markets in the United States. Prerequisite: Economics 101.

228 (28). Environmental and Natural Resource Economics (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: Economics 101 or permission of instructor.

230 (30). Mind of the Entrepreneur (Winter; Fried). Examines three perspectives on the role of the entrepreneur in guiding resource allocation in a market economy. The traditional perspective focuses on resource allocation changing over time as the entrepreneur responds to opportunities for economic profit. The psychological perspective examines the personality characteristics of entrepreneurs. The non-traditional perspective explores the implications of the entrepreneur as a creator of demand as well as a supplier of new products. Includes the role of the social entrepreneur and some ethical issues. Prerequisite: Economics 101.

233 (33). Public Policy and American Industry (Not offered 2006-07). The structure, conduct, and performance of American industry; oligopoly theory and the applied theory of the firm; government policy toward business including antitrust and regulation. Prerequisite: Economics 101.

234. Japanese-American Finance and Trade Relations (Winter; Lewis). Are Japan and the U.S. financially separate but inseparable? This course covers the evolution, institutional structure, cultural context, and efficiency of these two financial systems with special emphasis on their interdependence via institutions, trade, and capital movements. Prerequisite: Economics 101. *GenEd: CDEA*

236 (36). Comparative Economies (Spring; Dvorak). 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: Economics 101. *GenEd: Eu-C*

237 (37). Gender Issues in Economics (Not offered 2006-07) (Also Women's Studies 260). A critical analysis of the economic well-being and changing roles of women in the U.S., 1890-present; labor markets; human capital; radical-feminist perspectives; earnings differentials and occupational segregation by gender; economics of family; public policy. Prerequisite: Economics 101.

241 (41). 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: Economics 101; Math 110, 101, or 113.

242 (42). 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. Unemployment, inflation and stabilization policy. Prerequisites: Economics 101; Math 110, 101, or 113.

243 (43). 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. Scientific research using statistical methods to test theories. Prerequisite: Economics 101. *WAC*

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.

331 (130). E-Commerce Economics (Not offered 2006-07) 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: Economics 241. *WAC*

333 (133). Industrial Organization (Not offered 2006-07). Selected topics in the theory and empirical analysis of U.S. industry performance; industry strategy; research and development; the theory and practice of competition policy and regulation. Prerequisites: Economics 241 and 243.

334 (134). 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 Economics 241, 242, 243. *WAC*

335 (153). The Economics of Health (Not offered 2006-07). 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: Economics 241 or permission of the instructor.

338 (138). Quantitative Methods in Economics (Not offered 2006-07). Application of mathematical models in economics. The use of calculus, matrix algebra, and optimization techniques in economic model building. Topics covered include theories of the consumer and of the firm, economic growth, input-output analysis, optimal timing, linear programming, and macroeconomic models. Prerequisite: Economics 241.

339 (139). 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: Economics 241.

340 (159). Competing Philosophies in Political Economy (Not offered 2006-07). Selected topics in social choice. Individual and group value systems. Applications of general equilibrium theory to problems of social welfare analysis. Benefit/cost theory. Prerequisite: Economics 241.

341 (141). Current Topics in Microeconomics (Not offered 2006-07). 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: Economics 241.

344 (154). Economics of Education (Spring; Stephen Schmidt). This course introduces students to the relationship between education and the economy. Topics include human capital investment, the production of education, the returns to education, education and the labor market, financing education (using public or private resources), and school choice and education outcomes (student achievement, premature completion) at the basic level (grade K-12) in both developed and developing countries. Prerequisites: Economics 241 and 243.

345 (155). Nonprofits, Cooperatives, and Other Non-Traditional Firms (Not offered 2006-07). 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: Economics 241.

352 (142). Contemporary Problems in Macroeconomics (Spring; Motahar). A detailed analysis of some fundamental macroeconomic issues: inflation and unemployment, characteristics of the "New Economy," and productivity growth. A critical examination of the formulation and conduct of U.S. fiscal and monetary policy. Prerequisites: Economics 241, 242, and 243. *WAC*

353 (143). Seminar in Econometrics (Not offered 2006-07). 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: Economics 243, and 241 or 242. *WAC*

354 (144). International Economics (Winter; 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: Economics 241, 242, and 243. *GenEd: CDEA*

355 (151). Monetary Economics (Fall; 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: Economics 241, 242, and 243; 241 may be taken concurrently.

374 (120). Sports Economics (Not offered 2006-07). 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: Economics 241 and 243.

375 (125). Efficient Management of Technology (Spring; Yaisawarng). Economic models of the firm; efficiency and productivity concepts; Data Envelopment Analysis (DEA); ethics in management; DEA guide and ethical procedures for improving efficiency and allocating resources; empirical applications to specific industries. Prerequisite: Economics 241 and 243. *WAC*

376 (146). Seminar in Global Economic Issues (Spring; Sener). This seminar explores different perspectives on current global economic issues. A review of the recent debate on globalization provides a framework for discussion of a variety of issues related to international trade and the international financial system. Topics covered may include: international trade and the environment, international trade and labor standards, regionalism vs. world trade, international financial crises, reforming the global financial architecture, and international capital flows and developing countries. Prerequisites: Economics 241, 242 and 243. *WAC*

377 (129). Modeling and Simulation of Economic Policies (Not offered 2006-07). The use of theoretical models and computer simulations to evaluate public policies under partial and general equilibrium specifications. Prerequisites: Economics 241 or 242, and Economics 243. *WAC*

378 (132). Labor Economics (Winter; Sener). Determinants of wages and terms of employment, wage and employment theories and the impact of unions, wage structures, unemployment, poverty, wage legislation. Prerequisite: Economics 241.

379 (126). Economic Growth and Income Distribution (Not offered 2006-07). An overview of the theory, measurement, and history of economic growth, which presents Classical, Keynesian, and neoclassical approaches in parallel. Topics include the theory of optimal saving, endogenous technical change, growth accounting, natural resource limits on growth, money and growth, and the impact of government debt and social security systems on long-term economic growth. Prerequisites: Economics 241 and 242.

380 (160). Seminar in Economic Growth and Development (Not offered 2006-07). Review of growth and development since the Industrial Revolution; analysis of the sources of per capita GDP growth in low-income countries; government policies that accelerate or retard growth; impact of trade, investment and international organizations. Prerequisites: Economics 241, 242 and 243 or permission

of the instructor.

382 (162). Seminar in Finance (Not offered 2006-07). Study of important topics in finance, such as capital structure, risk, uncertainty, and portfolio theory; agency costs; market efficiency; options theory. Prerequisites: Economics 241 and 334. *WAC*

383 (163). Seminar in International Finance (Fall; Dvorak). This course is about the financial markets that facilitate trade and investment in today's global economy. We will learn about the balance of payments, exchange rate determination and exchange rate regimes. Emphasis in the course will be placed on understanding the events currently happening around us: including the widening U.S. current account deficit, dollar depreciation against the euro, China's reluctance to float its exchange rate, and the financial crises in Asia and Argentina. Prerequisites: Economics 241 and 242.

386 (166). Seminar in Public Policy (Not offered 2006-07). An upper level seminar on the use of economic methodology to evaluate public policy. Particular topics covered vary with instructor and student interest. Topics covered in the past include education finance reform, health care, welfare, illegal drugs, and labor market discrimination. Prerequisites: Economics 241 and 243. *WAC*

387 (167). Seminar in Labor (Spring; Song). Labor topics including, but not limited to, the public sector, wage determination, and the relationship between micro theory and the operation of American labor markets as they exist today. Critical issues in labor that affect the free market system. Prerequisites: Economics 241 and 243. *WAC*

390 (90). Economics Internships (Winter; Fried). Designed to involve students in the operation of various economic agencies, commissions in New York State government and private firms. Interns apply skills to practical problems in economic analysis and gain exposure to the functioning of the agency or firm. Prerequisites: Economics 241, 242, and 243.

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: Economics 241 and 243, and a minimum GPA of 2.9.

445 (145). 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: Economics 241 and 243 and senior standing. *WAC*

490-493. Independent Study (Fall, Winter, Spring; Staff)

498-499. Senior Thesis, Parts I and II (Fall, Winter, Spring; Staff). Independent research thesis. Prerequisites: Economics 241, 242, 243, at least one course in the area of the thesis and senior standing; Economics 498 is prerequisite to Economics 499. *WAC: WS*

Electrical and Computer Engineering

Associate Professor Spinelli, Chair; Professors Chang, Fatic, Hassib, Rudko (on leave, fall) and Traver; Assistant Professors Catravas and Cotter; Lecturer Hedrick.

The Department of Electrical and Computer Engineering offers a B.S. degree as well as a minor in Electrical Engineering and collaborates with the Computer Science Department to offer a B.S. degree and a minor in computer engineering. Joint degree programs are offered with Union Graduate College.

Computer Engineering

Program Director: Professor Spinelli

Mission Statement for Computer Engineering: The mission of the Computer Engineering program is to develop graduates who have the fundamental computer engineering knowledge and skills and the love of lifelong learning that prepare people to thrive in further study and in professional practice. Specific educational objectives and program outcomes can be found at http://ece.union.edu.

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

— Math and Science: (Math 110, 112, 115, Physics 120, 121) or (IMP 111, 112, 113); Math 130, 197 or 199; one math elective from (Math 117*, 127, 198, 221**,** 234, 235, or 340); one science elective numbered 100 or higher (Chemistry 101, Physics 122, or Physics 123 are recommended)

* Math 117 may be taken only by students who did not already take this material in IMP 113.

— Engineering Science: ESc 100**;**

— Computer Engineering Core: ECE 118, 225, 240, 241, 248, 351; CSc 105, 140, 210, 250, 260, 335; ECE/CSc 318, 337, 352;

— 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.

— Capstone Design: ECE 497 (1/2), 498 (1/2), 499.

— Core Components Curriculum: 7 to 10 courses depending upon the options chosen

— Free Electives: up to 3 free electives, depending upon how the Core Components Curriculum is satisfied

Requirements for the Minor: The following six courses — ECE 118, 225, CSc 105, 140 and one from (ECE/CSc 352, 318) and one other from (ECE/CSc 352, 318, 337, CSc 335, 250). The bioengineering minor is outlined in this catalog under Bioengineering.

Sample schedule starting with Math 110 (Students with different math backgrounds will have slightly different math sequences).

Freshman Year

Fall: Elective*, Esc100, MTH 110
Winter: Elective*, MTH 112, PHY 120, Math 197
Spring: Elective*, MTH 115, PHY 121

Sophomore Year

Fall: ECE 225, ECE 118, CSc 105
Winter: Elective* or Math 197, CSc 140, ECE 240, Math 130
Spring: Elective*, 250, ECE 248 or ECE241

Junior Year

Fall: Term abroad option** or Electives*

Winter: CSc 210, ECE/CSc 318, CS 260
Spring: ECE/CSc 152, Math elective, CSc 335, ECE 497 (1/2)

Senior Year
Fall: ECE 351, ECE/CSc 337, ECE 498 (1/2), GenEd Section II
Winter: Computer Engineering elective, Computer Engineering elective, ECE 499
Spring: Elective*, ECE 241 or ECE248, Science elective, Computer Engineering Elective

*Electives should be chose to satisfy the Core Components Curriculum. Students should determine as early as possible how they will satisfy these requirements and should work closely with their academic advisor to develop an appropriate plan of study.

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

Electrical Engineering

Mission Statement for Electrical Engineering: The mission of the department is to provide the student with a solid basis in electrical engineering and the underlying mathematics and science within the framework of a liberal arts college. The graduate can be expected to be successful in seeking employment or pursuing graduate studies in the area of his or her specialty and through the Core Components requirements and the relatively large number of free electives to be a cultured member of society who is aware of the multicultural, multinational world to which we all belong. Specific educational objectives and program outcomes can be found at http://ece.union.edu.

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

— Science and Math: (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.

— Engineering and Computer Science: ESc 100, CSc 070 or CSc 105**, MER 201 or MER 231

— Electrical Engineering Core: ECE 118, 225, 240, 241, 248, 343, 350, 351, 363, 366

— 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.

— Capstone Design: ECE 497 (1/2), 498 (1/2), 499

— Core Components Curriculum: 7 to 10 courses depending upon the options chosen

— Free Electives: up to 7 free electives, depending upon how the Core Components Curriculum is satisfied. Courses should be chosen in consultation with the student's advisor to enhance one or more of the program objectives.

***Note:** Math 110 and 112 may be taken in place of Math 113, in which case Math 110 counts as a free elective.

****Note:** CSc 105 is recommended for students who wish to take additional courses in Computer Science.

Requirements for the Minor: ECE 118, 225, 240, 248; Electives: one from the following — ECE 241, 318, 341, 363, 366, and one from the following - ECE 350, 333, 348, 352, 360. The bioengineering minor is outlined in this catalog under Bioengineering.

Sample schedule starting with Math 110 (Students with different math backgrounds will have slightly different math sequences).

Freshman Year
Fall: Elective*, ESc 100, MTH 110
Winter: Elective*, CSc 070 or CSc 105, MTH 112, PHY 120
Spring: Elective*, MTH 115, PHY 121

Sophomore year

Fall: Elective*, ECE 118, ECE 225
Winter: MER 201, ECE 240, Math 130
Spring: Elective, ECE 241, ECE 248, Math 117

Junior year*

Fall: Term abroad option** or Elective*, ECE 351, ECE 363
Winter: Elective*, ECE 343, ECE 350, Math/Science elective.
Spring: Elective*, ECE 366, ECE 497, Science elective

Senior year

Fall: ECE elective 1, ECE 498, Elective*, Elective*
Winter: ECE elective 2, ECE 499, Elective*, Elective*
Spring: ECE elective 3, Elective*, Elective*

*Electives should be chosen to satisfy the Core Components Curriculum. Students should determine as early as possible how they will satisfy these requirements and should work closely with their academic advisor to develop an appropriate plan of study.

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

Courses:

66 (12). Audio and Image Digital Signal Processing (Not offered 2006-07). Topics include the description of one-dimensional and two-dimensional signals, sampling and quantization, filtering, image enhancement, recognition and colorization. Applications to compact disks, medical imaging, robotics and remote sensing will be presented. Includes a lab. Prerequisite: A mathematics course credit at Union. Not open to electrical or computer engineering students. GenEd: Science with lab.

77 (16). The Digital Evolution (Not offered 2006-07). Topics include the description of the digital computer, its main components, how it works, binary numbers, combinational logic, counters and registers, semiconductors, the BJT and FET as a switch, introduction to VLSI scaling, inverters, pass logic. Includes a lab. Not open to students who have taken ECE 118. GenEd: Science with lab.

80 (100). Electrical Engineering History (Not offered 2006-07). A survey of major developments in electricity and electrical engineering technology, from the experiments of Benjamin Franklin through the development of the Internet. Understanding technology within the cultural and societal contents in which it is developed. Prerequisite: ECE 225. *GenEd: AM-CS, Eu-CS;*

111 (11). Information Technology and Society (Spring). Cross listed with ECO 111. The fundamental concepts and evolution of the computers and networks used in modern information technology; their interaction with social systems and issues such as corporate structures, personal communications, inequality of technology access, electronic commerce and the telecommunications industry. GenEd: AMC

118 (18). 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.

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 ECE225. Prerequisites: PHY 121 or IMP 113.

225 (25). Electric Circuits (Fall). Basic electrical circuit concepts and devices such as Ohm's law, Krichoff'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: PHY 121 or IMP 113.

240 (40). Circuits and Systems (Winter). Transient analysis of RLC circuits; modeling of circuits using differential equations; system models and properties; Laplace transforms applied to circuit and system design and analysis; system functions; complex frequency; poles and zeros;

stability; frequency response; filter design. Includes a weekly lab. Prerequisite: ECE 225; Corequisite or Prerequisite MTH 130.

241 (60). Discrete Systems (Spring). Discrete signals and systems; classification and properties of systems; difference equations; Z-transform; Fourier series, Fourier transforms, the DFT and FFT; filters and filter design; A/D and D/A converters; applications to audio signal processing. Includes a weekly lab. Prerequisite: ECE 240.

248 (48). 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.

310 (110). Electronic Devices (Not offered 2006-07). 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.

312 (112). Application of Integrated Circuits (Not offered 2006-07). Electronic processing of signals; properties of linear and hybrid integrated circuits; design of linear, nonlinear and hybrid electronic systems, active filter networks. Design projects required. Prerequisite: ECE 363, 366, or permission of the instructor.

318 (118). 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.

329 (129). Neural Networks (Spring). Cross listed with CSc 329. Topics include the biological basic of artificial neural networks, neuron models and architectures, backpropagation, associative and competitive learning. Weekly computer laboratories and a final project required. Prerequisite: Linear Algebra and Differential Equations, CSc 140 for CS students.

330 (130). Fuzzy Logic (Not offered 2006-2007). Cross listed with CSc 330. Topics include fuzzy sets and relations, membership functions, defuzzification, classical logic and fuzzy logic, fuzzy rule-based systems, nonlinear simulation, decision making, pattern recognition and control systems. Prerequisite: Calculus and Linear Algebra, CSc 140 for CS students.

333 (133). Wireless Communication Circuits (Winter). Communication circuits, including coupling networks, electrical noise, high-frequency amplifiers, mixers, phase locked loops, high efficiency and broadband amplifiers, modulators and demodulators, pulse modulation techniques. Includes a weekly lab. Design projects required. Prerequisite: ECE 350, 363 or permission of the instructor.

336 (172). Computer Network Protocols (Not offered 2006-2007) Cross listed with CSc 336. Design, analysis, and operation of communication protocols for computer networks; TCP/IP, addressing, switching, routing, congestion control, application protocols. Prerequisite: CSc 105 or equivalent programming ability.

337 (137). Data Communications and Networks (Fall). Cross listed with CSc 337. An introduction to the physical and data link layers of data communication networks, including error detection, and local area networks. Perquisites: ECE 118 or CSc 105.

341 (141). Energy Conversion (Not offered 2006-2007). Theory of electromechanical energy conversion; characteristics of transformers and DC induction; and synchronous machines. Prerequisite: ECE 225.

342 (142). Power Electronics (Not offered 2006-2007). 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, 350.

343 (143). Introduction to Electromagnetic Engineering (Winter). Traveling waves: transmission lines; electrostatics; magnetostatics; applications to engineering problems; solutions by analytical and numerical techniques. Prerequisites: Math 117, ECE 240.

347. Image Processing (Not offered 2006-2007). 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

348 (148). Digital Circuits (Spring). 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, 248, or permission of the instructor.

350 (50). Communication Systems (Winter). 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

351 (51). 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.

352 (152). Embedded Microcontroller Systems (Spring). Cross listed with CSc 352. Hardware and architecture with emphasis on 8051 microcontroller; programming in assembly and higher-level languages, microcontroller applications, and interfacing. Includes an integrated lab. Design projects required. Prerequisites: Knowledge of computer programming and ECE 118.

354 (154). VLSI System Design (Not offered 2006-2007). Cross listed with 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: EE 118 and 248.

358. Waves in Communication (Spring). This course will cover the basic concepts needed to develop electromagnetic devices in wireless communication. These include transmission line theory and circuits, wave propagation and transmission, elements of guided waves and resonators, and basic antenna concepts. Prerequisite: ECE 343 or equivalent.

360 (160). Power System Analysis I (Fall). Power and energy in AC circuits; single phase, three-phase, and polyphase circuits in balanced and unbalanced regimes; measurement of three-phase power; determination of three-phase sequence; single-line diagrams; per-unit method of representation and computations; transformers and synchronous machines in power systems; parameters of transmission lines. Prerequisite: ECE 225.

361 (161). Power System Analysis II (Not offered 2006-2007). 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.

363 (63). 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.

366 (66). Control Systems (Spring). Modeling of control systems by block diagrams and flow graphs. Analysis of control systems response, error and stability by Routh's criterion, Root-Locus method, and frequency domain methods (Nyquist, Bode, and Nichols). Laboratory and design project. Prerequisite: ECE 240.

368. Introduction to Antenna Theory (Spring). 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.

370 (173). Engineering Acoustics (Winter). 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; Corequisite or Prerequisite ECE 343.

463 (163). Fundamentals of Wireless Electronics (Fall). RF components, transmission line theory, Smith chart, 2-port models, matching networks, RF transistor circuit design. Prerequisite: ECE 248.

481 (181), 482 (182), 483 (183). Special Topics in Electrical and Computer Engineering (Fall, Winter, Spring). 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.

490-496 (190-196). Independent Study (Fall, Winter, Spring)

497 (197), 498 (198), 499 (199). Electrical and Computer Engineering Capstone Design Project (Spring, Fall, Winter). Two course equivalent. Students begin this sequence of courses in the spring of their junior year. The spring term includes 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.

Engineering

The Division of Engineering and Computer Science offers programs leading to the Bachelor of Science degree in computer engineering, electrical engineering, mechanical engineering, and computer science. For a description of the undergraduate computer science curriculum, see the computer science section of this *Academic Register.* The engineering curricula are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

The mission of the engineering programs at Union College is to educate students for professional careers with an appreciation of the liberal arts, knowledge of self with enhanced leadership and integrity, and an understanding of engineering principles that will allow them to advance technology in a safe and environmentally sound manner. This is achieved by maintaining dynamic, flexible, curricula containing high quality engineering and computer science programs at the cutting edge of technology, taught by faculty who inspire a commitment for life-long learning.

The engineering programs at Union College have the following characteristics:

-- Students begin the study of engineering in a freshman course that provides a basis for the selection of a specific major.

-- Modern "Converging Technologies" concepts are provided to students beginning in the freshman year.

-- Students work from the freshman to senior year in dynamic team structures that mimic the real world of engineering.

-- All engineering programs have the same Core Components curriculum requirements as Union's liberal arts programs.

-- Engineering students are encouraged to pursue a liberal arts minor.

-- Oral and written communication skills are developed throughout the curricula.

-- Laboratories and design studios are integrated throughout the curricula to develop physical intuition.

-- Research with faculty is available to strengthen the transition to an engineering career or graduate school.

-- Projects and internships are available with industries such as IBM and GE to provide practical work experience.

In recent years, new technological advances have occurred at the interfaces of the liberal arts and engineering, often producing exciting unimagined results. At Union we call this process "Converging Technologies," referring to the continuous melding of technical, scientific, and cultural ideas. Union currently emphasizes several Converging Technologies areas such as: Nanotechnology, Bioengineering, Mechatronics, Neuroscience, Digital Art, and Energy. These areas provide innovative interdisciplinary

curricula for the liberal arts and engineering in the 21st century.

Engineering students complete the College's Core Component curriculum. Details of these requirements can be found in the section of the *Academic Register* that describes the Core Component curriculum.

The freshman year in engineering begins with ESc-100 (ESC 16) (Exploring Engineering) that develops skills needed for college and professional careers. It also provides hands-on design and construction of projects that culminate in a team design challenge. Students are encouraged to choose an engineering major early in the freshman year since program curricula begin to diverge in the winter term.

Engineering freshmen take three terms of calculus (Math 113 (13), 115 (15), and 117 (17)) and two terms of physics (Physics 120 (17), 121 (18)). Exceptional students who have had an introduction to differential and integral calculus may be placed into an Integrated Math-Physics course sequence (IMP 111 (11), 112 (12), 113 (13)) that combines mathematics and physics into a set of courses that are equivalent to Math 113 (13), 115 (15), 117 (17), and Physics 120 (17), 121 (18).

Engineering Science/Engineering

Courses listed in this section are general engineering courses that are common to more than one program and are typically taught by faculty from several departments.

ESc 008. (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. (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 Core Components curriculum.

ESc 100, (ESC 16) Exploring Engineering (Fall). An introduction to engineering including fundamental topics such as problem solving, energy principles, mechanical systems, electrical circuits, controls, computers and logic. The course includes a weekly design studio that emphasizes engineering design, teamwork, technical writing, and ethics through several individual and team design projects. Not available to junior or senior engineering students.

ESc 224. (ESC 24) Frontiers of Nanotechnology and Nanomaterials (Winter; Hagerman, Catravas, Cohen) An overview of nanotechnology and nanomaterials including interdisciplinary perspectives from engineering, materials science, chemistry, physics, and biology with applications to photonics, data and energy storage, catalysis, new polymers, biomaterials and drug delivery. Prerequisites: PHY 111 (16) or 121 (18) (or IMP 113 (13)) and MTH 115 (15), and CHM 101 (10) or 110 (13), or permission from instructor. (Cross listed as CHM 224 (024).)

Esc 370. (ESC 70) Engineering Economics (Spring; Jewell). 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

Engineering and computer science have become global professions. 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 the proper way to communicate. One of the best ways to accomplish this is through an international experience as a student. For engineering and computer science students possible experiences include: 1) regular terms abroad, 2) engineering exchanges, 3) international internships in industry, 4) mini-terms abroad, and 5) collaborative international design projects. For more information on these programs, please visit our website at engineering.union.edu/eta/, or email Professor Jewell, Director of International Programs for Engineering and Computer Science, at jewellt@union.edu.

English

Professor Marten, Chair; Professors Heinegg, MacDonald, McCord (Term Abroad Fall), Smith, Stevenson (Term Abroad Spring), Wineapple (on leave Fall, Winter); Associate Professors Doyle (on leave Winter, Spring), Jenkins (Term Abroad Fall); Assistant Professors jain, Kuhn, Lewin, Romero; Visiting Assistant Professors Lynes, Selley; Visiting Writer-in-Residence Wainaina; Visiting Instructor Pizzino

The English major

12 course requirement

Two Introductory Courses required of all students:

— EGL 100 - Introduction to Literary Studies: Fiction

— EGL 101 - Introduction to Literary Studies: Poetry

The emphasis of these two courses is on close reading of primary texts and the acquisition of a vocabulary to speak and write clearly and intelligently about them. The specific texts and approaches to them are decided by each teacher. Each section will include works by writers from at least three cultural traditions. Possible traditions include African-American, American, Asian, African, Latin American, English, Postcolonial, Western European.

Both Introductory Courses are to be completed by winter term of the junior year.

Detailed descriptions of the various sections of EGL 100 and EGL 101 are available in the English department office, Humanities 212, the week before pre-enrollment each term.

Seven Intermediate Courses required of all students

Intermediate Courses may be taken after at least one of the Introductory Courses has been completed. The second Introductory Course must be taken no later than the winter term of the junior year

In this group, students must complete the following courses:

— One course on Shakespeare, (EGL 223- 224)

— Two Historical Studies courses, one before 1700 (EGL 203 – 209), one before 1900 (EGL 210- 216)

— Four others (with faculty guidance) that reflect each student's interests, intentions, and plans after Union College

There are four Intermediate Course categories:

— Historical Studies Courses that focus on literature viewed particularly (though not exclusively) in historical perspectives. There is often a focus on a particular literary period, with representation of a variety of appropriate genres. (EGL 203-219)

— Culture Studies Courses that focus on literature viewed particularly (though not exclusively) in cultural perspectives. Culture Studies courses may focus on the literature of a particular culture, or literature in relation to several cultures together, or may view literature in relation to particular cultural issues or problems. (EGL 225 – 251)

— Genre Studies Courses that focus on literature viewed in relation to a particular form of writing. Examples: prose fiction, poetry, drama, satire, tragedy. (EGL 256 – 287)

— Author Studies Courses that focus on the writing of a particular author or group of authors. (EGL 292 – 294)

Three Advanced Courses required of all students

Courses in this category are comprised of **Junior Seminars** and **Senior Seminars**. The seminars in both categories are writing intensive, typically research oriented, organized around the work of particular authors or topics. Students must complete three advanced courses, including one Junior Seminar, one Senior Seminar, and one seminar of choice. Students must take at least two Intermediate Courses before enrolling in a Junior Seminar. Students must take at least four Intermediate Courses before enrolling in a Senior Seminar.

Junior Seminar: EGL 300 – 318.

Senior Seminar: EGL 400 – 413

Honors

Fourteen courses are required for honors, the additional two being a two-term honors thesis seminar**.** In this seminar, students are expected to learn research methods, discuss their subjects and approaches to them, share ideas and writing, as they work toward completing their individual theses under the direction of the seminar instructor. Honors students are also required to take the Literary Theory Seminar.

Interested students should discuss possible thesis subjects with various faculty members who can guide them to an appropriate thesis topic. Prospective Honors students are required to submit a two- to three-page thesis proposal by May of their junior year, for review by the department's Honors selection committee.

Minor/I.D.

English I.D. Majors and English Minors have a 7 course requirement: one Introductory Course, and six others, including at least one pre-1700 Historical Studies Course and Shakespeare.

I.D. Honors

Students seeking I.D. Honors in English, have a 9 course requirement, the additional two beyond the requirements for the English I.D. Major being the two-term thesis seminar.

General Education

Gen Ed students may take Intermediate Courses after taking one Introductory Course. For most Intermediate Courses, either of the Introductory Courses will suffice to meet the requirement. However, a student wanting to enroll in a genre specific Intermediate Course (a course dealing only with poetry or a course dealing only with fiction) is expected to have first taken the appropriate Introductory Course (that is, either Introduction to Poetry or Introduction to Fiction). **However, during the transition from the old Gen Ed program to the new, students who have taken *any* previous English department course will be considered to have met the requirement for an Introductory Course.**

Enrollment Limits

Enrollment limits for the three categories of courses are as follows: 20 for Introductory Courses, 25 for Intermediate Courses, 15 for Advanced Junior and Senior Seminars.

For further information about English department courses and activities, consult handouts available in the English department office, or see the department's webpage.

Introductory Courses

100 Introduction to the Study of Literature: Poetry (Fall, Heinegg, Stevenson; Winter, Jenkins, McCord; Spring, Heinegg, McCord, Smith). Students will explore the art of poetry, examining a selection of poems of at least three cultures, considering how poetry conveys its complex meanings through language, voice, image, rhythm, formal and experimental structures. Possible traditions include African-American, American, Asian, Colonial, English, Postcolonial, Western European. Particular attention will be paid to developing reading and writing skills.

101 Introduction to the Study of Literature: Fiction (Fall, jain, Kuhn, Lynes, Pizzino; Winter, MacDonald, Pizzino, Selley; Spring, Lewin, Lynes, Romero, Selley). Students will explore the art of narrative, examining stories and novels of at least three cultures, considering the ways stories get told, and the reasons for telling them. Attention will be given to such concerns as narrative point of view, storytelling strategies and character development, the relationship between oral and written narrative traditions, narrative theory. Each section will include works by writers from at least three cultural traditions. Possible traditions include African-American, American, Asian, Colonial, English, Postcolonial, Western European. Particular attention will be given to developing reading and writing skills.

Intermediate Courses

Writing Workshop Courses

200 (113) 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.

201 (113) Workshop in Fiction (Winter, Wainaina). A first course in the writing of fiction, emphasizing workshop critiques of student work.

202 (211) Workshop in Non-fiction Prose (Not offered in 2006-07). A course in the writing of non-fiction, emphasizing workshop critiques of student work.

Historical Courses

Courses Before 1700

203 (119) British Literature in Historical Context: Medieval Literature I: Literature of Early England (Not offered 2006-07). This course examines the literature of early England as it reflects, shapes, and critiques its social context, from the Anglo-Saxon era up to just before the time of Chaucer. *Gen Ed: Eu-LS*

204 (119) British Literature in Historical Context: Medieval Literature II: **Literature of Fourteenth-Century England** (Fall, Doyle). This course explores English literature as it reflects, shapes, and critiques society from the onset of the Hundred Years' War to the overthrow of Richard II, a turbulent period that includes the Peasants' Revolt, the Black Plague, the rise of English as the language of literature and government, and the proto-Protestant movement known as Lollardy. *Gen Ed: Eu-LS*

205 (353) British Literature in Historical Context: The Renaissance (Not offered 2006-07). 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. *Gen Ed: Eu-LS*

206 British Literature in Historical Context: The 1590s (Fall, Stevenson). The roll call of writers in this decade who achieved fame which has lasted to the present day probably outshines that of any decade in literary history: the poetry and prose of Sidney, Spenser, Raleigh, and Donne; the poetry and plays of Shakespeare, Marlowe, Jonson, and Marston; the new prose of Nashe, Hooker, and Bacon (along with the final edition of Montaigne's essays); Chapman's translation of Homer, (Holland's of Livy, Harington's of Ariosto); all accompanied by Monteverdi's Madrigals. The course will study the works selected from these writers in relation to each other and in relation to their place in history. *Gen Ed: Eu-L*

207 (357) British Literature in Historical Context: 17th Century (Not offered 2006-07).

An examination of the literature of the period as it interacts with itself, with other literatures, and with extra-literary (e.g., religious, philosophical, and scientific) texts. Emphasis on poetry, with attention to the development of prose. *Gen Ed: Eu-LS*

208 (359) British Literature in Historical Context: The Restoration (Spring, Jenkins).

This course will closely examine the culture that produced both the first official poet laureate of England, John Dryden, and the most notoriously libertine poet in English, the Earl of Rochester. Also appearing will be the first English woman to make a living from literature, Aphra Behn; the wittiest playwrights in English dramatic history (Wycherley, Etherege, Congreve); John Milton; some very early English novels; and some pretty good philosophers, including Thomas Hobbes, John Locke, and maybe even Sir Isaac Newton. All that and the Great Fire of London, outbreaks of the plague, several wars, and major revolutions in politics and science. *Gen Ed: Eu-LS*

209 (372) American Literature in Historical Context: Beginnings to 1800 (Not offered 2006-07). This course focuses on beginnings of American literature and culture, with an emphasis on writings prior to 1700. Selections will vary according to instructor, but may include early exploration literature; early Spanish, French and British texts; Native American traditions; Puritan and Pilgrim poetry and essays; writings on witchcraft; the Great Awakening; the rise of science, discovery and invention; the Declaration and the Constitution; and the early sentimental novel. *Gen*

Ed: Am-LS

Courses Before 1900

210 (360) British Literature in Historical Context: 18th Century (Not offered 2006-07).

A selection of works by writers and artists of the period that has been termed "The Age of Reason," "The Age of Exuberance," "The Age of Potholes, Chamber-pots, and Prostitutes." Readings include fiction, poetry, prose, and drama by Pope, Addison, Swift, Gay, Johnson, Sterne and Blake. Artists include Hogarth, Canaletto, Gillray, Rowlandson, and Reynolds. *Gen Ed: Eu-LS*

211 (363/364) British Literature in Historical Context: Romanticism (Not offered 2006-07). The poetry and prose of William Blake, William Wordsworth, Samuel Taylor Coleridge, John Keats, Lord Byron, with focus on their lives and times, art and thought, in the late 18th and early 19th centuries. *Gen Ed: Eu-LS*

212 (121) British Literature in Historical Context: 19th Century: Victorian Literature (Winter, Pizzino). 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. *Gen Ed: Eu-LS*

213 British and Irish Literature in Historical Context: Literature of the 1890s (Not offered 2006-07). The last decade of Victoria's reign is a miniature cultural period unto itself, a *fin de siècle* in which writers employed literary innovation to interrogate an outdated social, sexual, and imperial order. The Empire was at its height, but cracks were starting to show at the seams. In this period therefore, alongside celebrations of the Queen's Imperial Jubilee we find "art for art's sake" aestheticism, new forms of the gothic, a reinvention of English drama, the New Woman in literature, Naturalism, the beginnings of an Irish cultural revival, Sherlock Holmes, anti-imperialist writing, and homoerotic poetry. The best literature of this period initiated a series of questions that modernist, postmodern, and postcolonial writers have continued to ask after two world wars, the collapse of the British Empire, and its replacement by an American one. We will read works by Oscar Wilde, Bram Stoker, Arthur Conan Doyle, George Bernard Shaw, Thomas Hardy, Sommerville and Ross, and "Michael Field." *Gen Ed: Eu-L*

214 (244) European Literature in Historical Context: European Enlightenment and Romanticism (Winter, 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. *Gen Ed: Eu-LS*

215 (122) American Literature in Historical Context: The 19th Century (Winter, MacDonald). 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. *Gen Ed*: *Am-LS*

216 (236a) African-American Literature in Historical Context: Beginnings to 1900: Vision and Re-Vision (Not offered 2006-07). The course will trace African-American movement towards literary and aesthetic mastery beginning with what Henry Luis 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 Chesnutt, and W.E.B. DuBois, among others. *Gen Ed: Am-LS, CDAA*

Courses After 1900

217 (124) 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 Adams, Willa Cather, 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. *Gen Ed: Am-LS*

218 American Literature in Historical Context: 1960-Present (Spring, Pizzino).

The class surveys developments in American fiction, poetry, and drama beginning with the Vietnam era and ending in the first decade of the 21st century. Literary movements in black American, women's, and multi-cultural writing will sit along side so-called "mainstream" post-modernism in juxtaposition and elucidation of major social and historical realities. The authors such as Thomas Pynchon, Don DeLillo, Frank Stanford, Adrienne Rich, Amiri Baraka, Joan Didion, Richard Hugo, Audre Lorde, Richard Powers, Alfredo Vea, Susan Straight, Tony Kushner, Yusef Komunyakaa and Judy Jordan will appear on the syllabus. *Gen Ed*: *Am-LS*

219 (236b) African-American Literature in Historical Context: 1900- Present (Winter, Lynes; Spring, Romero). 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. *Gen Ed: Am-LS, CDAA*

Shakespeare Courses

223 (355) Shakespeare to 1600 (Winter, Stevenson; Spring, Jenkins). The early plays and poems considered as forms of aesthetic experimentation and development within the framework of Elizabethan culture. *Gen Ed: Eu-L*

224 (356) Shakespeare after 1600 (Fall, Heinegg; Spring, McCord). Close readings of the later plays, including the five great tragedies, as both poems and dramas. *Gen Ed: Eu-L*

Cultural Studies Courses

225 (242) Humanities: The Origins (Not offered 2006-07). Readings of selected masterworks from Hebrew, Greek, and Latin literature. *Gen Ed: An-LS,*

226 (240) The World of the Bible (Spring, 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. *Gen Ed*: *An-CS*

227 (233a) Views of London (Not offered 2006-07). The history of London — its ups and downs, its construction and destruction — from Roman times to the present through study of its art, literature, and history. *Gen Ed*: *Eu-LS*

228 (122) The American Renaissance (Spring, Selley). 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. *Gen Ed*: *Am-L*

229 (375) American Realism and Naturalism (Not offered 2006-07). Major literary movements — local color, realism, and naturalism — and the competing literary theories of the decades between the Civil War and World War I. Topics include the rise of the city, the growth of technology, and the moral consequences of material expansion. Authors include Howells, Chopin, Norris, Garland, Crane, and Dreiser. *Gen Ed: Am-L*

230 (234b) Literature of the American West (Fall, MacDonald). The historical, cultural, and theoretical foundations of America's frontier settlement and the contrasts between the "old"

and "new" western histories. Readings include classic western fiction (Guthrie, Wister, Cather), transitional fiction from mid-20th century writings (Doig, Stegner, Abbey), and new fiction (Silko, Erlich, McCarthy, McGuane). Non-fiction to include environmental writing (Leopold, Berry, McKibben) and background histories. *Gen Ed: Am-L*

231T (342T) The American Southwest (Winter mini-term). Course held over the winter break at the Double E, a working cattle-ranch in New Mexico. Topics include history and literature of the Apache; Southwestern fiction; nature and environmental writing; and the history and culture of ranching. *Gen Ed: Am-L*

232 (234a) The Self on the Run: Flight, Freedom and Identity in 20th-Century American Literature and Film (Winter, MacDonald). The ideals of mobility, escape, and the frontier in American writing. Explores how expansion, travel, and progress structure American freedom and self-identity. Writers include Emerson, Turner, Fitzgerald, Kerouac, Kesey, Dickey, and Kingsolver. *Gen Ed: Am-L*

233 (189) New York Modern (Not offered 2006-07). An exploration of 20th-century New York and the New York scene, primarily in fiction and poetry, but also in the visual arts, dance, classical music, jazz and rock, theater, film, TV. We will consider among others, Henry Roth, Hart Crane, William Carlos Williams, Allen Ginsberg, James Baldwin, Arthur Miller; visual artists from Charles Sheeler to Jackson Pollock, Alice Neel and Diane Arbus to Andy Warhol; musicians/composers including Thelonious Monk and Lou Reed, The Weavers and Bob Dylan, Leonard Bernstein and John Cage; dancers/choreographers including George Balanchine, Lincoln Kirstein, Martha Graham and Merce Cunningham; film makers and actors from Marlon Brando and Jackie Gleason to Woody Allen. *Gen Ed: Am-L*

234 The Beats and Contemporary Culture (Not offered 2006-07). 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. *Gen Ed: Am-L*

236 (237c) Women Writers to 1700 (Not offered 2006-07). We will explore the female side of the medieval and early modern literary traditions in England and Europe, examining women's writing as a reaction to male constructions of gender, literary authority, and subjectivity. *Gen Ed: Eu-LS*

237 (120) Women Writers, 18th to 20th Century (Not offered 2006-07). Tracing the tradition of literary writing by 'thinking back through our mothers.' Authors include Behn, Burney, Austen, Radcliffe, Shelley, Brontë, Rossetti, Eliot, Woolf. May consider European contemporaries (LaRoche, Sand) and transatlantic connections (Fuller, Alcott). *Gen Ed: Eu-LS*

238 (237a) Jewish Women Writers (Winter, Lewin). A study of Jewish women's writing in a variety of genres. 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 of the 21st century, interleaved with works in English and translation by Hebrew, Yiddish, European, and Latin American Jewish women authors. *Gen Ed: Eu-LS*

239 American Indian Women Writers (Fall, Romero). This course will explore narratives of American Indian women. We will begin by examining the representations of women, female characters, and gender roles found in traditional American Indian tales from a variety of tribes. We will then explore the ways in which American Indian women from the eighteenth to the twenty-first century uphold, resist, and rewrite these traditional female gender roles, myths, and experiences to create new enabling myths for contemporary American Indian life. Possible writers include Nancy Ward, Joy Harjo, Leslie Silko, Louise Erdrich, LeAnne Howe, Luci Taphonso, and others. *Gen Ed: Am-L*

240 (236e) Black Women Writers (Not offered 2006-07). This course provides an introduction to the major themes and concerns of twentieth-century African American women writers. Using novels, poetry, essays, and music we will examine the ways in which black womanhood is characterized through intersecting categories of race, gender, class, sexuality, and empire. We will explore how selected authors wrestle with stereotypical images of African American women, examine the connections between black womanhood, community, and empire, and discuss the benefits and limitations of the concept of "black women's writing." Possible writers include Zora Neale Hurston, Gwendolyn Brooks, Toni Morrison, Audre Lorde, Gloria Naylor, Octavia Butler, and

others. *Gen Ed: Am-L; CDAA*

241 Classics of Feminism (Not offered 2006-07). A reading of the foundational texts of modern feminism by Mary Wollstonecraft, John Stuart Mill, Virginia Woolf, Simone de Beauvoir, and others. The course will also explore the historical roots of women's emancipation, its philosophy and rhetoric, and its echoes in 21st-century life. *Gen Ed: Eu-L*

242 (236c) As a dance is it obscure: Black Music in American Literary Culture (Not offered 2006-07). This course examines the importance of black musical themes, styles, and performance to 20th-century American literature. The course presents a vocabulary of musical "impulses" derived from the theoretical work of several musicians and writers as a critical language with which to evaluate, "*to hear,*" the music as it informs the writing and reading of the literature. This particular term's course will consider how the lives and work of important figures in black musical history such as Buddy Bolden, Miles Davis, Billie Holiday, Charles Mingus, John Coltrane and others informed and inspired writers' work in novels, poems an plays. Among others, the course will feature writings by Michael Ondaatje, James Baldwin, Gayle Jones, Michael Harper, Bob Kauffman, and Ralph Ellison. *Gen Ed: Am-L; CDAA*

243 (234h) Introduction to American Indian Literature and Film (Not offered 2006-07).

This course will provide an introduction to the narratives of the indigenous peoples of North America. We will be reading traditional oral literatures that predate colonization, such as myths, prayers, and songs, as well as examining the ways these oral traditions are repeated and revised in the contemporary genres of poetry, fiction, autobiography, and film. Through selected examples from oral and written traditions, our focus will be on gaining an understanding of the diverse histories, cultural perspectives, and issues facing tribes across North America. We will pay particular attention to issues of stereotypes, racism, poverty, land rights, cultural "authenticity," and spirituality. We will examine works by Zitkala-Sa, Leslie Silko, Scott Momaday, Louise Erdrich, Simon Ortiz, Sherman Alexie, and others. *Gen Ed: Am-L*

244 (235) Asian American Literature (Winter, jain). The reading list includes 20th-century authors, such as Maxine Hong Kingston, David Henry Hwang, Carlos Bulosan, Chitra Divakruni, and Karen Tei Yamashita. Themes include inter-generational conflict, responses to assimilation pressure, gender and class differences, pan-Asian vs. distinct ethnicities, the significance of "color" to the Asian American experience, and political representation within America. *Gen Ed: Am-; CDEA*

245 (239c) Contemporary South Asian Writing (Spring, jain). This course will introduce students to South Asian writers from the subcontinent and throughout the diaspora who are highly visible in international literary milieus. These include Salman Rushdie, Arundhati Roy, Bharati Mukherjee, Amitav Ghosh, Michael Ondaatje, Pulitzer prize winner Jhumpa Lahiri, and Nobel prize winner V. S. Naipaul. We will also read from influential theorists such as Gayatri Spivak and Homi Bhabha. Students will be asked to consider: postcolonialism, literary canons and genres, the implications of English-language writing for South Asians, types of narrative innovation, and aesthetic commonalities or differences. We will read the literature against the backdrop of the postcolonial histories that are both informed by and informative of this writing, paying attention to issues of geography, ethnicity, religion, gender, sexuality, and caste/class.

246 (239e) Modern African Literature (Spring, Wainaina). This is an introductory course to African writing in English. We will focus on contemporary urban Africa; on the fluid relationships of characters to the State; on identity and culture as expressed in modern African writing. *Gen Ed: CDAA*

247 (238h) Irish Literature and Film (Not offered 2006-07). As an introduction to Irish Studies this course will teach you to how to identify and critique a set of Irish preoccupations – about language, art, and politics – through a survey of the complex and hybrid tradition of Irish writing and film. We will begin with the earliest English conquest and end in the present day. These preoccupations derive from Ireland's historical relationship to the British Empire, and these texts represent a series of cultural contests over the representation of Irishness under colonial and postcolonial conditions. We will discuss how Irish writers and filmmakers negotiate questions of gender, sexuality, class, and language in relation to this history. *Gen Ed: Eu-L*

248 (238f) Yiddish Literature in Translation (Not offered 2006-07). 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. *Gen Ed: Eu-L*

249 (238c) Literature of the Holocaust (Not offered 2006-07). 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. *Gen Ed: Eu-L*

250 Literature and Science (Not offered 2006-07). 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. G*en Ed: Eu-L & Am-L*

251 (234d) Nature and Environmental Writing (Spring, MacDonald). 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. *Gen Ed*: *Am-L*

Genre Studies Courses

256 (361) Rise of the Novel (Not offered 2006-07). Development of the novel form in its social, cultural, and literary contexts, focusing primarily on the 18th century. We will consider adventure/picaresque, domestic/epistolary and questions of genre, gender, and history. Authors include Chariton, Cervantes, Defoe, Barker, Behn, Richardson, and Burney. *Gen Ed: Eu-L*

257 (362) 19th Century Novel (Not offered 2006-07). 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. *Gen Ed: Eu-L*

258 (369) Modern British Fiction (Fall, Marten). 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. *Gen Ed: Eu-L*

259 (370) British Fiction Since WW II (Not offered 2006-07). 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. *Gen Ed: Eu-L*

260 (376) Modern American Novel (Not offered 2006-07). Major developments in the American novel from the turn of the 20th century to the 1950s, including such subjects as traditional and experimental fictive forms, the relation of science, technology and religion to the literary imagination, the experience and aftermath of war, the rise of expatriate culture, the impact of psychology and psychological thinking, depression, and the search for an inclusive — or exclusive — ethos in art. Novels include works by Wharton, Stein, Faulkner, Fitzgerald, Hemingway, Hurston, and others, explored alongside the changes or shocks in American culture — whether the Armory show, the Scopes trial or the coming of the nuclear age. *Gen Ed: Am-L*

261 (377) American Fiction Since 1960 (Not offered 2006-07). A consideration of a variety of issues in the development of the American novel after World War II, with emphasis on the fiction of the last three decades. Novelists read will include Saul Bellow, Vladimir Nabokov, Don DeLillo, Tim O'Brien, Louise Erdrich, Toni Morrison, Chang-rae Lee, Mona Simpson, Michael Chabon, and Robert Gold. Topics will include the novel and the American sense of place, representations of the immigrant experience, American pop culture and American fiction, the novel in the "nuclear age," definitions of the self, fiction and war, the novel and the sense of the past, the novel as experiment, and film and fiction. *Gen Ed: Am-L*

262 American Regionalism (Not offered 2006-07). This course examines authors and works of fiction that pay particular attention to region and place as sources of identity. We will examine writers from various distinct American regions — New England, the South, the Midwest, the Plains, the Southwest, California. Writers will include Thoreau, Twain, Hamlin Garland, Willa Cather, Mary Austin, Sherwood Anderson, Flannery O Connor, Rudolpho Anaya, and Joan Didion and others. *Gen Ed: Am-L*

263 (238d) European Novel in Translation (Not offered 2006-07). 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. *Gen Ed: Eu-L*

264 (366) Novels of Education (Not offered 2006-07). 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. *Gen Ed: Eu-L*

265 (365) Governess Tales (Not offered 2006-07). 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*, Thackeray's *Vanity Fair*, and Anne Brontë's *Agnes Grey*. Other governess tales (*Emma*) and parodies (*Behind a Mask, Turn of the Screw*) will round out the syllabus. *Gen Ed: Eu-L*

266 (366) Detective Fiction (Not offered 2006-07). 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? *Gen Ed: Eu-L*

267 (245) Philosophical Fiction (Spring, Kuhn). This course will deal with works of fiction in which philosophy or philosophical concepts play a significant role. A key issue is the relationship between ideas and (literary) form. Authors will come from a wide range of traditions and may include Descartes, Rousseau, Wordsworth, Nietzsche, Camus, Doestoevsky, Borges, Calvino, Lem, and Le Guin. *Gen Ed*: *Eu-LS*

268 (239h) Contemporary African Fiction (Winter, Wainaina). This course looks at a selection of English language fiction from Africa, and about Africa. We will focus on how a wide variety of African writers use the English language to create viable African worlds. What do you break apart, keep, subvert, rearrange, and mimic to make the language your own? *Gen Ed: CDAA*

269 (119) Poetry in the Renaissance (Not offered 2006-07). 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. *Gen Ed: Eu-L*

270 (378) Modern Poetry (Not offered 2006-07). Selected poetry from the modern period

considered in relation to the major "isms" — modernism, imagism, vorticism, futurism — and the poet's contradictory posture as prophet, exile, and romantic. Poets include W.B. Yeats, T.S. Eliot, Ezra Pound, Wallace Stevens, William Carlos Williams, Elizabeth Bishop, Marianne Moore, others. *Gen Ed: Eu-L & AmL*

271 (368) British Poetry Since WW II (Not offered 2006-07). 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. *Gen Ed: Eu-L*

272 (379) American Poetry Since 1960 (Not offered 2006-07). A consideration of a variety of issues in the development of American poetry since World War II. Poets will include Elizabeth Bishop, Robert Lowell, John Berryman, Allen Ginsberg, Robert Duncan, Jay Wright, and Adrienne Rich. Topics of discussion may include poetry and the self, the poet's sense of history, poetry and politics, poetry and place, the poet and pop culture, poetry and music, poetic formalism and poetic experiment. *Gen Ed: Am-L*

273 Irish Poetry (Not offered 2006-07). W.B. Yeats is the crux figure in modern Irish poetry, and in this course we will use him as a lens to examine the whole. We will see how Yeats reinvented (and distorted?) the traditions he inherited, and we will also look at how subsequent Irish poets have sought to define themselves against his vision of Irishness. Stepping out of Yeats's shadow, they have sought out poetic procedures and agendas of their own, either in relation to the Northern Irish Troubles, the roles of class, gender, and sexuality in Irish life, and the place of Ireland a postcolonial, globalized world. *Gen Ed: Eu-L*

274 (236d) Introduction to Black Poetry (Spring, Lynes). The development of African-American poetic voices in North America. Spanning eras, it 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 and as they arrange and are arranged in anthologies. We will also read several full books by individual authors. *Gen Ed: Am-L; CDAA*

275 (354) Renaissance Drama (Not offered 2006-07). 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 Pity She's a Whore), the criminal (the anonymous Arden of Faversham), and sometimes the intersection of all three (Jonson's Bartholomew Fair). *Gen Ed: Eu-L*

276 (246) Modern Drama (Spring, Heinegg). A reading of the work of four master playwrights from the late 19th to mid-20th century, Henrik Ibsen, Anton Chekhov, Bertolt Brecht, and Samuel Beckett, who revolutionized stagecraft with their radical vision of tragedy, comedy, and the human condition. *Gen Ed*: *Eu-*

277 (126) Tragedy (Winter, Heinegg). Selected tragic masterworks from ancient Greece, Elizabethan-Jacobian 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. *Gen Ed*: *Eu-L*

278 (127) Comedy (Not offered 2006-07). 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. *Gen Ed: Eu-L*

279 (128) Epic (Not offered 2006-07). An introduction to epic literature from a comparative perspective. Epics have a value that is essentially, not accidentally, historical. Though they come down to us from the ancient world, their orientation is retrospective to begin with (since they take, for their subject, the distant past of their "original" audience). Readings will include Gilgamesh, Exodus, The Odyssey, and Njal's Saga. *Gen Ed: An-L*

280 (129) Satire (Not offered 2006-07). 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. *Gen Ed: Eu-L*

281 (352) Romance: Medieval to Modern (Not offered 2006-07). This course follows the development of the romance, from its coming of age in twelfth-century France to its twentieth-century descendants. *Gen Ed: Eu-LS*

282 (231c) Gothic (Winter, Lewin). 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. *Gen Ed*: *Eu-LS*

283 (130) Autobiography (Fall, Kuhn). "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*. *Gen Ed*: *Eu-LS & Am-LS*

284 (237b) Gender and Genre (Spring, Lewin). 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. *Gen Ed: Eu-LS*

285 (248) Film as Fictive Art: American and European Films (Not offered 2006-07).

A study of the formal, technical, and ideological elements of selected American films. *Gen Ed: Eu-L & Am-L*

286 Film: The American Western (Spring, MacDonald). This course will examine the American Western film from the 1940s through the present. In addition to viewing films, the class will include readings essays on film and on the rise of the myth of the West during the Post-War period. We will examine TV westerns as well, and consider the popular treatments of the west in revisionist films. *Gen Ed: Am-L*

287 (239d) Science Fiction (Spring, Pizzino). 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, Speilberg, Cronenberg, Gilliam, and Scott. *Gen Ed*: *Am-L*

Author Studies Courses

292 (358) Milton (Not offered 2006-07). 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. *Gen Ed: Eu-L*

294 Montana Writers (Not offered 2006-07). Montana has had a renaissance of literary works in the last 25 years. This course will focus on the major writers of that period, with attention to such topics as the image of the west, the role of region and place, gender and western history. Writers will include A.B. Guthrie, Conrad Richter, Ivan Doig, Norman Maclean, Judy Blunt, Mary Clearman Blew, James Welch, Jim Harrison, Thomas McGuane and Richard Ford. *Gen Ed: Am-L*

Advanced Courses

Junior Seminars

300 (214) Junior Seminar: Poetry Workshop (Winter, Smith). A workshop course for students with some experience and a serious interest in the writing of poetry.

301 (215) Junior Seminar: Fiction Workshop (Spring, Wainaina). A workshop course for students with some experience and a serious interest in the writing of fiction.

302 (239a) Junior Seminar: Post-Colonial Literature and Theory (Winter, jain). An introduction to Anglophone writing from or relating to communities in former colonies, with an emphasis on gendered histories of imperialism and resistance. The following topics will be considered: historical and literary representations of post-colonial identities; projects of Orientalism, ethnocentrism, and nationalism; geopolitical differences in colonizing and post-colonial situations; and the relationship of aesthetics to politics. *Gen Ed*: *CDA, CDEA or CDLA*

303 (380) Junior Seminar: Literary Theory (Spring, 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. *Gen Ed: Eu-L*

304 Junior Seminar: Caribbean Diasporas (Not offered 2006-07). This course will examine the complex histories and literatures of the Caribbean. We will explore the connections between African and Asian diasporas and their location within a Latin American context. By reading works from writers of various ethnicities, this course will discuss the construction of categories of race, gender, empire, and diasporas in the hopes of redefining the "Caribbean." Possible writers include Cristina Garcia, Derek Walcott, Paule Marshall, Julia Alvarez, Charles Johnson, Shani Mootoo, and others. *Gen Ed: CDAA & CDLA*

305 (190) Junior Seminar: The Brontës (Fall, Lewin). 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 *The Life of Charlotte Brontë*. We will consider biographical, interpersonal, and intertextual relations alongside questions of gender, class, religious vocation, communal authorship, pseudonymous publication and the cult of genius.

Gen Ed: *Eu-L*

306 Junior Seminar: Bob Dylan (Winter, McCord). A close study of the lyrics, music and life of the often prophetic artist who documented, defined and shaped many of our views of the political, social, philosophical and spiritual history of the United States in the second half of the 20th century. *Gen Ed*: *Am-L*

307 (350) Junior Seminar: Chaucer: *Troilus and Criseyde* and the Shorter Poems (Fall, Doyle). Although we think of Chaucer as the author of the *Canterbury Tales,* in his own lifetime Chaucer's poetic reputation would have been built on an entirely different set of texts. Chaucer's earlier works reflected and shaped the values and anxieties of the international court culture in which he lived and worked. We will read *The Book of the Duchess, The House of Fame, Anelida and Arcite, The Parliament of Fowls, The Legend of Good Women,* and *Troilus and Criseyde. Gen Ed*: *Eu-L*

308 (351) Junior Seminar: Chaucer: *Canterbury Tales* (Not offered 2006-07). If Chaucer is "the father of English poetry," the Canterbury Tales is the first poem in the modern tradition of English literature. We will read the *Canterbury Tales* in the light of its status as an originary text, with attention to issues of history subjectivity, gender, and authorial identity. *Gen Ed: Eu-L*

309 (232a) Junior Seminar: Salman Rushdie (Not offered 2006-07). A reading of novels and essays by one of the most internationally (in)famous writers of our times, an Indian writer who seems to typify contemporary cosmopolitanism and migration. From the children's book *Haroun and the Sea of Stories* to the postcolonial theorizing of *Imaginary Homelands* to his latest novel set in cybertoday, *Fury,* we will study a variety of genres and themes as well as the commonalities between the works.

312 Junior Seminar: Louise Erdrich (Not offered 2006-07). We will be studying the writings of Louise Erdrich. Although we will focus primarily on her novels, we will also examine selected

nonfiction prose and interviews. Topics for discussion include issues of race, gender, contemporary American Indian politics, motherhood, spirituality, and community. *Gen Ed: Am-L*

313 Junior Seminar: Feminist Literary Study (Not offered 2006-07). This course will provide an introduction to the key issues, debates, and texts in feminist literary studies. We will pay special attention to the intersections between race, class, gender, and sexuality in literary and cultural texts and the ways in which feminist literary theory and criticism challenge and uphold these categories. Possible writers include Virginia Woolf, Adrienne Rich, Audre Lorde, bell hooks, Judith Butler, and others. *Gen Ed: Eu-L & Am-L*

315 Junior Seminar: Stegner, McGuane and Houston (Not offered 2006-07). Examining three generations of Western writers with far-reaching influence, this course will read from the early and later works of Wallace Stegner, Thomas McGuane and Pam Houston, examining their respective portraits of the American West's culture and land, their influence on other writers of the American West and the changes in their fiction as their careers developed. Readings will also include extensive secondary literature on each author. *Gen Ed: Am-L*

316 (234f) Junior Seminar: The Independent Press and Contemporary Poetry (Not offered 2006-07). An examination of the importance of independent (little, literary) presses and journals on the development of American poetry. Writers will include William Carlos Williams, Robert Creeley, Alice Notley, Paul Blackburn, and Eleanor Lerman. *Gen Ed: Am-L*

317 (239b) Junior Seminar: The Grotesque in Modern Literature and Art (Not offered 2006-07). Thomas Mann once noted that "the striking feature of modern art is that it sees life as tragic-comedy[and that] the grotesque is its most genuine style." This class will explore the nature of grotesque art-art which blends elements of terror and ugliness with humor and beauty while presenting a world at once familiar and alien. The course will study writers and visual artists who have helped to define the genre for our time, in America, in Europe, in Latin America: fiction by such writers as Sherwood Anderson, Nathanael West, Flannery O'Connor, Carson McCullers, Joseph Heller, Franz Kafka, Gunter Grass, Gabriel Garcia Marquez: poetry by Ted Hughes, Allen Ginsberg, others; work by visual artists from Schiele and deKooning to Diane Arbus; films by Woody Allen and the Coen brothers. *Gen Ed: Eu-L & Am-L*

Senior Seminars

400 (316) Senior Seminar: Poetry Workshop (Spring, Smith). An advanced workshop course in the writing of poetry.

401 (317) Senior Seminar: Fiction Workshop (Not offered 2006-07). An advanced workshop course in the writing of fiction.

402, (498) 403 (499) Senior Seminar: Honors Thesis Seminar I & II (Fall, Romero; Winter, Romero). 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 be your primary reader for the thesis.

404 (190) Senior Seminar: Jane Austen (Fall, Roth). Virginia Woolf remarked that she envied anyone who had Jane Austen to read for the first time. In order to understand such a recommendation, students will explore the contexts of the novels – particularly the architectural, horticultural, and sartorial – within which the characters are developed in economic, intellectual, and ethical terms. These contexts are also central to Austen's project of exposing the tension between a prevailing social order and the opportunities or lack thereof for women, another key focus in the course. Moreover, the plot has thickened since Woolf made that pronouncement: the recent spate of films made of the novels – *Persuasion*, *Sense and Sensibility*, *Emma*, *Mansfield Park* and, of course, *Pride and Prejudice* (some of which have seen celluloid/video more than once) – offers a new approach to reading, one that helps us identify the richness of Austen's original novels; viewing several of the film versions, we will compare the quite varied ways in which directors have tried to adapt the texture and complexity of Austen's vision to the screen. *Gen Ed: Eu-L*

406 Senior Seminar: Emily Dickinson (Spring, Wineapple). A very close reading of the dense and highly original poetry of Emily Dickinson in the context of her contemporaries (Hawthorne,

Whitman, the Brownings), her region (New England), her life (largely reclusive), her friends (myriad), her gender (self-conscious), her influence (on modern poetry) and the various issues (transcendentalism, abolition, feminism, fame) swirling around, and in, her work. *Gen Ed: Am-L*

407 (232b) Senior Seminar: Franz Kafka (Winter, Heinegg). A reading of the short stories, novels, letters and diaries of one of the great figures of 20th-century literature. The unhappy son of a dominating father and a German-speaking Jew in anti-Semitic Prague, Kafka produced a body of work where the themes of alienation, absurdity, and the dogged quest to overcome them, related in a uniquely maddening-but-exhilarating style, achieve an unmatched tragicomic intensity. *Gen Ed: Eu-L*

409 Senior Seminar: T.S. Eliot and Pablo Picasso (Not offered 2006-07). A close comparative study of two of the most influential makers and shapers of modern art and literature during the first half of the 20th century. Oppositions, tensions and issues we'll be discussing: past and present; tradition and individual talent; outdated old and original new; form and content; order and disorder; belief and nihilism. *Gen Ed: Eu-L*

410 (489) Senior Seminar: Leo Tolstoy (Not offered 2006-07). A reading of War and Peace, along with some of his shorter masterpieces. The course will survey Tolstoy's astonishing career as artist, prophet, and impossible person. *Gen Ed: Eu-L*

411 (191) Senior Seminar: William Blake (Not offered 2006-07). A consideration of the distinctive interdisciplinary achievements of William Blake, as poet, philosopher, radical theologian, illustrator, and artist. The class will study most all of Blake's "illuminated books" as composite works in which text, design, and illustration work together to communicate possible meanings. *Gen Ed: Eu-L*

412 (488) Senior Seminar: Toni Morrison (Not offered 2006-07). We will be studying the writings of Toni Morrison. Although we will focus primarily on her novels, we will also examine selected nonfiction prose and interviews. Topics for discussion include issues of race, class, gender, sexuality, motherhood, community, politics, and religion. *Gen Ed: Am-L & CDAA*

413 Senior Seminar: George Eliot (Not offered 2006-07). This course will examine four of Eliot's blockbuster novels, from her earliest to her latest, and her earliest and latest collections: *Scenes from a Clerical Life, Adam Bede, Mill on the Floss, Middlemarch, Daniel Deronda* and *Impressions of Theophrastus Such.* We will also compare a selection of Eliot biographies (by Ashton, Uglow, and Karl) in doing our own focused research projects. *Gen Ed: Eu-L*

Independent Study & Senior Thesis (non Honors)

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.

496-497 Senior Thesis One or two term. If two terms, credit granted for both terms when completed.

Environmental Studies

The Environmental Studies program is designed for students with a strong interest in understanding and solving environmental problems. The program allows students the opportunity to explore areas of environmental policy, environmental science, and environmental engineering. Students will find this program useful if they enter environmental science or environmental management in the public and private sectors, teaching, business, politics, or law. Because of the diversity of the program, the environmental studies major is also useful for students having a general interest in the environment but who are unsure of which major to choose.

Requirements for the ES Tracks: There are two tracks in the Environmental Studies program: Environmental Science and Environmental Policy. Both require a number of core courses and then a specialty concentration of five courses, the senior seminar of one course, and a senior thesis or project of two courses.

Environmental Studies Science Track: Includes ENS 100, 9 science courses; 2 math/quantitative treatment of data; 3 policy courses; 2 thesis credits; 1 senior seminar, for a total of 19 courses. Specific requirements include completion of A-G below:

A. Introductory course (ENS 100)

B. Six courses in science and mathematics (BIO 110 or 113; BIO 320; CHM 101; GEO 100 or 102; MTH 110 or 113; either ECO 243, PSY 200, PSC 220, or SOC 300);

C. One course in economics (ECO 228);

D. Two policy courses (ENG 251; HST 150, 335; PHL 273, 274; PSC 272; SOC 270, 358T or 359);

E. Senior Seminar (one course, one-half for two terms — ENS 450 and 451);

F. Senior thesis (two courses – ENS 498 and 499);

G. Concentration in Environmental Science (five courses) in one approved concentration:

— Climate Change (BIO 315, 322, 323, 350; ENS 251; GEO 101 or 103; GEO 202, 204, 254, 300, 301, 304)

— Conservation Biology (BIO 322, 323, 325, 328, 350, 351; ENS 250; GEO 202, 204, 301)

—Environmental Chemistry (ENS 250; CHM 102, 231, 232, 240; GEO 200, 302)

— Marine Science (BIO 336, 256T, 328; GEO 106, 201, 208, 301, 302, 304)

Environmental Studies Policy Track: Includes ENS 100, 5 science courses; 1 quantitative treatment of data; 9 policy courses; 2 thesis; 1 senior seminar, for a total of 19 courses. Specific requirements include completion of A-G below:

A. Introductory course (ENS 100);

B. Science courses (three courses: BIO 110 or 113; CHM 101; and GEO 100 or GEO 102);

C. Environmental policy (five courses total from ECO 228 [required]; either SOC 300 or ECO 243; and three courses from SOC 358T, 359; PSC 272; PHL 273, 274; HST 150, 335; and Tab 355T);

D. Upper level science (two courses: BIO 320 and either BIO 322; ENS 250; GEO 301; BIO 350; or any ENS science track course 200-level or higher);

E. Senior Seminar (one course, one-half for two terms: ENS 450 and ENS 451);

F. Senior Thesis (two courses – ENS 498 and 499);

G. Concentration in Environmental Policy (five additional courses in appropriate environmental themes, which include law and social policy; resource economics; natural resource management; marine studies; environmental ethics; environmental problems and community response; and environmental culture and literature. Courses selections for any of these concentration themes must be approved by the program adviser (Kaplan or Kenney). Suitable courses include ECO 233, 241, 339, 347, 340, 386, 390; EGL 211, 230, 251, HST 150, 335; PHL 273, 274; PSC 263, 264, 272, 273; SOC 202, 240, 265, 270, 358T, 359, 370, 385, 386. Upper level science core courses may also be selected.

The concentration areas allow a student to gain in-depth understanding of a selected discipline. The senior thesis in this discipline integrates the core and specialty courses into a sophisticated, environmentally-related research project. For both the ES Science track and the ES Policy track, topic of the senior thesis or senior project is chosen in consultation with the student's faculty advisor, and must be environmentally related. A student may not use the ENS curriculum as part of an ID major.

Minor in Environmental Studies: The minor consists of 7 courses taken from the Environmental Studies major core curriculum. ENS 100 is required. Two courses must be from

the environmental policy set (currently including ECO 228, EGL 251; PHL 273, 274; PSC 272, SOC 358T, 359), two must be from the environmental science set (currently including BIO 110, 113; CHM 101; ENS 200, 201, 250, 251; GEO 100, 102, 104, 106, 108), and a fifth course selected from either of these two sets. These courses should be chosen in consultation with the student's major advisor or the program director. In addition, the two-term, half-time Environmental Studies Seminar, ENS 450 and ENS 451 (each one-half credit), must be taken in the senior year.

Requirements for Honors: The major requirements as specified above are required, as are the GPA requirements of Union College described elsewhere in this catalogue.

Program Director: Professor Rodbell (Geology)

Program Advisors: B. Boyer, LoGiudice, Rice, Tobiessen (Biology); Hagerman, Hull, Werner (Chemistry); Garver, Hollocher, Shaw (Geology); Kaplan (Sociology); Kenney (Economics); Wilk (Mechanical Engineering); MacDonald (English).

100 (10). Introduction to Environmental Studies. 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.

200 (33). Energy. 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.

201 (49). Nuclear Technology in War and Peace: A Study of Issues and Choices. Explores the technology of nuclear weapons and nuclear energy for electric power generation. Associated problems of nuclear weapons proliferation and technological alternatives are considered.

250 (35). Water Resources and the Environment. Surface and groundwater hydrology; reservoir, lake, and stream pollution; water and wastewater treatment. Not for engineering majors. Prerequisite: Some college-level math and/or science. (Cross listed as CER 35.)

251 (38). Environmental Science and the Atmosphere. The study of the atmosphere and air pollution. Fundamentals of the chemical and physical processes associated with the atmosphere. Basic meteorology; sources, effects, and control of air pollution. Global climate change, ozone depletion, acid rain. Air pollution law and air quality management. Indoor air quality. Prerequisite: College-level math and science. Carries GenEd science credit. *WAC*

450-451 (180-181). Senior Seminar in Environmental Studies. This capstone course for the environmental studies program brings together the expertise and experience of all environmental studies 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. Course meets once a week during winter and spring terms, with one course credit awarded on completion of the second term. Prerequisite: Senior standing (open to all seniors).

490-491 (191-192). Independent Study in Environmental Studies. Independent work on an environmental topic of particular interest under the direction of a faculty advisor. Prerequisite: Permission of the instructor.

498-499. (198-199). 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 199 (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.

Other courses are listed under their individual departments.

Geology

Professor Garver, Chair; Professor Hollocher; Professor Rodbell; Professor Shaw; Research Professor Fleischer; Research Professor Finks.

Requirements for the Geology Major: Twelve courses in the department including: one of Geology 100(10), 102(12), 105(15), 106(16), 107(17), 108(18); one of 101(11), (103)13, 104(14), 208(28); one of 303(26), 300(40), or 301(41), each of 200(20), 201(21), 202(22), 250(30), 253(33), and 405(180), and three elective geology courses. Also required are two terms each of mathematics (or equivalent such as Math 113(13)), chemistry, and biology or physics. Advanced work or a minor is encouraged in chemistry, physics, biology, mathematics, economics, or engineering. All Geology courses at the 100 level are introductory and have no prerequisites. Senior Geology majors may not take these introductory courses for major credit. A senior thesis is the final product of 405, which may be a research thesis (required for honors) if accompanied by senior level research (495-498). Only one senior level research credit may count toward the three geology electives. Students who intend on going to graduate school are strongly encouraged to do a research thesis and to take two courses in physics rather than biology, unless specifically interested in paleontology or geobiology, because most graduate programs require physics. A summer field course in the junior year is strongly recommended, particularly for those going on to graduate school or geological consulting work.

Requirements for Honors: The major requirements as specified above are required, as are the GPA requirements of Union College described elsewhere in this catalog. A senior research thesis is required, consisting of at least one term of 495-498(195-198) (independent research with a faculty member) and 405(180). Only one 495-498 credit may count toward the three geology electives.

Requirements for Interdepartmental Majors: Interdepartmental majors will follow the guidelines described elsewhere in this catalog. Students taking geology as part of an interdepartmental major should take any introductory level course at the 100 level, plus any other geology courses needed 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 the Minor: A minor in geology requires six courses including any introductory level course at the 100 level, 200, and any four electives numbered higher than 200. All prerequisites apply.

Requirements for Secondary School Certification: Students seeking certification in earth science should complete the normal Geology major described above, except that astronomy, planetary science, and meteorology may substitute for any Geology elective or physics/biology ancillary science course. For other requirements consult the Educational Studies Program elsewhere in this catalog.

100(10). Physical Geology (Fall; Hollocher). Examination of how our dynamic planet works: plate tectonics, how geologic age is determined, the processes that form the stunning variety of rocks we see at the Earth's surface, the development of the even more stunning variety of landscapes we see, and many topics of contemporary interest including floods, the nature of underground water resources, coastal erosion, earthquakes, interpreting topographic maps for land use purposes, and climate change. No prerequisites, GenEd lab science credit SCLB, 5 labs meeting alternate weeks.

101(11). The Earth and Life Through Time (Winter; Garver). The Earth's dynamic history and evolutionary changes over the last 4.5 billion years. Includes the geologic evidence for the evolution of life, for major changes in the nature of Earth's atmosphere and oceans, and for major mountain building events that have affected the continents as well as the evolutionary development of plant and animal life as recorded in the geologic record. Specific topics include the geologic record of important events such as development of the atmosphere, emergence of life, extinction of the dinosaurs, and the ice ages. No prerequisites, GenEd lab science credit SCLB, 5 labs meeting alternate weeks.

102(12). Environmental Geology (Spring; Rodbell). Basic geologic concepts are used for understanding a variety of natural and human-induced geologic hazards that directly affect people. This course examines the nature of various natural hazards including earthquakes, volcanoes, landslides, floods, and coastal erosion. Also examines the interplay between human activities and the environment, such as soil and groundwater contamination, solid-waste disposal, resource development; the geologic record of global change, and the debate over global warming. No prerequisites, GenEd lab science credit SCLB, 5 labs meeting alternate weeks.

103(13). Great Moments in The History of Life (Spring: Shaw). This course examines major

"events" in the development of life on Earth including the origin of the chemical elements that make up our solar system, coalescence of the solar system, pre-biotic synthesis of organic chemicals, origin and consequences of photosynthesis, the explosion of multicellular life, colonization of land, and the cause and effects of major extinctions (Ordovician, Permian, Cretaceous and Holocene). Geologic evidence related to these events will be central to the course. No prerequisites, GenEd science credit SCIE.

104. Global perspectives on Energy. (Spring; Shaw) This course addresses the geologic factors important in energy supply and the impacts associated with energy use. In addition to discussing the various non-renewable and renewable energy resources, constraints on energy production (including physical laws, environmental effects, political and economic factors) will be examined for each. Students will do research into selected aspects of energy supply and/or use. They will learn how to access data and incorporate it into an analysis of a particular problem associated with energy use. No prerequisites, GenEd science credit SCIE.

106(16). Restless Oceans (Not offered 2006-07). A survey of the physical, chemical, and biological. Involves an examination of the present ocean basins including important sea floor features, plate tectonic concepts, ocean currents and the forces driving them, oceanic sedimentation and the climate records they hold, the role of the oceans in climate change including the Ice Ages, coastal processes and sea level change, biological productivity, and the ocean fishing and minerals industries. No prerequisites, GenEd science credit SCIE.

107(17). Natural Disasters (Spring; Garver). Geology as it specifically relates to geologic hazards affecting people and society. An introduction to the geologic processes causing floods, earthquakes, volcanoes, landslides and other natural hazards. The course will include discussion of major events in the geologic and historical record as well as future hazard potential. We will assess the risks humans face in different regions, including local hazards, our contribution to geologic hazards, and how we can minimize and cope with future events. No prerequisites, GenEd lab science credit SCLB, 5 labs meeting alternate weeks.

108(18). Earth Resources (Not offered 2006-07). The goal of this course is to provide non-geology majors with an appreciation of the importance of mineral and fuel resources for modern society, and insight into the geology of economically valuable deposits. Issues concerning the discovery, development, environmental impacts, and estimates of amounts of resources available will be discussed in a geological, economic, and technological context. No prerequisites, GenEd lab science credit SCLB, 5 labs meeting alternate weeks.

200(20). Mineral Science (Winter; Hollocher). 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: Chemistry-101; weekly lab.

201(21). 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 introductory geology course; weekly lab; *WAC*

202(22). Origin and Evolution of Landscapes (Fall; Rodbell). The processes operating on and near the Earth's surface are responsible for the development of landforms, and the evolution of these landforms through time. This course covers erosional and depositional processes of river, lake, wind, and limestone cave systems, the processes of chemical and physical weathering, and the relationships between landforms and tectonic and climatic controls. Prerequisites: Any introductory Geology course; weekly lab, WAC.

203(23). Introduction to Remote Sensing (Not offered 2006-07). An introduction to the techniques of observing the Earth's land, ocean, and atmosphere from air- and space-born sensors. The course focuses on the application of remote sensing to geology, biology, land use, and the environment, and also covers technical issues affecting the acquisition, processing, and analysis of images, the properties of Earth's surface materials affecting remote sensing, and the range of instruments used to observe the Earth and other planets. Prerequisites: Any introductory geology course or permission of the instructor; weekly lab.

204(24). GIS for Humanity (Not offered 2006-07). An introduction to Geographic Information

Systems (GIS) technology and its practical uses. Topics include history of GIS, geographic data types, primary data structures, system design, map coordinate systems, data sources, metadata, census data, geographic coding and address matching, digitizing, remote sensing imagery, measures of data quality, and needs assessment. An emphasis will be on hands-on instruction using GIS software (ArcView). Students will work with ArcView throughout the term to complete assignments and a class project. Focus areas include archaeology, electric and gas utilities, surveying, health and human services, insurance, law enforcement and criminal justice, media and telecommunications, transportation, water and wastewater, and natural resources. The ultimate goal is to use the spatial component of data in conducting analysis and making decisions. Two class hours and two lab hours weekly. Prerequisites: A good background in the use of modern computer software.

207(27). Ground and Surface Water Geology (Not offered 2006-07). Hydrologic and engineering aspects of ground and surface water, including an introduction to the analysis of water quality. Course will address characteristics of water movement, engineering applications of the basic equations of the mechanics of water flow, and the transport of contaminants in water. The course emphasizes quantitative approaches to groundwater production and management and practical applications in water supply and remediation of contaminated aquifers. Not an introductory level course. Prerequisite: A good background in math, science, or engineering, or any introductory geology course; weekly lab.

209(150). Field Geology (Not offered 2006-07). 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.

250(30). 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: Geology 200; weekly lab and three all-day trips.

253(33). Structural Geology (Spring; Garver). 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; *WAC*

254(34). Global Climate Change (Not offered 2005-06). Climate is fundamentally relevant to modern and ancient societies. Global warming is occurring today, and whether it is driven by human activities (e.g., CO_2, CH_4 emissions) or by natural climate cycles can only be determined by understanding natural climatic variability. Fortunately, there are many tools, natural climatic records, that can provide us with information on past climate (e.g. tree rings, ice cores from glaciers, and sediment cores from lakes and oceans). Obtaining, documenting and interpreting these records is the field of paleoclimatology, and it is the focus of this course. Lectures will be punctuated by numerous class meetings with discussion of current climate literature, and specific issues relevant to global climate change. Prerequisite: Any introductory level geology course.

300(40). Glacial and Quaternary Geology (Spring; Staff). 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: Geology 202. *WAC*

301(41). Lakes and Environmental Change (Winter; Rodbell). Modern limnology and the record of environmental change as recorded in lake sediments. Includes records from proglacial lakes in North America, and interpretation of proxy paleoenvironmental indicators preserved in lake sediments from North America, Europe, and the Southern Hemisphere. Prerequisites: any introductory geology course

and Biology 110, 112 or 320; or permission of the instructor; weekly lab; *WAC*

302(42). Geochemical Systems and Modeling (Not offered 2006-07). 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: Chemistry 101 and 102 or equivalent; weekly lab; *WAC*

303(26). Introduction to Geophysics (Not offered 2006-07). 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: Physics 100 or 120; weekly lab and field exercises.

304(31). Carbonate Sedimentology (Not offered 2006-07). Examination of carbonate rocks, carbonate environments, animal-sediment interactions, and the oceanographic and climatic factors that affect deposition including sea level change, catastrophic storms, and groundwater. Field studies include examples of modern and ancient coral reefs, lagoons, tidal inlets, beaches, hypersaline lakes, and tidal flats. Course includes a required week field trip to the Bahamian Field station on San Salvador Island. Prerequisites: Option 1: i) Any Geology course at 100 level; and ii) Geology 201 or 202 (may be concurrent) or permission of instructor. Option 2: i) Any Geology course at 100 level; and ii) declared major in biology (esp. helpful are Bio 256, 257, 320, 322, 328), and permission of the instructor. For either option, students must meet basic term abroad requirements and must submit an application. *WAC*

355T(151). Living on the Edge (Offered June 2007 - Alaska). 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 and a geology course numbered 200 or higher. Mini-term abroad

356T(152). Volcanoes and Society (Not offered 2006-07). Geology and archeology in the field. A close look at powerful volcanic eruptions and how those eruptions affect society and culture. This 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.

405(180). Geology Senior Seminar (Winter; Hollocher). Senior writing course required of all majors, for which a senior thesis the final product. The senior thesis associated with this course may be a research thesis (required for honors) if combined with senior level research (495-498). Prerequisites: Geology major and senior standing. *WAC: WS*

490-494(190-194). 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.

495-498(195-198). Research in Geology (Fall, Winter, Spring; Staff). Geological research under the direction of a faculty member. One term required for honors. Only one term can be counted toward the three geology electives. Prerequisite: Permission of the instructor.

History

Professor Meade, Chair; Professors Berk, Walker, Sargent, Wells; Associate Professors Feffer, Foroughi, Madancy; Assistant Professors Cramsie, Morris, Peterson; Visiting Assistant Professors Baum, Brennan, Lawson

Note: The requirements listed here for the Major, Interdepartmental Major, and Minor were changed in 2005 and apply only to the Class of 2009 and later classes. Students in the Classes of 2007 and 2008 should consult the Academic Register for the year they entered the College or the History Department for the requirements that apply to them.

Requirements for the Major: Twelve courses, including a two-term senior thesis (HST 498-499). Majors must complete one of the following fields:

Africana: Five courses in Africana history, plus one course in European history and one course with a non-Africana emphasis in Latin American, United States, World History (HST 105), Middle Eastern (HST 194 or HST 195), or East Asian history.

East Asian: Five courses on East Asia, including at least three history courses, plus one course in United States history and one course in European history.

European: Five courses in European history, including at least one on the period before 1700, plus one course in United States history and one course in East Asian, Latin American, Middle Eastern (HST 194 or HST 195), African, or World History (HST 105).

Latin American: Five courses on Latin America, including at least three history courses, plus one course in United States history and one course in European history.

United States: Five courses in U.S. history plus one course in European and one course in East Asian, Latin American, Middle Eastern (HST 194 or HST 195), African, or World History (HST 105).

All history majors are required to take one seminar (numbered 410-489) and two 300-level courses. Seminars are normally limited to 15 students and are designed to teach research skills. 300-level courses are specifically designed for history majors and include bibliographical and historiographical components. Seminars and 300-level courses may be used to meet the field requirements. Senior theses must normally be written on a topic in the core component of the field, but cannot count toward courses in the field. Students must complete a seminar before beginning the thesis. Classics 121 and 125 may be counted toward the history major, but not toward a field.

Requirements for the Interdepartmental Major: Eight courses, including the field requirement for majors, the seminar, one 300-level course, and the senior thesis. Students must complete a seminar before beginning the thesis. Interdepartmental majors may count one term of the senior thesis toward the field requirements.

Requirements for the 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: United States, Europe, East Asia, Latin America, or Africana.

Departmental Honors: To be eligible for departmental honors, a student must fulfill the following requirements: (1) a minimum index of 3.30 in history; (2) completion of one history seminar with a grade of "B+" or better; (3) a grade of "A minus" or higher on the senior project; and (4) a grade of "distinction" or "high pass" in an oral examination based on the senior project. In addition, the student must satisfy College requirements for departmental honors.

Requirements for 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 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, and Latin American, Asian, or Africana history. 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 in their fifth year. To prepare for

that program, students are required to take PSY 246 and EDS 500 A, B (Field Experiences) in their junior or senior year. 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.

United States

101 (13). History of the United States to the Civil War (Not offered 2006-07). Political, economic, and social developments in the colonial and early national periods.

102 (14). History of the United States Since the Civil War (Not offered 2006-07). Political, economic, and social developments: continuity and change in modern America.

113 (116). The Origins of American Society (Not offered 2006-07). The evolution of American society from its 17th-century origins through the aftermath of the Revolution.

114 (21). The American Revolution (Fall; Wells). The causes and consequences of the American Revolution (1763-1815).

116 (17). Age of Jackson (Not offered 2006-07). An examination of the United Sates 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.

118 (22). Civil War and Reconstruction (Not offered 2006-07). 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.

120 (18). The Progressive Era and the Great War, 1890-1920 (Not offered 2006-07). The impact of urbanization and industrialization on the creation of the modern United States, 1890-1920.

121 (19). The Depression and New Deal (Not offered 2006-07). 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.

123 (140). Postwar America and the Origins of the Cold War (Not offered 2006-07). 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.

125 (24). Coming Apart?: America in the Sixties (Also Women's and Gender Studies 153) (Not offered 2006-07). 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.

126 (27). Since Yesterday: United States History, 1974-2000 (Also Women's and Gender Studies 131) (Fall; 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.

127 (New). America in the Vietnam War (Not offered 2006-07). 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.

128 (59). The American Jewish Experience (Not offered 2006-07). 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.

131 (28). African-American History I (Fall; Lawson). A general survey of major developments in the history of Africans in North America from various colonial societies to Reconstruction. *GenEd: Am-C, CD-AA*

132 (29). African-American History II (Winter; Lawson). A general survey of major developments in the history of African Americans from Reconstruction to the present. *GenEd: Am-C, CD-AA*

135 (161). Latinos(as) in U.S. History (Not offered 2006-07). The Spanish exploration of the Southwest and West; the changes in eastern and western communities in the U.S. since major waves of immigration from Latin America and the Caribbean. *GenEd: Am-C, CD-LA*

211 (109). American Indian History (Fall; Foroughi). 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. *GenEd: Am-C*

212 (15). Women in Colonial and Victorian America (Also Women's and Gender Studies 250) (Not offered 2006-07). 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. *GenEd: Am-C*

213 (16). Women in Modern America (Also Women's and Gender Studies 251) (Not offered 2006-07). 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. *GenEd: Am-C*

215 (119). Revolutions in Americans' Lives (Not offered 2006-07). 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.

216 (124). The Writing and Ratification of the Constitution (Not offered 2006-07). Influences on the US Constitution, how it was written, and how it was adopted.

217 (114). 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. *GenEd: AM-C*

218 (115). Death in America (Fall; Wells). The history of American attitudes, experiences, and practices concerning death from the Puritans to the present.

221 (113). Popular Culture and American History (Not offered 2006-07). 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.

222 (133). Other Voices: Women in the History of American Ideas (Also Women's and Gender Studies 204) (Winter; Feffer). The contribution of women to the development of American intellectual and cultural life, from Charlotte Perkins Gilman to Angela Davis. *GenEd: Am-C*

223 (130). Twentieth Century American Intellectual History (Not offered 2006-07). An overview of the major social and political issues that shaped and unshaped American liberal thought from John Dewey to Andrea Dworkin. *GenEd: Am-C*

231 (25). The Civil Rights Movement (Not offered 2006-07). A survey of the civil rights movement, assessing the early campaigns of the 1940s, the development of black grassroots organizations in the 1950s and 1960s, and the impact of black nationalist consciousness in the late 1960s and early 70s. *GenEd: CD-AA*

310 (184). Special Topics in United States History (Not offered 2006-07). Prerequisite: any 100-level or 200-level history course or permission of the instructor.

311 (111). Frontiers in the Americas (Not offered 2006-07). Analyzes the concept of "frontier" as it applies to Canada, Latin America, and the United States prior to 1900. Examines the geographic context of frontier, as well as how various groups of people experience the frontier process. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: CD-LA*

312 (184). History of Women's Rights in the United States (Also Women's and Gender Studies 312) (Winter; Foroughi). 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.

322 (184). Slavery and Freedom (Spring; Lawson). Examines major themes in the historiography of American slavery. Topics include the relationship between racism and the growth of slave labor, the development of African American slave culture, the nature of the enslaved family, and the transition from slavery to freedom. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: CD-AA*

331 (118). Representing America: United States History in Film (Fall; 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. *GenEd: Am-C*

332 (123). Transnational America (Not offered 2006-07). 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 of permission of the instructor.

335 (New). American Environmental History (Not offered 2006-07). 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 of permission of the instructor.

411 (194). Seminar: The Writing and Ratification of the Constitution (Spring; Wells). Influences on the US Constitution, how it was written, and how it was adopted.

Europe

104 (36). Titans and their Times: The History of Modern Europe (Spring; Berk). A survey of the major socio-economic and political themes in European history from the French Revolution to the contemporary period.

141 (41). Medieval Europe (Fall; Sargent). The emergence of western European civilization after the fall of the Roman Empire. The period 300-1350 is surveyed with special attention to factors that influenced later European civilization.

142 (42). Renaissance and Reformation Europe (Not offered 2006-07). 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.

143 (New). Entrepreneurship in Medieval and Renaissance Europe (Winter; Sargent). Examines the meaning and impact of entrepreneurship during the 500 years (or so) prior to the rise of modern capitalism in the early modern era. Takes a broad view of entrepreneurship as the ability to perceive opportunities that others cannot see and to exploit those opportunities by combining resources and expertise to achieve a particular end. Economic entrepreneurs get most, but not all, of the attention.

145 (43). Early Modern Europe (Not offered 2006-07). European society from the seventeenth century through the Enlightenment, stressing social, economic, institutional, and intellectual developments.

148 (49). Europe Between Two Wars (Not offered 2006-07). 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.

149 (44). The Second World War Era (Winter; Berk). 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.

150 (87). Nuclear Age and Space Age (Also Physics 55) (Not offered 2006-07). This course covers

both the history of, and the basic science and engineering behind the Nuclear Age (nuclear weapons and nuclear power) and the Space Age (rockets, satellites, probes, spaceships, and space stations) from the early 20th century to the present. *GenEd: Eu-C, AM-C, SCIE*

154 (54). Russia in the Imperial Age (Not offered 2006-07). Major institutional and ideological developments from the time of the first Romanov to the February Revolution of 1917.

155 (55). The Rise and Fall of the Soviet Union (Not offered 2006-07). 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.

156 (56). History of Poland (Not offered 2006-07). A history of Poland from the formation of the first Polish state to the present. Poland under foreign occupation, independent Poland, and Communist Poland are the focal points in this course.

157 (57). Modern Jewish History (Not offered 2006-07). European 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.

158 (58). 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.

161 (149). The Making of Ireland (Winter; Cramsie). The social, religious and political forces that have shaped the history of Ireland from its origins to the present. Course topics include changing Irish identities, including those of modern Irish women, the global movement of the Irish people, the struggle for independent Ireland and the Troubles, and the challenges facing Ireland following the peace accords of the 1990s. It examines these questions through historical, literary, and artistic sources.

162 (144). Scotland: Braveheart to Devolution (Winter; Cramsie). Braveheart, kilts, haggis, heather, and Highlands: all things that understandably come to mind when we think of Scotland. Yet few of us probably appreciate just how much the people of that rugged and rainy 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 and its people from the age of Braveheart to the search for modern identity in the new millennium.

163 (146) Peasants and Proletarians: A Social History of England, 1500-1900 (Not offered 2006-07). This course surveys the social history of England from the great age of the peasantry in the late medieval period to the global industrial power of the British Empire. Topics for analysis include festivals and pastimes, education and literacy, artistic expression and popular culture, urban and rural life, transformations in commercial systems, the creation of the English working class, and the rise of global capitalists.

240 (40). The Crusades: Christianity and Islam in Conflict (Not offered 2006-07). 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.

241 (83). Mystics, Magic, and Witchcraft in Medieval and Early Modern Europe (Not offered 2006-07). A survey of learned and popular beliefs about the influence of supernatural and occult powers on individuals and society.

242 (84). The Scientific Revolution, 1400-1700 (Not offered 2006-07). 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.

253 (88). Physics and Politics (Also Physics 53) (Not offered 2006-07). An introduction to some of the most important developments during the twentieth century in modern physics, the theory of relativity, quantum mechanics, and nuclear physics, set in a comparative context of the capitalist democratic United States, fascist National Socialist Germany, and the communist Soviet Union. Along with explanations of how the science works, this course will examine how the political, social, and ideological context can influence science and scientists. *GenEd: SCIE*

254 (89). Human Evolution and Prehistory (Also Anthropology 174, Biology 89) (Not offered 2006-07). This course provides both a historical perspective on, and our current biological understanding of, human evolution and early human societies. *GenEd: SCIE*

261 (45). Tudors and Stewarts: Reformation Britain 1450-1603 (Fall; Cramsie). The fates of

England, Ireland, Scotland, and Wales in a dramatic age of religious conflict. Particular attention is given to the Renaissance monarchies of Henry VIII and the Scottish Stewarts, the queenships of Mary Queen of Scots and Elizabeth I and the deadly rivalry between them, the terrible effects of religious upheaval on the peoples of Britain and Ireland, the Tudor incorporation of Wales and conquest of Ireland, and the accession of James VI & I in 1603.

262 (46). Revolutionary Britain, 1603-1714 (Not offered 2006-07). A survey of the most tumultuous and bloody periods in British history, this course focuses on how the Stuart dynasty failed to manage religious bigotry, ethnic rivalry, and political divisions in England, Ireland, Scotland, and Wales. Particular attention is given to James VI & I's reign as the first king of a 'united' Britain, the revolutionary wars of the 1640s which led to the beheading of his son Charles I, how the conflicts of the 1640s and 1650s haunted the second half of the century and culminated in the revolutions of 1688-91, and the formal union of England and Scotland in 1707.

263 (47). The British Empire, 1714-1949 (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? This course surveys 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.

340A (185). Special Topics in European History: Renaissance Pop Culture (Fall; Baum). Explores both the origins and changing scholarly opinions of the "idea" of the Renaissance in Europe (1350-1650), as well as conceptions of the Renaissance revealed through popular sources such as historical novels, movies, TV, re-creations and re-enactments, themed architecture (Disney, Las Vegas), and popular histories. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

340B (New). Special Topics in European History: The History of Psychology (Winter; Singy). This course will trace the history of psychology from St Augustine, who made possible a sense of interiority that was later appropriated by psychologists, to Freud in the early twentieth century, who offered one of the most influential views on the human psyche. Among the historical questions that will be dealt with throughout the course are the following: What is the relation between mind and body (the mind-body problem)? How do we know that there exists a world outside of our mind (the solipsism problem)? How does psychology mold our experience of the self (the power-knowledge problem)? Are there different layers in the mind (the depth problem)? Prerequisite: any 100-level or 200-level history course or permission of the instructor.

340C (New). Special Topics in European History: Modern European Ideas (Spring; Walker). This course will survey important ideas in modern European history, including the writings of Jean Jacques Rousseau, Karl Marx, Charles Darwin, Friedrich Nietzsche, Sigmund Freud, Albert Einstein, Jean-Paul Sartre, Simone de Beauvoir, and Michel Foucault. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

351 (152). The French Revolution (Not offered 2006-07). Covers the political, social, and cultural events in France from 1789-1815. Focuses on problems of interpretation through the study of significant secondary texts, and on primary research utilizing a substantial number of period documents in translation. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

362 (185). "Black Britain:" Race and Ethnicity in British History (Fall; Cramsie). With the collapse of the British Empire, the rise of nationalist parties in Scotland and Wales, and post-war migration, Britain suffers from an identity crisis. What is British history and what does it meant to be British? Through an analysis of history, literature, sit-coms, and film, this course explores the multi-ethnic British past and how widespread ignorance of that past fuels racism in Britain today and shapes the struggles that define Britishness. Prerequisite: any 100-level or 200-level history course or permission of the instructor.

363 (147). Women in British History (Also Women's and Gender Studies 341) (Not offered 2006-07). 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.

431A (195). Seminar: Nuclear History (Winter; Walker) This seminar will draw upon both

American and European history to examine the economic, social, cultural, and political effects of nuclear power and nuclear weapons from the 1930s to the present.

431B (195). Seminar: National Socialism (Spring; Walker) This seminar will cover the history of National Socialism in Germany and Europe from the First World War to the post-World War II division of Germany, including the effect on Germany society, the Second World War, the occupation and exploitation of conquered territory in Europe, the Holocaust, and postwar denazification.

Latin America and the Caribbean

171 (61). Europe and the Americas in the Era of Columbus (Also Women's and Gender Studies 161) (Not offered 2006-07). A study of the relationship of Spain and Portugal with Africa, Asia, and the Americas from the early fifteenth through the late eighteenth centuries. The course examines the early civilizations of Africa, Europe, and the Americas in the era before the voyage of Columbus and the interaction among these three worlds in the centuries after the Encounter. It concludes with an examination of the cultural legacy of Africa and Europe on the indigenous societies of the Americas and the subsequent development of multicultural and multiracial independent nations. The central role of gender relations between the civilizations, the gendered conflict that characterized the era of exploration, and the role of masculinity are all examined. *GenEd: Eu-C, Am-C, CD-AA, CD-LA*

172 (62). Reform and Revolution in Latin America and the Caribbean (Also Women's and Gender Studies 163) (Not offered 2006-07). Examines the political and social changes in Latin America as a result of the nineteenth and twentieth century reform and revolutionary movements, including the Unidad Popular government in Chile under Salvador Allende and its overthrow by General Pinochet and the subsequent dictatorial rule. The effect of the 1959 Cuban Revolution on Latin America; the revolutionary uprisings in Central America, in Chiapas, Mexico, and against the military government of Argentina form other key areas of examination. The course places special emphasis on the intersection of gender, race and class conflicts and movements, with particular attention to the role of emerging feminist movements. *GenEd: Am-C, CD-AA, CD-LA*

271 (60). History of Mexico (Fall; Meade). Mexican civilization from its origins to the present — ancient Maya and Aztec cultures; the Spanish conquest; colonial society; the independence wars; Mexico in the nineteenth and twentieth centuries, especially the Mexican Revolution; and current cultural, social, and economic issues, including the Zapatista rebellion, NAFTA, and the changing nature of the borderlands region between Mexico and the USA. *GenEd: CD-LA*

272 (77). History of Brazil (Spring; Meade). A general survey course covering the history of Brazil from the period of the Portuguese conquest, approximately 1500 to the present. *GenEd: CD-AA, CD-LA*

273 (63). The History of the Caribbean and Central America (Not offered 2006-07). Study of the people and cultures of the Caribbean and Central American regions from the fifteenth century to the present. Includes English, French, Spanish, and Dutch settlements. *GenEd: AM-C, CD-AA, CD-LA*

370 (187). Special Topics in Latin American History (Not offered 2006-07). Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: CD-LA*

372 (64). History of Latin American Women (Also Women's and Gender Studies 352) (Not offered 2006-07). The changing roles of women in Latin America from the colonial period to the present. The course aims to understand the transformations that have occurred in women's history and the impact of colonialism, imperialism, economic development, and political change on women's work, the sexual division of labor, and male-female relations. The course also seeks to understand the intersection of gender with race, class, and national divisions within societies. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: CD-LA*

471 (197). Seminar in Latin American History (Not offered 2006-07). *GenEd: CD-LA*

East Asia

181 (65). East Asian Tradition (Not offered 2006-07). An overview of the traditional civilizations of China, Japan, and Korea, focusing on the emergence and development of ideologies, institutions,

and social patterns up to 1800. Special emphasis on fostering an appreciation for the richness and complexity of each individual society. *GenEd: CD-EA*

182 (66). Modern East 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. *GenEd: CD-EA*

281 (67). Modern Japanese History (Not offered 2006-07). Analysis of the social, economic and political changes that have characterized Japan's emergence as a world power from the Meiji restoration to the present. *GenEd: CD-EA*

283 (69). The People's Republic of China: Social Change and Political Upheaval, 1949-89 (Not offered 2006-07). A historical treatment of contemporary China, which analyzes the profound changes experienced by the Chinese people since 1949. Focuses on organized movements such as land reform, the Great Leap Forward, the Cultural Revolution, and Tiananmen Square movement, as well as on the more subtle developments that have accompanied the Socialist transformation. *GenEd: CD-EA*

284 (165). Women in China and Japan: Power and Limitations (Also Women's and Gender Studies 226) (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. *GenEd: CD-EA*

380 (188). Special Topics in East Asian History (Not offered 2006-07). Prerequisite: any 100-level or 200-level history course or permission of the instructor. *Gen-Ed: CD-EA*

381 (162). Asian Encounters with the West: Commerce, Conquest, and Conversion (Not offered 2006-07). Examines the motivations behind the western presence in China and Japan from the seventeenth century to the recent past, and analyzes the impact of the West on the economy, society, politics, and ideology of East Asia. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: CD-EA*

382 (188). World War II in Asia (Not offered 2006-07). World War II was the most destructive conflict of the twentieth century, but many students in America are unfamiliar with the toll it took on Asia and why residual tensions between Japan, China, and Korea remain so real and so raw today. This course examines how the war came about, how it is remembered, and how its complex legacy still affects the region. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: CD-EA*

383 (68). The Last Dynasty: The Glory and Fall of the Qing Empire, 1644-1911 (Winter; Madancy). For 250 years, the Qing Dynasty ruled China, but when it fell in the dramatic 1911 Revolution, the entire imperial system fell with it. This course will focus on the enormous social, political, and economic changes that shaped China during the reign of the Manchu dynasty and changed China forever. Prerequisite: any 100-level or 200-level history course or permission of the instructor. *GenEd: CD-EA*

481 (198). Seminar in East Asian History (Not offered 2006-07). *GenEd: CD-EA*

Special Topics

105 (10). History and Society: The Emergence and Character of Traditional Civilization (Not offered 2006-07). The Eurasian, African, and American civilizations from their origins to the eighteenth century. The course stresses ecological, political, economic, ideological, and social factors.

191 (101). The Museum: Theory and Practice (Also Anthropology 265) (Spring: S. Gmelch). 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.

192 (80). Construction for Humanity (Not offered 2006-07). 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. *GenEd: Am/Eu-C*

193 (81). Science, Medicine, and Technology in Culture (Spring; Walker). A foundation course

based on case studies ordered chronologically from prehistory to the present. Each of the sciences (biology, chemistry, geology, mathematics and physics) and branches of engineering (civil, electrical, and mechanical engineering and computer science) will be represented.

194 (71). The Modern History of the Middle East (Not offered 2006-07) 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.

195 (72). 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.

490-493 (190-192). Independent Study in History (Fall, Winter, Spring).

498-499 (09-199). Senior Project in History (Fall, Winter, Spring).

International Programs

Union College offers a range of formal resident-study programs in foreign countries. All courses may be used toward meeting graduation requirements for General Education and the major. In the foreign country, the student in most instances lives independently with a family or in an international dormitory and participates in the normal cultural life of the community. A Union faculty member accompanies the group.

Courses in those programs that emphasize knowledge of the native language (Brazil, China, France, Germany, Italy, Japan, Mexico, and Spain) include language study and a broad examination of the history, literature, art, and politics of the region. In England and Greece, each program consists of a Union College course particularly appropriate for that country and two courses designed to develop a knowledge of the history, literature, art, and politics of the region. In the Study of National Health Systems, students are engaged in an intensive ten-week field study of health care institutions subsidized by the state in Canada, England, and Holland.

Eligibility for these programs is contingent upon (1) a cumulative index and a preceding term index of at least 2.5 (3.0 for Japan) and (2) certification by the dean of students that the student is well prepared to participate in foreign study. Students must take three courses (four courses in Greece, and Japan) 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 (usually the senior thesis).

Terms Abroad courses may not be taken pass-fail. Applications and additional information about Union International Programs may be obtained in the Humanities Building, Room 211.

Alternate Year Programs include Brazil (Fall 2007); Spain (Winter 2008); Australia (Tasmania) (Winter 2008).

Partnership for Global Education (with Hobart and William Smith Colleges), Fall 2006: Australia, Central Europe, Ireland, Vietnam. For further information, please go to: http://academic.hws.edu/pge.

Barbados-Educational Studies

Winter, 2007.

Anthropology 183T. Peoples and Cultures of the Caribbean. An investigation of the peoples and cultures of the Caribbean from an anthropological perspective.

Educational Studies 490T. Independent Study in Teaching

Educational Studies 491T. Independent Study in School Culture

China

Fall, 2006, in Shanghai. Prerequisite: Chinese 100 preferred, but not required.

Chinese 204T, 205T. The Chinese Language Studied Abroad. An intensive study of modern Chinese with emphasis on speaking.

Chinese 320T. Chinese Civilization. A study of Chinese civilization as exemplified by cultural, social, and political institutions.

Faculty Member in Residence for 2006: Professor Xie

Czech Republic

Fall, 2006, in Prague. Students will select four courses from the offerings of the Czech Technical University in Prague.

England

Fall, 2006, in York. Students will select three courses from the College of York St. John.

Faculty Member in Residence for 2006: Professor McCord

Fiji

Fall, 2006, one course in anthropology recommended, but not required.

ANT 185T: Peoples and Cultures of the Pacific
ANT 232T: ECO 232T: Culture and Entrepreneurship in Fiji
ANT 363T: Research Methods in Anthropology
Faculty Member in Residence for 2006: Professor Brison

France

Fall, 2006, in Rennes. Prerequisite: Completion of French 201 or equivalent.

French 204T-207T. The French Language Studied Abroad. An intensive study of modern French with emphasis on speaking and writing.

French 208T. Contemporary France (Fall term in Rennes).

French 306T. Readings in French and Francophone Culture (Fall term in Rennes). France and the French of today as reflected in selected literary works from various genres and periods. Prerequisite: French 121 or permission of instructor. *GenEd: Eu-LS; WAC:W1*

Faculty Member in Residence for 2006: Professor Batson

Germany

Spring, 2007, in Freiburg and Berlin. Prerequisite: Completion of German 101 or 201.

German 204T. The German Language Studied Abroad I. An intensive study of modern German with emphasis on speaking and writing. Prerequisite: German 101.

German 205T. **The German Language Studied Abroad II**. An intensive advanced study of modern German with emphasis on speaking and writing. Prerequisite: German 101.

German 300T. **German Civilization: Culture, Art, and Architecture**. An introduction to the cultural history of German-speaking Europe. *GenEd: Eu-S*. Prerequisite: German 101.

Faculty Member in Residence for 2007: Professor Ricci

Greece

Fall, 2006, in Athens. Students will select four courses from the offerings of College Year in Athens.

Italy

Spring, 2007, in Florence. Prerequisite: Italian 100 or equivalent.

Italian 104T. The Italian Language Studied Abroad. A continuation of Italian 10. A course in basic skills with emphasis on speaking and conversation.

Italian 315T. Renaissance Italian Civilization. A study of late Medieval and Renaissance art and architecture, which will emphasize the original contexts of the works. Virtually all classroom time will be spent in churches, monasteries, palaces, civic buildings, and public spaces in addition to occasional museum visits.

Faculty Member in Residence for 2007: Professor Stevenson

Japan

Fall, 2006 in Osaka. Preferred: Japanese 100.

Japanese 204T. The Japanese Language Studied Abroad. A continuation of Japanese 10 with an emphasis on speaking.

Three courses from the Kansai-Gaidai University catalogue.

Faculty Member in Residence for 2006: Professor Patrik

Marine Studies

Spring, 2007, in Bermuda, Woods Hole, and Newfoundland. Prerequisite: One course in either sociology or biology.

Sociology 358T: Marine Policy and the Maritime Environment. An examination of social life in maritime communities and the shaping of national and international marine policies.

Biology 256T: Coastal Biology. Study of the diversity and adaptations of marine organisms in

their environment, with emphasis on subtropical, temperate and subartic communities.

Terms Abroad 355T: Images of the Sea. An examination of environmental, technological, and social issues that are associated with the marine environment.

Faculty Members in Residence for 2007: Professors Kaplan and B. Boyer

Mexico

Winter, 2007, in Cuernavaca. Prerequisite: Spanish 203.

Spanish 204T: The Spanish Language Studied Abroad. An intensive study of modern Spanish with emphasis on speaking and writing.

Spanish 209T: Mexican Civilization. A study of Mexican Civilization as exemplified by the art, architecture, literature, and history of Mexico. In addition to lectures and readings, there will be conducted visits to museums and other places of interest.

Spanish 325T: Staging Conflict: Studies in One-Act Mexican Theater. 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.

Study of National Health Systems

Summer, 2006. Prerequisites: Completion of the sophomore year, consent of the instructor, and completion of an orientation program conducted on the Union College campus.

Terms Abroad 323T. Health Care Policies and Administrative Structures of the National Health Services of Canada, England, and Holland. An analysis of health care administration and policy in the light of the ideology and economic and social policies of each of these countries.

Terms Abroad 324T. Historical and Cultural Factors in the Department of the National Health Services of Canada, England, and Holland. An analysis of the historical and cultural background surrounding the development of "socialized" medicine in these countries, from the "poor laws" of the Renaissance through the various social and political reform movements of the 19th and 20th centuries.

Terms Abroad 325T. Field Study of Health Care Facilities in the United States, Canada, England, and Holland. A program of site visits to health care facilities in each of these countries, including visits to clinics, hospitals, hospices, geriatrics programs, planning facilities, rehabilitation centers, and psychiatric hospitals. *WAC: W3*

Faculty Member in Residence for 2006: Professor Baker.

On an occasional basis, Union offers three-week miniterms either immediately after graduation or during the December break. Each miniterm is worth one course credit. A miniterm costs $3,000.

ANT-260T	Tourism in Alaska Mini-Term
FRN-305T	Mini-Term in Martinque
HST-370T	History of Jamaica
MLT-271T	Hiking the Trail in Spain
TAB-326T	Brazil Mini-Term Abroad
TAB-327T	Australia Mini-Term Abroad
TAB-330T	China Mini-Term Abroad
TAB-332T	Impressions of Louvre Mini-Term
TAB-333T	New Zealand Mini-Term
TAB-336T	Mini-Term: Three Weeks in the Louvre
TAB-337T	Spain Mini-Term Abroad
TAB-339T	India Mini-Term
TAB-340T	Jamaica Mini-Term Abroad
TAB-342T	American Southwest Mini-Term
TAB-169T	Half Moon Ship Exploration Mini-Term
WGS-328T	Buenos Aires Mini-Term

Latin American and Caribbean Studies

This program offers a major, an interdepartmental major, and a minor in the study of the history, culture, language, and politics of the countries of the Latin American and Caribbean region. In addition, students may focus their study on the Atlantic world, on the interaction between the Americas and Africa, and on the experiences of people of Latin American descent in the United States. Latin American and Caribbean Studies courses are a part of the General Education curriculum, fulfilling literature/civilization, diversity, and writing requirements.

Requirements for the Major: Fourteen courses, including five in Latin American history, politics, society and culture; one of the following courses contributing to an understanding of Latin American problems – ANT 110, ANT 183, ECO 354, ECO 376, EGL 302, HST 171 (WGS 161), HST 311, HST 332, PSC 239, PSC 241, or SOC 265; six courses in Spanish or French language and literatures; and, a two-term senior thesis. No course from languages and humanities/social science lists can be counted twice to meet these requirements. Students must participate in a Term Abroad program where at least one course is in the French, Spanish or Portuguese language, or in Latin American history, politics, society, literature and culture, and counts toward fulfilling any of the requirements for the major. There are full-length study abroad programs in Barbados, Brazil (São Paulo), Mexico (Cuernavaca), France (Rennes) and Spain (Seville), and mini-terms in Argentina (Buenos Aires), Brazil (São Paulo), Jamaica, and Martinique.

Requirements for the Interdepartmental Major: Eight courses including three in Latin American history, politics, society and culture; four courses in Spanish or Portuguese above the introductory level, or equivalent proficiency; and a one-term senior project. No course can be counted twice. It is strongly recommended that 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: ANT 110, ANT 183, ECO 354, ECO 376, EGL 302, HST 171 (WGS 161), HST 311, HST 332, PSC 239, PSC 241, or SOC 265.

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.

Requirements for Honors: To be eligible for honors, a student must (1) attain a minimum index of 3.50 in courses counted toward the major; (2) a cumulative index of 3.30 or better; (3) a grade of "A minus" or higher on the senior project; (4) distinctive performance in an oral exam based on the senior project.

Director: Professor Henseler

Advisors: Professors Austin, Batson, Chilcoat, Cox, Garcia, Henseler, Loth, Martinez, Meade, Mosquera, Moyano, Ndiaye, Nichols, Olsen, Osuna, Romero

LAS 490-491. Independent Study (Fall, Winter, Spring).
LAS 497. Senior Project (Fall, Winter, Spring).
LAS 498-499. Senior Thesis (Fall, Winter, Spring).

Law and Public Policy

This three-year program is specifically designed for students admitted to the joint Union College/ Albany Law School six-year B.A/J.D. degree program. By choosing appropriately from the allowable courses listed below, Law and Public Policy majors can emphasize either the political science or economics aspects of public policy.

Requirements for the Major: Fourteen courses from among the following: Political Science 111, 112, 113, 238, 260, 261, 263, 264, 267, 270, 272, 273, 281, 282, 287, 333, 369, 371, 385; Economics 101, 228, 234, 242, 243, 339, 352, 354, 355, 378, 391. In addition, Political Science 220 or 222 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 of 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.

Advisor: Professor Fox

Leadership in Medicine/Health Systems Program

The Leadership in Medicine/Health Systems Program is offered jointly by Union College, Union Graduate College, and Albany Medical College. The goal of the Leadership in Medicine/Health Systems Program is to prepare physicians who will be leaders capable of addressing the managerial, ethical, multicultural, and international challenges facing American medicine in the 21st century. Students complete an enriched curriculum of coursework to attain the B.S., M.S. or M.B.A., and M.D. degrees in eight calendar years, bypassing the requirement of the Medical College Admission Test. Admission into the program leads automatically to entrance into Albany Medical College after four calendar years of study at Union and Union Graduate College, provided that the student maintains satisfactory standards of academic achievement as defined below and that the Union College-Albany Medical College Policy and Promotions Committee determines the student fit to enter 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.

Requirements: Over four academic years and two summers (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 18 graduate courses to earn the M.B.A. degree. (Note that two of the courses count towards both degrees.)

Important curricular requirements include:

— an interdepartmental major, one part of which is either biology or chemistry and the other part of which is in the social sciences or humanities;

— a special program in bioethics supplemented by a health services practicum;

— an international experience;

— the program in health care management through the UGC Center for Bioethics and Clinical Leadership (either the M.S. or the M.B.A.).

All students enrolled in the program will take 16 Union College Math/Science courses and 15 Social Science and Humanities courses. Students take the following courses toward the M.S. and M.B.A. degree:

LIM 500, 503, 544, 545, 571, 680, MBA 510, 512, PHL 574, HCM 517, 574, 580:
Students who opt for the M.B.A degree take the following additional courses: HCM 525, MBA 506, 520, 525, 53, an elective, and an internship
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. To be eligible for the M.B.A., students must enter the program with at least one advanced placement science or math credit. Union will grant advanced placement and course credit in accordance with its normal procedures, but AP credits do not reduce the number of required courses. When advanced placement credit is given for a course specifically designated in the curriculum, students will take elective courses.

Students must maintain minimum cumulative grade point averages of 3.40 both in overall course work (including graduate courses) and in their mathematics and science courses. Courses for which advanced placement credit has been given will be included in these grade point averages with an "A-minus" (3.70) being given for an advanced placement score of 4 and an "A" (4.00) being given for an advanced placement score of 5. 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.

Advisors: Dean Rosenthal, Prof. Pytel (Union College), and Prof. Huppertz (Union Graduate College)

Mathematics

Professor Johnson, Chair; Professors Barbanel, Fairchild, Lesh, Niefield, Rosenthal, Taylor, Zimmermann, Zwicker; Associate Professors Black, Cervone; Assistant Professor Tønnesen-Friedman; Lecturer Friedman; Emeritus Professors Bick, Gillette, Maddaus, Seiken

Requirements for the Major in Mathematics: Twelve courses in the mathematics department including Math 113 (or both 110 and 112), 115, 117, 199, 332, 336, 340, 497 or 498-99; at least one course chosen from 219, 221, 224, 225, 234, and 235; and Physics 120. It is also recommended that two courses with substantial mathematical content be taken outside the department and that majors considering graduate work take one of French, German, or Russian as a foreign language.

Requirements for the Major in Applied Mathematics: Math 113 (or both 110 and 112), 115, 117, 127, 128, 130 or 234, 138, 199, 340, 497 or 498-499; one of Math 238 or MBA 506; one of math 332, 336, or a level II applied mathematics seminar; and a sequence of six courses in an application area as described below.

We require that students have some basic knowledge of an application area. The goal is to provide the basic foundation in another field in which the student intends to pursue further work, and the sequence of courses should be consistent with the depth and rigor of a minor in another discipline. The sequence of courses might not explicitly include the mathematical connections, but the sequence should provide a base level of knowledge necessary to aid the student in creating those connections. The set of courses should be submitted for approval to the department at least one year before the student's graduation, and amendments to a student's set of courses should be made prior to enrolling in courses that represent any changes.

Examples of sequences include those leading to a minor in mechanical engineering, electrical engineering, computer engineering, computer science, physics, geology, economics, chemistry or biology. A combination of courses that does not fulfill the requirements for a minor is also acceptable, but requires more careful planning and consultation to ensure that it is consistent with the spirit of the requirement.

Requirements for Students Seeking Secondary School Certification as Part of a Four-Year Bachelor's Program: PSY 246, EDS 500A and EDS 500B, and two terms of a foreign language. PSC 281 is strongly recommended. Mathematics majors must take 12 mathematics department courses including Math 113 (or both 110 and 112), 115, 117, 128, 199, 224, 332, 336, 340, and 497 or 498-99. They must also take MBA 506, Computer Science 105, and Physics 120.

The college recommends that any undergraduate seeking New York State secondary teacher certification should consider attending the Master of Arts in Teaching program in their fifth year. Mathematics majors who wish to apply to a master's program in teaching are advised to incorporate Math 224, Math 332, Math 336, Math 128, Statistics and Computer Science into their undergraduate program.

Requirements for a Major in Mathematics with an Emphasis on Computer Science: Required courses include Math 113 (or both 110 and 112), 115, 117, 199, 219, 127, 234, 340, 497 or 498-99; at least one of 221, 224, 225, 235, 330, 332; and Computer Science 105, 140, 250, 350, and one of 370, 531, 542, or 544.

Mathematics Requirements for Any Interdepartmental Major Having Mathematics as a Component: Eight mathematics courses, including Math 113, (or both 110 and 112), 115, 199, and either two courses from List 1 or one from List 1 and one from List 2.

— List 1: Math 330, 332, 336, 340, 432, 436, 448, 480.

— List 2: Math 127, 219, 221, 224, 225, 234, 235

Requirements for a Minor in Mathematics: Six courses in the department including (1) calculus through Math 115; (2) Math 199; (3) at least one course having Math 199 as a prerequisite; (4) at least one additional course chosen from Math 117, 119, 127, 128, 130, 138, or any 200, 300, or 400-level course. Advanced placement credit may be used to satisfy at most one of the six required courses.

The prerequisites listed for certain courses below refer to the following levels:

Level 1: Math 219, 221, 224, 225, 234, 235

Level 2: Math 330, 332, 336, 340

Level 3: Math 432, 436, 448, 480

Requirements for Honors in Mathematics: 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, 448, 436, 480 or any course designated as Level 3.

Requirements for Honors in Applied Mathematics: 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, 332, 336, 432, 448, 436, 480 or any course designated as Level 3.

General Education Courses

Calculus continues to be the most common way for both science and non-science majors to meet the Quantitative and Mathematical Reasoning requirement at Union. The following courses (51 through 60) represent alternatives that also fulfill the requirement. These courses are normally not open to students who have passed calculus courses.

51. Cryptology: The Mathematics of Secrecy (Winter). 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.

52. Introduction to Statistics: Analysis of Data. (Fall) An introductory course on the concepts and application of probability and the analysis of sampling data. Topics include an introduction to numerical and graphical descriptions of data, probability, random variables, linear regression, sampling theory, and inference.

53. Visualizing the Fourth Dimension (Spring). 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.

54. Number Theory: From Clock Arithmetic to Unbreakable Codes (Fall). 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.

57. Game Theory and its Applications in the Humanities and Social Sciences (Not offered 2006-07). A self-contained introduction to the mathematical theory of conflict. Examples and applications will 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.

58. Applications of Mathematics to Economics I (Not offered 2006-07). 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.

59. Applications of Mathematics to Economics II (Not offered 2006-07). Differential and integral calculus with applications in the social sciences. Students who wish to continue the calculus after Math 59 should enroll in Math 112. Prerequisite: Math 58. Not open to students who have passed a college calculus course.

60. Topics in Mathematical Political Science (Winter, Spring) (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.

100, 101, 102. (11A, 11B, 11C) 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.

110. (10) 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 Math 59.

112. (12) 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: Math 110.

113. (13) AP Calculus (Fall, Winter). Self-contained treatment of the main topics in Math 110 and Math 112. Intended for freshmen who have been introduced to (but have not yet mastered) the basics of differential and integral calculus.

115. (15) 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: Math 102, 112, or 113.

117. (17) 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: Math 115.

127. (127) Numerical Methods (Not offered 2006-07). Newton's method, numerical differentiation and integration, solution of ordinary differential equations, error estimates. Prerequisites: Math 115 and fluency in some mathematical programming language.

128. (28) Probability (Winter). Probability theory and applications. Prerequisite: Math 102, 112, or 113.

130. (30) Ordinary Differential Equations (Winter, Spring). Linear differential equations and power series. Prerequisite: Math 115. Not open to students who have passed Math 131 or Math 234.

138. Methods of Applied Mathematics I (Spring) 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: Math 130 or 234.

180. (108) Linear Algebra and Matrix Theory (Not offered 2006-07). Vector spaces, matrices, and solutions of linear systems of equations, linear transformations, eigenvectors, and eigenvalues. Prerequisite: Math 115 or equivalent. Not open to students who have passed Math 131 or Math 340.

188. (88) Programming with Mathematica (Not offered 2006-07). Designed to show how to use Mathematica as a symbolic calculator and programming language. Various styles of programming will be studied: functional, procedural, and recursive. The course will develop a reasonably high level of fluency in writing programs for the students' scientific needs and interests.

199. (99) 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: Math 102, 112, or 113. *WAC: W1*

219. (119) Topics in Discrete Mathematics (Fall). Topics may include graph theory, partially ordered sets, algebraic coding theory, computational complexity, number theory. Prerequisite: Math 199 or permission of the instructor.

221. (121) Mathematical Cryptology (Not offered 2006-07). 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. Prerequisite: Math 199 or permission of the instructor. Math 221 is normally closed to students who have passed Math 235 or Math 51.

224. (124) Geometry (Winter). Topics in Projective, Affine, Euclidean, and/or non-Euclidean geometries. Prerequisite: Math 199 or permission of the instructor.

225. (125) Knot Theory (Not offered 2006-07). 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. Prerequisite: Math 115 and Math 199, or permission of the instructor.

234. (134) Differential Equations (Spring). Topics include systems of ordinary differential equation, series solutions, asymptotic solutions, integral equations. Not open to students who have passed Math

130. Prerequisite: Math 115 and Math 199, or permission of the instructor.

235. (135) Number Theory (Spring). Properties of natural numbers including divisibility, prime numbers, congruences, special number theoretic functions and quadratic reciprocity. Prerequisite: Math 199 or permission of the instructor. Math 235 is normally closed to students who have passed Math 221.

238. Methods of Applied Mathematics II (Winter). Provides a more rigorous development of the mathematical techniques and analysis of ordinary differential equations, partial differential equations, and calculus of variations. The emphasis is on the equations arising from physical, biological, and economic phenomena. Prerequisite: Math 138.

330. (130) Complex Analysis (Not offered 2006-07). An introduction to analytic functions of a complex variable. Prerequisite: One Level 1 course or permission of the instructor. Not open to students who have passed Math 119.

332. (132) Abstract Algebra I (Spring). Algebraic structures including groups, rings and fields. Prerequisite: One Level 1 course or permission of the instructor.

336. (136) Real Variable Theory (Fall). A study of point sets on the real line and of real functions defined on these sets. Prerequisites: Math 332 or Math 340 or permission of the instructor.

340. (140) Linear Algebra (Winter). Vector spaces, linear transformations, inner product and dual spaces, eigenvalues and eigenvectors, special topics. Prerequisite: Math 115 and one Level 1 course, or permission of the instructor. Not open to students who have passed Math 131.

432. (133) Abstract Algebra II (Not offered 2006-07). Continuation of Math 332. Certain topics will be selected for more intensive study. Prerequisite: Math 332.

436. (170) Topology (Not offered 2006-07). Topological spaces, connectedness, compactness, continuous mappings and homeomorphisms. Prerequisite: One Level 2 course or permission of the instructor.

448. (148) Differential Geometry (Winter). A study of curves and surfaces in 3-space. Topics include arc length, curvature, torsion, the Frenet trihedron, the first and second fundamental forms, normal curvature, and Gaussian curvature. Prerequisite: Math 117 and Math 340, or permission of the instructor.

480. (180) Foundations of Mathematics (Spring). Propositional and predicate logic, Godel completeness theorem, introduction to recursion theory. Prerequisite: Math 332 or permission of the instructor.

490-96. (190-197) Independent Study in Mathematics (Fall, Winter, Spring). Independent study in a particular area of mathematics under the supervision of a faculty member.

497. (198) One-Term Senior Thesis (Fall, Winter)

498-99. (009-199) Two-Term Senior Thesis (Fall-Winter)

Mechanical Engineering

Associate Professor Bucinell (Chairman); Professor Wilk, Anderson; Associate Professor Keat, Wicks; Assistant Professors Bruno, Rapoff

Mission Statement for Mechanical Engineering at Union College: The Mechanical Engineering Department at Union College is committed to thoroughly preparing students in the fundamentals of mechanical engineering and instilling a passion for life-long learning by building on the values of a liberal arts education. For further information, see http://engineering.union.edu/me_dept/basics/mission.htm.

Requirements for the Major: Freshman, sophomore, junior, and senior requirements are given for the Class of 2010 below. Students should consult their academic advisor about scheduling courses. Students seeking department honors should consult their academic advisors concerning the requirements.

Freshman Year

ESC100 (Introduction to Engineering), MER101 (Engineering Graphics), MTH113 (Calculus I)*, MTH115 (Calculus II), MTH117 (Calculus III), 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 Seminar, Elective**

*Junior Year****

CSC070 (Computer Programming for Engineers), ECE222 (Circuits), MER331† (Fluid Mechanics), MER333† (Heat Transfer), MER311† (Advanced Mechanics), MER312† (Dynamics and Kinematics), MER322† (Dynamics of Physical Systems), Elective**, Elective**, Elective**

Senior Year

MER497† (Senior Project I), MER498 (Senior Project II), MER419† (Design of Mechanical Systems), MER439† (Design of Thermal/Fluid Systems), Elective**, Elective**, Elective**, Elective**, Elective**, Elective**

† A minimum grade of C- must be earned in the prerequisite mechanical engineering course(s) in order for a student to enroll in this course.

* An alternate mathematics sequence in the first year is possible depending on the math **preparation of the student. Consult with your academic advisor.**

** The 11 Elective courses must be satisfied as follows: 6 core component courses (2 courses outside the core component requirements can be counted toward the 8 course core component requirement), 2 Engineering Electives (any ME, EE, or CS course that counts towards the respective major, or those approved by Mechanical Engineering Department chair) and 3 Free Electives.

*** The junior year is the recommended term for satisfying the Linguistic and Cultural Competency component of the Core Components 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 Components Curriculum and should work closely with their academic advisor to develop the appropriate plan of study that will allow them to pursue the desired option.

Requirements for the Minor: There are three minors offered in the department. The solid mechanics minor requires MER201, MER212, MER214, MER231, MER311, MER312. The thermal energy minor requires MER 201, MER212; MER231, MER232, MER331, MER333. The bioengineering minor is outlined in this catalog under Bioengineering.

Selected graduate courses in engineering mathematics, solid mechanics, and the thermal fluid sciences offered by the School of Engineering and Computer Science of the Graduate College of Union

University are available to qualified undergraduates. For further information, please consult the catalog of the Graduate College.

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

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.)

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.

101. Engineering Graphics (Winter, Spring). Engineering graphics with emphasis on engineering drawings, introduction to solid modeling, and manufacturing. Topics include sketching, descriptive geometry, tolerances, sectioning, auxiliary views, assembly drawings, CAD, and manufacturing techniques.

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 (5 hrs per week). Carries WAC credit. Prerequisites: PHY120, MTH115 or IMP 112.

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.

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.

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 social 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. Prerequisite: MER212 and MER213.

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 IMP111. Co-Requisite: CHM101.

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.

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.

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.

312. Dynamics and Kinematics† (Fall, Winter). Approaches kinematics using vector, complex number, and graphical techniques. Linkage analysis and synthesis, cam design, machine dynamics, computer aided kinematic design, kinetics and balancing. Two-hour design laboratory each week. Prerequisite: MER212.

322. Dynamics of Physical Systems† (Winter, Spring). Time and frequency response of lumped-parameter mechanical, electrical, and fluid systems. Three lab hours each week. Prerequisites: CSC070 (or equivalent), MER212, ECE222 or ECE225; MTH130 or MTH131.

331. Fluid Mechanics I† (Fall, Winter). Analysis of fluid systems according to the control volume formulations of Newton's second law and the conservation laws of mass and energy. Applications. Three lab hours each week. Prerequisites: MER212, MER231, MTH117 or IMP113. WAC

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: MER231 and MER331. WAC

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.

439. Design of Thermal/Fluid Systems† (Fall, Winter). A capstone, project-oriented course in the thermal-fluids area of mechanical engineering that applies design techniques to the design of thermal/fluid processes and systems. Students work in teams on projects that involve the design of piping systems, heat exchangers, thermodynamic cycles, and other thermal/fluid systems. Prerequisites: MER232, MER331, MER333. WAC

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, MER331, MER333, or permission of the faculty advisor, and concurrent registration and participation in senior seminar MER010.

498. Mechanical Engineering Senior Project Continuation (Fall, Winter, Spring). Continuation of MER 197. Minimum requirements include one oral report, one written final project report, and development of a web page for the project. Consult the Mechanical Engineering department for additional minimum requirements. Prerequisites: MER 497 and concurrent registration and participation in senior seminar MER010.

499. Mechanical Engineering Senior Project Continuation (Spring). Optional follow-on to MER497, MER498, for students who wish to go above and beyond their completed objectives for MER497, MER498. Can be counted as a free elective in the Mechanical Engineering curriculum. Prerequisites: MER498, permission of the MER498 project advisor and the department chair. Consult the Mechanical Engineering Department Chairman for additional requirements.

Elective Courses

(These may be taken to satisfy the engineering or free elective requirements. Consult Mechanical Engineering Department chair and course listing for additional MER, ESC, CSC, ECE, and GCUU courses that satisfy the engineering elective requirement.)

240. Introduction to Bioengineering. 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 neural information processing and control. Topics include the mechanics of support and locomotion, circulatory transport, heat and mass transfer from organisms and ecosystems, and sensory information processing. Course prerequisites: MTH010 or equivalent and one course in BIO, CHM or PHY that counts towards the major. (Cross listed with BIO240.)

245. Biomechanics. (Not Offered in 2006-07) This course is designed to acquaint the student with basic applications of mechanics to biological systems and devices. Course prerequisites: MTH112 and PHY120. (Cross listed with BIO245)

291-293. Mechanical Engineering Sophomore Practicum. (Fall, Winter, Spring) Any mechanical engineering undergraduate can practice their profession during their sophomore year of study on a part-time basis, for credit, through participation in either (1) undergraduate research or (2) a design project sanctioned by the department. To receive Pass/Fail credit equivalent to one free elective course, the student must earn 3 terms worth of passing grades for the practicum experience. Credit for up to two free elective courses may be earned in this way.

332. Fluid Mechanics II. (Spring) Emphasis on the differential approach to fluid mechanics. Applications include potential flow theory, the theory of lift, turbomachinery analysis, compressible flow, and computational fluid dynamics. Prerequisite: MER331 or equivalent.

391-393. Mechanical Engineering Junior Practicum. (Fall, Winter, Spring) Any mechanical engineering undergraduate can practice their profession during their junior year of study on a part-time basis, for credit, through participation in either (1) undergraduate research or (2) a design project sanctioned by the department. To receive Pass/Fail credit equivalent to one free elective course, the student must earn 3 terms worth of passing grades for the practicum experience. Credit for up to two free elective courses may be earned in this way.

421. Mechatronics Design. (Not Offered in 2006-07) With an underlying focus on integration, 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 small, hands-on interdisciplinary 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. Prerequisite: MER322

440. Orthopedic Biomechanics (Spring) (Cross-listed with BIO440). Structure, function, mechanical properties, constitutive models, and methods of analysis of bone and other biologic hard tissues; introduction to the analysis of skeletal joints, prosthetics, and implants. Prerequisite: MER214.

445. Soft Tissue Mechanics. (Not Offered in 2006-07). Introduction to the mechanical behavior of biological soft tissues including ligament, tendon, skeletal muscle, articular cartilage, intervertebral disc, and skin. Topics include the hierarchical structure, function, properties, and constitutive modeling of each tissue. Prerequisite: MER214.

451. Advanced Dynamics. (Not Offered in 2006-07) Analytical dynamics with engineering applications to particles and rigid bodies. Topics include three-dimensional kinematics and dynamics, Lagrangian dynamics and an introduction to robotics. Prerequisites: MER212, MER312 or equivalent.

452. Composite Materials Technology. (Spring) A comprehensive introduction to composite materials and motivation for their use in modern applications. Topics include selection and availability of composite materials, manufacturing processes, usable theoretical concepts, testing and characterization of composites, and strength theories. Prerequisites: MER213, MER214 or equivalent.

471. Solar Energy Analysis and Design. (Not Offered in 2006-07) Analysis and design techniques applicable to the use of solar energy for heating, cooling, and electric power generation. Prerequisites: MER333 or permission of the instructor. WAC

472. Heating, Ventilation, and Air Conditioning . (Not Offered in 2006-07) Factors affecting human comfort and health, and the properties of moist air and conditioning processes for thermal environmental control. Use of ASHRAE data and psychometric charts. Calculation of heating and cooling loads. Analysis and design of HVAC systems. Application of solar energy for heating and cooling. Prerequisite: MER232 or permission of the instructor.

490. Independent Study. (Fall, Winter, Spring) Offered with department approval only.

491-493. Mechanical Engineering Senior Practicum. (Fall, Winter, Spring) Any mechanical engineering undergraduate can practice their profession during their senior year of study on a part-time basis, for credit, through participation in either (1) undergraduate research or (2) a design project sanctioned by the department. To receive Pass/Fail credit equivalent to one free elective course, the student must earn 3 terms worth of passing grades for the practicum experience. Credit for up to two free elective courses may be earned in this way.

Modern Languages and Literatures

Professor Mueller, Acting-Chair; Professors Moyano, Thomas; Associate Professor Batson (on leave 2006-07), Chilcoat, Ferry, Garcia (on leave 2006-07), Henseler (on leave 2006-07), Martinez (on leave 2006-07), Mosquera, Ueno (on leave 2006-07); Assistant Professors Bidoshi, Hamm-Ehsani, Ndiaye, Ricci; Visiting Assistant Professors Austin, Brougham, Loth; Lecturer Osuna; Visiting Lecturer Hsiung

All students who begin the study of a new foreign language at Union are encouraged to pursue it for at least three terms. Students who take 100-level courses in more than one foreign language will receive credit for the second 100-level course only upon completion of the 101-level course in at least one of the two languages. Students continuing a foreign language previously studied will be assigned to the proper course level by the department. Placement will be made on the basis of secondary school record and testing scores. Students may construct full majors or interdepartmental majors in French, German, and Spanish. Students in Chinese, Japanese, and Russian have the option of an interdepartmental major with any other field. Minors are possible in Chinese, French, German, Japanese, Russian, and Spanish. Students of Chinese and Japanese have the option of the major or interdepartmental major in East Asian Studies.

French Requirements

Requirements for the Major in French: A minimum of 10 courses beyond the 101-level, including two 300-level courses, three 400-level courses, and 489 (Senior Project). Participation in a Union Term Abroad program is normally expected. Courses listed under "Literature in Translation" may or may not count toward the major, interdepartmental major, or minor. One term of related history, one term of philosophy, and one term of English literature are strongly recommended, as well as relevant courses in art history in the major.

Requirements for the Interdepartmental Major in French: A minimum of seven courses beyond the 101-level, including two 400-level courses and either 489 or a project that integrates the two disciplines.

Requirements for the Minor in French: A minimum of six courses, including two 300-level courses.

German Requirements

Requirements for the Major in German: A minimum of ten courses beyond the 101-level, including three 300 level, and two 400 level, and 489 (Senior Project). Majors are normally expected to take one Term Abroad and are encouraged to improve their language skills by living in the German House, attending the weekly German Table, and participating in other extracurricular activities. Students have the option of taking one MLT course (Literature in Translation) for German credit. In addition, majors are urged to take other courses related to German culture and history in other academic fields such as English, history, philosophy, music, art history, and political science.

Requirements for the Interdepartmental Major in German: A minimum of seven courses beyond the 101-level, including two courses at the 300 level and one course at the 400 level if the thesis 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 for those who begin with 100, or a minimum of five courses for those beginning at the 101-level or above, including at least two 300-level courses. Minors are strongly encouraged to take a Term Abroad. Minors have the option of taking one MLT for German credit if they have participated in the German Term Abroad.

Spanish Requirements

Requirements for the Major in Spanish: A minimum of ten courses beyond the 101-level, including two 300-level courses (from different clusters; see listing of clusters below), and four 400-level courses, one of which must be taken with WS designation in the Spring term of the senior year. Students who seek and qualify for departmental honors must take SPN 489 (Honors Senior Seminar), which will count as one 400-level course with WS designation. Courses listed under "Literature, Culture, and Cinema in Translation" do not count toward the major, interdepartmental major, or minor. Majors are expected to participate in a term abroad program. Elective courses pertinent to the major/minor in Spanish from other humanities and social sciences areas such as history, philosophy, literature, political science and art history, etc. are strongly recommended.

Requirements for the Interdepartmental Major in Spanish: A minimum of seven courses beyond the 101-level, including two 300-level courses (from different clusters; see listing of clusters below) and two 400-level courses; one of the 400-level courses must be taken with WS designation in the Spring term of the senior year unless the student writes a thesis in the other department that integrates the two disciplines. Students who seek and qualify for departmental honors must take SPN 489 (Honors Senior Project), which will count as one 400-level course with WS designation. ID majors seeking honors must fulfill honors requirements in both departments/programs.

Requirements for the Minor in Spanish: A minimum of six courses for those who begin with 100 or a minimum of five courses for those beginning at the 101-level or above. All minors must take two 300-level courses (from different clusters; see listing of clusters below). No more than three 300-level courses can be counted for the minor. In place of one of the 300-level courses, one MLT course (on Peninsular Spanish or Latin American literatures and cultures) can be counted towards the minor.

Chinese, Japanese, and Russian Requirements

Requirements for the Interdepartmental Major in Chinese, Japanese, or Russian: A minimum of seven courses beyond the 101-level, including two courses on the 300-level and one MLT course, or a third course at the 300-level. 4 courses beyond the 101-level are required if combined with participation in a Union Term Abroad to China or Japan, or a study abroad in Russia.

Requirements for the Minor in Chinese, Japanese, or Russian: A minimum of 7 courses, starting at the 100-level, including one MLT course. If combined with participation in the Term Abroad in China, Japan, or study abroad in Russia, students may complete a minor in Chinese, Japanese, or Russian with 3 additional courses (making the total six courses).

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. The completed project shall be approved or disapproved for honors by its director and at least one other member of the department, and then given a grade by the director.

Requirements for Secondary School Certification: PSY 246, and "Structured Field Experiences" (EDS 200A, 200B, each a non-credit course). Requirements within the major include:

(1). Twelve courses in the same language sequence (French, German, Spanish), including FRN 303, GER 202 or SPN 203, a civilization/culture course, a survey course, three courses at the 400 level, and 450.

(2). Participation in at least one of Union's Terms Abroad in an appropriate country as required. Additional experiences in foreign cultures, intensive language programs, and/or terms abroad are highly recommended.

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

(4). MLL majors are encouraged to take courses in more than one language and also to seek certification in more than one language. A student must complete a full major in each language in which certification is sought. Students seeking certification in more than one language are recommended to complete the combined degree program which will allow for greater flexibility in course selection as well as the possibility for two terms abroad.

Modern Literature, Culture, and Cinema in Translation

(Taught in English)

Chinese

MLT 200 (10). Modern Chinese Literature (Not offered 2006-07). An introduction to a wide variety of Chinese literature. Students will study aspects of the function of history, memory, and the global/local in the Chinese context. GenEd: CDEA

MLT 201 (11). Chinese Cinema (Also East Asian Studies 201) (Not offered 2006-07). From the glitzy production studios of 1930s Shanghai to the contemporary hinterlands of China, the backstreets of Hong Kong, and the towns of Taiwan, this course examines the development and transformation of Chinese cinema. It will explore questions of aesthetics, Chinese identity, transnationalism, and representation. GenEd: CDEA

MLT 202 (12). Gender and Sexuality in Modern China (Also WGS 202 and EAS 202) (Not offered 2006-07). An examination of representations by and about women in 20th-century China through and understanding of the concepts Woman and Modernity. We will take into account women's and men's relationship to literature, selected genres, opinions on literary creativity, character representation, and social engagement to explore short stories, essays, diaries, poetry, and film. GenEd: CDEA

MLT 203 (13). Asian American Film and Performance (Also EAS 203 and WGS 268) (Fall; Ferry). An examination of topics in Asian American studies through film and performance by and about Asian Americans. Class material will draw from feature and documentary films by well-known and independent filmmakers, theatrical and artistic performance, as well as theoretical and critical texts on culture and diversity, the diaspora, and ethnicity. GenEd: CDEA, AM-C

MLT 204 (14). Literary Traditions in East Asia (Also EAS 204) (Winter; Ferry). Literary developments in East Asia, looking closely at the aesthetic and philosophic foundations of its varied literature through poetic genres, story forms, oral storytelling, travel literature, and drama. GenEd: CDEA

MLT 205 (15). Perspectives in Modern East Asian Literature (Also EAS 205) (Not offered 2006-07). The literary and artistic developments in East Asia since the mid-19th century. It will consider questions of tradition, culture, modernity, globalism, and technology by examining cultural artifacts -- novels, short stories, plays, paintings, architecture, music, and film. GenEd: CDEA

MLT 206 (16). Traditional Chinese Medicine (Not offered 2005-06). The development of traditional Chinese medicine and healing practices. Course focuses on philosophical, religious, and popular views of the body and treatment of diseases. Issues such as alternative medicine in the U.S. and the lack of regulation of herbal remedies will also be discussed. GenEd: CDEA

MLT 207 (18). China's Cultural Revolution (Also EAS 207) (Not offered 2006-07). An interdisciplinary approach to examine the historical, political, and artistic preconditions and ramifications of the Chinese Cultural Revolution (1966-1976).

French

MLT 210 (26). The Artist as Hero (Also FRN 420) (Not offered 2006-07). The reaction of the artistic temperament to its times, and of the times to the artistic temperament, as expressed in the

works of Goethe, Balzac, Flaubert, Zola, Mann, Joyce, and Gide. GenEd: Eu-L

MLT 211 (27). Special Topic in Comparative Studies. Histoire de la danse, Danse de l'histoire / History of Dance, Dance of History (Also FRN 421, ADA 53, and WGS 211) (Not offered 2006-07). Examination of Western European dance and dance texts as revelatory of broader historical and cultural patterns, with special analyses of dance as a key tool of nation-building (as with the court of Louis XIV) and/or a central medium of artistic creation (as in 1920s Paris). Primary focus on France as creator, user, and potential abuser of dance's power, but some attention given other European models (Berlin, St. Petersburg, London). Readings from theoreticians, historians, and dance littérateurs (Molière, Gautier, Cocteau). GenEd: Eu-CS

MLT 212 (28). Sex Lives and Videotape: Casting Sexuality in French and Francophone Film (Also FRN 402 and WGS 228) (Winter; Chilcoat). Analysis and critique of films whose focus is the "sexual orientation" of its characters. Films may include La Cage aux folles, Les Diaboliques, French Twist, Sitcom, Ma Vie en rose, Woubi Chéri. Theoretical and critical works by authors such as Michel Foucault, Monique Wittig, Simone de Beauvoir, Susan Hayward, Laura Mulvey, Sigmund Freud, and Kate Bornstein will inform our study of these films. Readings in both French and English. All films subtitled. GenEd: Eu-C

MLT 213 (29). West African Oral Literature (Also FRN 430) (Not offered 2006-07). West-African oral genres with a focus on tales and epics in their form and ideologies. Through a study of the oral literature of the region, we will explore the socio-cultural structures of ancient West Africa, their collapse through religious and colonial implications, and their vestiges in today's Africa. GenEd: CDAA

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 German 201.

MLT 230 (41). Forging a Nation – German Culture and Society I (1750-1914) (Also GER 330) (Not offered 2006-07). Study of the social, political and cultural challenges of building a unified German identity and nation—including religious tolerance, imperialism, sexual politics industrialization and urbanization. GenEd: Eu-C/L

MLT 231 (47). Guns, Jazz & Politics—German Culture and Society II (1914-1933) (Also GER 331) (Not offered 2006-07). Study of how violence, economic and political volatility, technology, and changing moral codes affected German society and culture (literature, visual arts, film, music) from the onset of the First World War to the rise of Hitler. GenEd: Eu-C, Eu-L

MLT 232 (42). Identity after the Holocaust – German Culture and Society III (1945-Present) (Also GER 332) (Not offered 2006-07). Study of the cultural, political, and social impact of WWII's mass violence on modern Germany, focusing on issues such as denazification and reeducation, rebellious youth, the 'Historian's debate,' and reunification. GenEd: Eu-C/L

MLT 233 (44). Metropolis Berlin: Cultural Representations of Germany's Capital (Also GER 333) (Not offered 2006-07). An exploration of how the city Berlin has been constructed and contested as a political and cultural as well as physical site. GenEd: Eu-C

MLT 234 (45). Femmes fatales? Women in 19th- and 20th-Century German Culture and Society (Also GER 334 and WGS 222) (Not offered 2006-07). An examination of female sexuality as one of the central controversies of modern German culture. In addition to analyzing cultural artifacts (plays, films, paintings), we will discuss such diverse social phenomena as the Women's movement, morality crusades, psychoanalysis, and sexology. GenEd: Eu-LS

MLT 235. Voices from Abroad: German Exile Culture, 1933-1990 (Also GER 335) (Winter; Ricci). This course, taught in translation, is designed for both Germanists and other students of literature interested in exploring notions of exile and the particular cultural artifacts, including novels, films, essays and poetry, that bear witness to the struggle of artists exiled from WWII Germany and Austria.

The class additionally examines texts by current émigrés to Germany and incorporates theoretical assessments of exile, considering works by Said, Milosz and others. GenEd: Eu-LS/C

Japanese

MLT 250 (56). Japanese Sociolinguistics (Also WGS 256) (Spring; Ueno). This course will focus on societal aspects are represented in the characteristics of language. Discussions will include gender differences, formality, and communication strategies. This course will be taught in English and no prior Japanese language knowledge is required. GenEd: CDEA

MLT 251 (57). Japanese Language and Culture (Not offered 2006-07). This course is required for the students participating Japan Term Abroad without any language background. It is also recommended to the students who plan to visit Japan in the future. The first half of the course focuses on general Japanese cultural characteristics. The second half of the course concentrates on Japanese basic grammar and some idiomatic expressions. GenEd: CDEA

Russian

MLT 260 (66). 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. Gen Ed: EU-C

MLT 261 (68). Cinema, Crimes, and Punishment (Not offered 2006-07). Investigates the irrational in our human psyche and inquires into the problems of desire, suffering, violence, and death. Films by Truffaut, Bergman, Hitchcock, Balabanov, and Mikhalkov are studied. Gen Ed: Eu-C

MLT 262 (69). Russia: Magnificence, Mayhem, and Mafia (Not offered 2006-07). Through analysis of literature, film, and visual arts we will discuss the Russian impact on the world with all its manifestations, constructive and destructive, and we will also attempt to "imagine" Russia in the future. Do you want to know more about Dostoevsky, communist and post-communist Russia, and, most importantly, the Russian Mafia? GenEd: Eu-C

MLT 263 (70). Nationalism and Empire: Russian Music and Art of the 19th Century (Not offered 2006-07). The philosophical tenets of Romanticism and Nationalism as depicted in Russian music and art of the mid-19th century. We will concentrate on the interaction between music and art to explore methods by which Russian artists and composers manipulated canvases and scores to express issues of Nationalism. The course is thematically organized to explore such topics as identity politics, ethnicity, and nation and empire. Class material will draw from documentary films, and theoretical and critical texts on culture, identity, nationalism and romanticism. GenEd: Eu-C

MLT 264. Illness and Its Representation: Madness, Disease and Death in 19th- and 20th-Century Russian Culture (Not offered 2006-07). In this course we will investigate illness and its various representations in 19th and 20th century Russian culture. Specific emphasis will be placed on madness, disease and death in our discussion of various literary and historical madmen. The course will be conducted as a combination of lectures and class discussion. An occasional film will be shown. GenEd: Eu-L

Spanish

MLT 270 (82). The Way of St. James: An Interdisciplinary Study (Also AAH 212) (Not offered 2006-07). Prerequisite to the course "Hiking the Trail in Spain." Teaches the history, literature, art, and architecture of the route to Santiago de Compostela in northern Spain. Readings include selections from Berceo, the Songs of Mary, and various texts on Romanesque art and architecture. GenEd: Eu-C

MLT 271T (83). Hiking the Trail in Spain (Also AAH 213T) (Not offered 2006-07). 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.

MLT 272 (84). Art and Politics in Spain: From the Civil War to Postfrancoism and Postmodernity (Not offered 2006-07). The impact that political events of this century in Spain have had on Spanish

society and culture, as manifested in the arts in general and in literature in particular. GenEd: Eu-L

MLT 273. Re-Viewing Spanish Cinema: From Dictators, Bullfighters and Flamenco to Nationalisms and Globalization (Not offered 2006-07). This course examines the works of such well known artists/filmmakers as Medem, Almodóvar, Bigas Luna, de la Iglesia, Aménabar, among others, who often directly engage with questions of "Spanishness," of the nature of regional and ethnic diversity and identities within Spain, and the place of these identities in the wider framework of filmmaking in Europe. Furthermore, it will also study popular cinema which has been successful in a national context under the Franco regime and since the coming of democracy in the 1970s. GenEd: EuC

MLT 274. Trash and Transgression: Spanish Surrealism and Popular Culture in Dalí, Lorca and Buñuel (Fall; Moyano). 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 of 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 conflictions and repressed sexual longings. Gen.Ed. EU-LC

MLT 280 (90). The Nobel Laureates of Latin America (Not offered 2006-07). An analysis of aesthetic, philosophical, and political problems in Latin American literature as expressed in the writings of five laureates -- Gabriela Mistral, Pablo Neruda, Miguel Angel Asturias, and Gabriel Garcia Marquez, and Octavio Paz. GenEd: CDLA

MLT 281 (91). Screening Identities in Latin American Cinema (Also WGS 220) (Not offered 2006-07). A survey of the main trends in film production in Latin America since the 1950s (Mexican Golden Age Cinema, Brazilian Cinema Novo, Cuban Imperfect Cinema, Mexican New Wave, the 1990's and beyond). Readings and discussions on issues of film history, aesthetics, representation and reception will frame our critical reflection on the construction of identities (inner-city youth, gender roles, masculinities, race and ethnicity, and US Latinos). GenEd: CDLA

MLT 282 (92). North/South Relations and Diasporic Politics (Not offered 2006-07). This course explores the cultural and political interaction between North and South that historically has helped to define the geography of the Americas. As an interdisciplinary course, North/South will draw students into ongoing debates about linguistic and intercultural exchange and conflict within hemispheric politics. GenEd: CDLA

MLT 283 (93). Beyond the Sunny Paradise: Literature and Politics in the Caribbean. (Not offered 2006-07). An interdisciplinary study of Caribbean literature focusing on the political history of the region from 1898 to the present. Pan-Caribbean literary survey (Alvarez, Arenas, Bosch, Cartagena-Portalatin, Zobel, Danticat, Ferre, Kincaid, Naipaul, Santos-Febres, Ana Lydia Vega, among others). Besides the literary texts, films and substantive readings will contribute to an examination of five main topics: Legacies of Colonialism; Race and Ethnicity; Constructed Identities; U.S. Dominance and Interventionism; and Caribbean Diaspora. GenEd: CDLA, CDAA

MLT 284 (94). Popular Religion and Politics in Latin America (Not offered 2006-07). 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, ethnohistorical and cultural theory texts as well as oral histories and collective memories. The final goal is to tease out those ideas that have traditionally defined the terms in which we understand and explain the "popular" in religious behavior; to understand better the conflicted relationship between "popular" cultural and institutional spaces; and finally to understand why the evolution of popular religions in Latin America cannot be examined without also taking into account their political economy. GenEd: CDLA, CDAA

MLT 285 (95). From Virgin to Sex Goddess: Re-Envisioning the Chicana Experience Through Art and Literature (Also WGS 285) (Not offered 2006-07). In "Guadalupe the Sex Goddess," Sandra Cisneros gives the Virgin of Guadalupe an "extreme makeover." She undresses the sacred image and envelops her in a cloak of contemporary sexual politics. In the same vein, other Chicana artists and writers re-examine, re-present, and re-write traditional practices to define the experience of the Mexican-American woman in the late 20th century. This course presents students with the resisting and affirming powers of Chicana works of art. It introduces them to the Mexican-American civil rights movement and to myths and archetypes in order to allow for a reevaluation of gender identities through

installation art, muralism, poster art, and painting. Issues of sexuality, language, ethnicity, race, and class will be examined through these visual art forms as well as in narratives and essays by authors as influential as Ana Castillo, Gloria Anzaldúa, Tey Diana Rebolledo, and, of course, the creator of the sex goddess herself, Sandra Cisneros. GenEd: AM-C, AM-L, CDLA

MLT 286T. Gender and Identity in Contemporary Brazilian Cinema (Also WGS 286T) (Not offered 2006-07). This course offers an interdisciplinary study of contemporary Brazilian cinema focusing on issues of representation, reception and spectatorship, and construction of (national, cultural, gender, and racial) identity. Besides the films, reviews and substantive readings will contribute to an examination of five main topics: 1) Constructions of Gender; 2) Representations of National Identity; 3) Race and Class; 4) Queer Images; and, 5) Imagining Marginality. All films studied in class will link two or more of these topics. GenEd: CDLA

MLT 287. Filming Margins: Cinema Verité and Social Realism in Latin America (Winter; Mosquera). This course studies different styles of documentary and realist film making from Latin America. It looks critically and with a "film-eye" at the aesthetics and socio-political meanings of conventional and experimental documentary films dealing with marginalized peoples and their representation, such as Buñuel's Los Olvidados (1950), Hector Babenco's Pixote (1981) and Fernando Meirelles' City of God (2002), and others. GenEd: CDLA

MLT 288. Torture and Dictatorship in Latin American Literature (Also WGS 288) (Spring; Martinez). This course is an exploration of Latin-American literature in the twentieth century with a particular focus on the Dirty War in Argentina (1976-1983) and the early years after the military coups in Uruguay and Chile during the same time period. Readings include texts by writers who stayed in Argentina and Chile and who wrote under the confines of censorship, texts by exiled writers and essays theories of violence, torture and censorship. The class will also include viewings and analysis of films related to the events in those countries. We will also discuss the gendering of nation, the government and the victims—and will study the phenomenon of nation and people as the feminine "body" on which the male government exacts its control and punishment. We will also analyze the contrasts between literature written under the constraints of censorship, and that of exile. GenEd: CDLA

Course Offerings in Individual Languages

Chinese Language Sequence

CHN 100 (10). Basic Chinese I (Fall). Basic skills for students who begin with no knowledge of Mandarin.

CHN 101 (11). Basic Chinese II (Winter). A continuation of Chinese 100. Prerequisite: Chinese 100 or permission of instructor.

CHN 102 (12). Basic Chinese III (Spring). A continuation of Chinese 101. Prerequisite: Chinese 101 or permission of the instructor.

CHN 103 (15). Chinese for the Term Abroad (Not offered 2006-07). 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 (120). Intermediate Chinese I (Fall). Review, and continued development of all skills in Mandarin. GenEd: CDEA, AM-C

CHN 201 (121). Intermediate Chinese II (Winter). Continuation of Chinese 200. Prerequisite: Chinese 200 or permission of instructor.

CHN 202 (122). Intermediate Chinese III (Spring). Continuation of Chinese 201. Prerequisite: Chinese 201 or permission of instructor.

CHN 204T, 205T (124A, 125A). The Chinese Language Studied Abroad (Fall term in Shanghai). See Terms Abroad Program.

CHN 250T, 251T (160A, 161A). The Chinese Language Studied Independently Abroad.

CHN 300 (130). Advanced Chinese I (Not offered 2006-07). Emphasis on the communicative function of the language where advanced reading, grammar, and conversation are stressed. The content of the material focuses on the rapidly changing attitudes and values of modern China. Authentic reading materials are included in each lesson. GenEd: CDEA

CHN 301 (131). Advanced Chinese II (Not offered 2006-07). A continuation of Chinese 300. In addition to the work done in 300, periodic translation exercises will provide students with the opportunity to gauge how well they understand nuances in the language. Aside from the assigned text, additional materials will be taken from newspaper articles, television, news broadcasts, short works of fiction, and some film. Prerequisite: Chinese 300 or permission of instructor. GenED: CDEA

CHN 302 (132). Advanced Chinese III (Not offered 2006-07). A continuation of Chinese 301. Prerequisite: Chinese 301 or permission of instructor. GenEd: CDEA

French: Language Sequence

FRN 100 (10). Basic French I (Fall, Winter). Basic skills for students who begin with no knowledge of French.

FRN 101 (11). Basic French II (Winter, Spring). A continuation of French 100. Prerequisite: French 100 or two years of secondary school French.

FRN 102 (12). Basic French III (Fall, Spring). A continuation of French 101, with introduction of readings. Prerequisite: French 101 or three years of secondary school French.

FRN 200 (120). Intermediate French I (Fall, Winter). Intensive review and development of all language skills, with emphasis on vocabulary building, conversation, and composition. Prerequisite: French 102 or equivalent.

FRN 201 (121). Intermediate French II (Winter, Spring). Continuation of extensive review and development, vocabulary building, conversation, and composition. Prerequisite: French 200 or equivalent.

FRN 204T-207T (124A-127A). The French Language Studied Abroad (Fall term in Rennes).

FRN 250T, 251T (160A, 161A). The French Language Studied Independently Abroad.

FRN 303 (133). Advanced French (Not offered 2006-07). 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 (128A). Contemporary France (Fall term in Rennes). See Terms Abroad program. Gen Ed: Eu-CS

FRN 300 (130). 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. Prerequisite: French 201, any 300-level or permission of instructor. GenED: Eu-C

FRN 301 (131). A Survey of French Literature I (Winter; Ndiaye). The evolution of French literature from the earliest writings through the age of Enlightenment. Readings of major works from each period to illustrate trends. Prerequisite: French 201, any 300-level or permission of instructor. GenEd: Eu-LS

FRN 302 (132). A Survey of French Literature II (Loth; Spring). 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: French 201, any 300-level or permission of instructor. GenEd: Eu-LS

FRN 304 (134). Studies in the French Caribbean (Not offered 2006-07). 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: French 201, any 300-level or permission of instructor. Gen-Ed: CDLA, CDAA

FRN 305T (135A). Mini-term in Martinique (Not offered 2006-07). See Terms Abroad Program. Continuation of the themes of FRN 304, studied and experienced on the island of Martinique. Prerequisite: FRN 304. Gen Ed: CDLA, CDAA

FRN 306T (136A). Readings in French and Francophone Culture (Fall term in Rennes; Batson). See Terms Abroad Program. France and the French of today as reflected in selected literary works from

various genres and periods. Prerequisite: French 201, any 300-level or permission of instructor. Gen Ed: Eu-LS

FRN 307 (137). Negritude Movement: Point of Departure in Black African and Afro-Caribbean Literatures in French (Not offered 2006-07). 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: French 201, any 300-level or permission of instructor. Gen Ed: CDLA, CDAA

FRN 308 (138). Women on Top: Great Women Writers and Characters of French Narrative Fiction (Also WGS 365) (Not offered 2006-07). 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: French 201, any 300-level or permission of instructor. GenEd: Eu-LS

FRN 309 (139). Identifying Desire, Desiring Identity: French and Francophone Non-Narrative Literature (Not offered 2006-07). 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: French 201, any 300-level or permission of instructor GenEd: Eu-LS

FRN 400 (141). Whose Enlightenment? (Also WGS 416) (Fall; Chilcoat). Eighteenth-century France's philosophical tradition, focusing on debates over sex, race, class, education and revolution. Writers may include: Rousseau, Toussaint Louverture, Voltaire, Louise d'Epinay, Olympe de Gouges, M. et Mme Condorcet, Marie Antoinette, and Sade. Prerequisite: One course at the 300 level. GenEd: Eu-L

FRN 401 (143). The Writers of Romanticism (Not offered 2006-07). Writers of personal and imaginative prose, poetry, and drama following the French Revolution. The beginning of Realism. Prerequisite: One course at the 300 level. GenEd: Eu-L

FRN 402 (144). Sex Lives and Videotape: Casting Sexuality in French and Francophone Film (Also MLT 212 and WGS 228) (Winter; Chilcoat). Analysis and critique of films whose focus is the "sexual orientation" of its characters. Films may include La Cage aux folles, Les Diaboliques, French Twist, Sitcom, Ma Vie en rose, Woubi Chéri. Theoretical and critical works by authors such as Michel Foucault, Monique Wittig, Simone de Beauvoir, Susan Hayward, Laura Mulvey, Sigmund Freud, and Kate Bornstein will inform our study of these films. Readings in both French and English. All films subtitled. GenEd: Eu-C;

FRN 403 (145). Studies in the French Theater (Not offered 2006-07). Studies of French-language theatrical texts and performances from the classical period to the present. Prerequisite: One course at the 300 level. GenEd: Eu-L

FRN 410 (147a). Special Topic in Narrative Studies: Studies in the Novel, 1800-1914 (Not offered 2006-07). The French novel from the revolution to the Great War. Special attention to historical, cultural and artistic movements and their effect on the novel. Prerequisite: One course at the 300 level. GenEd: Eu-L

FRN 411 (147b). Special Topic in Narrative Studies: The 20th Century Novel (Not offered 2006-07). A study of narrative technique and the representation of French culture in the works of authors such as Sagan, Perec, Vian, Gary, Sartre, Camus, Duras, and Beauvoir. Prerequisite: One course at the 300 level. Gen Ed.: Eu-L

FRN 420 (148a). Special Topic in Comparative Studies: The Artist as Hero, 1800-1930 (Also MLT 210) (Not offered 2006-07). The reaction of the artistic temperament to its time, and of the times to the artistic temperament. Gen Ed: Eu-L

FRN 421 (148b). Special Topic in Comparative Studies. Histoire de la danse, Danse de l'histoire / History of Dance, Dance of History (Also ADA 53, MLT 211, and WGS 211) (Not offered 2006-07). Examination of Western European dance and dance texts as revelatory of broader historical and cultural patterns, with special analyses of dance as a key tool of nation-building (as with the court of

Louis XIV) and/or a central medium of artistic creation (as in 1920s Paris). Primary focus on France as creator, user, and potential abuser of dance's power, but some attention given other European models (Berlin, St. Petersburg, London). Readings from theoreticians, historians, and dance littérateurs (Molière, Gautier, Cocteau). GenEd: Eu-CS

FRN 430 (149a). Special Topic in Francophone Culture and Literature: West African Oral Literature (Also MLT 213) (Not offered 2006-07). West-African oral genres with a focus on tales and epics in their form and ideologies. Through a study of the oral literature of the region, we will explore the socio-cultural structures of ancient West Africa, their collapse through religious and colonial implications, and their vestiges in today's Africa. GenEd: CDAA

FRN 431 (149b). Special Topic in Francophone Culture and Literature: Voices of Francophonie Literature from French-Speaking Countries and Territories other than France (Spring; Ndiaye). The ways contemporary writers from former French colonies in West and North Africa and from the French-speaking Caribbean stress local, social, political, religious, and gender matters in their novels and short-stories. We also examine these writers' particular use of the French language according to local meanings and other strategies they develop to redefine post-colonial societies. Among selected writers we have Calixthe Beyala, Mariama Bâ, Assia Djebar, Rachid Minouni, Patrick Chamoiseau, and Maryse Condé. Prerequisite, One course at the 300-level. Gen Ed: CDAA

FRN 489 (151). Senior Project (Winter; Ndiaye). 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. WAC: WS

FRN 490-492 (190-192). 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.

The 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 (10). Basic German I (Fall). Basic skills for students who begin with no knowledge of German.

GER 101 (11). Basic German II (Winter). Continuation of German 100. Prerequisite: German 100 or two years of secondary school German.

GER 102 (12). Basic German III (Spring). Continuation of German 101, with introduction of readings. Prerequisite: German 101 or three years of secondary school German

GER 200 (120). Intermediate German I (Fall). Intensive grammar review, emphasis on vocabulary building, idiomatic expressions, conversation, and composition based on cultural and literary texts. Prerequisite: German 102 or equivalent.

GER 201 (121). Intermediate German II (Fall, Winter). Continuation of extensive grammar review, vocabulary building, conversation, and composition based on more advanced cultural and literary texts. Prerequisite: German 200 or equivalent.

GER 202 (122). Advanced German (Not offered 2006-07). Mastery of the spoken and written language, with an emphasis on the finer points of grammar, style, and colloquial expression. Prerequisite: German 201 or equivalent.

GER 204T-207T (124A-127A). German Language and Culture Studies Abroad (Spring). See Terms Abroad Program.

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)

GER 300T (130A). German Civilization (Spring in Freiburg/Berlin; Ricci). See Terms Abroad Program. An introduction to the cultural history of German speaking Europe. Prerequisite: GER 201 or permission of the instructor. GenEd:Eu-CS

GER 301 (131). German Culture and the Professions (Not offered 2006-07). 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.

GER 302 (132). German Prose: A Survey (Not offered 2006-07). Selected works representing literature and society from the late eighteenth century to the present. Readings of works from each period to illustrate cultural, historical, and artistic trends. Prerequisite: GER 201 or permission of the instructor. GenEd: Eu-LS

GER 303 (133). German Drama: A Survey (Spring; Hamm-Ehsani). Theory and practice of German theater from the Enlightenment to the Present. Prerequisite: GER 201 or permission of the instructor. GenEd: Eu-LS

GER 306 (136). Twentieth Century German Literature (Not offered 2006-07). Representative works by major writers, read as expressions of concern about their times. Prerequisite: GER 201 or permission of the instructor. GenEd: Eu-L

GER 330 (30). Forging a Nation – German Culture and Society I (1750-1914) (Also MLT 230) (Not offered 2006-07). Study of the social, political and cultural challenges of building a unified German identity and nation—including religious tolerance, imperialism, sexual politics industrialization and urbanization. Prerequisite: GER 201. GenEd: Eu-C/L

GER 331 (32). Guns, Jazz & Politics: German Culture and Society II (1914-1933) (Also MLT 231). (Not offered 2006-07). Study of how violence, economic and political volatility, technology, and changing moral codes affected German society and culture (literature, visual arts, film, music) from the onset of the First World War to the rise of Hitler. Prerequisite: GER 201. GenEd: Eu-C/L

GER 332 (31). Identity after the Holocaust – German Culture and Society III (1945-Present) (Also MLT 232) (Not offered 2006-07). Study of the cultural, political, and social impact of WWII's mass violence on modern Germany, focusing on issues such as denazification and reeducation, rebellious youth, the 'Historian's debate,' and reunification. Prerequisite: GER 201. GenEd: Eu-C/L

GER 333 (34). Metropolis Berlin: Cultural Representations of Germany's Capital (Also MLT 233) (Not offered 2006-07). An exploration of how the city Berlin has been constructed and contested as a political and cultural as well as physical site in art and architecture, literature and film. Prerequisite: GER 201. GenEd: Eu-C/L

GER 334 (35). Femme fatales? Women in 19th and 20th Century German Culture and Society (Also MLT 234 and WGS 222) (Not offered 2006-07). An examination of female sexuality as one of the central controversies of modern German culture. In addition to analyzing cultural artifacts (plays, films, paintings), we will discuss such diverse social phenomena as the Women's movement, morality crusades, psychoanalysis, and sexology. Prerequisite: GER 201. GenEd: Eu-LS/C

GER 335. Voices from Abroad: German Exile Culture, 1933-1990 (Also MLT 235) (Winter; Ricci). This course, taught in translation, is designed for both Germanists and other students of literature interested in exploring notions of exile and the particular cultural artifacts, including novels, films, essays and poetry, that bear witness to the struggle of artists exiled from WWII Germany and Austria. The class additionally examines texts by current émigrés to Germany and incorporates theoretical assessments of exile, considering works by Said, Milosz and others. GenEd: Eu-LS/C

GER 401 (134). Meeting the Other: Multiculturalism in Contemporary Germany (Not offered 2006-07). Analyzing recent cultural productions by minorities (literature, music and films) with respect to national, cultural, and sexual self-representations in the context of social and political developments. Prerequisite: Any 300-level course or permission of the instructor. GenEd: Eu-LS/C

GER 402 (137). German Film Studies (Not offered 2006-07). Decoding film-specific 'narratives' in German movies on the background of socio-political, economic, and cultural conditions of their production. Prerequisite: Any 300-level course or permission of the instructor. GenEd: Eu-LS/C

GER 403. Shoah: Literary, Artistic and Filmic Representations of the Holocaust (Fall; Ricci). Comparing and contrasting works of German and German-Jewish writers. Prerequisite: Any 300-level course or permission of the instructor. GenEd: Eu-LS/C

GER 489 (151). Senior Writing Project (Spring; Hamm Ehsani).

GER 490-492 (190-192). 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.

Hebrew

Hebrew 100 (10). Basic Hebrew (Fall; Almog). A basic course for students who begin with no knowledge of Hebrew. Structure, reading, and audiolingual training.

HEB 101 (11). Basic Hebrew II (Winter; Almog). A basic course for students who begin with no knowledge of Hebrew. Structure, reading, and audiolingual training.

HEB 102 (12). Basic Hebrew III (Spring; Almog). A basic course for students who begin with no knowledge of Hebrew. Structure, reading, and audiolingual training.

Italian

ITL 100 (10). Basic Italian I (Winter). A foundation course in Italian, open only to students who have been accepted for the Term Abroad in Florence. Study of the structure of the language supported by laboratory work, audio-lingual training.

ITL 104T (124A). The Italian Language Studied Abroad (Spring term in Florence). A continuation of Basic Italian I. Prerequisite: Italian 100. See Terms Abroad Program.

ITL 250T, 251T (160A, 161A). The Italian Language Studied Independently Abroad.

Japanese

JPN 100 (10). Basic Japanese I (Fall). A foundation course in Japanese. Study of the structure of the language is supported by laboratory work, audiolingual training.

JPN 101 (11). Basic Japanese II (Winter). A continuation of Japanese 100. Prerequisite: Japanese 100.

JPN 102 (12). Basic Japanese III (Spring). A continuation of Japanese 101.

JPN 200 (120). Intermediate Japanese I (Fall). Emphasis on grammar review and skills of oral communication. Prerequisite: Japanese 102 or equivalent.

JPN 201 (121). Intermediate Japanese II (Winter). Continuation of grammar review and communication skills. Prerequisite: Japanese 200 or equivalent.

JPN 202 (122). Intermediate Japanese III (Spring). A continuation of Japanese 201.

JPN 204T (124A). The Japanese Language Studied Abroad (Fall; Term in Japan). A continuation of Basic Japanese I. Prerequisite: Japanese 100. See Terms Abroad Program.

JPN 205T (125A). Written Japanese Abroad (Fall; Term in Japan). A continuation of Basic Japanese I. Prerequisite: Japanese 100. See Terms Abroad Program.

JPN 250T-252T (160A-162A). The Japanese Language Studied Independently Abroad.

JPN 300 (130). Advanced Intermediate Japanese I (Winter). Continued formal study of the Japanese language. Prerequisite: Japanese 202 or equivalent.

JPN 301 (131). Advanced Intermediate Japanese II (Spring). Continuation of Japanese 300. Prerequisite: Japanese 300 or permission of the instructor.

JPN 302 (132). Advanced Intermediate Japanese III (Not offered 2006-07). Continuation of Japanese 301. Prerequisite: Japanese 301 or permission of the instructor.

JPN 490-492 (190-192). Japanese Independent Study. Prerequisite: Permission of the instructor.

Portuguese

POR 100 (10). 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 (124T). Portuguese Language Studied Abroad (Fall term in São Paulo). A continuation of Basic Portuguese I. Prerequisite: Portuguese 100. See Terms Abroad Program.

POR 490 (190). Portuguese Independent Study. Prerequisite: Permission of the instructor.

Russian

RUS 100 (10). Basic Russian I (Fall; Bidoshi). For students with no knowledge of Russian. An introduction to the language, with emphasis on oral skills and communicative proficiency.

RUS 101 (11). Basic Russian II (Winter; Bidoshi). Continuation of Russian 100. Prerequisite: Russian 100 or two years of high school Russian.

RUS 102 (12). Basic Russian III (Spring; Bidoshi). A continuation of Russian 101, with increasing attention paid to reading simple, every day texts. Prerequisite: Russian 101 or equivalent.

RUS 200 (120). Intermediate Russian I (Fall; Bidoshi). Intensive development of the four proficiency skills (speaking, listening, reading, writing) with continued emphasis on strategies of basic conversation. Prerequisite: Russian 102 or equivalent.

RUS 201 (121). Intermediate Russian II (Winter). Continuation of Russian 200. Prerequisite: Russian 200 or equivalent.

RUS 202 (122). Advanced Russian (Spring). Development of skills and vocabulary necessary to deal with conversation about and texts on Russian cultural life. Basic grammar review. Prerequisite: Russian 201 or equivalent.

RUS 224T-227T (124A-127A). The Russian Language Studied Abroad.

RUS 250T, 251T (160A, 161A). The Russian Language Studied Independently Abroad.

Russian Literature and Culture

RUS 230 (128). Contemporary Russian Culture (Not offered 2006-07). A course that combines expanding oral, aural, and written skills with an introduction to contemporary issues in Russian culture and political life. Prerequisite: Russian 202 or instructor's permission. GenEd: Eu-CS

RUS 300 (131). Survey of Russian Literature I: From Pushkin to Revolution (Not offered 2006-07). 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: Russian 202 or instructor's permission. GenEd: Eu-LS

RUS 301 (132). Survey of Russian Literature II: From Revolution to Present (Not offered 2006-07). Readings ranging from the great revolutionary writers (Mayokovsky, Babel, Platonov, etc.) to contemporary writers of interest. Prerequisite: Russian 300. GenEd: Eu-LS

RUS 302 (133). The Russian Short Story: Pathologies of the Everyday (Not offered 2006-07). A survey of Russian short prose, with emphasis on its reflected/distorted images of Russian everyday life. Includes Gogol, Tolstoy, Gorky, Kharms, Petrushevskaia, and others. GenEd: Eu-LS

RUS 330 (139). Special Topic in Russian Culture: The Forbidden: Eroticism, Passion and Death in Russian Culture (Not offered 2006-07). Through analysis of literature, film and painting we will ask questions such as: Is there a necessary link between the erotic and the forbidden? What does a portrayal of passion tell us about a society's value system? Is death in Russian culture celebrated or condemned? GenEd:EU-L

RUS 490-492 (190-192). Independent Study (Fall, Winter, Spring). Prerequisites: One 130-level course and permission of the instructor.

Spanish Language and Culture

SPN 100 (10). 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 (11). Basic Spanish II (Winter). A continuation of Spanish I. This course further develops all language skills. Prerequisite: Spanish 100 or two years of Spanish at high school level. Attendance of weekly sessions with the language assistant is required.

SPN 102 (12). Basic Spanish III (Spring). A continuation of Spanish II. This course further develops all language skills. Prerequisite: Spanish 101 or three years of Spanish at high school level.

Attendance of weekly sessions with the language assistant is required.

SPN 200 (120). Intermediate Spanish I (Fall, Winter). Intensive and accelerated grammar review, and vocabulary growth. Further development of conversation and writing skills based on cultural texts. Prerequisite: Spanish 102 or equivalent or four years of secondary school Spanish.

SPN 201 (121). 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: Spanish 200 or four years of secondary school Spanish.

SPN 202 (122). 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 four years of secondary school Spanish.

SPN 203 (123). 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: Spanish 202 or permission of the instructor.

SPN 204T-207T (124A-127A). The Spanish Language Studied Abroad (Winter). See Terms Abroad Program.

SPN 208T (128A). Spanish Civilization (Not offered 2006-07). See Terms Abroad Program.

SPN 209T (128B). Mexican Civilization (Winter).

SPN 250T, 251T (160A, 161A). 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 2006-07). 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 Etxeberria. Prerequisite: SPN 203 or permission of the instructor. See Terms Abroad Program. GenEd: Eu-L

SPN 301. Pop, Punk, and Rock & Roll: Spanish Generation X Writers of the 1990s and the Mass Media (Not offered 2006-07). In this course we will study the narrative of the youngest generation of writers in Spain, those born after 1960 and publishing in the 1990s. We will examine their works in relation to the influence of the mass media on the construction of subject identities. How does the mass media and popular culture contribute to the self-definition of contemporary bodies? How does it infuse Generation X's writing on a thematic and a technical level? We will answer these questions through repeated literary analysis of short stories by authors like Josan Hatero, Juan Bonilla, Marta Sanz, and Nuria Barrio and of novels like Amor, curiosidad, prozac y dudas by Lucía Etxebarria, and La pistola de mi hermano by Ray Loriga. Prerequisite: SPN 203 or permission of the instructor. GenEd: Eu-L

SPN 302. Open Your Eyes: Spanish Culture through Film since 1929 (Not offered 2006-07). In this course we will examine issues concerning Spanish culture through film. Students will learn to analyze, interpret and write about films, from note taking and first drafts to polished essays and research projects. At the same time, students will gain knowledge on the historical framework and the cultural and social environment of the films themselves. This double focus will lead to improved critical writing skills, better analytical abilities, and an increased sensitivity and understanding of cultural frameworks. Students will also gain knowledge of some of the most important directors and actors of the Iberian Peninsula. Prerequisite: SPN 203 or permission of the instructor. GenEd: Eu-C

SPN 303. Bodies and Souls: Saints, Sinners, and Spectacles in Early Modern Spain (Also WGS 303) (Spring; Austin). This course will explore the image of the body and its role in intellectual and

spiritual formation in the literature of Medieval and Golden Age Spain. We will examine various representations of the body as it is defined and manipulated within the context of the sexual, the spiritual, the profane, and the divine. Some of the key themes will include: the relationship between body and text, the regulation and control of the body, the imperfect, mutilated, and weak body, gender and authority, consuming bodies and eating communities, the body of the Other, the body as spectacle, and corporeal love and desire. Readings will include selections from medieval lyric poetry, medieval, renaissance, and baroque narrative, and Golden Age drama, as well as contemporary images of the body in films such as Fight Club, Thirteen, and María llena de gracia. Prerequisite: SPN 203 or permission of the instructor. GenEd: Eu-C

SPN 304 (135). Performing Identities in Contemporary Spanish Theater (Fall; Moyano). Representative works by Spain's leading playwrights from the 1930s to the present (Garcia Lorca, Sastre, Buero Vallejo, Muñiz, Arrabal, Lopez Rubio, Cabal, Pedrero, Diosdado, Onetti) are studied from diverse theoretical approaches to reflect on the performative nature of identities. Prerequisite: Spanish 203 or permission of the instructor. GenEd: Eu-L

Studies in Latin American Literatures and Cultures (325-329)

SPN 325T. Staging Conflict: Studies in One-Act Mexican Theater (Winter; Garcia). This course surveys contemporary one-act Mexican theater focusing on the theatrical devices, trends, and discourses adopted by playwrights to explore conflictive issues in Mexican society and culture: urban violence, generational clashes within the family, sexual diversity, gender roles, consumerism, among others. The course offers an introduction to the study of drama and the analysis of theatrical signs, and it attempts to complement the students' term abroad experience in Mexico by focusing on and contextualizing linguistic and cultural aspects in the texts. Students read texts by Emilio Carballido, Víctor Hugo Rascón Banda, Sabina Berman, Hugo Salcedo, among others. GenEd: CDLA

SPN 326. Women Weaving Histories: Short Narratives by Latin American Female Writers (Also WGS 326) (Not offered 2006-07). 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 Velenzuela (Argentina), Rosario Ferré (Puerto Rico), Laura Antillano (Venezuela), María Teresa Solaris (Perú), Helena Araujo (Colombia), Clarice Lispector (Brasil), Claribel Alegría (El Salvador/Nicaragua), among others. We will examine how these women have fictionalized their political and social realities and called into question the myths surrounding their existence; how their narratives subvert notions of national history, and of female identity and sexuality in relation to private and public spaces. Prerequisite: Spanish 203 or permission of the instructor. GenEd: CDLA

SPN 327 (136). The Nation at Home: Family and Nationhood in Spanish American Theater (Not offered 2006-07). 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. GenEd: CDLA

SPN 328. Inquiring Latin American Identities: Reading Context, Space & Cultural Artifacts (Winter; Osuna). This course aims at reflecting on how Latin American identities are constructed through the lenses of written, visual, and oral texts. It will examine how newspapers and literature, movies and pictures, public and private spaces, popular customs, and peoples' voices converge to shape cultural identities of Spanish speaking people in Latin America. On-line collaboration with students on the term abroad in Mexico will facilitate the integration of authentic cultural artifacts and Mexican voices gathered through student's field research. Substantive theoretical readings will complement the assignments. GenEd: CDLA

SPN 329. Interruptions: The Paradox of Tradition in Spanish American Poetry (Spring; Brougham). Octavio Paz describes modern literature as a "tradition of discontinuity," one that constantly rebels against itself in search of innovation. This course examines Paz's assertion through the study of foundational Spanish American poets. As we read and discuss each poet's contribution to modern

literature we will also study the characteristics that manifest a Spanish American poetic tradition. The course's objectives are centered on strengthening student's process of language acquisition, developing analytical skills, and reinforcing writing proficiency through reading poetry. Students will also have the opportunity to share their knowledge and collaborate in a learning community through in-class discussion and oral presentations. GenEd: CDLA

Studies in Latina/o Literatures and Cultures (350-374)

SPN 350. Visions and Voices: Chicana Icons from Myth to Matter (Also WGS 350) (Not offered 2006-07). La Virgen de Guadalupe, La Malinche, and Frida Kahlo surround us on a daily basis. We see them in our dreams and in ourselves; they are repeatedly embodied in contemporary life and art. In this course we will discuss the historical significance of these three figures in dialogue with feminist reappropriations of their iconic value in contemporary literature, art, and culture. We will examine how musicians, visual artists, poets, narrators, and playwrights reclaim the iconic significance of these women and give them new voice and body in order to reposition and redefine the sexual and social identities of contemporary women. Prerequisite: SPN 203 or permission of the instructor. GenEd: CDLA, AM-C, AM-L

Studies in Comparative Perspectives (375-399)

SPN 375. Smoke and Mirrors: Dreams, Mirages and Delusions in Peninsular and Latin American Fiction (Not offered 2006-07). 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, Cortazar, and Ana Lydia Vega. Prerequisite: SPN 203 or permission of the instructor. GenEd: CDLA

SPN 376 (138). Down to Earth: Cross-Cultural Explorations of the Hispanic World (Fall; Osuna). This course furthers the development of cultural competency while maximizing language skills and providing the foundation for further studies in language, literature, and culture. The course is organized according to geographic regions that provide the framework to situate people and events in the context of historical pasts and contemporary cultural events. Prerequisite: Spanish 203 or permission of the instructor. GenEd: CDLA

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 2006-07). An overview of Mexican and Chicano societies through literature and film dealing with Northern Mexico and the Southwestern United States. Topics will cover malinchismo, machismo, maquiladoras, and identity from the critical perspective of border studies and transnationalism. We will read texts by Carlos Fuentes, Rosina Conde, Hugo Salcedo, Tomás Rivera, Cherrie Moraga, and others. Prerequisites: Two 300-level courses. GenEd: AM-L, CDLA

SPN 401. Bodies and Power in Latin American Narrative (Not offered 2006-07). 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. GenEd: CDLA; WS

SPN 402. Dressing Up the Canon: Cross-Dressing in Hispanic Literature and Film (Also WGS 402) (Not offered 2006-07). 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 sor 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. GenEd: Eu-L

SPN 416. "Testimonio" and Resistance Writings in Central America as Literary Discourse (Winter; Moyano). This course explores how social struggles in the last fifty years in Central America have led to new forms of cultural and literary expression. Through the writings of such authors as Manlio Argueta, Rigoberta Menchú, Humberto Ak'abal, Doris Tijerino, and others, we will also examine movements of ethnic or national liberation, women's liberation, poor and oppressed peoples' organizations

of all types, ecological activism, and the like. Prerequisites: Two 300-level courses. GenEd: CDLA

SPN 417. Death and Revenge in the Southern Cone (Also WGS 417) (Spring; Martinez). This course explores the literature of the Dirty War in Argentina, Uruguay, and of the early years of the Pinochet regime in Chile. Through analysis of narrative, theater and film we will touch upon the effects of torture and terrorism on society in those countries during the early 1970's through the mid 1980's. The class will read texts and view films written and produced under heavy censorship, and those written and produced in exile. We will also examine themes of revenge either by exiled writers or by those who can write more freely after a change in government. We will read texts by Marta Traba, Luisa Valenzuela, Diana Raznovich, Eduardo Pavlovsky, Ariel Dorfman, and others. Films will include Camila and Death and the Maiden. Prerequisites: Two 300-level courses. GenEd: CDLA

SPN 418. Of Cock Fights and Crowded Elevators: Readings in Contemporary Mexican Theater (Not offered 2006-07). Readings in contemporary Mexican theater that seek to explore how Mexican playwrights stage, perform, and imagine the nation and their communities either contesting or legitimizing hegemonic narratives of cultural uniformity, normative gender and sexual roles, and a cohesive political state. We will analyze dramatic texts by Luisa Josefina Hernández, Hugo Argüelles, Leonor Azcárate, Tomás Urtusástegui, Dante del Castillo, Jesús González Dávila, Sabina Berman, Hugo Salcedo, among others. Prerequisites: Two 300-level courses. GenEd: CDLA

SPN 431 (144). Colonial Latin America 1492-1800 (Not offered 2006-07). This course examines the complex array of European, indigenous, mestizo and African recordings of the encounter between Europeans, slaves and native Americans that started in the fifteenth century; and at the colonization and subsequent reconfiguration and displacement of individuals, communities, and their cultures. The course analyzes in some detail the historical and theoretical issues arising from this trans-Atlantic collision and exchange, a diverse historiographic and literary production that heralded and bore witness to the many ways in which the various peoples of, and involved in, the creation of the Americas documented, perceived, and imagined the old and the new, themselves and others. We will read travel journals, poetry, drama, histories, ethnographies, and other types of textual/visual production such as films and codices. Prerequisites: Two 300-level courses. GenEd: CDLA

SPN 432. Islands Adrift: Race, Politics, and Diasporas in the Hispanic Caribbean (Not offered 2006-07). Introduction to the literatures and cultures of Cuba, Dominican Republic, and Puerto Rico centering on how the region continues to approach its development tempered by an array of colonial legacies—from the slave plantation system to globalization—that impact on social, political, economic, and cultural dynamics. Diverse critical approaches will frame the analysis of literary, visual, and musical texts by Luis Palés Matos, Nicolás Guillén, Pedro Mir, Heberto Padilla, Tomás Gutiérrez Alea, Aída Cartagena Portalatín, Celia Cruz, Ana Lydia Vega, Juan Luis Guerra, Reinaldo Arenas, Mayra Montero, among others. Prerequisites: Two 300-level courses. GenEd: CDLA, CDAA

SPN 446. Video Clip Literature, E-mail Novels, and Telephone Texts: Spanish Narrative and Technology of the Twenty-first Century (Not offered 2006-07). As technology—telephones, computers, televisions—contributes to the isolating experience of the human being, and as consumer culture increasingly covers up the real for an image of the real, individuals find themselves searching for a place to develop their identities. Authors and characters of the narrative production of the 1990s and the first decade of the twenty-first century fuse and confuse their identities with the technological world that surrounds them. In this class we will study how technology contributes to the creation of innovative narrative techniques and the construction of simulative modes of identification inside and outside of the text. Authors studied in this course include Lucía Etxebarria, Ray Loriga, Gabriela Bustelo, André Neuman, and Care Santos. Prerequisites: Two 300-level courses. GenEd: Eu-L

SPN 447. Virtual Embodiments: Video Games, Video Clips and Reality TV in Contemporary Spanish Narrative (Not offered 2006-07). 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. GenEd: Eu-L

SPN 448. Trash and Transgression: Spanish Surrealism and Popular Culture in Dalí, Lorca and Buñuel (Not offered 2006-07). 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 of 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 conflictions and repressed sexual longings. Prerequisites: Two 300-level courses. GenEd: Eu-LC; WS

SPN 461. Wild Kingdoms: Animals and Monstrosity in Medieval Iberia (Spring; Austin). This course will explore the figure of the beast in medieval literature and its role in memory training, religious teaching, and cultural (re)formation. We will study how beast fables and animal protagonists provide a springboard for examining the concept of convivencia (the interaction and conflict between Jews, Christians, and Muslims in the Iberian Peninsula); how stories of metamorphosis create spectacles of religious, social, and literary conflict; and how bestiaries reflect and question the intimate link between memory and reading, as well as between religious practices and literary creation. We will examine medieval ideas about animal nature within the contexts of sin, violence, deformity, and punishment. Readings will focus on all animals of the wild kingdom, as well as beastly women, monsters, and human hybrids. Class discussions will place these texts in dialogue with criticism on animals found in philosophy, cultural studies, and the contemporary animal rights movement. Taking the tradition of Aesop's Fables as a point of departure, we will study the trajectory of the animal figure in works such as Calila e Dimna, Celestina, the Libro de Buen Amor, the Conde Lucanor, the Libro de las bestias, and the Libro de los gatos, as well as in contemporary manifestations of the beast in films such as Animal Farm, The Fly, and Shrek. Prerequisites: Two 300-level courses. GenEd: Eu-L

SPN 462. Love and the Early Modern Lyric (Fall; Austin). This course will examine the intimate relationship between love and song in Early Modern Spain. We will explore the expressions of courtly, profane and divine love as told through the eyes of the tormented lover. We will gain an understanding of the issues relating to the controversy surrounding the Arabic origin of medieval Spanish lyric, the spread of woman's-voice lyric, the differences between courtly and popular genres and between learned and vernacular lyrical production. Through a study of mozarabic jarchas, as well as cantigas, romances, ballads, sonnets, and songs, we will investigate the social and aesthetic factors relating to issues of subjectivity, orality, literacy, and performance in Early Modern Spain. GenEd: Eu-L

SPN 489 (151). Honors Senior Seminar (Spring; Mosquera). For seniors who qualify for departmental honors; please contact the department during the Winter term.

SPN 490-492 (190-192). 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

Music

Associate Professor Olsen, Chair; Professor Tann (on leave, Fall); Associate Professor McMullen; Assistant Professor Matsue (on leave, Winter, Spring); Visiting Associate Professor, Director of Performance Klimash; Administrative Program Assistant Herrington.

Requirements for the Major: Twelve courses, including the theory sequence (AMU 101, 102, 200); four music history courses (AMU 212, 213, 214, 215); a performance workshop (AMU 230/231/232/233) 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, 200); three music history courses (chosen from AMU 212, 213, 214, 215); a performance workshop (AMU 230/231/232/233), or written confirmation of exceptional service in one of the departmental ensembles, or a juried recital; 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: Six courses, including the theory sequence (AMU 101, 102, 200); two music history courses (chosen from AMU 212, 213, 214, 215); one music elective chosen in consultation with the student's departmental advisor; and at least one year of practicum credit in an ensemble.

Departmental Honors: To be eligible for departmental honors, a student must fulfill the following requirements: (1) a minimum index of 3.3 in music; (2) a grade of "A minus" or better in a two-term senior project in composition, performance, analysis, or research (AMU 498/499). In addition, the student must satisfy College requirements for departmental honors.

Introductory Courses in Music Theory and History

AMU 050 (12). The Language of Music (Spring; Klimash). 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 towards major.

AMU 060 (20). From Chant to Mozart (Winter; McMullen). A chronological study of compositions from the ninth century through the time of the French Revolution. Gregorian chant; Renaissance court music; the effect of the Reformation and Counter-Reformation on music; Florentine opera; Vivaldi's concertos; sacred music of Bach and Handel; symphonies, keyboard works, and operas of Haydn and Mozart. Does not count towards major. *GenEd: Eu-CS*

AMU 061 (21). Beethoven to Bernstein (Fall; McMullen). A study of composers and their works from the end of the 18th century through the present. Beethoven, Chopin, Berlioz, Mendelssohn, Schubert, Schumann, Verdi, Wagner, Brahms, Debussy, Stravinsky, Schoenberg, Ives, Copland, Varese, among others. Does not count towards major. *GenEd: Eu-CS*

AMU 081 (33). Masterworks (Not offered 2006-07). Individual masterpieces of Western music from Bach to Stravinsky. Some familiarity with reading music desirable. G*enEd: Eu-CS*

Music Theory Core Courses

AMU 100 (15). Elements of Music Theory (Fall; Olsen). The gentle art of combining melodic lines (counterpoint). An introduction to music theory for students with some ability to read (sing/play) music.

AMU 101 (16). Music Theory I (Winter; Tann). The harmonic vocabulary and compositional techniques of Baroque and early Classical composers approached through short written exercises and listening assignments. Recommended: Ability to read music.

AMU 102 (17). Music Theory II (Spring; Tann). A continuation of Music Theory I with models drawn from late Classical and Romantic composers. Prerequisite: AMU 101 or permission of the instructor.

World Music and American Music

AMU 120 (43). Introduction to World Music (Also ANT 148) (Offered 2007-08). An introduction to various musics from world areas such as Africa, South Asia, and Europe. Readings, discussion, and

listening assignments will explore music in society, including such concepts as the formation of new global musics, music's role in religious practices, and the connection between language and music. Students will ultimately gain the skills necessary to engage with music of the world with particular emphasis on music as an integral component of culture.

AMU 125 (34). World Religions and Music (Spring; McMullen). 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. *GenEd: Eu-CS*

AMU 130 (30). American Music (Offered 2007-08). American music-cultures approached through performance, lecture, video, and audiotape. Survey samples from popular, classical, and folk traditions. Not open to students who have taken AMU 122 or AMU 123. *GenEd: Am-CS*

AMU 131 (31). Music of Black America (Offered 2007-08). 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 121 or AMU 123. *GenEd: Am-CS, CD-AA*

AMU 132 (32). The History of Jazz (Not offered 2006-07). A study of the important personalities and trends in the evolution of jazz, approached through reading, video and sound recordings, and live performance. No prerequisite. Not open to students who have taken AMU 121 or AMU 122. *GenEd: CD-AA, Am-CS*

AMU 133 (35). Music of Latin America (Offered 2007-08). Latin American music-cultures approached through live performance, lecture, video, and audiotape. Survey samples from folk, popular, and classical traditions, with special emphasis on the musics of Cuba and Brazil. *GenEd: CD-AA, CD-LA*

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. *GenEd: CD-AA*

AMU 136 (42). Popular Music in Modern Japan (Fall; Matsue). An investigation of the position of popular music in modern Japan from Meiji period military music to contemporary Japanese urban popular musics. Intended for students interested in Japanese cultural history and music, ethnomusicology, popular music and culture, and music as modern text. No prerequisite. *GenEd: CD-EA*

Intermediate Music Theory and Composition

AMU 200 (18). Listening Workshop (Spring; Tann). An examination of the large-scale features of music from different points of view: that of the listener, performer, and composer. Reading, analysis, concert attendance, and workshops with guest musicians. Prerequisite: AMU 101 or permission of the instructor.

AMU 204 (40). Introduction to Composition (Winter; Tann). A beginning course in free composition with emphasis on individual instruction.

Music History and Cultural Studies

AMU 212 (23). Baroque Music (Spring; McMullen). A study of music composed between 1600 and 1750. Origins and development of opera from Monteverdi through Handel; the influence of dance rhythms; the development of the concerto; harpsichord and organ music by Frescobaldi, Couperin, and Bach; performance practice issues and modern-day musicians; and sacred and secular music of Bach and Handel. G*enEd: Eu-C*

AMU 213 (24). 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. *GenEd: Eu-LS*

AMU 214 (25). Romanticism (Winter; McMullen). 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 19th century. *GenEd: Eu-LS*

AMU 215 (26). Music in the 20th Century (Offered 2007-08). 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) (Not offered 2006-07). An introduction to ethnomusicology, or the study of music and culture, through readings on the history and development of the discipline, and completion of a focused research project on music-making in the community. Discussion will explore the major theoretical approaches in the field and will be supplemented by readings on specific world music areas. Students thus will encounter diverse peoples and their musical practices in cross-cultural comparison while also exploring research methodology through their own work.

AMU 221 (44). Encounters with East Asian Music Cultures (Also Women's Studies 258) (Offered 2007-08). East Asian Performing Arts are rich in their diversity, ranging from quiet meditative moments to vibrant theatrical spectacles. Through exploration of genres such as Chinese Peking Opera, dramatic Korean narrative, and Japanese court music, students will consider performance practice throughout East Asia, as well as larger questions of aesthetics, the history of cultural exchange between China, Korea, and Japan, gendered performance, and religious expression through music. *GenEd: CD-EA*

Performance Workshops

AMU 230 (27). Vocal Workshop (Not offered 2006-07). Performance and historical study of music written for small vocal ensembles.

AMU 231 (28). Chamber Music Workshop (Not offered 2006-07). Rehearsal and performance of chamber music primarily from Classical and Romantic periods.

AMU 232 (29). Jazz Workshop (Spring; Olsen). Performance and analysis of music written in jazz idioms.

AMU 233. Asian Percussion Workshop (Fall; Matsue). Performance and study of Asian music and culture covering Japanese *Wadaiko* (a popular drumming style) and Indonesian *Gamelan Gong Kebyar* (a Balinese orchestra featuring xylophones, gongs, and drums). No prior musical experience necessary. *GenEd: CD-EA*

Special Topics in Music

AMU 301 (50A). Special Topics: Vocal Arranging (Not offered 2006-07). Writing and arranging for the voice, in folk, classical, jazz, and popular contexts. Prerequisite: AMU 102 or permission of the instructor.

AMU 302 (50B). Special Topics: Ethnomusicology Seminar (Not offered 2006-07). An overview of the field of ethnomusicology through exploration of relevant literature, documentaries, and performance. Prerequisite: AMU 050 or permission of the instructor.

AMU 303. Special Topics: Conducting. (Not offered 2006-07). Fundamentals of conducting vocal and instrumental ensembles, including score reading and preparation, beat patterns, gestures, and rehearsal techniques. Prerequisite: permission of the instructor.

Independent Work

AMU 490-492 (190-192). Independent Study

AMU 498-499 (009-199). Two-Term Senior Project

Ensembles and Lessons

Students are invited to participate in orchestra, choir, and jazz ensemble. 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 015, AMU 016, or AMU 017). There are no limits on how many practicum credits can appear on the student's transcript. 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 (prci). 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 Olsen.

AMU 015 (prcj). 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 (prcs). Choir. The Union College Choir is open by audition to all students and rehearses twice a week. The repertoire of The Choir is taken from five centuries of the choral tradition. The group presents one formal concert each term, performing a cappella and with piano accompaniment; in the Spring, The Choir performs with orchestral accompaniment. See Professor Klimash.

AMU 017 (prcc). Orchestra. The Union College and Community Orchestra meets once a week and presents one concert at the end of each term. The Orchestra is open by audition to all students and members of the community. Students usually occupy principal chairs, and may rotate to allow more players the opportunity for participation. See Professor Klimash.

Nanotechnology Minor

Nanotechnology

The interdisciplinary minor in nanotechnology is primarily aimed at science and engineering majors who wish to become more aware of the properties of matter at the nanoscale, the potential usefulness of those properties, and their social and economic implications. It will also appeal to students interested in science and technology policy who wish to have a good grounding in science and technology.

Requirements for the minor:

1. Required courses for *all minors (two courses)*:
Chemistry 224 /Engineering Science 224 (Frontiers of Nanotechnology and Nanomaterials)
and Mechanical Engineering 213 (Materials Science)

2. Required science courses: *Any two courses*, outside of the student's major department, in Biological Science, Chemistry, or Physics which count toward that department's major.

3. Elective courses: *Any two courses* from the following list, including at least one course from Humanities or Social Sciences:

— Anthropology 240 *Culture and Technology*
— Chemistry 352 *Quantum Chemistry*
— Engineering Science 100 *Introduction to Engineering and Mechatronics*
— History 193 *Introduction to Science, Medicine and Technology in Culture (SMTC)*
— History 253 / Physics 053 *Physics and Politics*
— Philosophy 232 *Philosophy of Science*
— Philosophy 247 *Technology and Human Values*
— Physics 350 *Quantum Mechanics*

4. The student's senior writing, research, or design project should involve elements of nanoscience or nanotechnology. This senior project should be approved by the Nanotechnology program director.

Program directors: Professors Hagerman (Chemistry) and Catravas (Electrical and

Neuroscience

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 psychologists, clinical neuropsychologists, basic neuroscientists or bio-psychologists, physicians, and computer scientists. Thus, research questions are considered from many different levels and many different converging methodologies are used.

The neuroscience major consists of two tracks: the bioscience track and the cognitive track.

The bioscience track focuses on the biological basis of neural development, function, and plasticity. Students will develop an understanding of the nervous system and its role in cognition, perception, and action at the molecular, cellular, and systems level. The cognitive track provides students with an understanding of how neural networks and brain mechanisms give rise to specific mental processes and behavior. Students begin with the processes that have been traditionally studied in the area of cognitive psychology, but can tailor the program to include processing that is traditionally studied in developmental or clinical psychology as well.

Requirements for Neuroscience: The neuroscience major consists of four parts: (1) A core of required courses; (2) required courses in one of two tracks, bioscience or cognitive; (3) general electives; and (4) a senior writing requirement. Unless listed below, course descriptions are listed under their home departments.

1. Required courses for all neuroscience majors:

Biology 110 and 112 (or Biology 113) (Introductory Biology); Biology 125 (Molecular Biology of the Cell); Either Biology 362 (Introduction to Neurobiology) or Biology 363 (Introduction to Cellular Neurobiology); Psychology 100 (Introduction to Psychology); Psychology 200 (Statistical Methods in Psychology); Psychology 210 (Introduction to Cognitive Neuroscience) Psychology 220 (Psychology of Memory and Thinking);

Students must also take the following cognate courses: Math 110, Chemistry 101 and 102 (or Chemistry 110). One term of physics is also recommended.

2a. Bioscience track:

Any TWO from the following list: Biology 325 (Animal Behavior); Biology 330 (Comparative Animal Physiology); Biology 365 (Neural Circuits and Behavior); Biology 370 (Endocrinology); Biology 384 (Molecular Genetics); Psychology 211 (Sensation and Perception)

2b. Cognitive track:

Psychology 300 (Introduction to Experimental Psychology); Philosophy 365 (Philosophy of Mind)

3. Elective. TWO additional courses from the following list:

Biology 325 (Animal Behavior); Biology 330 (Comparative Animal Physiology; Biology 354 (Developmental Biology); Biology 362 (Neurobiology); Biology 363 (Introduction to Cellular Neuroscience); Biology 365 (Neural Circuits and Behavior); Biology 370 (Endocrinology); Biology 384 (Molecular Genetics); Chemistry 231 (Organic Chemistry); Psychology 211 (Sensation and Perception); Psychology 215 (Introduction to Health Psychology); Psychology 221 (Psychology of Learning); Psychology 225 (Psychology of Language); Psychology 240 (Developmental Psychology); Psychology 250 (Abnormal Psychology); Philosophy 231 (Symbolic Logic); Philosophy 232 (Philosophy of Science)

4. Senior writing requirement

(a) ONE of the following senior seminars: Psychology 410, Biology 487, 488, or 489, or

(b) A two- or three-term senior thesis or senior research project that integrates biology and psychology. Students should register for senior thesis or research in the department that corresponds to their neuroscience track. For the Bioscience track: BIO 497, 498, 499. For the Cognitive track: PSY 498 and 499 or PSY 487, 488, and 489. Option (b) is strongly recommended.

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), 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-.

Advisory Committee: Stanhope, Greenberg, and Romero (Psychology); Fleishman, Olberg, and

Philosophy

Professor Martin, Chair; Professors Baker, Patrik; Associate Professor Davis; Assistant Professor Warenski; Visiting Assistant Professors Mathias; Walker; Adjunct Assistant Professor Clark,; Emeriti Professors Ludwig, Morris, Peterson.

Requirements for the Major: Eleven courses in philosophy, of which seven should be numbered 200[30] or above and three (excluding Phl 408/418, Phl 498/499, and Independent Study) numbered 400 or above. The eleven courses should include: two courses in the history of philosophy (i.e., two of the following: Phl 150, Phl 155, Phl 160, Phl 165 , Phl 170, Phl 245, Phl 338, Phl 339, Phl 341, Phl 450); one course in logic (Phl 122, Phl 125, Phl 231, Phl 447, or Phl 480); and Phl 408/418. Majors are strongly advised to consult the advising information on the Departmental website at www.union.edu/PUBLIC/PHLDEPT.

Requirements for the Interdepartmental Major: Seven courses in philosophy, of which four should be numbered 200 [30] or above and two (excluding Phl 408/418, Phl 498/499, and Independent Study) numbered 400 or above. The seven courses should include: two courses in the history of philosophy (i.e., two of the following: Phl 150, Phl 155, Phl 160, Phl 165 , Phl 170, Phl 245, Phl 338, Phl 339, Phl 341, Phl 450); one course in logic (Phl 122, Phl 125, Phl 231, Phl 447, or Phl 480); and Phl 408/418. ID majors are strongly advised to consult the advising information on the Departmental website at <www.union.edu/PUBLIC/PHLDEPT>.

Requirements for the Minor: Five courses in philosophy, of which two should be numbered 200 [30] 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 165, Phl 170, Phl 245, Phl 338, Phl 339, Phl 341, Phl 450); and one course in logic (Phl 122, Phl 125, Phl 200, Phl 447, or Phl 480). Minors are strongly advised to consult the advising information on the Departmental website at <www.union.edu/PUBLIC/PHLDEPT>.

Requirements for Departmental Honors: As this catalog goes to press, 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, one of which is the Honors Thesis (Phl 498/499); (4) publicly defend the thesis; and (5) 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. However it is likely that in Spring, 2006 the Department will revise it's Honors Program. For the latest, please consult the Departmental website at <www.union.edu/PUBLIC/PHLDEPT>.

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 for a course that they finished prior to taking Phl 418.

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. And they are pitched at a level appropriate for first year students. For more advising information, consult www.union.edu/PUBLIC/PHLDEPT.

Issues-oriented:

100 (10). Introduction to Philosophy (Winter; Clark) 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?

105 (14). Introduction to Ethics (Fall; Davis). An introduction to traditional normative ethical theories, which attempt to provide a rationally defensible account of morally right and wrong conduct

and morally good and bad character, and consideration of the challenges posed to these theories by ethical relativism and feminist ethics. *WAC*

110 (16). Moral Problems: A Case Study Approach (Not offered 2006-07). 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.

115 (18). Paradoxes (Not offered 2006-2007). A paradox arises when apparently acceptable premises and an apparently acceptable method of inference lead, surprisingly and annoyingly, to an *un*acceptable conclusion. We will examine famous paradoxes from many branches of philosophy, showing how attempts to resolve them yield valuable insights into such central philosophical concepts as truth, time, infinity, God, rationality, and morality.

120 (19). First-Year Seminar (Fall; Clark). 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.

125 (20). Introduction to Logic and Critical Thinking (Fall; Clark). 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.

130 (21). Cyberfeminism (Fall; Patrik). This course will investigate the impact that digital technology has had on human perception, labor, and self-identity, including socialist feminist arguments about the restructuring of work and the possibility of women's liberation due to technology. Students will be taught how to write philosophical arguments in electronic hypertext, instead of on paper, and to use links creatively. (Cross-listed with Women's and Gender Studies) *WAC*

135 (23). Philosophy of Film (Winter; Walker). This course will be an exploration of the portrayal in film of philosophical issues, followed by a focused consideration of the issues themselves. We will view films such as *Minority Report, The Boondock Saints, The Thirteenth Floor, Shadowlands;* and *I-Robot*. The goal will be to stimulate students' philosophical imaginations through film and then use that energy as the springboard for philosophical study and discussion. Issues to be considered include: 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:

150 (11). Ancient Philosophy (Not offered 2006-07). 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. *GenEd: An-CS.*

155 (12). Seventeenth and Eighteenth Century European Philosophy (Fall; Walker). An introduction to philosophy by way of some of the most important European philosophical works of the Seventeenth and Eighteenth Centuries. *GenEd: Eu-CS.*

160 (13). Nineteenth and Twentieth Century Philosophy (Not offered 2006-2007). 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. *GenEd: Eu-CS*; *WAC*

165 (15). Asian Philosophy (Not offered 2006-2007). An introduction to the philosophical theories developed in ancient India, China, Japan and Tibet (Hinduism, Buddhism, Jainism, Carvaka, Confucianism, Taoism, Zen and Vajrayana Buddhism), including consideration of concerns and techniques not prominent in the west, such as the emphasis in Indian philosophies of the search for enlightenment, realization of ultimate reality, the cycle of samsara, action as karma, reincarnation, and meditation, and in Chinese philosophies of the relation between humans and nature, the source of altruism, and guidelines for creating a beneficent state. *GenEd: CD-EA*

170 (17). Philosophy in America (Not offered 2006-2007). An introduction to philosophy by way of the works of major American philosophers. GenEd:Am-CS; *WAC*

180. Theories of the Good Life (Not offered 2006-2007)

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.

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, see <www.union.edu/PUBLIC/PHLDEPT>).

231 (31). Symbolic Logic (Winter; Warenski). An introduction to modern symbolic logic, focusing on translation, semantics and syntax for propositional and predicate logic. You will learn to translate natural language into the language of logic and vice versa, and study key concepts such as validity, consistency, proof, soundness and completeness.

232 (32). Philosophy of Science (Winter; Clark). An introduction to philosophy of science. What are scientific theories, and how are they tested? What is scientific method? What counts as evidence for a scientific theory? What is scientific explanation? We will approach these questions both philosophically and through formal techniques.

234 (34). Philosophy of History (Not offered 2006-2007). 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.

235 (35). Reasoning and the Law (Fall, Spring; Walker). 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.

237 (37). Introduction to Political Philosophy (Not offered 2006-07). 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? *GenEd: EU-CS.*

238 (38). Business Ethics (Spring; Mathias). 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.

245 (45). Buddhist Ethics (Not offered 2006-2007). The Buddhist tradition developed ethical principles emphasizing non-injury, living in a way that benefits oneself and others, and realizing enlightenment. Today Buddhists apply these principles in both "engaged Buddhism" — a movement that focuses on social issues such as poverty, war, environmental destruction, sexism, racism, and gender identity — and in traditional forms of Buddhist practice. Ethical concepts such as karma, discipline, non-violence, vows, altruism and compassion will be studied. Readings will be drawn from ancient Buddhist texts as well as from contemporary essays on the environment, war, feminism, euthanasia, poverty, and the death penalty. *GenEd: CD-EA*.

246 (46). Art, Media, and Society (Not offered 2006-2007). 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.

247 (47). Technology and Human Values (Not offered 2006-2007). 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.

248 (48). Philosophy and Current Affairs (Not offered 2006-2007). "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.). *GenEd: AM-C*

249 (49). The Self In Cyberspace (Fall; Davis). This course is an inquiry into claims about how computational technology affects who we think we are as self-aware individuals, as private individuals, and as public individuals. Students will be expected to participate in on-line discussions. No special knowledge of computer technology is presupposed. Freshmen admitted only by instructor's approval. *WAC*

250 (50). 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. *Gen-Ed: Eu-C; WAC*

261 (61). 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. *WAC*

264 (64). Philosophy of American Education (Spring; Clark). 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.

266. Philosophy in Literature (Spring; Warenski). 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. *WAC.*

273. (73) Environmental Ethics (Spring; Vitek). An exploration of the ethical and philosophical ideas that have shaped attitudes toward the environment and toward non-human species.

274. (74) Environmental History and Literature (Not offered 2006-07). 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.

305. Relativism in Ethics and Politics (Winter; Davis). Relativism is not just a ' theoretical' issue: the Events of 9/11 it has 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 the theoretical, moral and political dimensions of the problems through a reading of theorists such as Rawls, Nagel, Harman, Thomson, Gutmann, and others. One philosophy course is prerequisite or permission of the instructor. *WAC*

338 (138). Zen and Tibetan Buddhism (Not offered 2006-07). Over the centuries, Buddhist philosophers sought answers to the problem of human suffering in intensive meditations on the nature of reality, on the emotional and cognitive processes of the human mind, and on the ethical principles that produce sanity and altruism. They also analyzed obstacles to enlightenment (dualistic thought, negative emotions, and egoistic attachment) and developed powerful mind-training practices for realizing the nature of reality as well as the path that benefits oneself and others. Prerequisite: one philosophy course or permission of the instructor. *GenEd: CD-EA*

341 (41). Twentieth Century Philosophy (Spring; Davis). A study of 20th century European or

American philosophies: phenomenology, existentialism, or analytic philosophy. *GenEd: Eu-C.*

359 (159). Postmodernism (not offered 2006-07). 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. *WAC*

365 (65). Philosophy of Mind (Not offered 2006-07). 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. [formerly Phl 65: Philosophy of Mind]

366 (66). Epistemology (Spring; Warenski). Philosophical examination of the problems and issues surrounding our concepts of knowledge, justification, memory, and perception. *WAC*

375. Biomedical Ethics (75) (Not offered 2006-07). 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. [formerly Phl 174: Biomedical Ethics]

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/PUBLIC/PHLDEPT>.

443 (143). Metaphysics (Fall; Warenski). 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. *WAC*

444 (144). Current Political Philosophy (Not offered 2006-07). A course in political theory concentrating on issues in contemporary political theory. Prerequisite: two philosophy courses or permission of the instructor. *GenEd: EU-CS*

445 (145). Topics in Metaphysics: Mind and World (Spring; Walker). May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

446 (146). Topics in Epistemology (Not offered 2006-07). May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

447 (147). Topics in Logic (Not offered 2006-07). May be repeated, if topic changes. Prerequisite: Phl 231 or permission of instructor.

448 (148). Topics in Ethics or Value Theory (Not offered 2006-07). May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

450. Topics in the History of Philosophy: Kant (Winter; Walker). May be repeated, if topic changes. Prerequisite: two philosophy courses or permission of the instructor.

462 (162). Philosophy of Language (Not offered 2006-07). 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.

474(174). 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.

476(176). Philosophy of Law (Fall; Mathias). 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. *WAC* [formerly Phl 176: Philosophy of Law]

480 (180). Foundations of Mathematics (cross-listed with MTH 480) (Not offered 2006-07). 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.

490-497 (190-197). Independent Study (Fall, Winter, Spring). Selected topics in philosophy. Prerequisite: Permission of the instructor.

408/418 (108/118). New Directions in Philosophy (Fall, Winter; Spring; Martin). 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 majors and of interdepartmental majors. During the first term in which students take 408/418 they should sign up for 408; during the second, they should sign up for 418. 408 may be taken during any year; 418 must be taken during the senior year. Students who have not otherwise satisfied their Senior Writing Requirement may do so by taking this course. WAC, WS.

498/499 (109/199) Honors Thesis (Fall, Winter). Substantial written project on a selected philosophical topic, under the direction of an advisor, culminating in an honors thesis. Only one course credit is given. Normally taken in the senior year. *WS.*

Physics and Astronomy

Professor Vineyard, Chair; Professors Newman and Reich; Associate Professors Koopmann, Maleki, Marr, and Surman; Assistant Professor Orzel; Lecturer and Accelerator Manager LaBrake; Lecturer and Observatory Manager Wilkin; Research Professors Jones, Philip, and Schick.

Requirements for the Physics Major: Ten courses in physics (Physics 120, 121, 122, 123, 220, 230, 270, 300, 310, and 490); Math 115 and 117; and two science courses outside the department (note that a course in geophysics, Geology 303, is available). Students are expected to attend the weekly departmental colloquium series to gain an appreciation for current research areas in physics and related areas.

For those students wishing to consider graduate work in physics or a closely related discipline (e.g., astronomy, materials science, applied physics), the department advises the following curriculum: Physics 120, 121, 122, 123, 210, 220, 230, 270, 300, 310, 311, 350, 490, 491; Math 115, 117, 131, 119 or 150. These students are also strongly encouraged to take electives from Physics 200 and 312, and Astronomy 200, 210, 220, 230, and 240.

For students interested in pursuing careers that do not require graduate work in physics, some substitutions of courses in engineering will be considered by the department. Examples include: Mechanical Engineering 212 for Physics 230 and Electrical Engineering 343 for Physics 270. Students must request formal approval from the Department of Physics and Astronomy for any such substitution.

Requirements for the Astronomy Major: Ten courses in Physics and Astronomy (Physics 120, 121, 122, 123, Astronomy 51 or 100, Astronomy 50 or Geology 303, Astronomy 230 or 240, Physics 490, and two courses selected from the following: Physics 230, Astronomy 52, 200, 210, 220, and 230 or 240, whichever is not counted as a required course); Math 113 and 115; and one science course outside the department. Students wishing to pursue graduate work in astronomy are advised to major in physics and minor in astrophysics.

Requirements for Departmental Honors: In addition to the requirements for the major given above, the student must take at least one additional course in research, 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, 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 Astronomy 100, 200, 220, 230, and 240.

Requirements for Secondary School Certification: Psy 246, EDS200A, 200B, 200C, 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 and 112), chemistry (Chemistry 101 and 102 or Chemistry 110), and earth science (any geology course or Astronomy 100).

Requirements for Course Credits: Students who have scored a grade of 4 or 5 on the Advanced Placement C-exam (mechanics and/or electromagnetics), A on the physics A-levels, or 5 or higher on

the Higher Level of International Baccalaureate exams are given credit for a maximum of two courses (Physics 120 and 121).

Astronomy Courses

General Education Courses

Courses numbered in the 50s are designed particularly for non-science majors seeking to satisfy General Education requirements, and all of these courses carry GenEd credit. These courses may count toward the major in astronomy or the interdivisional ID 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.

Astronomy 50 (Physics 45). The Solar System (GenEd lab; Winter). 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.

Astronomy 51 (Physics 44). Introduction to Astronomy (GenEd lab; Fall). A descriptive review of current knowledge in astronomy, including methods of measurement and the applications of physics to astronomy. Topics include stars (structure, formation, and evolution), galaxies, and the universe. Evening laboratory sessions in which students learn how to use cameras and telescopes. No background in mathematics or physics required.

Astronomy 52 (Physics 41). Relativity, Black Holes, and Quasars (Not Offered 2006-07). 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.

Courses for Science and Engineering Majors

Astronomy 100 (Physics 64). 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: Physics 111 or 121 or IMP 113.

Astronomy 200 (Physics 65). Stellar Structure and Evolution (Spring). 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: Physics 111 or 121 or IMP 113.

Astronomy 210 (Physics 68). Galaxies (Not offered 2006-07). 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: Physics 111 or 121 or IMP 113.

Astronomy 220 (Physics 66). Cosmology and General Relativity (Not Offered 2006-07). 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: Physics 111 or 121 or IMP 113, and Math 115. Physics 122 is recommended.

Astronomy 230 (Physics 67). Observational Astronomy (Not offered 2006-07). 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: Physics 111 or 121 or IMP 113 or permission of the instructor (with some telescope experience). *WAC*

Astronomy 240 (Physics 69). 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: Physics 111 or 121 or IMP 113, and Math 115.

Physics Courses

General Education Courses

Courses numbered in the 50s are designed particularly for non-science majors seeking to satisfy General Education requirements, and all of these courses carry GenEd credit. They may not be counted toward the major in physics or toward any other science or engineering major, but may count toward an interdivisional ID-major (see requirements for ID-major, above).

Physics 50 (Physics 42). Great Ideas of Modern Physics (GenEd math; Not offered 2006-07). The development, near the beginning of the twentieth century, of the theory of relativity and of quantum mechanics has had a dramatic effect on scientific thought. This course surveys the classical origins of the new theories and outlines the 20th-century changes that have occurred in the scientific "world view." Includes a sampling of the most important developments in 20th-century physics, e.g., in astronomy, the nature of the atom, and the fundamental constituents of matter. Pre- or co-requisite: Math 110 or 59.

Physics 51 (Physics 43). Seeing the Light: Concepts of Vision (GenEd lab; Not offered 2006-07) (Same as Biology 51). 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.

Physics 52 (Physics 46). Science of Sound and Music (GenEd lab; Not offered 2006-07). Exploration of physical principles and phenomena associated with musical sound. Topics include vibrations, waves, and resonance; sound generation and propagation; pitch, timber, and harmony; musical instruments and human voice; ear and audio equipment; and acoustics of rooms and concert halls. Laboratory provides hands-on experience with a variety of instruments. No background in physics, mathematics, or music is required.

Physics 53 (Physics 47). Physics and Politics (Also History 253) (Not offered 2006-07). 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.

Physics 54 (Physics 49). Laser Technology and Modern Optics (GenEd lab; Not offered 2006-07). 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 math or physics required.

Courses for Science and Engineering Majors

Integrated Math/Physics (IMP) 111 (Fall), 112 (Winter), 113 (Spring) (IMP 11, 12, 13). An introductory team-taught, year-long sequence of integrated courses, three in mathematics and two

in physics, roughly spanning the content of Mathematics 113, 115, and 117 and Physics 120 and 121. Designed for engineering students as well as other interested students. Prerequisite: Eligibility for Math 113.

Physics 100 (Physics 14). First-Year Seminar (Fall). Team-taught course introducing physics at Union. Topics covered may include astronomy, astrophysics, atomic and molecular physics, biophysics, computational physics, laser physics, quantum measurement, nuclear and particle physics, solid-state physics, and statistical physics. Prerequisite: 4 or 5 on AP exam or by invitation.

Physics 110 (Physics 15). 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.

Physics 111 (Physics 16). 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: Physics 110 or 120 or IMP 112.

Physics 120 (Physics 17). 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: Math 102 or 112 or 113 (may be taken concurrently).

Physics 121 (Physics 18). 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: Physics 120 or IMP 112.

Physics 122 (Physics 19). Relativity, Quantum, and Their Applications (Winter). Calculus-based introduction to the structure of matter, including quantum effects, particle, nuclear, atomic, and molecular physics, the solid state, and applications to materials of interest to engineers and scientists. Three lab hours each week. Prerequisite: Physics 121 or IMP 113.

Physics 123 (Physics 20). 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: Physics 121 or IMP 113.

Physics 200 (Physics 60). Molecular Biophysics (Not Offered 2006-07). Selected topics in molecular biophysics including proteins, nucleic acids, viruses and bacteria, membranes, muscle, and nerve. Emphasis on molecular structure and functioning as well as on experimental techniques used in modern biophysical research. Prerequisites: Physics 111 or 121 or IMP 113, and some exposure to biology or permission of the instructor. *WAC*

Physics 210 (Physics 50). Electronics Projects (Not offered 2006-07). A laboratory-based course in basic circuits, culminating in an individual project. Electronics topics include transistors and diodes, operational amplifiers and feedback, logic circuitry, analog to digital, digital to analog conversion, introduction to microprocessors. Integrated class and laboratory meets seven hours each week. Prerequisite: Physics 111 or 121 or IMP 113.

Physics 220 (Physics 51). Intermediate Modern Physics (Spring). A second course in modern physics covering special relativity and quantum mechanics with applications in atomic physics treated in depth. One hour computational lab each week. Prerequisite: Physics 111 or 122.

Physics 230 (Physics 52). 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: Physics 110 or 120 or IMP 112, and Math 117 (pre- or co-requisite), or permission of the instructor.

Physics 270 (Physics 56). 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: Physics 121 or IMP 113, and Math 117, or permission of the instructor.

Physics 295H-296H. Sophomore/Junior Projects (Fall, Winter, Spring). Topic to be chosen in consultation with a faculty member and the student's advisor.

Physics 300 (Physics 150). Methods of Modern Experimental Physics (Spring). A laboratory-based course dealing with contemporary techniques in experimental physics. Prerequisites: Physics 122 and one physics course at the 200-level or higher, or permission of the instructor. *WAC*

Physics 310 (Physics 160). Advanced Topics in Physics I (Fall, Modern Physical Optics). 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. *WAC*

— 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 Quantum Mechanics: Applications of quantum mechanics to selected problems in atomic, nuclear, and particle physics such as many electron systems, nuclear forces, and interaction with an electromagnetic field.

— 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.

And others depending upon student interest. Course open to juniors and seniors only. Enrollment by permission of the instructor.

Physics 311 (Physics 161). Advanced Topics in Physics II (Spring). 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.

Physics 312 (Physics 162). Advanced Topics in Physics III. 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.

Physics 350 (Physics 140). Quantum Mechanics (Fall). An introduction to the interpretation and mathematical formalism of quantum mechanics with applications to selected problems in atomic, nuclear, and solid state physics. Prerequisites: Physics 220 and Math 117, or permission of the instructor.

Physics 490-493 (Physics 190-193). 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. *WAC: WS (final term)*

Physics 495-498 (Physics 195-198). Independent Study in Physics (Fall, Winter, Spring). Topic to be chosen in consultation with a faculty member and the student's advisor.

Political Science

Associate Professor Fox, Chair; Professors Brown, Marso, Nichols, Weiner; Associate Professors Angrist, Hislope, Oxley; Assistant Professors Gangl, Zhang, Zumbrunnen; Research Professors Lobe, Strosberg; Adjunct Professors Watson and Reynolds

The following departmental requirements have been significantly revised and will take effect beginning with the class of 2010. If you were admitted in an earlier class, please consult the course catalog of your entering year.

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. Introductory courses may not be used to satisfy upper level distribution requirements. No more than two of these twelve courses may be internship courses (i.e., PS 277, 279T). Of the eight non-specified courses at least three of the four major areas of the discipline must be covered: Political Theory, U.S. Politics, Comparative Politics and International Politics.

To fulfill the department's research requirement and to prepare for the senior project, students must take two of following courses. First, all students must take at least one "R" course. The presence of the "R" designation next to a course number (i.e., PS 272R) denotes that the course will have a major research assignment as a central component of the course. Second, students must take a methods course (PS 220 or 222), or a seminar (PS 339, 349, 359, 369), or an additional "R" course. Both research courses should be taken by the end of the student's junior year as preparation for the senior project (PS 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 the Minor: The minor consists of six total courses. Students must take either PS 111 or 112; and 113. Of the four remaining courses, at least three upper-level courses must all be drawn from one sub-field (Political Theory, U.S. Politics, Comparative Politics and International Politics). No internships or independent studies may be counted toward the minor without approval of the Chair.

Departmental Honors: To receive departmental honors the student must fulfill the following requirements: (1) a minimum index of 3.30 in political science; (2) completion of a political science seminar with a grade of "A minus" or better; and (3) a grade of "A minus" or higher on the senior project. Students who do not attain an A minus or better grade in the seminar may still be eligible for honors if their departmental average is a 3.5 or higher. In addition the student must satisfy College requirements for departmental honors.

Requirements for Secondary School Certification in Social Studies: PSY 246 (50), EDS 500A, 500B, (EDS 201A, 201B, 201C), and at least one year of a foreign language. PSC 281 (81) 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).

Introductory Courses

111. (11) U.S. Politics (Fall; Fox, Spring; Gangl). 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.

112. (12) Introduction to Global Politics (Fall; Nichols, Winter; Hislope) 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.

113. (13) Introduction to Political Thought (Winter; Brown, Spring; Zumbrunnen) 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

123. (23) Topics in Mathematical Political Science (Winter, Spring; Staff) [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 PS 111 or 112 would be relevant.

220. (20) Social Data Analysis (Winter; Oxley) [Same as SOC 301 (51)]. 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.

222. (22) Qualitative Social Research Methods (Spring; Staff) [Same as SOC 302 (52) and ANT 363 (63)]. Basic introduction to qualitative research methods. Equally concerned with research design, techniques for gathering data, ethics in research, and the translation of field data into texts. Students will design a research project and methodology and then conduct their own field research

using strategies such as participant-observation and interviewing. Depending upon the individual project, students may also conduct archival research using newspapers and government reports.

Political Theory Courses

231. Truth, Untruth and Politics (Fall, Zumbrunnen). Examines different understandings of the nature of truth and its relevance (or irrelevance) to politics and political life. Course readings range from Plato on the search for absolute knowledge to Nietzsche on untruth as inevitable and indispensable for life to recent "postmodern" doubts about the very possibility of truth. Class discussion focuses as well on the role of truth in contemporary democratic politics. Prerequisite: Sophomore standing or PS 113.

233. (133) Intellectuals and Politics (Not offered 2006-07) 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.

234. (34) Women Political Theorists (Not offered 2006-07) [Same as WGS 234] 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.

237. (37) Politics as Comedy, Politics as Tragedy (Not offered 2006-07). Explores comic and tragic perspectives on a wide range of political topics including power, democracy, justice, and gender. The course also considers various theoretical accounts of the nature of comedy and tragedy as ways of thinking about politics and so engages the longstanding tension between philosophy and more poetic modes of political thinking. Course materials range from Greek drama to contemporary literature and film. Prerequisite: Sophomore standing or PS 113.

238. (38) Moral Dilemmas of Governing (Winter; Nichols). An inquiry into the moral choices and responsibilities of political leaders in the light of recent findings in behavioral studies, the implications of political and social values of Western culture. Prerequisite: PS 113. WAC

239. (39) Feminist Political Theory (Not offered 2006-07) [Same as WGS 286] 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.

330. (30) Enlightenment and Its Discontents (Not offered 2006-07). 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.

Prerequisite: Sophomore standing or PS 113. GenEd: Eu-CS

331. (131) Ancient Political Thought (Not offered 2006-07). 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. Prerequisite: Sophomore or PS 113. GenEd: AN-CS

332. (32) American Political Thought To World War I (Winter; Brown). 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. Prerequisite: Sophomore standing or PS 111 and 113. GenEd: Am-C

333. (33) Twentieth Century American Political Thought (Spring; Zumbrunnen). [Same as WGS 333]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. Prerequisite: Sophomore standing or PS 113. GenEd: Am-C

334. (132) European Political Thought (Not offered 2006-07). This course focuses on the major ideas coming out of Europe in the 20th century to today. Europeans are said to lead the way on critical issues of importance to democratic thought, and critical analysis of tyranny and power. We will learn about these ideas in this class and examine their relationship to US conceptions of the workings of politics. We will also study the impact of technology in the modern world and the limits of enlightenment. Prerequisite: PS 113. GenEd: Eu-C; WAC

339. (139) Seminar: Political Theory (Winter; Marso). Selected topics in political thought. Preference given to sophomore and junior political science majors. Prerequisites: PS 111, 112, or 113 and permission of the instructor. WAC

Comparative Politics Courses

240. (40) Comparative Ethnic and Racial Politics (Spring; Hislope). An introduction to the trends and patterns of ethnic conflicts in the contemporary world. Issues pertaining to the rise of nations; theories of ethnic mobilization; the attempt to build general, cross-national explanations; and current efforts to solve ethnic conflict. Prerequisite: Sophomore standing or 111 or 112. GenEd: CDAA; WAC

241. (141) Religion and Politics (Not offered 2006-07). An inquiry into the impact of religious belief systems and religious institutions on political behavior. A specific comparison of the impact of Protestantism in the U.S., Roman Catholicism in Latin America, and Islam in the Middle East. Prerequisite: Sophomore standing or PS 112.

243. (43) Latin American Politics: Facing the World (Not offered 2006-07). Latin America's political dynamics, with special reference to Latin America's position in world affairs, economic and cultural patterns within the region, and U.S. influence. Prerequisite: Sophomore standing or PS 112. GenEd: CDLA; WAC

247. (86) Politics and Film. (Fall; Lobe)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. Prerequisites: PS 111, 112, or 113. WAC

248. (41) The Politics of the New Europe (Not offered 2006-07). 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." Prerequisite: Sophomore standing or 112.

249. (49) Middle East Politics (Not offered 2006-07) 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. Prerequisite: Sophomore standing or PSC 112.

287. (47) Law and Public Policy (Not offered 2006-07). The interrelationship of law and public policy, emphasizing selected contemporary issues particularly illustrative of the relationship between law and politics. Prerequisite: Sophomore standing or PS 111.

345. (45) Contemporary Chinese Politics. (Fall-Zhang) A survey course on the politics of the People's Republic of China, with an emphasis on state-society relations. The first part briefly introduces the Chinese socialist system. The course then provides a historical overview of the main political and economic reforms in China since Deng Xiaoping's ascent to power. It also explores themes such as bureaucratic politics, regional disparities, center-locality relations, popular protest, and nationalism. Prerequisite: Sophomore standing or PS 112. GenEd: CDEA

346. (146) Democracy and Democratization (Not offered 2006-07). 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. Prerequisite: Sophomore standing.

349. (149) Seminar: Comparative Politics (Fall; Lobe). Selected topics in comparative politics. Content may vary from year to year. Preference to junior and sophomore political science majors. Prerequisites: PS 111, 112, or 113 and permission of the instructor. WAC

International Politics Courses

251. (51) American Foreign Policy (Winter; Angrist) 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. Prerequisite: Sophomore standing or PSC 111 and 112.

252. (150) International Organizations (Spring; Watson). 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. Prerequisites: Sophomore standing or PS 112.

253: International Politics in East Asia. (Spring; Zhang) Surveys the main currents of international politics in East Asia in the 20th century and in the new millennium, with an emphasis on events since the end of the cold war. Examines the foreign policies of main players in this area, including China, Japan, Korea, Russia, and the United States. We will also explore the evolution of international institutions and norms pertinent to East Asia. Prerequisite: Sophomore standing or PS 112. GenEd: CDEA

254. (54) Politics of the Arab-Israeli Conflict (Fall; 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. Prerequisite: Sophomore standing.

259. (59) Wealth and Power Among Nations (Spring; Nichols). An examination of the tensions between North and South in the global political economy. Topics include world trade patterns, international organizations, military relationships, natural resources and environmental limits, and cross-cultural perceptions and identities. Prerequisite: Sophomore standing or PS 112 or ECO 101.

350. (50) Theories of International Politics (Not offered 2006-07) 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. Prerequisite: PS 112 or 113.

355. (55) Defense Policy (Fall; Watson) 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. Prerequisite: Sophomore standing or PS 111 and 112.

359. (159) Seminar: International Politics (Spring; Brown). Selected topics in international politics. Content may vary from year to year. Preference to sophomore and junior political science majors. Prerequisites: PS 111, 112, or 113 and permission of the instructor. WAC

United States Politics Courses

260. (60) Policy Making and American Society (Not offered 2006-07). 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. Prerequisite: Sophomore standing or PS 111.

261. (160) Public Opinion (Fall; Gangl). 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. Prerequisite: Sophomore standing or PS 111.

263. (163) The Politics of Poverty and Welfare (Not offered 2006-07). 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 PS 111 or SOC 100.

264. (64) Congressional Politics (Not offered 2006-07). 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. Prerequisite: Sophomore standing or PS 111.

267. (67) Race and the American Political System: Tyranny of the Majority? (Not offered 2006-07). The evolution, nature, and role of race in U.S. Politics. Focuses on African-American political participation, although Latinos, Asian-Americans, and Native Americans are addressed. Political movements, electoral participation, and social conditions are explored. Particular attention to contemporary controversies. Prerequisite: Sophomore standing or PS 111 and 112. GenEd: CDAA

268. (68) Electoral Politics (Winter; Oxley) 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. Prerequisite: Sophomore standing or PS 111.

269. (69) Media and Politics (Spring; 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. Prerequisite: Sophomore standing or PS 111.

270. (70) Constitutional Law (Winter; Zumbrunnen). 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.

Prerequisite: Sophomore standing or PS 111 and 113.

272. (72) The Environment, Energy, and U.S. Politics (Spring; Reynolds) 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 eight local field trips to wastewater and drinking water facilities, waste management and energy facilities, government agencies and the State Capitol. Prerequisite: Sophomore standing or PS 111.

273. (62) The Supreme Court and Judicial Politics (Winter; Fox). 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. Prerequisite: Sophomore standing or PS 111.

277. (77) Local Government Internships (Fall, Winter, Spring; Zumbrunnen). Places students in internships in local political organizations and in offices in local and state government. Students draw on their internship experience and related academic work to reach a better understanding of the complexities and dynamics of politics and the state or local level. Prerequisite: Sophomore standing and permission of the instructor.

279T and 280T. (179-180) 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.

281. (81) Issues in American Education (Not offered 2006-07). 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 PS 111 or SOC 100 or ANT 110 or PSY 100. WAC

282. (82) Health Politics and Policy (Fall; Weiner) 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. Prerequisite: Sophomore standing.

283. (83) Social and Political Movements (Not offered 2006-07) [Same as SOC 270 (86)]. The role of extra-governmental actors in the formation of public policy. The origins of political social movements and the differences and similarities found among these organizations. Other topics include the means by which such groups seek to influence policies and the outcome of such attempts. Prerequisite: Sophomore standing or PS 111 and 112.

284. (84) Political Sociology (Not offered 2006-07) [Same as SOC 240 (85)]. The social basis of political action. This course will ask why some groups are more likely to vote, engage in protest, join extreme movements and engage in violence against the political system. Prerequisite: Sophomore standing or PS 111 or SOC 100

361. (161) Political Psychology (Spring; Oxley). [Same as PSY 336 (61)]. 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: PS 111 or PSY 100.

362. (87) CIA and the Art of Intelligence (Fall; Lobe) Provides a 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. Prerequisite: Sophomore standing or PS 111 or 112.

366. (66) Presidential Politics (Spring; Brown). The role of the president in the modern American political system. Prerequisite: Sophomore standing or PS 111 and 112.

369. (169) Seminar: U.S. Politics (Fall; Gangl). Selected topics in U.S. politics. Content may vary from year to year. Preference to sophomore and junior political science majors. Prerequisites: PS 111, 112, or 113 and permission of the instructor. WAC

371. (71) Civil Rights and Civil Liberties (Not offered in 2006-07). 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. Prerequisite: Sophomore standing or PS 111.

385. (85) Women and Politics (Not offered 2006-07) [Same as WGS 370]. 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 PS 111 or SOC 100.

Senior Topics Courses

490-497 (190-197). Independent Study in Political Science (Fall, Winter, Spring). By application to the individual instructor and subject to confirmation by the department chairman.

498-499. (09-199) Senior Project in Political Science (Fall, Winter, Spring). Open to seniors in political science. Subject to department approval, this requirement may be fulfilled by the completion of original political science research, political action, political art, or applied public policy research. The senior project is an intensive two-term research project serving as the capstone experience for the major. All senior projects are subject to an oral examination as a requirement for graduation as a major.

Psychology

Professor Burns, Chair; Professors Benack, DeBono (on leave Winter, Spring), Greenberg (on leave 2006-07), Nydegger (on leave Fall), Weisse; Associate Professors Dowling, Stanhope; Assistant Professors Anderson-Hanley, Bizer, Romero, Spring; Visiting Assistant Professors Dickter, Lea; Visiting Instructor Cooper.

Requirements for the Major:

(1). Psychology 100 (10), 200 (20), and 300(25) and nine other courses; majors should normally complete Psychology 200 and 300 by the end of the junior year.

(2). At least one course from each of the following two content areas:

— Physiological Psychology: Psychology 210 (46), 211(32), 311(164), or 312(162);

— Cognitive Psychology: Psychology 220(33) or 221(36)

(3). At least one course from two of the following three content areas:

— Social Psychology: Psychology 230(24)

— Developmental Psychology: Psychology 240(38)

— Clinical/Personality Psychology: Psychology 250(31) or 251(30).

(4). Two courses numbered 400 or higher. One of these courses must be a seminar (courses numbered 400-479), and only one course numbered 480-497 (independent study/research/internship) may count toward the major.

(5). Interdepartmental majors will normally take eight courses in psychology. The courses must include Psychology 100(Introduction) and 200(Statistics). Students wishing to do an interdepartmental senior thesis will also take Psychology 300(Experimental). 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. 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.

(6). A student who chooses to minor in psychology must take a total of six courses in psychology, including Psychology 100, Psychology 200, one course from the Physiological/Cognitive cluster, and one course from the Social/Developmental/Clinical cluster.

Note on Seminars: Some seminars (e.g., 420, 430, 440, 450) treat different topics in different terms. These may be taken more than once for credit, with the permission of the instructor.

Application for Honors in Psychology: In addition to meeting College-wide requirements, honors in psychology requires: (1) a psychology grade point average of 3.40 or higher; (2) three grades of "A" or "A minus" in psychology "core" courses, which include 200, 210, 211, 220, 221, 230, 240, 250, 251, 300, 310, 311; (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 get 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 ninth week of the spring term of the junior year. The proposal should be one-two typewritten pages describing the project and the student's preparation for the project (e.g., related course work). The proposal will be evaluated by a departmental committee, and the student will be advised about the acceptability of the proposal. Further information is available from the department secretary.

The Senior Writing Requirement in Psychology: 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 seminars used to fulfill the basic WAC requirements); or (3) by completing a one- or two-term senior project.

GenEd Note: In the General Education Curriculum, all psychology courses count as if they are courses in the Division of the Social Sciences, except for Psychology 210, 211, 310, 311, 312, and 410,

which can be counted toward the General Education science requirement.

Note: Psychology 100 or permission of the instructor is a prerequisite for all other psychology courses.

100(10). A First Course in Psychology (Fall, Winter, Spring; Staff). The activities and experiences of the human being. Personality and its development, motives, learning and intelligence, and behavior in conflict.

200(20). Statistical Methods in Psychology (Fall, Winter, Spring; Burns, Cooper, Lea, Romero, Stanhope, Staff). 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. Prerequisite: Psychology 100.

210(46). Introduction to Cognitive Neuroscience (Identical to Biology 210) (Fall, Winter, Spring; 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. Prerequisite: Psychology 100 or permission of the instructor. Gen Ed Science.

211(32). Sensation and Perception (Fall; Spring; Cooper, Romero). The structural and functional aspects of the sensory system and sensory processes. Also theories and research in the field of perception and perceptual development. Prerequisite: Psychology 100. Gen Ed Science.

215(47). Introduction to Health Psychology (Not offered 2006-07). Psychology's role in the etiology, prevention, progression and treatment of psychical disease states. Topics include mechanisms by which stress and health-related behaviors such as diet, exercise, smoking, and substance abuse contribute to physical illness, problems of medical compliance, cognitive/behavioral medical treatment techniques; and health promotion/ disease prevention strategies. Prerequisite: Psychology 100.

220(33). Psychology of Memory and Thinking (Fall, Winter, Spring; Cooper, Lea). How humans code, store, remember, and forget information. Related topics include attention, pattern recognition, concept learning, and reading. Prerequisite: Psychology 100.

221(36). Psychology of Learning (Not offered 2006-07). A systematic examination of the principles and theories of learning. Classic works of Pavlov, Tolman, Hull, and Skinner will be considered as well as contemporary thinkers. Topics include classical and operant condition and biological constraints on learning. Critical evaluation of the research on humans and lower animals will form a major basis of the discussion. Prerequisite: Psychology 100.

225(34). The Psychology of Language (Not offered 2006-07). Psycholinguistics, including speech perception, child's acquisition of language, animal "language," linguistic diversity, and recent research. Prerequisite: Psychology 100 or permission of the instructor.

230(24). Social Psychology (Identical to Sociology 203(63)) (Fall, Winter, Spring; Bizer, DeBono, Dickter). Research methods, survey of research on attribution processes, person perception, stereotyping, attraction, persuasion and social influence, and effects of group membership on behavior. Prerequisite: Psychology 100.

235(35). Industrial-Organizational Psychology (Spring; 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. Prerequisites: Psychology 100; Psychology 230 preferred but not required.

240(38). Developmental Psychology (Fall, Winter, Spring; Stanhope). Child behavior and the processes influencing child development. Methods of study and theories. Prerequisites: Psychology 100.

245(39). Psychology of Sex Roles (Identical to Women's Studies 230) (Fall). 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. Prerequisite: Psychology 100.

246(50). Educational Psychology (Winter, Spring; Staff). Principles of psychology applied to teaching with emphasis on the cognitive abilities of students, classroom management procedures, and motivational techniques. Visits to a variety of local schools. Prerequisite: Psychology 100. (Note: This course or placement exam is required for admission to Union's MAT program.)

250(31). Abnormal Psychology (Fall, Winter, Spring; Anderson-Hanley, Nydegger). Models and

theories of psychology, with description and analyses of forms of abnormality and its modification. Prerequisite: Psychology 100.

251(30). Personality (Fall, Winter; Benack). Classical and contemporary theories of personality, with an emphasis on current issues and research in the field. Prerequisite: Psychology 100.

255(49). Psychology of Addiction (Not offered 2006-07). 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. Prerequisite: Psychology 100.

295H (195H). Psychology Honors Independent Study

296H (196H). Psychology Honors Independent Study 2

300(25). Introduction to Experimental 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. *WAC*

305(45). History and Systems in Psychology (Not offered 2006-07). Assessment of historic development and current status of systemic paradigms in psychology. The influence of philosophy, social, and natural science will be studied. Prerequisite: Psychology 100.

311(164). Animal Behavior (Identical to Biology 325 (164))

312(162). Introduction to Neurobiology (Identical to Biology 362 (162))

315(165). Neural Circuits of Behavior (Identical to Biology 365 (165))

320(57). Applied Cognitive Psychology (Not offered 2006-07). Explores the many ways in which the scientific knowledge attained from cognitive psychology has been applied to everyday problems in perception, remembering, and thinking. Topics include face and name recognition, mnemonic strategies, expert memory, errors in everyday decision making and human factors. Prerequisite: Psychology 220.

330(53). Attitudes and Social Behavior (Not offered 2006-07). 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: Psychology 100 and 230.

336(61). Political Psychology (Identical to Political Science 361).

350(48). Psychotherapy (Spring, Anderson-Hanley). Survey of the major contemporary systems of psychotherapy. Includes analytic, family systems, cognitive and behavioral approaches. Students will learn theories, techniques, and processes involved in the practice of therapeutic approaches. Prerequisite: Psychology 100 and 250.

351(62). Practicum in Human Relations I (Not offered 2006-07). 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. Prerequisite: Psychology 100.

352(42). Psychological Assessment and Testing (Not offered 2006-07). Examination of test theories, issues of test reliability and validity, and strategies for construction; personality tests. Students required to construct and validate a test. Prerequisite: Psychology 100.

400(144). Advanced Experimental Psychology (Not offered 2006-07). Focus on advanced research methods and on several statistical techniques commonly used by psychologists. Topics include correlation, multiple regression, analysis of variance, and multivariate analysis of variance. Students also will be exposed to one or more computer packages for performing statistical analyses. Prerequisite: Psychology 300.

405(100). Honor's Topic Seminar (Not offered 2006-07). A one-credit course lasting either one term or running the full academic year, open to junior and senior qualified students. Limited enrollments; students will be recommended for the course by faculty. Each year's topic will be chosen by the supervising faculty member. Normally, students will meet weekly to discuss readings pertaining to the

topic and upcoming speakers. About seven to nine speakers with expertise in the chosen area will be invited to discuss their positions with students. Relevant field trips may also be arranged.

410(166). Brain and Behavior (Identical to Biology 410 (166)) (Winter; Romero). Advanced coverage of the mechanisms of action of psychotropic drugs and a discussion of the effects of certain transmitter systems on behavior. Prerequisite: Psychology 210. *WAC or WS; GenEd Science*

415(147). Seminar in Health Psychology (Not offered 2006-07). Advanced coverage of the role of behavioral factors in health and illness. Selected topics could include AIDS prevention, psychoneuroimmunology, cancer, cardiovascular disease, and other stress-related behaviors and disorders. Prerequisite: Psychology 215. *WAC or WS*

420(130). Seminar in Learning and Memory (Not offered 2006-07). A selected topic in learning or cognitive psychology, such as language, reading, attention, memory, conditioning, and applications. Prerequisite: Psychology 220, 221, 225, or permission of instructor. *WAC or WS*

430(132). Seminar in Social Psychology (Winter, Spring; Dickter). A selected area of social psychology. Specific topic will be announced in advance by the instructor. Prerequisite: Psychology 230. *WAC or WS*

431(135). Seminar in Psychology of Religion (Identical to Religious Studies 400) (Fall; DeBono). The psychological origins of religious beliefs as well as 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: Psychology 210, 220, 230, 240 or 251 or permission of the instructor. *WAC or WS*

440(167). Seminar in Human Development (Fall; Stanhope). A selected area of developmental psychology. Specific topic will be announced in advance by the instructor. Prerequisite: Psychology 240. *WAC or WS*

441(140). 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 251 or 240. *WAC or WS*

450(131). Seminar in Clinical Psychology (Spring; Anderson-Hanley). A selected area of clinical psychology. Specific topic will be announced in advance by the instructor. Prerequisite: Psychology 250. *WAC or WS*

451(163). Practicum in Human Relations II (Not offered 2006-07). 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.

487(007). Psychology 3-Term Thesis 1

488(008). Psychology 3-Term Thesis 2

489(198). Psychology 3-Term Thesis 3

490(190), 491(191), 492(192). One-Term Independent Study/Research (Fall, Winter, Spring; Staff)

493(193)-494(194). 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.

495(195). One-Term Senior Project (Fall, Winter, Spring; Staff). *WS*

496(196)-497(197). Two-Term Senior Project (Fall, Winter, Spring; Staff). *WS*

498(009)-499(199). 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: Psychology 200 and 300. *WS*

Religious Studies

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 College offers a six-course minor in religious studies; it is designed to enable students to gather insights from philosophy, psychology, sociology, anthropology, history, and literature by way of illuminating this practically universal form of human behavior. The minor will consist of three core courses and any three other courses carrying religious studies credit, one of which could be an independent study. Anyone wishing to minor in religious studies must first consult with the director of the program, Prof. Peter Heinegg.

Core Courses

Religious Studies 10 — Philosophy 38. Eastern Philosophy
Religious Studies 12 — Classics 32. Religion in the Pagan World
Religious Studies 14 — History 72. Early History of the Jews
Religious Studies 16 — English 40. The World of the Bible
Religious Studies 20 — Anthropology 43. Anthropology of Religion

Other Courses with Religious Studies Credit

Anthropology 49 (Charismatic Religious and Political Movements)
English 58 (Milton)
History 131 (American Utopia), 83 (Mystics, Magic, and Witchcraft in Medieval and Early Modern Europe)
AMU 34 (World Religions and Music)
Philosophy 45 (Buddhist Ethics), 61 (God and Possibility: An Introduction to the Philosophy of Religion), 131 (God and Evil in the Middle Ages: Medieval Philosophy), 138 (Zen and Tibetan Buddhism)
Sociology 43 (The Sociology of Religion)

Independent Study

(May be taken as one of the three electives)
Religious Studies 191-197. Upon approval by the director, a student may do an independent study with any willing faculty member with expertise in the area of religious studies.

Russia and Eastern Europe

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 09-99 and one REE seminar; one course above the twelve-level in Russian; 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.

Director: Professor Berk

Science, Medicine, and Technology in Culture (SMT)

Science, technology, and medicine all play important roles in modern society. Union College offers a six-course minor and a sixteen-course interdisciplinary major in science, medicine and technology in culture (SMT). Several different populations of students are targeted: (1) science or engineering majors who want to place their interests in a social context by means of a SMT minor; (2) humanities or social sciences majors who want to include science, engineering, and their social consequences in their education by means of a SMT minor; (3) students who want to study science and engineering at a meta-level (philosophy of science, sociology of science, history of science, etc.). The major will consist of sixteen courses: one of two introductory SMT courses, HST 193 (HST 81) or HST 242 (HST 84); six major courses in science or engineering; six SMT electives, with the following requirements: (1) a three course concentration in either history and political science, sociology and anthropology, philosophy, or literature; (2) one course from a different concentration (i.e., if the three course concentration chosen is philosophy, then one additional course from either history and political science, sociology and anthropology, or literature); (3) at least one course in engineering or science, whereby a course taken for GenEd science credit may not double-count towards SMT; one SMT independent study, HST 399, normally taken in the junior year; a two-term interdisciplinary senior thesis, jointly directed by a faculty member from humanities or social sciences and one from engineering or science. The minor will consist of six courses: one of two introductory SMT courses, HST 193 (HST 81) or HST 242 (HST 84); two major courses in science or engineering; two SMT electives; and one SMT independent study. Anyone wishing to minor or major in SMT must first consult with Prof. Mark Walker.

Core Courses

SMT introductory course: HST 193 (HST 81)
SMT independent study: SMT 399

SMT Electives

Anthropology 174 (89) (Human Evolution and Prehistory), 230 (30) (Medical Anthropology), 240 (40) (Culture and Technology)

Astronomy 050 (Physics 45) (The Solar System)

Biology 050 (11) (Topics in Contemporary Biology), 051 (43) (Seeing the Light: Concepts of Vision), 064 (64) (Nature, Ecology, and Wilderness Management), 065 (65) (Food in the 21st Century), 275 (75) (The Biology of Homo sapiens), 089 (89) (Human Evolution and Prehistory)

Chemistry 050 (17) (Topics in Chemical Analysis – Forensic Chemistry), 060 (19) (Meals to Molecules)

Computer Science 080 (100) (History of Computing)

Economics 228 (28) (Environmental Economics), 230 (30) (The Mind of the Entrepreneur), 331 (130) (E-Commerce Economics), 375 (125) (Efficient Management of Technology)

Electrical Engineering 066 (12) (Audio and Image Digital Signal Processing), 077 (16) (The Digital Evolution), 080 (100) (Electrical Engineering History), 111 (11) (Information Technology and Society)

Environmental Studies 100 (10) (Introduction to Environmental Studies), 200 (33) (Energy), 201 (49) (Nuclear Technology in War and Peace: A Study of Issues and Choices), 250 (35) (Water Resources and the Environment), 251 (38) (Environmental Science and the Atmosphere),

English 250 (Literature and Science), 251 (34d) (Nature and Environmental Writing)

Geology 100 (10) (Introduction to Geology), 101 (11) (The Earth and Life Through Time), 102 (12) (Environmental Geology), 103 (13) (Great Moments in The History of Life), 104 (14) (Our Changing Planet), 106 (16) (Restless Oceans), 107 (17) (Surviving on Earth), 108 (18) (Earth Resources), 200 (20) (Mineral Science)

History 150 (87) (Nuclear Age and Space Age), 192 (80) (Construction for Humanity), 193 (81) (Science, Medicine, and Technology in Culture), 242 (84) (The Scientific Revolution), 253 (88) (Physics and Politics), 254 (89) (Human Evolution and Prehistory), 481 (198) (Drugs and Cultures in Asia)

Mathematics 051 (51) (Cryptology: The Mathematics of Secrecy), 057 (57) (Game Theory and its Applications in the Humanities and Social Sciences), 060 (60) (Topics in Mathematical Political Science), 221 (Mathematical Cryptology)

Philosophy 130 (21) (Cyberfeminism), 232 (32) (Philosophy of Science), 246 (49) (The Self in Cyberspace), 247 (47) (Technology and Human Values), 273 (73) (Environmental Ethics), 274 (74) (Environmental History and Literature), 375 (75) (Biomedical Ethics), 474 (174) (Advanced Biomedical Ethics)

Physics 051 (43) (Seeing the Light: Concepts of Vision), 052 (46) (Science of Sound and Music), 053 (47) (Physics and Politics), 054 (49) (Laser Technology and Modern Optics)

Political Science 123 (23) (Topics in Mathematical Political Science), 272 (72) (The Environment, Energy, and American Politics), 282 (82) (Health Politics and Policy)

Psychology 215 (47) (Introduction to Health Psychology)

Sociology 228 (88) (Sociology of Medicine), 265 (165) (Sociology of Human Rights), 270 (86) (Social Movements, the Environment and Society), 284 (126) (Sociology of Women & Health), 358A (158A) (Marine Policy and the Maritime Environment), 359 (159) (Environmental Policy and Resource Management), 370 (122) (Public Health Care Policy and Society), 372 (120) (Comparative Health Care Systems), 374 (124) (Mental Health and Society)

Sociology

Professor Kaplan, Chair and Joseph C. Driscoll Professor of Sociology and Marine Policy; Assistant Professor Hill Butler; Associate Professors Cotter, Goldner; Visiting Associate Professor Grigsby; Adjunct Professors Tyson, Relyea, Leone, Moffitt

Requirements for the Major: The Department of Sociology offers students a choice from five areas of concentration ("tracks") within the full twelve-course major:

— Crime and the Legal System
— Community/Family Life, the Environment and Public Policy
— Health and Medical Care
— Societal Diversity and Change
— General Sociology

Students who major in sociology are required to take Sociology 100 (SOC-010), 300 (SOC-050), 305 (SOC-055), and complete a two-term senior thesis. Majors may include within their seven elective courses up to two cognates from political science, psychology, economics, history, philosophy, and/or anthropology with approval of the department advisor.

Requirements for the Interdepartmental Major: Sociology 100 (SOC-010), 300 (SOC-050), 305 (SOC-055), a senior project, and four sociology electives.

Requirements for the Minor: Sociology 100 (SOC-010), 300 (SOC-050), 305 (SOC-055)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 (PSY-050) and EDS500A, EDS500B and EDS 500C (EDS201A, EDS201B, and EDS201C). Students must also complete at least 12 courses in the department including Sociology 100 (SOC-010), Anthropology 110 (ANT-010), Sociology 201 (SOC-051), 300 (SOC-050), 305 (SOC-055), and the senior project 498-499 (09-199), 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.

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.

Sociology Honor Society: 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.

Affiliated Programs: Health, Environmental Studies, Africana Studies, Women's Studies. Many programs require sociology courses; students should consult with faculty advisors.

Department-Sponsored Terms Abroad and Internships

Field Program in Marine Studies (Kaplan). An interdisciplinary term abroad held biennially in spring term. Students visit and compare fishing communities and marine life in Bermuda, New England, and Newfoundland. Participants enroll in Sociology 358T(SOC-158), Biology 256T(BIO-056), and Terms Abroad 355T(TAB-055A).

Field Program in Brazil on "Women, Technology and Economic Development" (Staff). A sociology term abroad biennially to São Paulo. Students conduct research in São Paulo, Salvador, Recife, Brasília, and the Pantanal. Students enroll in Sociology 322T(SOC-154), 323T(155), and Portuguese II. Prerequisite: Portuguese I; also recommended is History 272 (HST-077), History of Brazil.

Field Program in Kenya (Staff). An interdisciplinary term abroad held biennially in fall term. Students conduct research on African family patterns, women, literature, history, economic development, medical systems, and environmental issues.

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. 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.

Note: Sociology 100 (SOC-010) is a prerequisite for all sociology courses.

15. Special Topics in Research Practice (Not offered 2006-2007). An introduction to research design and social research methods covering the basics of several data collection techniques, sampling, and computer data analysis. Students initiate and complete a survey research project, conduct a content analysis, analyze and make scientific presentations on published research toward developing scientific communication skills.

100 (010). 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.

201 (051). Social Data Analysis (See Political Science 220). The analysis of social science data. Emphasis on testing substantive hypotheses by means of computer data processing and statistical techniques.

202 (062). Social Problems and Social Policy (Fall; Staff). Identification of the social roots of major social problems (e.g., poverty, discrimination, violence, AIDS, teen pregnancy, health care) and a critical examination of current and alternative social policies for dealing with them. WAC

203 (063). Social Psychology (See Psychology 230)

204 (094). Social Construction of Deviance (Spring; Leone). 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.

205 (065). Social Work and Human Services (Winter; Moffitt). The history of social services and the development of the profession of social work. Social problems and society's response to these problems will be investigated.

206 (066). Aging and Society (Winter; Relyea) (Same as Women's Studies 221). The social, psychological, and economic consequences of aging, with an emphasis on successful aging. Social programs and policies for the aged are evaluated.

212 (069). Sociology of the Family (Spring; Staff) (Same as Women's Studies 280). Family and kinship in different societies with a concentration on the American family. Implications for society with regard to trends in courtship, romantic love, mate selection, parent-child interactions, and other areas of family life are examined.

222 (072). Schools and Societies (Spring; Cotter). Sociological analysis of education as an institution over time and across societies.

223 (073). Sociology of Religion (Not offered 2006-2007). 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.

224 (075). Sociology of Community (Not offered 2006-2007). 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.

225 (077). Sociology of Work, Occupations, and the Professions (Not offered 2006-2007). Sociological analysis of work in a modern industrial society; emphasis on the professions in terms of role behavior, education, socialization, and division of labor.

228 (088). Sociology of Medicine (Not offered 2006-2007). 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.

230 (080). African-Americans in Contemporary Society (Winter; Hill Butler). An examination of lifestyles, roles and social trends of African-Americans in society today. *GenEd: CDAA*

231 (081). Sex and Gender in American Society (Not offered 2006-2007) (Same as Women's Studies 284). An examination of gender and the social context of the behavior of men and women in contemporary American Society.

233 (083). Race, Class, and Gender in American Society (Not offered 2006-2007) (Same as Women's Studies 283). The issues of gender, race, and class as organizing principles within sociology. The course draws broadly from the critical tradition, which focuses on issues of power, control, opportunity, gender, and economic relations. *GenEd: CDAA*

240 (085). Political Sociology (See Political Science 284). 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.

245 (092). Sociology of Developing Countries (Not offered 2006-2007). The patterns of economic, social, and political change in developing countries through case studies of different development strategies in Africa, Latin America, the Caribbean, and Asia. *GenEd: CDAA, CDEA, CDLA*

260 (078). Demography: Population and Society (Fall; Grigsby) An introduction the study of human populations and the dynamics of birth, death and migration. Focus on how populations grow and decline and the implications for social policy in areas such as health, aging, social inequality, the environment, immigration and urban life..

261 (161). Crime and Justice in Society (Not offered 2006-2007). The social construction of crime and delinquency as social and legal categories; perspectives on causation and consequences of the societal reaction to crime.

265 (165). Sociology of Human Rights (Not offered 2006-2007). This course examines themes associated with the study of human rights, including human medical experimentation, women's sex slavery and abuse, state sponsored torture and executions, and war atrocities. Ethnic cleansing and discrimination by sexual preference, race and gender are also examined. These themes are examined within Asian, African, Latin American and United States contexts. *GenEd: CDAA*

270 (086). Social Movements, the Environment, and Society (Not offered 2006-2007) (Same as Political Science 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.

282 (125). Sociology of the Disabled and Handicapped (Not offered 2006-2007). A sociological perspective on handicapping conditions, including the hearing impaired, visually impaired, orthodedically disabled, learning disabled, and mentally retarded.

284 (126). Sociology of Women & Health (Fall; Grigsby) (Same as Women's Studies 219). 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.

286 (153). Women and Change in the Third World (Not offered 2006-2007) (Same as Women's Studies 223). An analysis of theories of societal change and development in terms of the contributions

of Third World women in the development process. *GenEd: CDLA*

290 (110). Personality, Media, and Society (Not offered 2006-2007). 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. *WAC*

300 (050). 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.

302 (052). Qualitative Social Research Methods (Same as Political Science 222 and Anthropology 363). 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.

305 (055). History of Sociological Thought (Winter; Grigsby). 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. *GenEd: Eu-C; WAC.*

320 (152). Africa: Social and Demographic Trends (Not offered 2006-2007). The culture, economy, and politics of Africa, especially sub-Saharan. Topics include family life, religion, kinship systems, urbanization, health, and population growth. Compares traditional African societies by examining contemporary issues of change. *GenEd: CDAA*

322T (154A). Women, Technology, and Economic Development in Brazil (Part of Brazil Term Abroad) (Same as Women's Studies 326T). Women have contributed richly and have also paid a very high price for Brazil's development "miracles." This term abroad course examines the contributions and sacrifices of women — African, Portuguese, indigenous — to Brazilian economic development and social change. *GenEd: CDLA*

323T (155A). A Survey of Brazilian Society (Part of Brazil Term Abroad) Afro-Brazilian religions, the Catholic Church and social change, racism, social structure and social class, crime and social control, the economy, urbanization, families, and language and culture. *GenEd: CDAA, CDLA*

326 (166). Persecution and Marginality (Not offered 2006-2007). The role of persecution in state-making and marginality as a resulting socio-political process. Topics include the social control of "evil," "protection-racket" state-making, and persecution using case studies to illustrate these processes.

327 (167). Marginality and the 'Other' in Europe, Japan and Brazil (Not offered 2006-2007). Examination of the role of ideologies justifying persecution and persecution itself in the construction of identities and changes in national states. Four interrelated and interactive professes are analyzed: Cultural constructions of pollution, danger and taboo; socio-political and interpersonal impacts of 'stigma' and 'stigmatizing'; marginalization of stigmatized 'others'; the results of these processes in constructing and changing national states. Employing a political and social constructionist framework, course will examine four case studies of marginalized 'others' in Medieval Europe, Brazil and Japan. *GenEd; CDLA; CDEA*

340 (172). Inequality and Mobility: From Penthouse to Poorhouse (Not offered 2006-2007). 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.

346 (176). African American Women: Unheard Voices and Contemporary Lifestyles (Spring; Hill-Butler) (Same as Women's Studies 376). 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. *GenEd: CDAA*

358T (158A). Marine Policy and the Maritime Environment (Spring; Marine Studies Term Abroad) An examination of social life in maritime communities and the shaping of national and international marine policies. To be taken in conjunction with Marine Studies Term Abroad. *WAC*

359 (159). Environmental Policy and Resource Management (Not offered 2006-2007). An examination of environmental issues and problems such as acid rain, ocean dumping, and nuclear wastes, and the social forces that shape environmental policies. *WAC*

360 (140). Domestic Violence (Fall; Leone) (Same as Women's Studies 382). 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.

362 (141). Family and Community Services (Not offered 2006-2007) (Same as Women's Studies 381). 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. *WAC*

364 (142). Sex and Motherhood (Spring; Grigsby) (Same as Women's Studies 327). 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.

370 (122). Public Health Care Policy and Society (Not offered 2006-2007). 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.

372 (120). Comparative Health Care Systems (Not offered 2006-2007). 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.

374 (124). Mental Health and Society (Spring; Tyson). 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.

385 (181). Internship in the Delivery of Human Services (Not offered 2006-2007). 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.

386 (182). Eldercare Internship Seminar (Spring; Relyea). Designed to facilitate the integration of hands-on work experience with knowledge of practices and policies in long-term care for the elderly.

490-497 (190-197). Independent Study (Fall, Winter, Spring; Staff). Prerequisite: Permission of the department chair.

498-499 (009-199). Senior Thesis in Sociology (Fall, Winter, Spring; Staff). Special project for senior majors.

Theater and Dance

Associate Professor Finlay, Chair; Professor Steckler; Artist in Residence Culbert; Artist in Residence Perry; Technical Director of Yulman Theater Miller; Costumer for the Yulman Theater Waiwaiole; Director of the Dance Program Moutillet; Administrative Program Assistant Herrington.

Theater

Requirements for the Major: Twelve courses plus one theater practicum credit which must include experience in the Art of Stage Management. The theater major includes ATH 110, 112, 113, 120, 125, 151, 230, 231, 342, 497, one elective chosen in consultation with major advisor, and either EGL 233 or 224. Highly recommended are additional electives/practica in dance.

Requirements for the Interdepartmental Major: Eight courses plus one theater practicum credit which must include experience in the Art of Stage Management. The interdepartmental major includes ATH 110, 112, 113, 125, 151, 230, 231, 342. Highly recommended are additional electives/dance technique classes.

Requirements for the Minor: Six courses plus one Theater Practicum credit which must include experience in the art of Stage Management. The Theatre minor includes ATH110 (Theatre Production), ATH120 (History of Theatre) 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 Theatre and Dance chosen in consultation with the student's Minor advisor.

Departmental Honors (ATH498-499): Candidates must satisfy college qualifications for honors and receive a grade of at least "A minus" in the final project.

ATH105A (65A). Special Topics in Theater-Musical Theater Styles (Spring; Finlay). An exploration of the lyrics and performance possibilities inherent in the American musical. Working with an in class accompanist, students will prepare and perform on a weekly basis throughout the term.

ATH105B (65B). Special Topics in Theater-Stage Combat (Not offered 2006-2007). An exploration of the physical violence portrayed on stage from the Elizabethan period to the present. Students will be instructed in the safe use of both period and contemporary weaponry as well as the techniques of unarmed stage fighting. Prerequisite: ATH230 or permission of the instructor.

ATH105C (65D). Special Topics in Theater-Intermediate Film Production (Not offered 2006-2007).

ATH100 (010). Speech Communication (Spring; Culbert). A practical introduction to speech-making. 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, and physical presentation techniques including personal style and the mastery of multimedia presentational technology.

ATH102. 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, 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.

ATH110 (11). Theater Production (Fall, Winter, Spring; Steckler). The exploration of the technical and design aspects of a theatrical presentation. The course covers the basics of scenic construction, tools and machine use, painting, lighting, and sound systems. No previous experience necessary.

ATH112 (12). Beginning Acting (Fall, Spring; Perry). Designed to engage the aspiring actor in developing performance power, technique, and discipline. 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 seeing other performances. It will require an open heart and mind in order to have the opportunity to take risks, challenge oneself, and be creative.

ATH113 (13). Introduction to Stage Design (Fall; Steckler). The development of the playhouse, scenic conventions, costumes, props, and effects, with emphasis on innovative practices of twentieth-century scenic design. Class projects include the design and construction of scale models. Site visits to area theaters and performances. Participation in the fabrication of sets and props for concurrent

productions in the Yulman Theater.

ATH117 (17). Fundamentals of Stage Lighting Design (Winter; Miller).

ATH120 (20). History of Theater (Winter; Perry). An investigation of the development of Western theater from its roots in Greek tragedy to the contemporary with special focus on the works of Aeschylus, the Commedia dell'arte, Moliere, Brecht, and present-day artists. This class concentrates on the nature of theater-in-performance including the physical development of theater spaces, staging concepts, and the artist-audience relationship. GenEd: Eu-C

ATH121 (21). Puppet Theater Design and Performance (Not offered 2006-2007). 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. There will be a final public performance.

ATH122 (22). Introduction to Costume Design and Makeup (Spring; Waiwaiole). An exploration into the principles and practice of stage costume design and makeup 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.

ATH125 (25). Improvisation I (Spring; Culbert). This class is to allow the individual and the group to explore through intuitive creative ways a physical, emotional and spontaneous form of approaching theatre. 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. Theatre games and a variety of improvisation methodologies will be used in the practice of performance discipline, risk taking and collaboration on stage.

ATH140. American Musical Theater and Dance (Identical to ADA140) (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. Gen.Ed: Am-C

ATH151 (51). Directing (Winter; 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.

ATH226 (26). Theater Production II (Fall, Winter, Spring; Steckler). Intermediate level course in the technical and design aspects of theatrical production. Students will assume a major responsibility in the technical implementation of sets, lights, sound, props or costumes for the concurrent departmental production. Prerequisite: ATH110 and permission of the instructor.

ATH230 (30). Movement for Actors (Fall; Finlay). 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. Prerequisite: ATH 112 or previous participation in a departmental production.

ATH231 (31). Voice for the Stage (Fall; Culbert). A performance course in vocal technique for the stage based on the philosophy of Kristin Linklater. Extensive exercise work in breath control, resonation and articulation. Readings from contemporary poetry and Shakespearean sonnets. Weekly presentations of scripted material. Prerequisite: ATH 112 or previous participation in a departmental production.

ATH320. Script to Performance (Not offered 2006-2007) Course focuses on the writing and development of your own script for the stage. Discovery of different styles and approaches will be explored according to individual needs. Class is structured as a workshop in which students will collaborate on each other's texts. Course will culminate in staged readings for the public of work created during the term.

ATH342 (42). Advanced Acting (Winter; Culbert). Students review skills learned in earlier acting classes with a higher degree of emphasis on performance. Focus on in-depth textual analysis - discov-

ering in the inner workings of a play, of scenes, monologues and character choices. Understanding the work of a professional actor, and the discipline of the theatre business. Prerequisites: ATH112 or permission of the instructor.

ATH361 (61). Advanced Directing (Not offered 2006-2007). 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: ATH15l.

ATH366 (66). Acting Styles. (Not offered 2006-2007). 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 theatre. The class will be an intensive session covering a varied range of acting styles across the history of theatre. Close analysis of specific theatre texts including Greek Theatre, 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: ATH112 or permission of the instructor.

ATH295H-296H (195H-196H). Honors Independent Study 1 & 2

ATH490-494 (190-194). Theatre Independent Study 1, 2, 3, 4 & 5

ATH497 (198). Theatre One-Term Senior Project

ATH498-499 (099-199). Theatre Two-Term Senior Project

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 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. 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 (ADA050), one history class (ADA052, ADA053, or ADA0140) and one elective chosen from (ADA 490-493). One credit from the theater program is also required chosen in consultation with the Director of Dance. Two full practicum credits also required in dance technique acquired over six terms of study.

ADA050 (10). The Dance Experience (Spring; Moutillet). An experiential survey course introducing the many facets of dance in our contemporary world. Through lectures, performance attendances, and workshops students discover dance vocabulary, styles, and inner skills. Special emphasis on creative abilities, built on trust, and exploration. Studio classes include diverse technique dance forms, video viewing, improvisation, and creative process sessions. Each student is required to create his/her individual choreography to be performed publicly. A weekly dance technique class is required.

ADA052 (12). Dance in America (Not offered 2006-2007). An introduction to dance in America from Native American to contemporary diverse styles, approached through lecture, video viewing, and dance workshops. A voyage through time from the French Court with the birth of Classical Dance through the twentieth century with the development of Modern and Post-Modern Dance. Study of the advent of new music and dance with the African American heritage and American contributions towards social dancing. Special emphasis on historical background and international influences, studying the dancers, choreographers, traditions, and trends that influence the making of contemporary dance as an art and form of expression. No prerequisite. GenEd: Am-C, CDAA

ADA053 (13). Special Topic in Comparative Studies. Histoire de la danse, Danse de l'histoire/History of Dance, Dance of History (Also FRN 421, MLT 211 and WSG211) (Not

offered 2006-2007). 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). GenEd: Eu-CS

ADA140. American Musical Theater and Dance (Identical to ATH140) (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. Gen.Ed: Am-C

ADA295H (195). Dance Honors Project 1

ADA296H (196H). Dance Honors Project 2

ADA490-493 (190-193). Independent Study or Senior 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 will present their research through a public lecture/demonstration. Prerequisite consists of one history course ADA052-Dance in America, ADA053-Danse de l'Histoire, or ADA140-Musical Theater and Dance.

Senior 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, ADA050-Dance Experience.

ATH Theater Courses.

As an inter-disciplinary credit, the dance minor will elect a course offered by the theater program. Depending on the students' interest and area of study, an appropriate course will be chosen in consultation with the Directors of Dance and Theater.

Dance Technique Classes

Dance Technique Classes: Ballet, modern jazz and African dance classes are offered in the Performing Arts Studio each term. A small fee is charged;. To gain transcript recognition for dance technique classes, students must register with the registrar early in the term and achieve a passing grade from the faculty supervisor. Requests to register for practicum transcript recognition after the drop-add period will not be honored. During the senior year, students may request up to two full dance practicum credits towards graduation. Such requests are made to the registrar during the senior year transcript audit (or its equivalent for those who plan to graduate early). Each full dance practicum credit is accumulated from three previous passing grades. No more than two such graduation credits are available, whatever the discipline (music, theatre, or dance). Students are advised to select full practicum credits in whichever area best suits their academic program.

ADA010 (PCB1). Ballet I (Fall, Winter, Spring; Pangborn). 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. No prerequisite.

ADA011 (PCB2). Ballet II (Fall, Winter, Spring; Moutillet). The intermediate ballet level is designed for dancers who have been trained in the classical form. Class includes complex combinations at the barre and in the center. Musical accompaniment will explore the lyricism of the classical form. Insight into progressive step combinations, physical control, and variations through turns, jumps, adagios and allegros. Repertoire will be taught in class and presented publicly at the winter dance concert and Steinmetz Symposium. (For trained dancers).

ADA012 (PCB3). Ballet III (Fall, Winter, Spring; Moutillet). This advanced ballet level emphasizes academic training as well as repertoire. Depending on student's ability and strength, pointe work will be added. Original or traditional ballets will be learned in class and presented on campus. Dancers who have a desire to perform are encouraged to attend. (For trained dancers).

ADA020 (PCJ1). Jazz Dance I (Spring; Rogers) Learn the basics of Jazz technique, a high powered energy form that moves to fast rhythms. A challenging free style that uses dynamic body movements,

flexibility and present day dance steps. No prerequisite.

ADA021 (PCJ2). Jazz Dance II (Fall, Winter, Spring; Rogers) An intermediate level designed for a trained dancer. Combination will include various jazz styles exploring the classical, funky, and the contemporary. Class will work on a dance piece to be presented at the dance concerts. (For trained dancers)

ADA030 (PCM1). Modern Dance I (Fall; Moutillet). Gain an in depth understanding of how the body moves, proper placement, alignment, and flexibility. For non-dancers or beginners welcoming the knowledge of a well trained and disciplined body. No prerequisite.

ADA031 (PCM2). Modern Dance II (Winter, Spring; Moutillet) Explore the dynamics, rhythms, phrasing and use of space unique to contemporary dance while developing technical strength. Reinforce your physical possibilities and perfect your inner potential toward dance expression. The use of music, space and choreographic gestures will be learned through challenging group choreography to be performed publicly. (For trained dancers).

ADA040. Afro-Dance. A class built for everyone who wants to dance to African rhythms. Emphasizes stamina and the learning of exiting dance routines. A cultural dance style and technique welcoming dancers of all levels into a rich range of African dance movements. No prerequisite.

ADA045. Tap Dance I. (Fall, Winter, Spring; Rogers). For beginners who want to explore the world of tap dance. Students will learn basic footwork, and routines on exciting rhythms.

ADA046. Tap Dance II. (Fall, Winter, Spring; Rogers). Tap dance provides students with the study of steps found in the tap dancing art form. Students will be introduced to proper warm up, tap steps, specific exercises in rhythms, routines, and use of music. For dancers, adding a tap class will give them the opportunity to learn about a new dance form. Students that have previous experience in tap will be able to expand their expertise. For the theater students the learning of tap can eventually be useful for musicals.

Visual Arts: Art History and Studio Fine Arts

Professors Benjamin, Chair Fall 06, Duncan, Chair Winter & Spring 07, Hatke; Associate Professor Matthew, Assistant Professors Cox, Ogawa; Visiting Assistant Professor Orellana; Artist in Residence Wimer; Administrative Program Assistant Herrington; Slide Curator A. Thomas; Photography Lab Technician Staff

Art History

Requirements for the Major: Twelve courses including two of the three Western art history survey courses (AAH 101-102-103) and one of the Asian art history survey courses (AAH 104-105), five other art history courses (which must cover at least three historical periods, cultures, or geographic regions), a minimum of one studio arts course, and three additional advanced art history courses. One of these advanced courses must be AAH 400, 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.

Requirements for Art History/Studio Combined Dual Concentration in studio and art history: Seven courses in each of the two divisions. In the **Art History** division, students must take two of the three Western art history survey courses (AAH 101, 102, 103) and one of the two Asian art history survey courses (AAH 104-105). Additionally, students must take four additional courses that cover at least three historical periods or geographic regions; three of these four must be advanced. The WS requirement for combined dual concentration must be fulfilled by an art history seminar taken in the senior year. In the **Studio** division, students must take one course in each 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). Students may not exceed more than four introductory courses. Two intermediate-level courses are required in at least two studio art disciplines (AVA 200-210,

260 or 345). Two advanced courses are required in a single discipline (AVA 261).

Requirements for the Interdepartmental Major: A minimum of eight courses in the Visual Arts Department, of which seven must be in art history (and include two from AAH 101-102-103 and one from AAH 104-105) and one in studio art. All proposals for interdepartmental majors including art history must be approved by the art history faculty.

Requirements for the Minor: Six courses including at least two terms of the introductory art history survey (AAH 101, 102, 103, 104, 105). Three of the remaining art history courses should be in areas related culturally or chronologically.

Requirements for Senior Thesis and Departmental Honors: 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 AAH 400. 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.

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 Steinmetz 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 Departmental Honors for Art History/Studio Combined Dual Concentration: Honors for the combined concentration requires a cumulative grade point average of 3.3; a 3.3 grade point average for all courses counting toward the combined concentration; and one of three project options. 1) Successful completion of a two-term art history thesis ("A" or "A minus"), which also requires successful completion of a paper by the end of the junior year ("B plus" or above), a proposal approved by the advisor, approval of the final product by a second faculty reader, and an oral presentation at Steinmetz in the spring term of the senior year or 2) A two-term independent study project focusing on the student's particular area of interest in the studio arts, culminating in an exhibition ("A" or "A minus") or 3) a two-term project that combines art history and studio arts, which must be planned in consultation with an advisor from each discipline, and which must be proposed by the end of the junior year. For those doing a written work, a copy must be left with the department's collection and archives, for those completing a studio project, visual documentation (usually slide reproductions) of the project, a one-page abstract, and one original work must be left with the department. These requirements for project option #3 will be negotiated with the advisors on a case-by-case basis.

AAH101 (011). Introduction to Art History, Part I (Fall; Ogawa). Major works of art and artistic traditions from prehistory through the 10th century in western Europe; Islamic art also is considered. The vocabulary and techniques of painting, sculpture, the decorative arts, and architecture. Emphasis on the institutions of art and historical context as well. Visual analysis, verbal and written interpretation of art. *GenEd: An-CS*

AAH102 (012). Introduction to Art History, Part II (Winter; Matthew). Major works of art and artistic traditions from the Romanesque to the end of the 16th century in western Europe. The vocabulary and techniques of painting, sculpture, architecture, the decorative arts, and printmaking. Emphasis on the institutions of art and historical context as well. Visual analysis, verbal and written interpretation of art. *GenEd: Eu-CS*

AAH103 (013). Introduction to Art History, Part III (Spring; Cox). Major works of art and artistic traditions from the 17th century to the end of the 20th century, primarily in western Europe. The vocabulary and techniques of painting, sculpture, architecture, the decorative arts, and printmaking; the emergence of modernism, abstraction, new materials, and non-objective art. Emphasis on the institutions of art and historical context as well. Visual analysis, verbal and written interpretation of art. *GenEd: Eu-CS*

AAH104 (014). Arts of China (Fall; Staff). This survey covers works of art and artistic traditions in China from the Neolithic period to the early 20th century. Lectures will focus on representative works in various media – calligraphy, painting, sculpture, architecture, and decorative arts – within the

contexts of the tomb, court production, literati culture, Buddhist and Daoist temples, and interactions with other cultures. *GenEd: CD-EA*

AAH105 (015). Arts of Japan (Winter; Staff). This introduction to the arts of Japan from the Neolithic period to the 20th century will focus on key monuments of sculpture, architecture, painting, calligraphy, gardens, printing, and other arts within their historical and cultural contexts. Themes discussed include: materials and technologies, sacred and profane spaces, patrons and viewers, tradition and modernity, and the creation of a distinctly "Japanese" aesthetic. *GenEd: CD-EA*

AAH200 (20). Classical Art and Architecture (Identical to Classics 134) (Not offered 2006-07). An introductory survey of the arts of Greece and Rome, including painting, sculpture, architecture, and decorative arts. Emphasis will be placed upon learning art historical and archaeological terminology and methods, the place of art and architecture in ancient society and culture, and contacts with other cultures, in addition to becoming familiar with the most important monuments, artists, and patrons. *GenEd: An-CS*

AAH203 (22). Medieval Art and Architecture of Northern Europe (Spring; 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 31. *GenEd: Eu-C*

AAH206 (26). Introduction to History of Architecture: The Renaissance Tradition, 15th-18th Centuries (Not offered 2006-07). An historical survey that examines the language and functions of architecture and its roles in Western European culture. The course begins with the revival of interest in classical antiquity in the 1400s in Italy and its effect on the practice and theory of architecture. We then examine the transmission of these ideas to northern Europe during the subsequent centuries, and the evolution of architectural ideas and practices both north and south of the Alps. *GenEd: Eu-CS*

AAH209 (24). The Art of the Book (Not offered 2006-07). The evolution of the book as an object and a historical phenomenon beginning with the printed book and the invention of printing in the early modern period. The course will examine the subsequent development of printing technologies, the revival of craft traditions, and the creation of "artist's books" in the 20th and 21st centuries. Themes will include the social and religious functions of books, literacy, censorship, book collectors and collecting, and the relationship of texts and images. Students will make use of the extensive collection of rare and artists' books in Special Collections at Schaffer Library. *GenEd: Eu-C*

AAH212 (17). The Way of St. James: An Interdisciplinary Study (Identical to MLT270) (Not offered 2006-07). 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.

AAH213T (19). Hiking the Trail in Spain (Identical to MLT271T) (Not offered 2006-07). 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.

AAH220 (21). History of Photography I (Not offered 2006-07) An introductory survey of the History of Photography from its pre-history to the early 20th century, with a concentration on European photography. We will study the technical history of the medium in order to understand the fundamental principles of traditional photographic techniques, explore the evolution of photographic expression of the period, and focus on the relationship between photography and fine art, particularly such modern art movements as Realism, Impressionism, and early Abstraction. Additionally, we will spend time studying rare vintage photographs housed in Special Collections at Schaffer Library. *GenEd: Eu-CS*

AAH221 (22). History of Photography II. (Not offered 2006-07) An introductory survey of the history of photography from the early 20th century to the present day, with a concentration on American photography. We will study the technical history of the medium from the hand camera to digital in order to understand how photographic techniques have changed. We will also 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 Collection of the Department of Visual Arts. *GenEd: Am-CS*

AAH223 (27). The Nude (Identical to WGS227) (Fall; Ogawa). 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.

AAH250T (44A). 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. *GenEd: Am-C*

AAH 260 (29). 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. *GenEd: AM-CS*

AAH263 (25). Latin American & Caribbean Art: A Cultural Survey of the Modern Era (Fall; Cox). An examination of the major aspects of Latin American and Caribbean art from the early 19th through the 20th century. Emphasis is placed on integrating the social and political background of the various cultures with the key artists, artistic issues and movements of particular countries and periods. Topics to be covered include: the influence of the major art academies in Mexico, Brazil and Ecuador, the strong links between art and politics, Indigenism, woman as artist and subject, and the on-going dialogue with the art of Europe and later the United States. *GenEd: CD-LA*

AAH280 (61). Buddhist Art (Not offered 2006-07). This survey covers major monuments of Buddhist art, from its Indic roots to its representational forms under the teachings of Theravada. Figural and narrative imagery in architecture, sculpture, painting, as well as ritual implements in bronze, wood, textiles, and other ephemeral materials will be studied in the context of Buddhist doctrine, state ideology, and popular culture. Course readings include select Buddhist texts (e.g., sutras, philosophical treatises, poems) in translation. *GenEd: CD-EA*

AAH283 (63). Ceramic Traditions of East Asia (Not offered 2006-07). In East Asia, ceramic production achieves the status of high art, transcending its Eurocentric designation as a "decorative" or "applied" art. This course explores the interplay of form, glaze, and design among pottery traditions – from rustic earthenware to high-fired porcelain – in China, Korea, Japan, and Vietnam. Lectures and visits to museum collections will also consider the historical role of ceramics in cross-cultural exchanges within Asia and beyond, to the Mediterranean, the Middle East, Western Europe, and the Americas. *GenEd: CD-EA*

AAH286 (64). Art and Archaeology of Central Asia (Not offered 2006-07). 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 surveys the surviving material remains of Central Asia in the context of its multi-/trans-/inter-cultural past and its contemporary upheavals. *GenEd: CD-EA*

AAH290 (66). Chinese Painting (Not offered 2006-07). The development of painting in China from its Neolithic origins through the 21st century. Major trends and major masters of each period will be studied in historical context, along with an exploration of Chinese ways of looking and connoisseurship. All Chinese texts will be read in translation, with no prior knowledge of Chinese art history expected. *GenEd: CD-EA*

AAH293 (60). Monuments and Monumentality in China (Not offered 2006-07). A thematic map of monuments in China, this course covers not only self-evident monuments, e.g., the tomb complex of the first emperor and the Forbidden City, but also objects and sites of a more conceptual monumentality from varied perspectives of technology, aesthetics, labor, religion, ethnicity, and politics. Why and how were these monuments made? How have the function and perception of these monuments evolved over time? And, more fundamentally, how does the idea of monumentality take form in the arts of China? The monuments discussed range from portable objects such as sculpture,

scrolls, and ceramics, to immovable objects such as architecture, rock cliffs, and even large tracts of geographical terrain. Comparisons will be made to relevant monuments in Japan, India, Eurasia, and the Americas. *GenEd: CD-EA*

AAH294 (67). Visual Culture of Communist China, 1919 to Present (Not offered 2006-07). This course explores the relationship between ideology and visual culture in China, from the founding of the Communist Party in 1919, to Mao Zedong's prescriptions at the 1942 Yan'an Conference of Literature and Art, to art policy after the founding of the People's Republic of China in 1949. Readings and discussion will cover the range of adherence and resistance to the official party line by art workers. Topics include expressionism, socialist realism, peasant art, "wound art," cynical realism, political pop, and the avant-garde, as seen in painting, sculpture, architecture, posters, advertising, video, performance, and the material culture of quotidian life. *GenEd: CD-EA*

AAH300 (31). Italian Art and Architecture of the Late Middle Ages (Not offered 2006-07). 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 AAH206 and AAH305. Prerequisite: One art history course or permission of the instructor.

AAH303 (38). Renaissance Art in Italy: The 15th Century (Not offered 2006-07). 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.

AAH304 (39). Renaissance Art in Italy: The 16th Century (Not offered 2006-07). 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.

AAH305 (35). Venetian Painting in the Italian Renaissance (Not offered 2006-07). Examines painting in Venice and its sphere of influence from the origins of a distinct tradition in the fourteenth century until the end of its "Golden Age" in the late 16th century. Prerequisite: One art history course or permission of the instructor.

AAH309 (36). The History of Gardens and Landscape Architecture (Not offered 2006-07). 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 — AAH101, 102, 206, or permission of the instructor. *GenEd:Eu-C*

AAH320 (32). 17th-Century European Art (Not offered 2006-07). Major developments in painting, prints, sculpture, architecture, and the decorative arts in the visual traditions of Italy, Flanders, Spain, the Netherlands, and France, from Caravaggio to Versailles. The course situates works of art in relation to cultural context, focusing particularly on issues of artistic processes, patronage, function, and reception. Verbal and written interpretation of art; emphasis on visual and textual analysis. *GenEd: Eu-C*

AAH321 (33). 18th-Century European Art (Not offered 2006-07). Major developments in painting, prints, sculpture, architecture, and the decorative arts in the visual traditions of France, Italy, Spain, Germany, and England, from Watteau to David. The course situates works of art in relation to cultural context, focusing particularly on issues of artistic processes, patronage, function, and reception. Verbal and written interpretation of art; emphasis on visual and textual analysis. *GenEd: Eu-C*

AAH322 (34). 19th-Century European Art (Not offered 2006-07). An advanced course examining major artistic movements and developments from David to Seurat (1784-1886). The relationship between the visual arts and arts institutions will be an organizing theme. Prerequisite: AAH12 or permission of the instructor. *GenEd: Eu-C*

AAH330 (47). Women in the Art World (Cross-listed with Women's Studies 335) (Not offered 2006-07). An introductory course examining the history of women as makers, models, patrons, teachers, collectors, dealers, and critics of art from the Renaissance to the present. The historical and cultural circumstances of these roles is considered. Visual and textual analysis. Prequisite: AAH103

or permission of instructor. *GenEd: Eu-CS*

AAH340 (40). European Modern Art, 1880-1940 (Not offered 2006-07). 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 — AAH102, 103, 322, 366, or permission of the instructor.

AAH363 (42). Early American Modernism, 1900-1945 (Fall; 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 AAH102, 103 or permission of the instructor. *GenEd: AM-C*

AAH366 (45). Contemporary Art and Theory (Not offered 2006-07). Art of the United States and Europe since World War II in critical and historical perspective, emphasizing the influence of social movements on artistic thought and expression. Topics include the impact of technology and popular culture, the subversion of the traditional boundaries between arts, the rejection of the object, and the rise of pluralism. Prerequisite: AAH 103, 340, 363 or permission of the instructor. *GenEd: Am-C*

AAH380 (71). The Floating World: Edo Prints and Printmaking (Identical to AVA 380) (Not offered 2006-07). 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. *GenEd: CD-EA*

AAH400 (112). Seminar: The Methods of Art History (Identical to WGS450) (Winter; Cox). The methodology and historiography of art history. A discussion-oriented course that entails extensive reading and written work. Prerequisite: At least one upper-level art history course or permission of the instructor. Required for all art history majors.

AAH430 (140). Seminar: The Institutions of Art (Not offered 2006-07). The principal institutions of visual arts (the art school, the museum, the exhibition, and the art dealer) from the late 18th century to the present in Europe and America. Consideration of a broad range of topics, among them the notion of a "public"; how patronage and the art market affects the form, function, and reception of art; the emergence of the "professional" art critic. Prerequisite: At least one upper-level art history course or permission of the instructor.

AAH440 (130). Seminar: Special Topics in Art History (Not offered 2006-07). 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, and Gender and Race in Contemporary Visual Culture. Prerequisite: At least one upper-level art history course or permission of the instructor.

AAH460 (90). Seminar: Visual Culture, Race & Gender. (Identical to WGS460) (Spring; 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. *GenEd: CD-AA; WGS*

AAH480 (70). Seminar: Asian Garden Design (Not offered 2006-07). This seminar explores the history and theory of public and private garden design in China and Japan, as well as the reception

and reimagining of Asian gardens in the Euro-American context. In addition to reading and writing assignments, the course involves the communal construction of an Asian garden over the ten-week period. Enrollment is limited to 10, with instructor's permission only. There are no prerequisites, though some knowledge of or background in one or more of the following is desirable: architecture, art history, carpentry/woodworking, computer-aided design, engineering, project management, studio/applied arts. *GenEd: CD-EA*

AAH495-496 (180-181). 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.

AAH295H-296H (195-196H), Honors Independent Study Courses

AAH490-493 (190-193), Independent Study Courses

AAH498-499 (09-199). Senior Thesis. Two term credits when completed.

Studio Fine Arts

Requirements for the Major: At least 13 courses in the department. Five introductory level courses (AVA 100-160 or 345), one from each of the following areas: design fundamentals or drawing (AVA 100, AVA 110 or 345); photography (AVA 120); sculpture or three-dimensional design (AVA 130, AVA 140); printmaking (AVA 150, AVA 151); digital arts (AVA 160). Two intermediate studio courses (AVA 210-270, or 345); two advanced studio courses (AVA 300 or above); one art history survey course; and three other visual arts studio courses chosen in consultation with a visual arts faculty advisor.

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 must 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 (AVA 200-270 or 345). Two advanced courses are required in a single discipline (300 or above). For honors requirements, see below.

In art history: Students must take two of the three Western art history survey courses (AAH 101-102-103) and one of the two Asian art history survey courses (AAH 104-105). Additionally, students must take four additional courses that cover at least three historical periods or geographic regions; three of these four must be advanced courses. The WS requirement for combined dual concentration must be fulfilled by an art history seminar taken in the senior year.

Requirements for Departmental Honors for Art History/Studio Combined Dual Concentration: Honors for the combined concentration requires a cumulative grade point average of 3.3; a 3.3 grade point average for all courses counting toward the combined concentration; and one of three project options. **1**) Successful completion of a two-term art history thesis ("A" or "A minus"), which also requires successful completion of a paper by the end of the junior year ("B plus" or above), a proposal approved by the advisor, approval of the final product by a second faculty reader, and an oral presentation at Steinmetz in the spring term of the senior year **or 2**) A two-term independent study project focusing on the student's particular area of interest in the studio arts, culminating in an exhibition ("A" or "A minus") **or 3**) a two-term project that combines art history and studio arts, which must be planned in consultation with an advisor from each discipline, and which must be proposed by the end of the junior year. For those doing a written work, a copy must be left with the department's collection and archives, for those completing a studio project, visual documentation (usually slide reproductions) of the project, a one-page abstract, and one original work must be left with the department. These requirements for project option #3 will be negotiated with the advisors on a case-by-case basis.

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 (AVA200-270 or 345); at least two advanced level courses (AVA300 or above); at least one art history course; senior/honors sequence optional.

Requirements for the Minor: Seven courses, including three introductory (AVA 100-160 or 345); two intermediate (AVA 200-270 or 345); and one advanced course (AVA 300 or above). One art history course is required.

Departmental Honors (AVA498-499): In-depth study in drawing/painting, photography, printmaking/two-dimensional design, sculpture/three-dimensional design or digital arts in the senior year, leading to a solo exhibition. 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. An honors project usually takes place during winter and spring terms (first term, 498, pass/fail; second term, 499, with an overall grade for both terms). Candidates must meet College qualifications for honors and secure approval from a visual arts faculty sponsor for the two-term project with culminating exhibit. There are additional requirements of honors in studio fine arts and they should be obtained from your visual arts advisor.

WS Requirement (Senior Writing Experience): Each honors student keeps a written journal during the two-term project, reflecting on his/her work. There is regular verbal and written input from the faculty sponsor. This journal forms the basis for a final paper of at least 15 pages, which satisfies the College's senior writing (WS) requirement. Visual arts majors who elect not to pursue a senior honors project must satisfy the WS requirement either through an art history senior seminar designated WS (for those studio concentrators who have the necessary prerequisites in art history) or by obtaining a faculty sponsor for a one-term independent senior studio project with a journal and final paper.

Architecture Track: Union offers a studio fine arts concentration with a recommended sequence of courses for students wanting graduate school preparation in architecture as well as the related fields of historic preservation, landscape architecture, and urban planning. While graduate schools in these areas do not require a specific major, a thorough visual arts portfolio is essential and greatly enhanced by specific course work in civil 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; Artist in Residence Wimer

Note: Due to demand and limited enrollments, all studio visual arts courses are "card" (also known as "list") courses requiring preliminary sign up during preregistration times, outside the main Arts Office. Most introductory courses reserve some openings for incoming fall term freshman.

AVA100 (10). 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.

AVA101 (27). Engineering Graphics (Identical to MER101). 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.

AVA110 (11). Drawing I (Fall, Winter; Hatke, Staff). 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.

AVA120 (12). Photography I (Fall, Winter; Benjamin). An introduction to photographic techniques with some history. Individual development through projects along with the study of fundamental art ideas. A 35mm film camera with a light meter and adjustable focus is required. Limited enrollment, by permission of instructor.

AVA130 (14). Sculpture I (Winter; Duncan). A beginning course that introduces basic sculptural vocabularies and techniques, with an emphasis on the individual student's development. Each project is linked to particular materials, methods and approaches to making sculpture. These include modeling in clay, making life molds and plaster casts, wood construction, and stone carving. Informal slide talks cover important developments in twentieth-century sculpture. We'll take a field trip to New York City, Mass MOCA or Storm King Art Center to see contemporary work up close. Regular work in and outside of class is required. No previous experience in sculpture is necessary.

AVA140 (16). 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.

AVA150 (19). 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.

AVA151 (18). Printmaking: Etching (Spring; Wimer). Introduction to intaglio printing. Includes dry point, etching with hard and soft grounds, aquatint, lift ground, white ground. Outside work required, critiques.

AVA160. Digital Art (Fall, Winter; Orellana). This introductory course focuses on the fundamentals of using the computer as an art tool in the production of two-dimensional content. Topics covered include essentials of digital graphics/imaging and internet art. Class lectures and hands-on studio will incorporate demonstrations, discussions, technical exploration, aesthetic inquiry and historical information relevant to computer multimedia, hypermedia and telecommunications. Students are encouraged to pursue areas of interest and explore new ideas throughout the course. No previous experience necessary. Outside work required.

AVA200 (28). Design Fundamentals II (Not offered 2006-07). A continuation of two-dimensional design investigation with a focus on color. Weekly assignments, problem-solving exercises, studio projects; slide talks; critiques. Prerequisite: AVA100 or AVA 110 (recommended), or portfolio review and permission of the instructor.

AVA210 (21). Drawing II (Spring; 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.

AVA220 (22). 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.

AVA230 (24). Sculpture II (Spring; Duncan) A complementary experience to Sculpture I or Three-Dimensional Design I. Includes more advanced techniques in wood, steel, and other media. Specific class projects aim to develop fluency with materials and concepts. Individual work encouraged and expected. Prerequisite: AVA120, AVA140, or permission of the instructor.

AVA240 (26). Three-Dimensional Design II (Not offered 2006-07). 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.

AVA260 (54). Painting: Oil (Fall, Spring; Hatke, Staff). 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

AVA261 (100). Painting: Watercolor (Winter; Staff). 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 110. Outside work is required.

AVA262. Real and Recorded Time: (Spring; Orellana). An introduction to the basic concepts of time-based artwork, using a variety of processes and media. Students explore concepts of sequence, performance, interactivity, motion, process and documentation through video, audio and installation-oriented projects. Prerequisites: AVA 160 or permission of instructor. Outside work is required.

AVA320 (132). Photography III (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. Student may choose black & white or digital color photography as their medium to work in. Prerequisite: Photography II. Limited enrollment, by permission of the instructor.

AVA330 (134). Sculpture III (Spring; Duncan). Advanced exploration of techniques, materials, and concepts of sculpture. Emphasis on development of individual student's work. Prerequisite: AVA230 (Sculpture II), AVA240 (Three-Dimensional Design II), or permission of the instructor.

AVA345 (45). The Illustrated Organism (Identical to Biology 345) (Not offered 2006-07). Descriptive graphic and written analysis of plants and animals; direct observation in field, studio and laboratory integrating biology and visual arts. Culminates with annotated portfolios illustrating organisms studied. Taught jointly by visual arts and biological sciences faculty using combined facilities. Apply through either participating department. Credits visual arts and biology majors. *GenEd: SCLB*

AVA350 (138). Advanced Printmaking (Winter, Spring; Wimer). Continuation of Relief Printmaking and Intaglio Printmaking. 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.

AVA360 (140). Advanced Painting (Fall, Winter, Spring; Hatke, Staff,). Emphasis on refining individual direction with respect to ideas of composition, content, and media. Stylistic development is stressed. Outside work required, critiques. Prerequisites: AVA260, AVA261; Recommended: AVA210 and AVA130 or AVA 140.

AVA380 (71). The Floating World: Edo Prints and Printmaking (Identical to AAH 380) (Not offered 2006-07). 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. *GenEd: CD-EA*

AVA295H-296H (195-196H). Sophomore Honors Independent Study Courses

AVA410-419 (190). Drawing Independent Study

AVA420-429 (190). Photography Independent Study

AVA430-439 (190). Sculpture Independent Study

AVA450-459 (190). Printmaking Independent Study

AVA460-469 (190). Painting Independent Study

AVA470-471 (180-181). 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.

AVA480. Digital Art Independent Study

AVA497 (198). 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.

AVA498-499 (09-199). 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. 6:30-8:30 pm.

Monday or Wednesday evenings. Materials fee $50.

AVA010 (PCC1). Ceramics I (Fall, Winter, Spring; Niefield). An introduction to clay, including hand-building, wheel-throwing, glazing and firing techniques. The studio is available for practice and completion of assignments.

AVA020 (PCC2) Ceramics II (Fall, Winter, Spring; Niefield). Students will learn more advanced forming and decorating techniques. In addition to studio assignments, a short research presentation will be required.

AVA030 (PCC3). Ceramics III (Fall, Winter, Spring; Niefield). In addition to classroom

assignments students will learn kiln firing and glaze preparation.

Women's and Gender Studies

Women's and Gender Studies is an interdisciplinary program that includes more than 50 courses offered in art and humanities, social sciences, and sciences. Offering a critical perspective that places gender at the center of analysis, Women's and Gender Studies reexamines traditional beliefs, supports new kinds of research, explores feminist theory, and enables students to better understand the societal positions and global processes affecting both women and men throughout the world. Women's and Gender Studies courses probe the way cultures construct concepts of gender, introducing students to differences of class, race, ethnic, and sexual orientation in a range of societies. Students are encouraged to think about gender and racial stereotypes and to become aware of unexamined assumptions about sexual and gender differences.

Requirements for the Major: Twelve courses, including an interdisciplinary team-taught course, 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.

Note: Complete course lists are available in the Women's and Gender Studies office in the Reamer Campus Center (Room 302) or on the program webpage, http://www.union.edu/PUBLIC/WSTPROG/

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.

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.

Introduction to Women's and Gender Studies WGS 100. A team-taught course serving as an interdisciplinary introduction to the findings of feminist scholarship on gender and women. The course is broad in scope and covers topics in feminist theory, the social construction of gender, and issues affecting women's and men's lives throughout the world.

Capstone Course on Women and Gender Theory WGS 495. 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.

Senior Thesis WGS 498, 499. 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.

Internship in Women's and Gender Studies WGS 479. An internship experience in local agencies, social services, law and media centers, women's advocacy groups, childcare centers, gay and lesbian organizations, with healthcare 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.

Program Director: Lori Marso (Political Science)

Advisory Board: Batson (Modern Languages), Barr (Computer Science) Chilcoat (Modern Languages), Donaldson (Psychology), Feffer (History), Foroughi (History), S. Gmelch (Anthropology), Golderman (Schaffer Library), Hill-Butler (Sociology), Jain (English), Lobe (Political Science), Matsue (Music), Meade (History), Ogawa (Visual Arts), Oxley (Political Science), Raucci (Classics), Romero (English)

The School of Education of the Union Graduate College

Patrick Allen, Dean

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 the Union Graduate College of Union University. Students can be certified to teach grades 7-12 in the following academic areas: English, languages (French, German, Greek, Latin, and Spanish), mathematics, science (biology, chemistry, earth science, physics, and general science), social studies, and technology.

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). Combined Degree Program graduate degree option: Students should complete a graduate application form obtained from either the Graduate Studies office or the School of Education office in Lamont House. Applicants should complete their application no later than the beginning of the winter term of their senior year.

Undergraduate Certification: Given certification requirements that are effective on Feb. 2, 2004, the School of Education strongly recommends that any Union undergraduate seek certification through either the combined degree program listed below or by pursuing a Master's degree in the M.A.T. program at the Graduate College of Union University 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. We will consider undergraduate applicants, but only those with extremely compelling reasons for seeking certification at the undergraduate level should make an appointment with the School of Education to speak with the staff about a means to complete that process.

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 courses related to education include:

— Educational Psychology (Psychology 146) (In order to take PSY 146, Union undergraduates must take the pre-requisite PSY 10);

— 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-need 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.

Course Strongly Recommended but Not Required:

Issues in American Education (Political Science 281) (Routinely offered fall term only). Sociological, philosophical, and historical analyses of contemporary educational systems: the nature and purpose of education, the organization of schools, the social psychological process of education, the relation of schools to community and society, the current conflicts and trends in education. Includes weekly visits to local school districts. *WAC: W1*

G*rades 7-12 Certification*

To be considered for a recommendation for certification, students must submit a final portfolio that describes how they have met each of the criteria listed below.

Students must also complete:

— 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;

— a practicum at both the middle level (7-9) and high school grades (10-12). *(Not to be confused with structured field experiences).*

— an edited videotape illustrating their 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 and 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 the Graduate College of Union University. 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 146), 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 250B and 250C), 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 also complete two additional courses in their core area. (See the Graduate Studies catalogue of the Graduate College of Union University 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,

— college faculty teaching the professional coursework, and

— from 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 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 fall of their senior year.

Applications and additional information about the MAT program may be obtained from the School of Education office in Lamont House.

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 the Union Graduate College of Union University 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). Satisfactorily perform on the CST (Content Specialty Test) of the New York State Teacher Certification Exam.

(3). Have two years of full-time teaching experience.

The School of Management of Union Graduate College

Mel Chudzik, Dean

Union College undergraduates are able to take selected undergraduate and graduate courses through the School of Management of the Union Graduate College.

Accelerated M.B.A. and M.B.A.– H.S.A. Programs

This program combines the strengths of the undergraduate curriculum at Union College with the M.B.A. taken through the School of Management of the Union Graduate College. Students are expected to complete all of the requirements for an undergraduate major in one of the social sciences, sciences, humanities, or engineering. The combined degree is typically awarded at the end of the fifth year of study. Students may earn an M.B.A. or an M.B.A. in 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. 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 10 and 12 are recommended during the freshman, sophomore, or junior years. Applicants are required to have a personal interview with the combined program advisor as part of the application process.

Students are required to take 20 graduate courses, three of which will count toward the bachelor's degree. Undergraduate students who are considering the accelerated program should be aware that no more than three School of Management courses can double-count for both graduate and undergraduate degrees. (See the GMI Waiver Policy, available through Rhonda Sheehan, Lamont House, 518-388-6238). 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.

The following course, taught, by School of Management faculty, is a Union College course taught regularly for all undergraduates.

ACC 010. 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 two only graduate courses. For a complete description of these and other School of Management courses, see the Catalog of the Union Graduate College.

MBA 500. Managing Ethically in a Global Environment
MBA 510. Financial Accounting
MBA 512. Financial Analysis and Decision Making
MBA 551. Managing People and Teams in Organizations
HCM 500. Introduction to Health Systems

Combined Degree Programs

In conjunction with the Graduate College of Union University, students may choose combined degree programs. A five-year program leading to an undergraduate degree from Union College and an M.B.A. degree from the School of Management of the Graduate College of Union University is available. There is also a five-year program leading to an undergraduate degree from Union College and a M.A.T. degree from the School of Educational Studies of the Graduate College of Union University, as well as five-year programs in mechanical engineering, electrical engineering, and computer science combining a Union College degree with a degree from the Graduate College of Union University. The decision to enter all such programs must be made by the end of the fall term of the senior year.

Application for master's degree status is made to the Graduate College of Union University. A fifth year is usually needed to complete the double degree requirements and a combination of undergraduate and graduate credits is taken in the last two years. The normal term of most two-degree programs is five years. In some circumstances, it is possible for up to three upper-level courses taken in fulfillment of undergraduate degree requirements at Union College to be credited toward the master's degree from the Graduate College of Union University upon approval by the student's graduate department chairman or program director.

About Union College

A Brief History

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

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

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

Nott's ingenious schemes for financing higher education, including a statewide lottery, also were instrumental in building Union's reputation. Scandal touched his later years, however, as lottery manipulations by hired agents led to charges of corruption. Nott's refusal to relinquish control of the College during his final years began a disintegration that accelerated in the quarter century after the president's death. At its low point in 1888, Union had fewer students in all four classes than it had graduated as seniors a half century earlier. The revival of the College began in the late 19th century under the leadership of Andrew Van Vranken Raymond, president from 1894 to 1907. Among his most important innovations was 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's academic program and to its campus as the College regained a position of prominence in American higher education. The College has done important experimental work in interdepartmental studies, which is reflected in the existence of a number of programs that cut across the lines of academic disciplines. Organized interdepartmental majors are offered in numerous areas, and the College has also developed programs that enable students to work toward both a bachelor's degree and an advanced degree. The General Education Curriculum has received national recognition, and the College has an innovative program of Writing Across the Curriculum. Efforts to renew and enhance the College's academic programs and curricula continue to be supported by major foundations. For example, the College is one of a cluster of six institutions awarded a grant from the Pew Memorial Trusts to develop better ways of teaching science, mathematics, and computer science to undergraduates.

The College Grounds

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

The distinctive Ramée style, with its arches and pilasters in white, remains the dominant motif in Union College architecture. Recent additions to the campus include the Science-Engineering Center; Achilles Rink; Frank Bailey Field, an all-weather athletic field; the Morton and Helen Yulman Theater; and the F.W. Olin Center, a high-technology classroom and laboratory building. Alumni Gymnasium, the Murray and Ruth Reamer Campus Center, and Schaffer Library have received major renovations and expansion, the historic Nott Memorial has been restored to become a display and discussion center, and a $25 million project revitalized the neighborhood to the immediate west of campus by creating apartment-style housing for 160 students, a community center, and a residence hall for 230 students.

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 500,000 volumes and 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 and Social Sciences Buildings. The Humanities Building is the home for the Departments of Classics, English, Modern Languages, and Philosophy. In the Social Sciences Building are the Departments of Anthropology, Economics, History, Political Science, and Sociology. Filling the area in front of the library and between the two classroom buildings is Roger Hull Plaza (named for the former Union president), an open space with benches and flower beds. This campus crossroads was furnished and landscaped in part with gifts from parents of Union College students. It serves as the site for such formal ceremonies as Commencement and for informal meetings and conversation.

The focal point of the Murray and Ruth Reamer Campus Center is a commons area, part of a multi-level atrium looking out over Jackson's Garden. The building also houses an auditorium, a dining hall and a restaurant, 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 recently added a new Fitness Center, a spacious facility with an extensive assortment of equipment for cardio fitness and weight training. The building also has an eight-lane swimming pool with seating and a diving area; racquetball/squash courts; and multi-use rooms for

dance, aerobics and yoga programs.

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

The largest of Union's buildings, the Science and Engineering Center, is the home of the Departments of Biological Sciences, Chemistry, Computer Science, Electrical and Computer Engineering, Mathematics, Mechanical Engineering, Physics and Psychology. Located here, 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.

The Arts Building is the former Philosophical Hall, which held the first analytical chemistry laboratory specifically opened for college students. It is undergoing an extensive renovation and expansion with a planned opening in the Fall of 2006.

The College's student residences include South College, built in 1814 and renovated in 1936. Its counterpart on the other side of Library Field is North College. Other residence halls are Davidson and Fox Houses; West College, home for many freshmen; Richmond House; Raymond House; Potter House; College Park Hall; and apartments along Seward Place to the west of campus.

General Information

Union's Faculty: The student-faculty ratio at Union is 11:1; excluding the library staff, some of whom hold faculty rank; 95 percent of the teaching faculty holds the doctorate or equivalent.

Union's Students: About 4,000 applicants seek freshman class positions. Exact statistics vary from year to year, but about half 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 80 percent from New York and New England; 35 states and several other countries also are represented. More than half receive financial aid from the College, and about one-third of each graduating class continues directly to graduate or professional school. About 84 percent of each class completes the degree requirements within five years. In recent freshman classes, less than five percent of those who entered were dropped for poor grades.

Enrollment: Union College enrolls approximately 2,100 full-time undergraduates.

The Board of Trustees: The governing body of the College is the Board of Trustees, which 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 the 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.

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

Student Activities: Union believes that a student's life outside the classroom is an important part of his or her total education. 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 Student Activities Office. 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.

Student clubs (groups recognized by the Student Forum and funded by Student Activity fees): African and Latino Alliance of Students; American Society of Civil Engineers; American Society of Mechanical Engineers; Anime Club; Asian Student Union; Baja Club; Ballroom Dancing Club; Baseball

Club; Best Buddies; Bhangra Big Brothers/Big Sisters; Biology Club; Black Student Union; Campus Action; CELA; Cheer and Spirit Squad; Chemistry Club; Chet's; Classics Club; Cocoa House; Concert; Concordiensis; Curling Clum; Dance Team; Debate; Directors & Producers; Dutch Oven

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

Also, Outing Club; Photography Club; Physics; Pre-Health Club; Pre-Law; Robot Club; Rock Climbing; Rotary Club; Safe Space; Shakti; Skateboard Club; Ski Club (Alpine); Social Committee; Society of Hispanic Professional Engineers; Society of Women Engineers; Spanish Club; Speakers Forum; Spectrum; Springfest; Student Forum; TVUC; Ultimate Ultimate Club; UMED; U-Recycle; Virtual U; Women's Rugby Club; Womyn's Union; and WRUC.

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

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

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

Minerva Houses: Union's Minerva Houses, designed to give all students an opportunity to make rewarding connections and to blend the campus social, residential and intellectual life. Every student is assigned to a house, which can be a focus for social activities, community service, making new friends, or simply a welcoming place. Up to 45 students live in each house; all houses are equipped with a kitchen, a lounge, an office, and a seminar room for meetings and classes. Other house members are able to take advantage of house gathering space and activities even though they may live elsewhere. Each house has a activities budget to be used as the discretion of the membership. All faculty 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: Ten national and one local social fraternity and four national sororities have chapters in good standing at Union. The first chapters of six national fraternities were founded at Union, including the three oldest in the nation, Sigma Phi (1827), others formed at the College are Psi Upsilon (1833), Chi Psi (1841), and Theta Delta Chi (1847). The fraternities also include Alpha Delta Phi, Alpha Epsilon Pi, Alpha Phi Alpha, Delta Kappa Epsilon, Phi Delta Theta, Phi Iota Alpha, and Sigma Chi. The sororities are Delta Delta Delta, Sigma Delta Tau, Sigma Iota Alpha, and Gamma Phi Beta. Union also has one co-ed fraternity focused on community service, Gamma Sigma Sigma.

Theme Houses: Union gives students autonomy in creating the community atmosphere in which they live. The College recognizes 10 student-initiated theme houses. *Bronner House* is the Cultural Unity Center and is dedicated to furthering multicultural understanding among all students. *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 are better support our ecosystem. *Thurston House* promotes enhanced social and intellectual life with a focus on Asian cultures. *Language House A & B* provide opportunities for improved foreign language skills and cultural knowledge. *Music Culture House* promotes events that connect the impact music has on popular culture. *Seneca House* advances the issues of women at Union and in society. *The Symposium* seeks to heighten intellectual discourse outside the classroom, and *Cooking House* promoting expertise in culinary arts and healthy dining options.

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, must function effectively as students.

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

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

Facilities include Messa Rink at Achilles Center (hockey, recreational skating, and intramurals as well as locker rooms for football, lacrosse, field hockey, and ice hockey); Viniar Center, a state of the art hardwood floor venue completed in the fall of 2004 (men's and women's basketball, volleyball); Frank Bailey Field, a multipurpose, all-weather, lighted field with a surrounding 400-meter track, stadium seating for 1,500 and press box (intramurals, outdoor track, football, men's and women's lacrosse, soccer, and field hockey); Alumni Gymnasium (swimming, recreational basketball, racquetball, squash, weight rooms, and coaches' offices); Garis Field (men's and women's soccer); The Turf at College Park, a multipurpose, all-weather, lighted field (intramurals, men's and women's soccer); Crew Boathouse (men's and women's crew); Memorial Field House (intramurals, recreation, indoor track, volleyball, and tennis); Alexander Field (softball)and seven outdoor tennis courts and an outdoor basketball/ street hockey court, all used for intercollegiate intramural and club activities as well as open recreation.

Student Services

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

Campus Safety: 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: 388-6911
Escort Service: 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 any other needs associated with quality of life, safety, and security of those on campus.

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 to enforce its rules, regulations. and policies. Enforcement procedures include issuing parking tickets, issuing summary fines, filing conduct charges, and making citizen's 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.

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.

Health Services: We are staffed with Nurse Practitioners, Registered Professional Nurses and a collaborating physician. Our hours are Monday through Thursday from 9 a.m. to 8 p.m., and Fridays from 9 a.m. to 5:30 p.m. Please call for an appointment. Walk-in patients are seen for urgent concerns. Sunday hours are from 9 a.m. to 3 p.m. – nurse managed. Local hospitals are available for emergencies after hours.

Health Services will cooperate fully with family physicians in supervising treatment of chronic diseases. In general, however, students should consult their family physicians about long-standing, non-emergency health problems. A list of local physician specialists and health agencies can be viewed on our web site:

www.union.edu/CampusLife/Services/HealthServices/.

Health Services does not take responsibility for recommending a particular physician, clinic, or hospital.

There is no charge to be seen by any of our staff. Charges for medications, x-rays, laboratory procedures, hospitals, or specialists are the direct responsibility of each student. We are unable to honor insurance prescription cards for medications dispensed at Health Services. Students may request a written prescription and have it filled at a local pharmacy. Lange's Pharmacy delivers to Health Services once a day, Monday through Friday. If you would like to have your prescription card registered with Lange's call 518-374-3324. If you have a concern about school health insurance, please contact Human Resources at 518-388-6108.

Information Technology Services: Housed in the Stanley G. Peschel Center for Computer Science and Information Systems, Union's Office of Information Technology Services manages the College's distributed network and the many computing and technology resources on the network. There are more than 1,500 College-owned personal computers and workstations on campus, with over 500 available for student use. The network is the backbone for much of the computing on campus, including academic, research, and administrative work, linking classrooms, offices, laboratories, and all College-owned residence hall rooms. Union has been on the Internet since 1989, and there is a dedicated Internet network connection for each student in every College-owned residence hall room. A wireless network is available in most buildings. More than 35 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 Unix 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. The Union College home page is at http://www.union.edu/.

Stanley R. Becker Career Center: Just as a liberal arts education provides students with a foundation for life, the purpose of the Becker Career Center is to provide students with a foundation for a life of meaningful work. This is accomplished through both Career Education and Experiential Education programs for undergraduate and graduate students, as well as alumni of the College.

Students are encouraged to take advantage of the Center during all four of their college years, and are welcome at any time. A recommended first step is self-assessment. Students can assess their own unique work-related values, abilities, and interests. Individual appointments are available to thoroughly discuss assessment results, explore career options, and develop action plans to reach employment and graduate school goals. The Center library contains extensive resources, including professional field and industry information, employer literature, and graduate school materials.

Most graduate school advising is accomplished through the student's academic advisor and other members of the faculty. Special assistance is offered by designated faculty to students interested in graduate programs in medicine, law, and business.

Students may receive instruction through the Career Center on resume writing, cover letters, networking and thank you letters, portfolio development, as well as employment and informational interviewing. Practice interviews, videotaped for feedback, are conducted on a regular basis.

The Center assists students with networking, internships, and recruitment. Students are encouraged to visit with alumni, speak with potential employers and graduate school representatives, attend programs presented by alumni and employers, and obtain relevant experience through internships, co-ops, summer jobs, and volunteer positions. eRecruiting, the Center's web-based registration and recruiting system, allows students to have access to a calendar of events, internship and employment listings, an online resource center, and an alumni mentoring network. Students can also use of alumni listings in the Center to obtain valuable information, advice, and referrals from Union graduates.

Students are informed of programs and events through the Center's website:

www.union.edu/BeckerCareerCenter.

Employment and graduate school statistics of recent graduates are also available through the Center's website.

Union Graduate College

In cooperation with the Union Graduate College (affiliated with Union University), Union undergraduate students have the opportunity to take selected graduate courses offered by the Graduate College for undergraduate credit. Union College and the Union Graduate College also jointly administer several combined degree programs. See the section titled "Undergraduate Programs" (p. 3) for more information.

Alumni

The College's 22,000 alumni center their activities around the Alumni Council, which is incorporated under the laws of the State of New York. The council has two representatives from each class, 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. The basic unit of the alumni program is the class, and 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.

Prizes, Honors, and Scholarships

Prizes

William F. Allen (1895) Essay Prizes. To a senior in any department for a non-fiction essay.

Alpha of New York Phi Beta Kappa Prize. To a freshman for outstanding achievement in general education.

Alumni Council Scholarship Award. From the alumni to the fraternity that shows the greatest improvement in scholarship during the academic year.

Ronald A. 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 in humanities with the highest scholastic standing.

Frank Bailey (1885) Prize. To the senior who has rendered the greatest service to the College in any field.

Wendy Bernstein (1980) Memorial Award. To a sophomore for superior service to the College. Given by the student government. Recipients are selected by the Student Forum.

Arnold I. Bittleman Memorial Prize. To a student whose work, in the judgment of the arts faculty in collaboration with an outside juror, is outstanding. Established to honor Prof. Arnold I. Bittleman, an artist and teacher whose accomplishments in drawing commanded international admiration.

William H. Bloom (1945), M.D., 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. Established by the English Department in memory of David Brind.

Stephen P. Brown Memorial Trophy. To the fraternity that has the best record in scholarship, intramural athletics, and extracurricular activities.

Fred W. Bruhn (1932) Prize. To the member of the varsity baseball team who has made the greatest contribution in inspirational leadership, sportsmanship, team and college loyalty, and service as a player. Established by the family of Fred W. Bruhn.

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. Established by his mother.

Josephine Daggett Prize. To a senior for conduct and character, without respect to scholarship.

Delphic Honor Society Awards. To juniors and seniors for exemplary contribution to the Union College community.

Division of Analytical Chemistry of the American Chemical Society Award.

Joseph D. Doty Prize. To the junior or senior who, in the judgment of the Department of History, has done work of outstanding merit. Established by Jack C. Tway ’48.

Eastern College Athletic Conference Medal of Merit. To an athlete who has combined excellence on the fields of competition with excellence in the classroom, or outstanding service to the College.

Samuel S. Feuer (1925) Prize. To the senior in the premedical course (whose primary interest is in dentistry) who has maintained the highest scholastic average over four years. Established in the will of Samuel S. Feuer ’25.

Frankel Prize. Created by Samuel H. Frankel ‘15 in honor of his parents, Mr. and Mrs. Mark Frankel.

Robert M. Fuller (1863) Prizes. Awarded, one to the sophomore, the other to the senior, whose work in chemistry has been most outstanding.

Bruce M. Garber (1971) Prize. To the premedical or predental student who best exemplifies the qualities of personal integrity and humane concern for the future practice of medicine or dentistry. Established in his memory by classmates and friends.

General Electric Power Generation Steinmetz Award. To a senior in the Mechanical Engineering

Department who completes the best senior project. Created by designation to Union College by Dr. L. Berkley Davis, Jr., who received the General Electric Steinmetz Award from the corporation.

Lisa S. Gerhan (1994) Memorial Award. For academic excellence, a commitment to the field of psychology, and the potential for future contributions to the field.

Ashraf M. Ghaly Geotechnical Prize. Created by Prof. Ashraf M. Ghaly in gratitude to the students who nominated him for the Stillman Prize for Excellence in Teaching, and to commemorate his winning of that prize in 1997.

Celia Glaubach Prize for Religious Studies. Awarded by her son, Dr. Jacob D. Glaubach '25, in her memory 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 by the faculty to have the greatest potential for community service in the area of mathematical approaches to economic problems. Established by his son, Madhu S. Gokhale '27.

Outstanding Greek Woman. To the member of a sorority who has made an outstanding contribution to the sorority system at Union.

John S. Hadala '28 Endowed Book Prize. Created from the gifts of Paul F. Hadala, Class of 1959. Awarded to a senior majoring in Mechanical Engineering.

Hans Hainebach Memorial Prize in German Literature. To a sophomore or junior who has demonstrated promise as a student of German literature. Created by Hedda Hainebach in memory of her husband, Hans Hainebach, professor of German and French from 1948-1966.

Hans Hainebach Memorial Prize in Judaica. To a student who has offered the best performance in the field of Judaica. Created by Hedda Hainebach in memory of her husband, Hans Hainebach, professor of German and French from 1948-1966.

Edward Everett Hale, Jr. Prize. For the best essay written by a sophomore or junior.

Joel A. Halpern (1961) Prize. To recognize outstanding community service by a student or students. Established in memory of Joel A. Halpern by his family.

Frederick B. Hawley, Jr., Memorial Cup. To a senior fraternity man who has made outstanding contributions in the areas of scholarship and activities.

Oswald Heck (1924)-Irwin Steingut Prize. To the student majoring in the Division of Social Sciences who has consistently done the best work in political science. Funded by a gift from Dr. Herman Mark and the Madison Club.

Eugene W. Hellmich (1923) Memorial Prize. Established by the bequest of Eugene W. Hellmich '23.

Victor Herbert Prize. Established by The Victor Herbert Foundation, Inc., for the student who shows the most promise of making a contribution to American music.

Julian B. Hoffman, M.D., Memorial Award. To the student (preferably premedical) for distinguished interest, devotion, and contribution to the arts and/or intellectual climate at Union College.

Roger H. Hull Community Service Award. Created by the Trustees of Union College in honor of President Roger H. Hull's service to Union from 1990-2005. Awarded to a senior who has rendered the greatest sustained service to the Greater Schenectady Community.

Charles B. Hurd Prize. To a student of physical chemistry. Established by former students of Prof. Charles B. Hurd.

Albert C. Ingham (1847) Prize. To the student in the Division of Social Sciences judged to have done the most outstanding piece of scholarly work.

Ingvar V. Ingvarsson Prize. To a senior in electrical engineering chosen by the department faculty for high scholarship. Established by his friends.

John Iwanik Prize. To an outstanding Russian language student. Established by Mrs. Olga Iwanik in memory of her husband, Prof. John Iwanik.

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. Established by a gift from William B. Jaffe '26.

William B. Jaffe (1926) Medal. To the member of the graduating class voted by the Athletic Department to be the outstanding athlete of the year, taking into account the character and motivation

of the individual in addition to athletic excellence. Established by a gift from William B. Jaffe '26.

Thomas J. Judson (1966) Memorial Book Prize. To a sophomore who, in the opinion of the Department of Modern Languages, has shown academic excellence as well as sincere interest in the study of modern languages. Established by Phi Epsilon Pi, now Zeta Beta Tau, fraternity in memory of Thomas J. Judson.

David S. Kaplan (1982) Prize. To a student applying to participate in a term abroad chosen by the Political Science and Modern Languages Departments. Preference to students majoring in political science. Established by Mr. and Mrs. Marvin Golding and family in memory of their nephew.

Warner King (1906) Prize. To the senior in engineering who has contributed most to the traditions and ideals of the College.

Ethel Kirchenbaum Memorial Prize. To the senior who, in the opinion of the Engineering Departments at Union College, shall be deemed to possess the best potential for furthering the ideals of the engineering profession.

Harold A. Larrabee Prize. To the student who has done the best work in philosophy during the year. Established by William R. Adams '28.

William E. Lasnik (1968) Prize. To a junior or senior premedical student on the basis of scholarship and character. Established by Phi Epsilon Pi, now Zeta Beta Tau, fraternity.

Anthony C. LaVecchia '98 Memorial Award. Established by family, friends and members of the Union community. Awarded to a student who demonstrates a keen interest and passion in Journalism, especially
with a focus on Political Journalism.

Stephen F. Leo (1884), M.D., Prize. To the premedical student on scholarship who attains the highest grades in the graduating class and who has been accepted in medical school. Created by a bequest from the estate of Mary Leo Eaton in memory of her father.

Alice P. and Donald C. Loughry (1952) Prize Fund. To students completing the best senior projects in computer science, computer engineering, or electrical engineering.

Terri Lynch-Jackie Havercamp Cuttita Memorial Award. To the freshman female athlete who has shown desire, dedication, sportsmanship, and inspirational leadership on the field of competition as well as in her daily life.

Edith Emilee MacCoy Prize. To the student who excels in botany. Established by Charles W. Clowe (1896).

John Lewis March Prize. To a senior who has shown increased interest and ability in psychology during the final two years of college. Established by his sister, Mildred March.

Meritorious Service Awards. To seniors for service in any field, above and beyond the normal requirements of duty, based on criteria established by the student government and voted by the Student Affairs Council.

Minerva Prize. Awarded by the Women's Studies Program to the woman 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. Awarded through the Roger Thayer Stone '28 Endowed Chair in Sociology and Anthropology.

R. E. Morgan Memorial Award. To a senior computer engineering major, selected by the department, who has demonstrated outstanding scholarship. Established by his friends and colleagues to further his dedication to creative engineering.

Harold and Ellen Nagorsky Memorial Prize. Awarded to a premedical junior student who contributes the most to the Union College community through extracurricular activities. Established by Dr. Matthew J. Nagorsky '79.

Alvin F. Nitchman (1924) Prize. To the most promising senior who plans to attend law school. Established by Mrs. Alvin F. Nitchman in memory of her husband, Class of 1924.

Ronald M. Obenzinger (1961) Prize. To a premedical student who is selected for high academic merit and personal worthiness.

Robert G. O'Neale (1878) Prize. Awarded each year to the A.B. candidate with the highest standing in classics.

Hans Pasch Memorial Prize. Awarded for the best essay written about the Holocaust. Established by Maria Pasch, mother of Lisa, Class of 2000, and Derek Pasch in memory of her husband, Hans.

Elias Peissner Prize. German books awarded to the senior most proficient in German studies. Established by the Sigma Phi fraternity.

William A. Pike Memorial (1960) Trophy. To a junior for attitude, ability, participation, and achievement in intercollegiate sports.

Ronald F. Plumb (1980) Memorial Prize. To the senior member of the varsity football team who best exemplifies the qualities and characteristics of Ronald F. Plumb '80.

President's Commission on the Status of Women at Union College Prizes. Three, 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.

Psi Chi Service Award. To a student majoring in psychology who has contributed to the goals and aims of Psi Chi, the national psychology honorary society.

Daniel F. Pullman Prizes. Two, one to a senior of high scholastic standing in humanities, the other to a similar student in engineering. Preference given to members of the Methodist Church.

Martin Terry Resch Prize. To the senior who shows the greatest promise for advanced study in pure or applied mathematics.

Resident Advisor Award. To one or more resident assistants for outstanding service in the development of the residential community at Union.

Mrs. Edwin L. Rich Prize. Awarded each year to a student majoring in English who has demonstrated outstanding scholarship.

Charles Alexander Richmond Prizes. Two, one for excellence in the fine arts, the other for excellence in the appreciation of music.

Robert B. Ridings Award. To a senior for her attitude, ability, participation, and achievement in intercollegiate sports.

Paul Rieschick (1974) Prize. Established in 1984 by the Athletic Department in appreciation of the time and effort he devoted to the basketball program and individual players.

Rotary Foundation Endowed Prize For International Study. To the senior who in the judgment of the Political Science Department shows the greatest promise and interest in an area of international relations. Preference to a student from Schenectady County.

Robert L. Royal (1938) Award. Created from the bequest of Robert L. Royal '38 to a financially deserving student each year 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. Given by the American Society of Mechanical Engineers.

Calvin G. Schmidt (1951) Prize. To the member of the junior class who, in the opinion of the Student Forum, has contributed most to the betterment of student life on campus. Created by the Student Council, Inc., in honor of Calvin G. Schmidt '51, who retired in 1984 after thirty years with Union, the last twenty as registrar.

J. Richard Shanebrook Prize. Created from the gifts of Professor J. Richard Shanebrook in honor of his parents, John A. and Lois L. Shanebrook and awarded to the student of any religious tradition who has contributed the most to the betterment of religious life on campus.

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. Created from gifts of Julie and Barry Simon, their family, and friends in memory of Aime Simon.

Edward S.C. Smith Geology Prize. To a senior, majoring in geology, who demonstrates high professional potential.

Freling H. Smith (1865) Prize. To seniors in the Department of History who have competed by writing a thesis.

Dr. Reuben Sorkin (1933) Award for Proficiency in Premedical Studies. To a senior demonstrating proficiency in undergraduate studies with an outstanding aptitude for continuing work leading to a degree in medicine.

Ralph W. Stearns (1907) Prize. To the junior selected by the electrical engineering faculty for ability to design and complete a new piece of teaching equipment.

Milton Hymes Sternfeld (1916) Prize. For the best original essay in philosophy by a member of

the senior class. Established by his mother.

Stillman Prize. To a faculty member to encourage outstanding teaching. Created by gifts from David I. Stillman '72, Abbott L. Stillman '69, and Allan Stillman in honor of Abraham Stillman, father and grandfather.

Tau Beta Pi Awards. To juniors and seniors who have achieved outstanding records in engineering studies and have demonstrated excellence of character.

Roger Thayer Stone (1928) Prize. To the sociology major who produces the best senior thesis. Awarded through the Roger Thayer Stone Endowed Chair in Sociology and Anthropology.

Frances Travis Award. To a student who is working his or her way through college and who has demonstrated unusual responsibility and self-reliance. Established by her friends.

James Henry Turnbull (1929) Prize. To the outstanding student in the sophomore class 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 the freshman excelling in English composition.

David Wagenseil (1978) Memorial Award. To a senior fraternity man for outstanding participation and leadership in intramural sports. Presented by the brothers of Delta Phi. Recipient's name is placed on a plaque in Alumni Gymnasium.

Horatio G. Warner (1826) Prize. To the senior student in the A.B. curriculum with the highest scholastic standing while sustaining a high personal character.

Mildred Wilder Prize. To the senior majoring in political science who, in the opinion of the political science faculty, has written the best piece of scholarly work pertaining to the subject of women and politics. Created by Marcy Wilder '85 and her family to honor her grandmother, Mildred Wilder.

George H. Williams Prize. Awarded annually to a graduating senior for excellence in Computer Science. Established by friends and colleagues of Professor George H. Williams.

Lee and William Wrubel Memorial Prize. To a senior preparing for dentistry or medicine, based upon both academic achievement and character. Established by their sons, graduates of Union College.

Eugene I. Yudis (1955) Prize. To the student in any class who has produced the best piece of prose fiction. Established by his friends.

Special Awards

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.

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.

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 (1880), a lawyer, journalist, and life trustee of Union. Income awarded as a scholarship to encourage academic excellence in classical studies.

Carlos Alvarez (1982) Memorial Scholarship. Created from the gifts of the Kappa Sigma brothers and friends.

Floyd E. Allen (1909) Memorial Scholarship. Established by Helen M. Allen in memory of her husband, Floyd '09, a graduate engineer, to establish a scholarship in the Division of Engineering.

William Allen (1895) Scholarship. The gift of Judge William Allen (1895).

Ann and Bruce Allison Scholarship. Established by Robert M. DeMichele '66, 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.

Ronald Amiraian (1980) Memorial Scholarship. Established by Dr. and Mrs. Kenneth Amiraian in honor of their son, Ronald '80. Preference to modern language students participating in the Terms Abroad program.

A.M. and S.M. Anderson Scholarship. Created by A. Melcher Anderson (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 '41 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 '05, 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, NY. Restricted to residents of Clinton County.

Brayton R. Babcock Memorial Scholarship. The gift of Brayton R. Babcock, Jr., in memory of his father, Brayton Babcock (1893).

Marian A. Baciewicz (1977) Memorial Scholarship. Established by Mr. and Mrs. Frank A. Baciewicz in memory of their daughter, Marian '77. 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., (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 (1885), long-time treasurer of Union College and a life trustee.

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 '15, 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 '15, 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 '16. Preference to students pursuing a degree in engineering.

Thomas A. Baltay (1987) Memorial Scholarship. Established by Charles Baltay '58 in memory of his son, Thomas, '87.

Max and Helen B. Barandes Scholarship. Created from the gifts of Gerald Barandes '54, Dr. Martin Barandes '59, and Robert Barandes '69 in honor of their parents.

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 '85 through gifts of her family and friends.

Ralph D. Bennett (1921) Scholarship. Established by his family and friends. Mr. Bennett was a trustee of the College from 1946 to 1994. Preference to students pursuing courses in engineering or physics.

John A. Best (1898) Memorial Scholarship. Created by gifts of Harriet and Elizabeth Best, in memory of their father, with income awarded annually to humanities students.

Alfred F.H. Bischoff (1935) Scholarship. Established by Alfred F.H. Bischoff '35. Preference is given to students majoring in electrical engineering.

Milton Blatt Memorial Scholarship. Created by Gustave L. Davis '59, M.D., 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 '11. Primary consideration to students from Schenectady County.

Catherine A. Blodgett Memorial Scholarship. The gift of Harold E. Blodgett '11 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 '11 in memory of his father. Preference to students from Schenectady County.

Esther Levitz Bocian and Emanuel H. Bocian (1908) Scholarships. Established by Emanuel H. Bocian in memory of his wife, Esther Levitz Bocian, and himself, to be used for two scholarships awarded at the discretion of the president of Union College.

Madison E. Brainard, Class of 1911, Memorial Scholarship. Established by the estate of Lucille Clancy.

Donald C. Brate (1945) Scholarship. Established by Donald C. Brate '45 with preference to students pursuing a degree in engineering.

David M. Brind (1982) Scholarship. Established in memory of David M. Brind '82, 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.

Meade Brunet (1916) Scholarship. A gift of Meade Brunet '16, LL.D. '66, 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 '51.

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 '37. First preference to students whose families reside in Schenectady County.

Michael R. Cappiello (1939) Scholarship. Established by Michael R. Cappiello '39 and awarded to an entering freshman. Preference will be given in the following order: (1) students who are residents of Bourne or Wareham, Mass.; (2) students who are children of members of the Ancient & Honorable Artillery Co. of Massachusetts.

Todd M. Carr (1977) Memorial Scholarship. Established in memory of Todd Carr '77 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 '50 to benefit an incoming freshman who is a graduate of Johnstown High School, Johnstown, N.Y.

David (1959) and Elaine Chapnick Scholarship. Created from the gifts of David Chapnick '59 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, '65. Preference to pre-med students living in Schenectady County.

Adam F. Ciesinski (1941) Scholarship. Established by Stephen J. Ciesinski '70 and his brothers and sisters in honor of their father, Adam Ciesinski '41.

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 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 '56.

Class of 1958 Donald T. Stadmuller Memorial Scholarship. Created by members of the Class of 1958 in memory of their classmate, Donald T. Stadmuller, who died in the sinking of the U.S.S. Thresher in 1963. He was an electrical engineering student whose avid pursuit of literature and the humanities exemplified the Union tradition of broad-based liberal learning. 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.

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 '32.

William T. Colburn (1979) and Susan T. Marcolina, MD, FACP (1980) Scholarship. Created by William T. Colburn and Susan T. Marcolina. Preference shall be given to students pursuing careers in science and technology fields.

Robert C. Connell (1942) Memorial Scholarship. Created by James Cushing in memory of his long-time friend.

Continuing Education Fund. Established to encourage the "nontraditional" student who engages in academic pursuits through the continuing education undergraduate program. A student may attend classes part-time or full-time in the evening program or as a special student in the day program.

Harry Cook (1906) Memorial Scholarship. The gift of Harry Cook '06 and his wife, Lavinia. Income awarded as a scholarship. Harry Cook was a lawyer practicing in Albany, N.Y.

Cooke Family Scholarship. Created from the gifts of Estelle Cooke-Sampson (1974), Lawrence E. Cooke (1977) and Gerald Cooke (1973).

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 '29 in memory of his wife. Income awarded annually to physically handicapped students.

Leslie F. Couch (1952) Scholarship. Created by Leslie F. Couch '52.

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 '19, 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 '82. 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 for worthy students.

Dewar Scholarship. Established by the Dewar Foundation, Inc. Preference to graduates of Oneonta (N.Y.) Senior High School.

William Thompson Dewart Scholarship. The gift of William Thompson Dewart for a scholarship in his name.

Louis M. DiCarlo (1932) Scholarship. Established by Dr. DiCarlo during his fiftieth reunion year for a scholarship for humanities students who demonstrate potential for making contributions to the improvement of the quality of human life.

Janine N. Donikian Scholarship. Created in her honor by her brother, Andre R. Donikian '65, and Dr. Marc Donikian, her father. Awarded to students from the state of Indiana and adjoining midwestern states.

Molly S. and André Donikian (1965) Scholarship. Created from the gifts of Molly S. and Andre R. Donikian '65. 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 (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 '66 and his daughter, Martha E. Downer '90, in honor of Martha's graduation and the Bicentennial Campaign for Union College.

Anna Draves Self-Discovery Scholarship. Created from the gift of John R. Draves '48, 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 (1956) in honor of his mother and father.

Harwood Dudley (1875) Memorial Scholarship. The bequest of Frances Selmser Dudley, wife of Harwood Dudley (1875), a trustee of Union from 1908 until his death in 1915. Income awarded as a scholarship to a needy student who, at the end of the freshman year, has attained the highest scholastic average.

Thomas W. Duffy (1971) Scholarship. Created from the estate of Thomas W. Duffy, who was killed in the September 11, 2001 terrorist attack on the World Trade Center.

James M. Dunn (1912), M.D., Memorial Scholarship. Created by gifts from his wife, Marguerite Dunn, and awarded to a student or students pursuing a full-time course of study leading to a career in medicine.

Dr. Joseph H. Dusenbury (1945) Memorial Scholarship. Established by Mrs. Joseph H. Dusenbury in memory of her husband, Joseph '45.

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 (1884), Richard M. Blatchford (1885), Donald Coulter (1915), and James A. Goodrich (1879)-Alexander Duane (1878) funds.

Dr. Edward Ellery Scholarship. Established by Rudolph A. Schatzel '21 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 '59, M.D., 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 '53 to students who are pursuing a course of study in the humanities and who demonstrate potential for making contributions to the improvement of the quality of human life.

Henry C. Fagal Scholarship. Created from gifts of Frederick F. Fagal '38 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 (1893) in memory of his parents. The donor was a Schenectady attorney who also served as city judge and police justice.

Falk Scholarship. The gift of Elynor R. and David Falk '39, M.D., 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 Scholarship. Created from the gifts of Samuel W. Farr '38.

Victor H. Fazio (1965) Scholarship. Established by Victor H. Fazio '65. Preference to students planning to enter a career in public service.

Franklin L. Fero (1917) Scholarship. Established by a bequest from Franklin L. Fero '17.

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 '43 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 '09.

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 '39. 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.

Dr. Herbert Freeman (1947) Scholarship. Created from the gifts of Dr. Herbert Freeman '47 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 '70 and his wife, Dixie Furlong, in recognition of Joseph F. Furlong '42 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 '17.

Lt. Edward C. Gelsleichter Memorial Scholarship. Established by his brother, F.D. Gelsleichter '33, and supported by gifts from the Gelsleichter family.

William A. Gietz (1949) Scholarship. Established by a gift of Barbara M. Brugh, in memory of her hustand, 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 '49, a life trustee, to honor his former high school principal and coach, Ambrose H. Gilligan '26.

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 '17 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 '01.

Nancy A. Gordon Memorial Scholarship. Created by Dr. Neal J. Gordon '69 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 '49, 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., '19.

J. William Greve (1951) Scholarship. Created by J. William Greve '51.

Dickinson E. Griffith, Jr., (1941) Memorial Scholarship. The gifts of friends of Dickinson E. Griffith, Jr., '41.

Carroll C. Grinnell '19 Memorial Scholarship. Established by the gifts of the members of the Class of l919 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 '63.

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 '86.

J. Potter Hallenbeck (1910) Scholarship. Established by the gifts of the Hallenbeck family in memory of J. Potter Hallenbeck '10.

Joel A. Halpern (1961) Memorial Scholarship. Established by the Halpern family in memory of Joel A. Halpern '61. Awarded to a member or members of the freshman class. The scholarship will be renewed in the sophomore, junior, and senior years provided the recipient(s) continues to qualify for financial aid. Preference to students from Westchester County, 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 '44 for students in the humanities.

Thomas E. Hanigan, Jr., (1944) Memorial Scholarship. Established by the W.R. Grace Foundation in honor of Mr. Hanigan '44, 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 '51. 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.

Hawkes Family Scholarship. Established by Donald C. Hawkes, Jr., '37, 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 '26 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 '25 with the annual income awarded to students pursuing a course of study in the humanities. 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 '24, 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 '23.

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 '10 and Sarah Winifred Hendricks.

David L. Henle Merit Scholarship. Created by David L. Henle, Class of 1975.

The Hequembourg Family Scholarship. Created in memory of members of the Hequembourg

family: Louis Hequembourg '10, Charles L. Hequembourg '12, and Frederick W. Hequembourg '39. Preference to students from either Albany, Rensselaer, Saratoga, or Schenectady counties.

William Parker Hesse '49 Financial Need Scholarship. Established by William Parker Hesse '49.

Joseph M. (1947) and Barbara B. Hinchey Scholarship. Established by Joseph M. Hinchey '47. Awards given annually with preference to students studying electrical engineering.

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 '78.

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 '28.

Henry L. Howe III (1943) Scholarship. Established by Henry L. Howe '43. 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 (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 (1827), Walter Hubbell (1814), Walter Seymour Hubbell (1894), Ferdinand Wakeman Hubbell (1819), and Horatio Hubbell (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 '16, life trustee, in recognition of his devotion to the College and its worthiness.

Indigent Students Scholarship. Established by proceeds of lotteries authorized by the State of New York in 1805.

IBM Scholarship. Funded by a grant from the International Business Machines Corporation to establish an endowed scholarship for women and minority engineering students.

Joseph Jacobs (1931) Memorial Scholarship. Created by the family and friends of Joseph Jacobs '31.

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 '22, former chairman of the board directors of the corporation.

Ronald Quentin Jennett and Margaret Anne Jennett Scholarship. Established by Ronald Q. Jennett, Class of 1952. Preference shall be given to students from Clinton, Essex and Franklin counties of New York State or from Ft. Worth, Texas or Tarrant County, Texas.

Christian A. Johnson Scholarship. Established by a grant from the Christian A. Johnson Endeavor Foundation.

Mary Louise Johnson Memorial Scholarship. Established by the gift of Mrs. Anna C. Newberry, in memory of her mother, Mrs. Mary Louise Johnson. Preference to a student majoring in the Division of Social Studies.

Harry A. (1925) and Bess Kaplan Kappa Nu Scholarship. Established by the trustees of Kappa Nu, Harry Kaplan '25, president. Awarded in collaboration with Mr. Kaplan to an upperclass student or students with a demonstrated need and without regard to sex.

Hyman V. (1928) and Dorothy G. Kaplan Scholarship. Created from a gift of Red-Kap Sales, Inc. in honor of Hyman V. and Dorothy Kaplan. Preference to a student athlete of high moral and ethical character from a rural area.

The Irving D. Karpas, Jr., (1947) and Suzanne T. Karpas Scholarship. Created by a gift from Irving D. Karpas, Jr., '47. 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 '26. 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 '02.

John Kelleher (1970) Memorial Scholarship. Established by classmates and friends of John Kelleher '70.

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., '18 and a gift by Edwin O. Kennedy '21, in memory of his father, William L. Kennedy (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 '33 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 '49, a life trustee of Union, to recognize and honor them for many years of dedication and service to the College.

Robert K. (1942) and Evelyn Killian Scholarship. Created from the gifts of Robert K. Killian '42 and Robert K. Killian, Jr., '69 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 '08, 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 '35 and his wife, Barbara, in memory of his parents. Awarded to a promising student in music.

Kruesi Scholarship Fund. Established by Paul J. Kruesi '00 as a memorial to five Kruesi brothers: August H. (1898), Walter E. '02, Frank E. '08, and John '14.

Rear Admiral Lee E. Landes (1945) Scholarship. Established by Lee E. Landes '45. 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.

Laudise Family Scholarship. Originally established by Robert A. Laudise, Class of 1952, in honor and memory of his father.

John Y. Lavery (1895) Scholarship. Established under the will of John Y. Lavery (1895). Preference to a student working his or her way through college.

Karges Lauterbach (1927) Scholarship. A gift from the estate of Karges Lauterbach, Class of 1927, for the benefit of students studying engineering.

Joseph L. Lawrence (1939), D.D.S., Scholarship. Established in memory of Joseph L. Lawrence '39, D.D.S., by his family, including his wife, Pearl Lawrence; son, David B. Lawrence '65, M.D.; 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 '53. Awarded to students who require financial assistance.

Patricia Bohen Levinson (1975) Scholarship. Created by Richard D. Levinson '73 to honor his wife, Patricia '75. Preference to students who are involved with the arts and/or humanities.

John V. Lewis (1914) Memorial Scholarship. Established by bequest of his late wife, Mary McDonnell Lewis, in his memory.

Stanley R. Liebman (1939) Scholarship. Established by the bequest of Stanley R. Liebman, Class of 1939, and awarded based solely on scholastic merit.

Gilbert R. Livingston (1924) Memorial Scholarships. Established by bequest of Mr. Livingston '24, a scholarship fund that annually designates thirty freshmen as Gilbert R. Livingston Scholars. Awarded on the basis of financial need, academic excellence, and potential for contribution to the quality of life at Union.

Thomas B. Lockwood Scholarship. Established by Thomas B. Lockwood in memory of his father, Daniel Lockwood (1865). Available to students from Buffalo, N.Y.

Eunice E. Lord Scholarship. Created by Frank E. Lord, Class of 1951, in memory of his mother, Eunice E. Lord.

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.

Frederick J. (1942) and Beatrice J. Longe Scholarship. Established by Frederick J. Longe '42. Awarded to students pursuing courses in science or engineering.

William G. Lutz (1914) Scholarship. Established with a bequest from William G. Lutz '14, 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.

Sigmund Makofski (1926) Scholarship. Established by gifts from friends and admirers of Sig Makofski '26. Preference to graduates of Schenectady High School.

C. T. Male (1913) Scholarship. Established by Charles T. Male '13 and supported by contributions from members of the Male family.

C.T. Male Associates Scholarship. Created from the gifts of Kenneth J. Male '45, 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 '45.

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 '73 and Peter P. Martini '78 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 (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 '49. 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 '04, a physician, author, and former manager of the New York Bureau of Municipal Research.

Alfred H. McKinlay '51 Scholarship. Established by Mark A. McKinlay '73. 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 '42 and by McManus, Longe, Brockwehl, Inc., of which he was a co-founder.

Charles B. McMurray (1887) Scholarship. Established by Charles B. McMurray (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 '35 in memory of his father, Walter S. McNab '08. 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 '37, M.D., 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.

Frank L. Messa (1973) Endowed Scholarship. Created by Frank L. Messa '73. 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 '57 and others in memory of John Wells Meyer and Kevin Michael Meyer. Awards will be made to students who have demonstrated self-discipline, persistence, and the desire to succeed, who require a substantial amount of financial assistance to attend Union.

Dr. David B. Miller (1939) Scholarship. Created from the gifts of David B. Miller '39.

Franklyn B. (1932) and Irma Millham Scholarship. Established by a gift from Mr. and Mrs. Franklyn B. Millham to provide scholarship funds for students pursuing a course of study in engineering.

Louis D. Miltimore (1929) Memorial Scholarship. Created from the gifts of the family and friends of Louis D. Miltimore '29. Mr. Miltimore served as a trustee of the College from 1953 to 1996.

John E. Mitchell (1945)-Kathryn L. Mullaney (1974) Scholarship. Established by gifts from John E. Mitchell '45 and his daughter, Kathryn L. Mullaney '74. Preference to students who are children of U.S. Navy personnel.

Mitchell Rosenthal Scholarship. Established under the will of Mrs. Ruth Elise Walton.

Laurence and Dawn Moister Memorial Scholarship. Established by the employees of Union College in memory of Laurence Moister, the college printer, and his wife, Dawn. Preference to a student from Schoharie County who has completed his/her freshman year and has demonstrated outstanding humanitarian qualities and a willingness to help and serve others.

W. Dennis Moran (1964) Scholarship. Created by W. Dennis Moran '64.

Carolyn Morrison Scholarship. Miss Morrison, a Schenectady resident, willed her home to Union College. The proceeds from its sale established this scholarship fund, with preference to a student in the social sciences curriculum.

George F. Mosher (1918) Citizenship Award. Established by George F. Mosher '18 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 '27 in memory of his brother, George E. Moston '17.

Herman Muehlstein Foundation Scholarship. A grant from the Herman Muehlstein Foundation for scholarship assistance to students from the New York metropolitan area.

Donald E. Mullen (1949) Scholarship. Established through gifts of General Electric employees and corresponding matching gifts from General Electric. Donald E. Mullen '49 was a G.E. 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 (1937), M.D., Scholarship. Created by Oscar J. Muller '37. Preference to students who are pre-med majors.

M. William Munno (1970) Scholarship. Established by M. William Munno '70.

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 (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 '06. Awards to students who are studying for the B.S. degree in engineering.

Gordon F. Newell (1946) Scholarship. Established by Gordon F. Newell '46. Awards made to students majoring in physical sciences or engineering (except computer science).

Sture and Hilda Nilsson Scholarship. Created by Sture H. Nilsson, father of Harold Nilsson '65.

Dr. Donald and Marie Nitchman Scholarship. Established by Marie Nitchman in memory of her husband, Donald E. Nitchman '33. 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.

G. Stuart O'Hara Memorial Scholarship. Established by Robert P. O'Hara '79 in memory of his father.

Gerald and Anna O'Loughlin Scholarship. Created by Arthur D. O'Loughlin '60 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 (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.

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 '12, 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 '40, an advertising executive in Schenectady.

Roger P. Penny (1958) Scholarship. Established by Roger P. Penny '58.

Lisa Novak Peretz (1979) and Gregg Peretz Memorial Scholarship. Created from the gifts of family and friends in memory of Lisa Novak Peretz '79 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, NY or Catholic Central High School, Troy, NY 3) graduates of other schools nearby the schools designated in 1 and 2. If none are applicable, the recipient can be from any high school located in Saratoga County, N.Y.

Andrew V.V. Raymond (1875) Scholarship. Gift of Nicholas V.V. Franchot (1875) in memory of Andrew V.V. Raymond (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 '71.

S. Jesse and Jessie Robinson Scholarship. Established by Phil A. Robinson, Class of 1971, in honor of his parents.

Gertrude Robinson-Bianchi Scholarship. Created from the gifts of Gertrude Robinson Bianchi.

Sam and Roslyn Zimmerman Roden Scholarship. Created from the gifts of Charles Roden '60.

Thomas Romeyn (1797) Scholarship. Established by the grandsons and great-grandsons of

Thomas Romeyn (1797), a prominent clergyman of the Dutch Reformed Church.

Nathan and Jennie Rosenberg Scholarship. Established by Henry E. Montross '19 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 ' 31.

Joseph Rotundo (1929) Scholarship. Gift of alumni and friends in memory of Prof. Joseph Rotundo '29, 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.

Rutkow Family Merit Scholarship. Created from the gifts of Dr. Ira M. Rutkow, Class of 1970, Preference shall be given to a freshman who has committed to participate in Union's Terms Abroad Program, and meets the Union College definition of a merit scholar.

Robert J. Sallick (1959) Scholarship. Established by Robert J. Sallick '59.

Nicholas T. Saviano (1951) Scholarship. Established by Nicholas Saviano '51, awarded to an electrical engineering graduate.

Rose Ann and Nicholas T. Saviano Scholarship. Created by Nicholas T. Saviano, Jr. '51 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 '34 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 '41.

R.A. Schatzel (1921) Scholarship. Created from gifts of Rudolph A. Schatzel '21.

Jessie Scheman and Lillian Rosen Memorial Scholarship. Created from the gifts of Robin J. Scheman '84.

Schenectady Alumni Ed Fitz Memorial Scholarship. Created by members of the Schenectady Alumni Club to honor Ed Fitz, athletic trainer for thirty-three years. Awarded with preference to students from Schenectady County who, it is anticipated, will enhance the reputation of the College through participation in extracurricular activities.

Calvin G. Schmidt (1951) Scholarship. Created by the Student Council, Inc. in honor of Calvin G. Schmidt '51, 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 '85H and Claire K. Schmitt.

Jack J. Schneider (1962) M.D. Scholarship. Established by Jack J. Schneider '62, M.D. 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 '69 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 (1866), a lawyer. Awarded by the president of the College to students who show promise of future success.

Morris A. Shapiro (1932), M.D., Scholarship. Created by Hester Shapiro '73G in honor of her husband, Dr. Morris A. Shapiro '32. Preference to students who plan to enter medical school.

Samuel R. Sharp (1981) Memorial Scholarship. Established by the Sharp family and Steven A. Klinger '81. Preference to students majoring in political science.

Kenneth S. Sheldon '20 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.

Scott M. Siegler (1969) Scholarship. Created by Dr. Edward Siegler and Scott M. Siegler '69. 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 '79. Awarded to a senior pursuing a career in medicine.

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 '52. 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 (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 (1822).

Walter A. Spencer (1972) Scholarship. Established by Walter A. Spencer '72.

Nancy and Ross H. Spicer (1947) Scholarship. Created by Ross H. Spicer '47. 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 '27.

Robert C. Sprong (1950) and Anna Sprong Scholarship. Created from the gifts of Robert C. Sprong '50 to students majoring in engineering.

Dr. Frank R. (1926) and Adelaide H. Stansel Scholarship. Created by Dr. and Mrs. Frank Stansel.

Starr Foundation Scholarship. Established in 1995 by a grant from the Starr Foundation to support an engineering student studying abroad.

Frederick Starr Scholarship. The gift of the Frederick Starr Contracting Co. Available to students from New York City.

Ralph W. Stearns (1907) Memorial Scholarship. Created from the gifts of Emma L. Stearns in memory of her husband.

Christian Steenstrup Memorial Scholarship. Established by the bequest of Laura Auer in memory of her father. Preference shall be given to students majoring in Mechanical Engineering.

The Earl E. Steinert (1924) Fund. Established through bequests from Earl E. and Margaret W. Steinert. Awarded to a student in the engineering division.

Charles P. Steinmetz Scholarship. A gift of the General Electric Co. Awarded first to employees or children of employees of the General Electric Co. and second to children of residents of Schenectady if there should be no G.E. applicants.

Charles P. Steinmetz Memorial Scholarship. Established by Marjorie Hayden, daughter of Joseph and Corrine Hayden. Charles Steinmetz adopted Joseph, his young lab assistant, in 1903 and they worked together until Steinmetz's death in 1923. Preference to students majoring in engineering or physics.

Charles D. Stewart (1952) Scholarship. Created by Charles D. Stewart, Class of 1952. Preference to students majoring in psychology, on the Dean's list, interested in continuing for a graduate degree and indicating an interested in an "applied" field, e.g. industrial, social clinical, counseling or organizational psychology.

Stevens-Chadbourne Scholarship. Established by the daughters of Norman O. Chadbourne '35 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.

Charles D. Stewart (1952) Scholarship. Established by Charles D. Stewart '52. Preference to

students majoring in psychology.

Mark Stokes (2003) Memorial Scholarship. Created from the gifts of Union College and the Stokes family and friends. Preference shall be given to students who participate in extracurricular activities.

Hugh M. Stoller Memorial (1913) Scholarship. Established under the will of Prof. James H. Stoller (1884) in memory of his son, Hugh M. Stoller '13.

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 (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.

Monroe M. Sweetland (1885) Scholarship. Established by the gift of Monroe M. Sweetland (1885). Preference to members of the Sweetland family.

Alfred J. Swyer, M.D. (1941) Scholarship. Established by Dr. Alfred J. Swyer '41. 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.

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 '52.

Willard H. Taylor (1942) Scholarship. Established by Willard H. Taylor '42. 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.

Muriel and Seymour Thickman (1944) Family Scholarship. Established by Muriel and Seymour Thickman '44 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 (1857). Awarded at the end of the junior year.

Denise Meigher Summerhayes Todd Memorial Scholarship. Created by Timothy A. Meigher '75 in memory of his mother. Denise Todd graduated from Union College in 1986 at the age of 71.

Alan R. Tropp (1951) Scholarship. Created from the gifts of Mrs. Yvonne Tropp, her 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.

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.

John Vanneck Scholarship. Established by Paul Rieschick '74 in memory of John Vanneck, a benefactor to Paul Rieschick and others.

William Henry Van Schoonhoven (1829) Scholarship. Established by Mrs. Harriet V. E. Thorne in memory of her father, William Henry Van Schoonhoven (1829).

Alan B. Van Wert Scholarship. Established by Alan B. Van Wert, Class of 1937. First preference shall be given to a resident of the State of Maine in recognition of his/her scholastic accomplishments, character, and promise in extracurricular activities.

William H. Vaughn (1885) Scholarship. Established by Mrs. Jennie C. Vaughn, in memory of

her husband, William H. Vaughn (1885).

Daniel Vedder Scholarship. Established by Daniel Vedder. Available at the end of the freshman year to a member of the freshman class who is preparing for the Christian ministry.

Cornelia Veeder Scholarship. Established under the will of Miss Cornelia Veeder.

Eugene P. Vehslage (1949) Scholarship. Established by Eugene P. Vehslage '49. Preference to students pursuing electrical engineering or computer science.

Leo and Evelyn Viniar Scholarship. Created from the gifts of David A. Viniar '76, 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 (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 '35 and others in memory of his parents, Charles Newman Waldron '06 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 '26.

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 '60 Walsh 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 '60 Walsh 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 '49.

Taylor Waterhouse (1923) Memorial Scholarship. Established by the bequest of Alice Waterhouse in memory of her brother, Taylor Waterhouse '23. Awarded annually to full-time students pursuing courses in chemistry, with preference to students who plan a career in the field of chemistry.

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.

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 '46.

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 '50 and his wife, Frankie.

Mildred and E. Glen Wells (1927) Scholarship. Created from the gifts of E. Glen Wells '27. Preference to students pursuing courses in economics.

Elizabeth R. Whalen Scholarship. Established by Kenneth J. Whalen '49 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 '36 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 '35, 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 '30 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 '69 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.

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 (1895) and his son, Henry DeForest Wright, in memory of his father. Mr. W. H. Wright and Henry D. Wright served with distinction on the Union College Board of Trustees. Four scholarships awarded each year to students planning to major in chemistry and living in Schenectady County, or surrounding counties, or in Warren County. Selection will be made in conjunction with Schenectady International, Inc.

William C. Yates (1898) Scholarship. The bequest of his wife, Grace Lawrence Yates, who was the daughter of Rev. Dr. Egbert C. Lawrence (1869). William C. Yates (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 '42. Preference to students studying science or engineering.

Union College administers scholarships for graduates of the College attending the Albany Law School and the Albany Medical College.

Carter Davidson Memorial Scholarship. Established by friends and associates of Carter Davidson, 13th president of Union College and seventh chancellor of Union University. Awarded to a graduating senior of Union College who will attend a graduate division of Union University.

Fuller Medical Scholarship. Established under the will of Dr. Robert M. Fuller (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 (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 (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.

Stanley R. Becker (1940) Scholarship. Sustained by the annual gift of Stanley R. Becker '40 and awarded each year to one or more junior or senior students majoring in political science in recognition of the importance of the study of political science to our society and nation's future. Based not only on financial need, but will stress academic excellence in political science and promise of significant contributions to the public good.

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.

Dreyfus Foundation Scholarship. Gift of the Dreyfus Foundation for National Merit scholars who are beginning their sophomore year and who plan a career in chemistry or related sciences.

Herman/Goldman Foundation Scholarship. Established by Howard Simon, parent of Michael Simon '06.

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 (Class of 1951) Scholarship. Established by Mark A. McKinlay, Ph.D., Class of 1973, in honor of his father, Alfred H. McKinlay '51. 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.

Howard Sheffer (1939) Chemistry Scholarship. Established by Prof. Howard Sheffer '39 for a worthy chemistry major in his or her senior year.

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 '36, 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.

Endowed Fellowships

Booth Ferris Research Fellowship. Established by the Booth Ferris Foundation to support the Summer Science

Research Endowment Fund. Awarded annually to a student who performs research in the basic sciences: chemistry, biology, geology, physics.

Roland David Ciaranello (1965), M.D., Scholars Fund for Summer Research in Biology or Chemistry. Established by Mr. and Mrs. Roland V. Ciaranello in memory of their son.

Lee L. Davenport (1937) Summer Research Fellowship. Established by Lee L. Davenport '37, to students pursuing studies in engineering, chemistry, biology, physics, or geology.

Tracy Leigh Epstein-Pesikoff Terms Abroad Fellowship. Established by Michael J. Epstein '59, M.D., in honor of his daughter.

Philip B. Evans (1965) Terms Abroad Fellowship. Established by Philip B. Evans '65. 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 '74 and Hans Black '74, M.D., to honor Frank Gado, professor emeritus of English, who retired in 1996 after more than thirty years of service.

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, D.C.

Laudise Summer Research Fellowship in Chemistry. Created by Robert A. Laudise '52 in memory of his father, Anthony T. Laudise.

Kenneth N. Mathes (1935) Fund. Created by Kenneth N. Mathes (1935) for engineering students on terms abroad.

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 '42, 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.

Stephen J. Potter Research Fellowship. Established in 1969 by the Stephen J. Potter Memorial Foundation, Inc. Mr. Potter was a native of Ticonderoga, N.Y., and in 1913 organized the Defiance Corp., engaged primarily in the manufacture, application, and sale of bituminous paving products. Granted to a graduate or undergraduate student doing research in the area of discovering new and better uses for bituminous materials for the construction of public highways in furtherance of the better use and safety of such highways.

John (1981) and Michele (1984) Sciortino Cancer Research Fund. Established in 2005 by John and Michele Sciortino 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 '52. Awarded to students in the sciences or engineering who participate in a summer research program in biomedical engineering under the guidance of College faculty.

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 '69. Awarded to a student pursuing a major in the sciences, engineering, or mathematics.

Edward Villella (L.H.D. 1991) Fellowship. Created from the gifts of Charles D. Lothridge '44 to honor Edward Villella, internationally acclaimed as a premier dancer with the New York City Ballet and founder of the Miami City Ballet in 1985.

Financial Aid Programs

Federal

Pell Grants: An entitlement program with awards from $400 to $4,050 based on family income and assets. Students may apply by filing the Free Application for Federal Student Aid (FAFSA). The Financial Aid Office determines the award amount. Funds are credited to the student's account at the College.

Supplementary Educational Grant Program (SEOG): Awards from $100 to $4,000. The applicant must show financial need and be enrolled at least half time. This is a direct grant, which is not repayable. The College administers and determines the recipients of this federal grant program based on the availability of funds.

Perkins Loan Program: The College administers and determines the recipients of this federal loan program. The current interest rate is five percent on the unpaid principal. Repayment begins nine months after completion of studies or leaving college and may extend up to ten years. Payment is not required for up to three years when the borrower is in the military service, ACTION, or a similar national program. Loans made before July 1, 1987, have a six-month grace period.

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 an aid package. Preference for jobs is given to students based on financial need.

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

Tuition Assistance Program (TAP): Awards are from $500 to $5,000 and are based on family net taxable income. Applicants must apply annually to the New York State Higher Education Services Corp., 99 Washington Ave., Albany, N.Y. 12255. There is a separate payment schedule for students who qualify as "independent." TAP recipients are subject to state regulations enforcing and defining good academic standing, both cumulative and on a term by term basis. Students may become ineligible for TAP during the next term unless they receive grades in a specified number of courses each term (two for freshmen and sophomores; three for juniors and seniors). Students must be enrolled full time to qualify. Students withdrawing from all courses in a particular term will be ineligible for the next term. More information is available in the Office of Financial Aid.

Aid for Part-Time Study (APTS): Half-time matriculated undergraduates who are residents of New York State may apply for up to $2,000 a year. Eligibility is based on New York net taxable income.

Vietnam Veterans Tuition Award (WTA): Eligible students must be matriculated New York State residents, enrolled in at least one full credit course, who served in the Armed Forces in Indochina between January 1, 1963, and May 7,1975, and were not discharged under dishonorable conditions. Annual full-time awards are $1,000 per year. Apply at the Graduate and Continuing Studies Office.

State Aid to Native Americans: There is an award of $1,350 a year for a maximum of four years of full-time study. Application forms are available from the Native American Education Unit, New York State Education Department, Albany, N.Y. 12230. There is no qualifying examination or a limited number of awards.

Governor's Committee on Scholastic Achievement Scholarships: Governor's Committee Scholarships of $200 to $2,000 per year for up to four years are awarded to some graduates of New

York City public, private, and parochial schools. Students are nominated by their high schools on the basis of academic achievement, citizenship, and sound character. The Governor's Committee makes its final selections from this list of nominees. Union College has agreed to match each recipient's award with an equal amount of Union scholarship funds. Interested high school students should contact their school's guidance department.

Subsidized Stafford Loan Program: This is a loan for up to $2,625 a year for the first year of study, up to $3,500 for the second year and up to $5,500 a year for the third, fourth, and fifth year of undergraduate study, available from private lending institutions that is guaranteed and subsidized by federal and state governments. Deferments are available for various reasons including graduate study, graduate fellowships, and unemployment. Application forms are available at the Office of Financial Aid and on the Union College Website. A student must demonstrate need through the Free Application for Federal Student Aid (FAFSA) available from the Office of Financial Aid.

Parent Loans for Students: Loans of up to the difference between Union's estimated cost of attendance and any financial aid the student is receiving a year are available to parents. Interest (which is 8.5% for loans after 7/1/2006) begins to accrue and the repayment period begins when the loan is fully disbursed. While the Parent Loan will not affect the student's aid from the College, the aid resources, including the Parent Loan, cannot exceed the total cost of education. Further information is available at the Office of Financial Aid.

Unsubsidized Stafford Loan: Independent undergraduate students may borrow up to $4,000 a year for the first two years of study and $ 5,000 a year for the third fourth and fifth year of undergraduate study at 6.8% rate of interest that accrues while the student is enrolled in college. A student may defer interest and/or principal while enrolled.

Note: 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

— Rhode Island Higher Education Assistance Authority, 274 Weybosset St., Providence, Rhode Island 02903; (401) 277-2050

— Vermont Student Assistance Corp., Champlain Mill, P.O. Box 2000, Winooski, Vermont 05404; (802) 655-9602

— Department of Human Services Office of Postsecondary Education Research & Assistance, 1331 H. St. N.W., Suite 600, Washington, D.C. 20005; (202) 727-3688

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Joseph B. Board, Jr., Robert Porter Patterson Professor of Government Emeritus (1965-2003). A.B. 1953, J.D. 1958, Ph.D. 1962, Indiana University; B.A. 1955, M.A. 1961, Oxford University; Ph.D. honoris causa 1973, Royal University of Umea, Sweden

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William Fleming, Assistant in Engineering Emeritus (1961-1984). M.Pd. Hon. 1984, Union College

Frank Gado, Professor of English Emeritus (1963-1999). A.B. 1958, Dartmouth College; M.A. 1961, Ph.D. 1968, Duke University

Jagdish T. Gajjar, Professor of Electrical and Computer Engineering Emeritus (1970-2003). B.E. in Elec. 1960, B.E. in Mech. 1961, Bombay University; M.E.E. 1963, University of Oklahoma; Ph.D. 1970, University of Houston

Charles Gati, Professor of Political Science Emeritus (1963-68, 1969-1994). A.B. 1961, A.M. 1961, Ph.D. 1965, Indiana University

Carl J.W. George, Professor of Biological Sciences Emeritus (1967-1997). B.S. 1956, University of Michigan; Ph.D. 1960, Harvard University

Edwin F. Gillette, Professor of Mathematics Emeritus (1946-47, 1955-1981). A.B. 1937, Hamilton College; M.A. 1949, Ph.D. 1955, Syracuse University

Erik Hansen, Professor of History Emeritus (1964-2006). B.A. 1958, University of Oregon; M.A. 1960, Ph.D. 1968, Cornell University

H. Gilbert Harlow, Professor of Civil Engineering Emeritus (1940-1984). B.S. in C.E. 1937, Tufts University; M.S. in C.E. 1940, Harvard University; P.E.

Lawrence J. Hollander, Dean of Engineering Emeritus (1986-1993). B.E.E, 1951, M.S.E.E, 1954 New York University; P.E.

Donald S. Holmes, Professor of Management Emeritus and Director of the Industrial and Social Science Research Center Emeritus (1966-1990). B.A. 1947, Juniata College; M.S. 1950, Purdue University

Roger H. Hull, President Emeritus (1990-2005). A.B. 1964, Dartmouth College; LL.B. 1967, Yale Law School; LL.M. 1972, S.J.D. 1974, University of Virginia

Manfred Jonas, John Bigelow Professor of History Emeritus (1963-1996). B.S. 1949, City College of New York; A.M. 1950, Ph.D. 1959, Harvard University

Christopher Jones, Professor of Physics Emeritus (1967-2000). B.S. 1957, Hobart College; M.A. 1960, Johns Hopkins University; Ph.D. 1967, Iowa State University

Sigrid Kellenter, Thomas B. Lamont Professor of Ancient and Modern Literature Emeritus (1977-2003). B.A. 1967, M.A. 1969, University of California; Ph.D. 1978, State University of New York at Albany

Richard Kenyon, Dean of Engineering Emeritus (1993-1998). B.M.E. 1954, Clarkson College of Technology; M.S. 1956, Cornell University; Ph.D. 1965, Syracuse University

Thomas R. Kershner, Associate Professor of Economics Emeritus (1968-1998). A.B. 1963, Oakland University; A.M. 1968, Ph.D. 1972, Harvard University

Frederick A. Klemm, Professor of German Emeritus (1947-1978). A.B. 1933, Dickinson College; M.A. 1935, Duke University; Ph.D. 1939, University of Pennsylvania

Sylvia E. Lapidus, Associate Registrar Emerita. B.A. 1938, Hunter College

Jan K. Ludwig, Professor of Philosophy Emeritus (1969-1999). B.A. 1963, Gettysburg College; Ph.D. 1971, Johns Hopkins University

Eli Majlaton, Director of Union College Bookstore, Central Mail and Copy Center Emeritus

Charles T. Male, Jr., Professor of Civil Engineering Emeritus (1942-1984). B.S. in Physics 1936, Union College; M.S. 1939, Ph.D. 1944, Cornell University; P.E.

William B. Martin, Jr., Professor of Chemistry Emeritus (1953-1989). A.B. 1948, M.A. 1949, Clark University; Ph.D. 1953, Yale University

George McMillan, Purchasing Director Emeritus. B.S. 1964, University of Steubenville

Frank F. Milillo, Professor of Mechanical Engineering Emeritus (1974-2001). B.S. 1966, M.S. 1968, Ph.D. 1974, Polytechnic Institute of Brooklyn

Carolyn Mitchell, Professor of English Emeritus (1998-2003). B.A. 1960, Hunter College; M.A. 1962, Michigan State University; Ph.D. 1977, Boston College

John S. Morris, President Emeritus and Research Professor of Philosophy (1979-1993). B.A. 1951, University of Wales; B.A. 1953, M.A. 1957, Cambridge University; M.A. 1961 Colgate University; Ph.D. 1961, Columbia University

William M. Murphy, Thomas Lamont Research Professor of Ancient and Modern Literature (1946-1983). A.B. 1938, M.A. 1941, Ph.D. 1947, Harvard University

H. Alan Nelson, Professor of English Emeritus (1954-1989). B.A. 1946, Union College; M.A. 1948, Ph.D. 1958, Northwestern University

Filadelfo Panlilio, Professor of Mechanical Engineering Emeritus (1955-1987). B.S. in M.E. 1938, University of Philippines; M.S. 1942, Ph.D. 1946, University of Michigan

Judith A. Peck, Associate Registrar

Sven R. Peterson, Professor of Philosophy and of Administration and Management Emeritus (1952-1983). B.S. 1943, Harvard University; M.A. 1946, Ph.D. 1954, Columbia University

V. Ennis Pilcher, Professor of Physics Emeritus (1956-1986). A.B. 1948, M.S. 1949, Emory University; Ph.D. 1955, North Carolina State University

Peter A. Prosper, Jr., Professor of Economics Emeritus (1964-1999). B.S. 1958, Pennsylvania State University; Ph.D. 1970, Cornell University

Raymond Rappaport, Professor of Developmental Biology Emeritus (1952-1987). B.S. 1948, Bethany College; M.S. 1948 University of Michigan; Ph.D. 1952, Yale University

Bruce L. Reynolds, Professor of Economics Emeritus (1974-2002). B.A. 1966, Yale University; M.A. 1971, Ph.D. 1975, University of Michigan

George Richards, Personnel Director Emeritus. B.A. 1958, Wilkes College; M.Div. 1961, Episcopal Seminary

Alan Roberts, Professor of French and Spanish Emeritus (1953-1980). A.B. 1939, Haverford College; M.A. 1940, Ph.D. 1952, Harvard University

Donald E. Robison, Associate Professor of Management Emeritus (1971-1996). B.S. 1952, University of Oregon; M.S. 1956, Ph.D. 1962, Ohio State University

Willard D. Roth, Professor of Biological Sciences Emeritus (1967-1994). B.A. 1950, Swarthmore College; M.A. 1952, Ph.D. 1956, Harvard University

Richard B. Russ, Professor of Electrical Engineering and Computer Science Emeritus (1941-42, 1948-1983). B.E. 1940, M.E.E. 1956, Yale University

Eleanor M. Sarnacki, Head Nurse Emerita (1946-1978). R.N. 1937, St. Peter's Hospital

Kenneth L. Schick, Frank and Marie Louise Bailey Professor of Physics Emeritus (1959-2000). A.B. 1951, Columbia University; Ph.D. 1959, Rutgers University

Josef Schmee, Kenneth B. Sharpe Professor of Management Emeritus (1972-2006). Magister 1968, University of Vienna; M.S. 1970, Ph.D. 1974, Union College

Calvin Schmidt, Registrar Emeritus (1954-1984). B.A. 1951, Union College; M.A. 1959, Teachers' College, Columbia University

Ann M. Seemann, Director of Schaffer Library, Professor Emerita (1973-1990). A.B. 1956, Oberlin College; M.S. in M.L.S. 1964, Simmons College

Arnold Seiken, Professor of Mathematics Emeritus (1967-1996). B.A. 1951, Syracuse University; M.A. 1954, Ph.D. 1963, University of Michigan

J. Richard Shanebrook, Professor of Mechanical Engineering Emeritus (1965-2001). B.S. in M.E. 1960, M.S. in M.E. 1963, Ph.D. 1965, Syracuse University

Jeane A. Sinnenberg, Assistant Registrar Emerita

Barry K. Smith, Associate Professor of Performing Arts (Theater) Emeritus (1971-1999). B.A. 1960, Westminster College; M.F.A. 1971, Yale University

George W. Smith, Professor of Biological Sciences Emeritus (1973). B.S. 1962, Cookman College; M.S. 1966, Virginia State College; Ph.D. 1974, University of Virginia

Phillip D. Snow, Professor of Civil Engineering Emeritus (1974-2004). B.S. 1965, Marietta College; M.S. 1968, Syracuse University; M.S. Envir. Engr. 1972, Ph.D. 1976, University of Massachusetts

John R. Sowa, Professor of Chemistry Emeritus (1967-2002). B.S. 1956, Notre Dame University; Ph.D. 1964, University of Pennsylvania

Carmela St. George, Associate Registrar Emerita (1964-1989)

Twitty J. Styles, Professor of Biological Sciences Emeritus (1965-1997). B.S. 1948, Virginia Union University; M.S. 1957, Ph.D. 1963, New York University

Henry J. Swanker, Professor of Chemistry, Director of Institutional Studies, and Assistant to the Dean of Faculty Emeritus (1943-1976). B.S. 1931, M.S. 1932, Union College; M.A. 1941, Albany State

Charles D. Swartz, Frank and Marie Louise Bailey Professor of Physics Emeritus (1956-1979). A.B. 1938, Ph.D. 1943, Johns Hopkins University

Donald R. Thurston, Professor of Political Science and History Emeritus (1966-1996). B.A. 1951, Syracuse University; M.A. 1956, Ph.D. 1970, Columbia University

Peter L. Tobiessen, Professor of Biological Sciences Emeritus (1970-2006). B.A. 1963, Wesleyan University; M.S. 1966, Pennsylvania State University; Ph.D. 1971, Duke University

Samson O.A. Ullmann, Professor of English Emeritus (1957-1992). A.B. 1943, Harvard University; M.A. 1947, Stanford University; A.M. 1949, Ph.D. 1954, Harvard University

James E. Underwood, Chauncey H. Winters Research Professor of Political Science and Emeritus Dean of the Faculty (1963-2003). A.B. 1959, Franklin and Marshall College; M.P.A. 1960, Ph.D. 1968, Syracuse University

W. Loretta Walker, Head of Information Services at Schaffer Library, Associate Professor Emerita (1968-1981). B.S. 1949, Howard University; M.L.S. 1968, State University of New York at Albany; M.A. 1977, College of St. Rose

Anton R. Warde, Professor of German Emeritus (1969-1999). B.A. 1964, Union College; M.A. 1966, Ph.D. 1969, University of Nebraska

Charles F. Weick, Professor Chemistry Emeritus (1958-1996). B.S. 1953, Mount Union College; Ph.D. 1959, University of Rochester

George H. Williams, Professor of Computer Science Emeritus (1970-2003). A.B., B.E.E. 1965, Union College; M.S. 1966, M. Phil. 1968, Ph.D. 1970, Yale University

Hugh Allen Wilson, Professor of Performing Arts Emeritus (Music) (1962-1996). A.B. 1946, Yale University

Endowed Chairs

(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
Dwane W. Crichton Professor of Philosophy (2006) — Raymond F. Martin
Horace E. Dodge III Professorship of Electrical and Computer Engineering (1997) — Michael Rudko
Joseph C. Driscoll Professor of Sociology and Marine Policy (2006) — Ilene M. Kaplan
R. Gordon Gould '41 Professorship in Physics (1995) — Jay E. Newman
Edward E. Hale, Jr. Professor of English (1980) — Harry P. Marten
Doris Zemurray Stone Professor in Modern Literary and Historical Studies (1976) — Brenda Wineapple
Carl B. Jansen Professor of Civil Engineering (1992) — Thomas K. Jewell
Thomas B. Lamont Professor of Ancient and Modern Literature (1948) — Appointment pending
Gilbert R. Livingston Professor of Psychology (1970) — Seth N. Greenberg
Gilbert R. Livingston Professor of Behavioral Sciences (1994) — Kenneth G. DeBono
John D. MacArthur Assistant Professor (1982) — Tarik Wareh and Lisa A. Warenski
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
Florence B. Sherwood Professor of History and Culture (1993) — Teresa A. Meade
Florence B. Sherwood Professor of Life Sciences (1994) — Robert Olberg
Florence B. Sherwood Professor of Physical Sciences (1994) — Thomas C. Werner
Roger Thayer Stone Professor of Anthropology (1989) — George Gmelch
Thomas J. Watson, Sr., and Emma Watson Day Professor of Mechanical Engineering (1989) —Ronald B. Bucinell
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
Chauncey H. Winters Professor of Comparative Social Analysis (1996) — Terry S. Weiner
Chauncey H. Winters Research Professor of Political Science (1996) — Robert S. Sharlet
Chauncey H. Winters Research Professor of Political Science (1996) — James E. Underwood
John and Jane Wold Professor of Geology (1988) — George H. Shaw
David L. and Beverly B. Yunich Professor of Business Ethics (2005) — Harold O. Fried

The Faculty

The date that appears after each faculty member's title refers to the start of service to the College.

James C. Adrian, Jr, Professor of Chemistry and Chair of the Department (1994). B.S. 1980, University of Maryland; Ph.D. 1992, University of Pittsburgh

Linda G. Almstead, Lecturer in Computer Science (1985). B.A. 1970, Rensselaer Polytechnic Institute; M.S. 1985, Union College

Samuel Amanuel, Visiting Assistant Professor of Physics (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 (1992). B.S. 1984, Tufts University; M.S. 1985, Ph.D. 1990, Stanford University (On Leave, Winter and Spring)

Janet S. Anderson, Professor of Chemistry (1978). B.S. 1972, College of William and Mary; Ph.D. 1976, University of Wisconsin

Cay M. Anderson-Hanley, Assistant Professor of Psychology (2004). B.S. 1988, Gordon College; M.S. 1991, Ph.D. 1995 State University of New York at Albany

Michele P. Angrist, Associate Professor of Political Science (2000). B.A. 1992, Washington University; M.P.A. 1995, Princeton University (On Leave, Winter and Spring)

Amy Austin, Visiting Assistant Professor of Spanish (2004). B.A. 1997, University of Kansas; Ph.D. 2004, Emory University

Robert B. Baker, William D. Williams Professor of Philosophy (1973). B.A. 1959, City College of New York; Ph.D. 1967, University of Minnesota

Erica L. Ball, Assistant Professor of History (2001). B.A. 1993, Wesleyan University; Ph.D. 2002, The Graduate School and University Center, City University of New York (On Leave, 2006/07)

Julius B. Barbanel, Professor of Mathematics (1979-81, 1982). B.S. 1973, Case Institute of Technology; M.S. 1976, Ph.D. 1979, State University of New York at Buffalo

Valerie B. Barr, Professor of Computer Science and Chair of the Department (2004). B.A. 1977, Mount Holyoke College; M.S. 1979, New York University; Ph.D. 1996, Rutgers University

Charles R. Batson, Associate Professor of French (1998). B.A. 1987, Furman University; M.A. 1989, University of Virginia; Ph.D. 1997, University of Illinois (On Leave, Winter and Spring)

David E. Baum, Lecturer in History (2002). B.A. 1976, M.A. 1981, M.Phil. 1988, Ph.D. 1992, Yale University

Suzanne Benack, Professor of Psychology (1981). B.A. 1975, Swarthmore College; Ph.D. 1981, Harvard University

Martin Benjamin, Professor of Visual Arts (Photography) (1979). B.A. 1971, State University of New York at Albany

Stephen M. Berk, Henry and Sally Schaffer Professor of Holocaust and Jewish Studies (1967). B.A. 1962, University of Pennsylvania; M.A. 1964, University of Chicago; Ph.D. 1971, Columbia University

Kristin A. Bidoshi, Assistant Professor of Russian (2001). B.A. 1991, Beloit College; M.A. 1995, Ph.D. 2000, Ohio State University

George Y. Bizer, Assistant Professor of Psychology (2005). B.A. 1995, Indiana University; M.A. 1997, Ph.D. 2001, Ohio State University

Kelly J. Black, Associate Professor of Mathematics (2004). B.S. 1987, Rose-Hulman Institute of Technology; M.S. 1989, Ph.D. 1992, Brown University

Barbara C. Boyer, Professor of Biology (1973). A.B. 1963, University of Rochester; M.S. 1964, Ph.D. 1969, University of Michigan

John F. Boyer, Professor of Biological Sciences (1973). B.A. 1964, Amherst College; Ph.D. 1971, University of Chicago

Denis Brennan, Visiting Assistant Professor of History (2006). B.A. 1990, M.A. 1992, Ph.D. 2003, State University of New York at Albany

Karen Brison, Associate Professor of Anthropology (1993). B.A. 1981, McGill University; M.A. 1983, Ph.D. 1988, University of California at San Diego

Clifford W. Brown, Jr., Robert Porter Patterson Professor of Government (1978). A.B. 1964, A.M. 1970, Ph.D. 1970, Harvard University

Rose Marie Brougham, Visiting Assistant Professor of Spanish (2006). B.A. 1993, B.A. 2996, M.A. 1999, Western Michigan University; Ph.D. 2006, University of Colorado at Boulder

Bradford A. Bruno, Assistant Professor of Mechanical Engineering (2001). B.S. 1990, The Pennsylvania State University at University Park; M.S. 1992, University of Michigan at Ann Arbor; Ph.D. 2000, The Pennsylvania State University at University Park

Ronald Bucinell, Thomas J. Watson, Sr. and Emma Watson Day Associate Professor of Mechanical Engineering and Chair of the Department (1993). B.S. 1981, Rochester Institute of Technology; M.S. 1983, Ph.D. 1987, Drexel University

Brendan Burns, Instructor of Computer Science (2006). B.A. 1998, Williams College; M.S. 2003, University of Massachusetts at Amherst

Daniel J. Burns, Professor of Psychology and Chair of the Department (1993). B.S. 1981, State University of New York at Oswego; M.A. 1984, Ph.D. 1986, State University of New York at Binghamton

Donna L. Burton, Reference Librarian/Government Documents, Associate Professor (1985). B.A. 1974, M.L.S. 1975, State University of New York at Albany

Deidre H. Butler, Assistant Professor of Sociology (2001). B.A. 1991, Oberlin College; M.A. 1994; Ph.D. 2001, Clark University

Mary E. Cahill, Associate Librarian (1985). B.A. 1969, Edgecliff College, Xavier University; M.L.S. 1980, State University of New York at Albany

Mary K. Carroll, Professor of Chemistry and Director of Undergraduate Research (1992). B.S. 1986, Union College; Ph.D. 1991, Indiana University

Aaron G. Cass, Assistant Professor of Computer Science (2003). B.S. 1993, M.C.S. 1996, University of Virginia; Ph.D. 2005, University of Massachusetts at Amherst (On Leave, Winter and Spring)

Palma E. Catravas, Assistant Professor of Electrical and Computer Engineering (2002). B.M., B.S. 1991, University of Maryland at College Park; S.M. 1994, Ph.D. 1998, Massachusetts Institute of Technology (On Leave, Fall and Winter)

Davide P. Cervone, Associate Professor of Mathematics (1996). B.A. 1984, Williams College; Ph.D. 1993, Brown University

Yu Chang, Professor of Electrical and Computer Engineering (1974). B.S. 1961, Cheng Kung University; M.S. 1971, University of Wisconsin; Ph.D. 1974, Syracuse University

A. Michelle Chilcoat, Associate Professor of French (1999). B.A. 1998, University of Georgia; M.A. 1991, Ph.D. 1998, University of Michigan

Quynh Chu-LaGraff, Associate Professor of Biology (1999). A.B. 1989, Cornell University; Ph.D. 1996, University of Illinois (On Leave, Winter and Spring)

Brian D. Cohen, Lecturer in Biology (2003). B.S. 1993, Muhlenburg College; Ph.D. 1998, Albany Medical College

Bruce Connolly, Reference Librarian/Coordinator of Library Instruction, Professor (1978). B.A. 1973, State University College at Buffalo; M.L.S. 1977, State University of New York at Albany (On Leave, Winter and Spring)

Linda E. Cool, Professor of Anthropology (1994). B.A. 1971, Bryn Mawr College; Ph.D. 1977, Duke University

Megan M. Cooper, Visiting Instructor of Psychology (2005). B.A. 1996, University of Massachusetts

Jeffrey D. Corbin, Assistant Professor of Biology (2006). B.A. 1991, University of California at Santa Cruz; Ph.D. 1998, University of North Carolina at Chapel Hill

David A. Cotter, Associate Professor of Sociology (1995). B.A. 1988, The College of Wooster; M.A. 1992, Ph.D. 1996, The University of Maryland at College Park

Shane F. Cotter, Assistant Professor of Electrical and Computer Engineering (2005). B.S. 1994, University College Dublin; M.S. 1998, Ph.D. 2001, University of California at San Diego

Lorraine Morales Cox, Assistant Professor of Visual Arts (2001). B.F.A. 1992 Virginia Commonwealth University; M.A. 1996, Ph.D. 2001, University of Illinois at Urbana-Champaign

John R. Cramsie, Assistant Professor of History (2000). B.A. 1987, University of Minnesota; Ph.D. 1997, University of St. Andrews

Patricia Culbert, Artist-in-Residence in Theatre (1998). B.A. 1977, Tufts University; M.F.A. 1983, Boston University

Barbara A. Danowski, Associate Professor of Biology (1992). B.A. 1977, University of Connecticut; Ph.D. 1989, University of North Carolina, Chapel Hill

Felmon John Davis, Associate Professor of Philosophy (1980-90, 1991). B.A. 1970, Haverford College; Ph.D. 1986, Princeton University

Lewis S. Davis, Assistant Professor of Economics (2006). B.S. 1988, Davidson College; Ph.D. 1999, University of North Carolina at Chapel Hill

Kenneth G. DeBono, Gilbert R. Livingston Professor of Behavioral Sciences and Chair of the Department (1986). B.A. 1980, Grinnell College; Ph.D. 1985, University of Minnesota (On Leave, Winter and Spring)

Cheryl L. Dickter, Visiting Assistant Professor of Psychology (2006). B.A. 2001, Randolph-Macon College; M.A. 2004, Ph.D. 2006, University of North Carolina at Chapel Hill

Gail Donaldson, Lecturer of Psychology (1997). B.S. 1985, Edinburgh University; M.A. 1990, New School for Social Research

Thomas H. Dowling, Associate Professor of Psychology and Associate Director of the Counseling Service (1972). B.A. 1963, University of Rochester; Ed.M. 1965, Ph.D. 1971, State University of New York at Buffalo

Kara A. Doyle, Associate Professor of English (2000). A.B. 1991, Georgetown University; M.A. 1998, Ph.D. 2000, Cornell University (On Leave, Winter and Spring)

Chris N. Duncan, Professor of Visual Arts and Chair of the Department (1988). B.A. 1975, Colby College (On Leave, Fall)

Tomas Dvorak, Assistant Professor of Economics (2002). B.A. 1994, Prague School of Economics; M.A. 1995, Central European University; Ph.D. 2000, University of Maryland at College Park

Vuc M. Fatic, Professor of Electrical and Computer Engineering (1985). Dipl. Ing. 1960, Belgrade University; M.Sc. 1973, Ph.D. 1976, Virginia Polytechnic Institute and State University

Derick A. Fay, Visiting Assistant Professor of Sociology (2006). B.A. 1989, Amherst College; M.Th. 1991, University of Edinburgh; M.A. 1998, Ph.D. 2003, Boston University

Andrew Feffer, Associate Professor of History and Director of American Studies (1989). B.A. 1977, Swarthmore College; M.A. 1984, Ph.D. 1987, University of Pennsylvania

Chris S.T. Fernandes, Assistant Professor of Computer Science (2001). B.A. 1991, M.S. 1993, Ph.D. 2000, Northwestern University

Megan M. Ferry, Associate Professor of Chinese (1999). B.A. 1989, Mount Holyoke College; M.A. 1993, Ph.D. 1998, Washington University

William A. Finlay, Associate Professor of Theater, Director of the Morton and Helen Yulman Theater and Chair of Theatre and Dance (1994). B.A. 1974, Rhode Island College; M.F.A. 1980, University of Connecticut

Ellen H. Fladger, Associate Librarian/Head of Special Collections (1979). A.B. 1970, Mount Holyoke College; M.A. 1982, New York State University College at Oneonta, Cooperstown Graduate Program

Leo J. Fleishman, Professor of Biology and Chair of the Department (1989). B.A. 1978, Tufts University, Ph.D. 1986, Cornell University

Andrea R. Foroughi, Associate Professor of History (1999). B.A. 1990, Santa Clara University; M.A. 1995, Ph.D. 1999, University of Minnesota (On Leave, Spring)

Kristin Fox, Associate Professor of Chemistry (1995). B.S. 1988, Lafayette College; Ph.D. 1994, Cornell University

Richard L. Fox, Professor of Political Science and Chair of the Department (1996). B.A. 1989, Claremont McKenna College; M.A. 1990, Ph.D. 1994, University of California at Santa Barbara

Harold O. Fried, David L. and Beverly B. Yunich Professor of Business Ethics (1983). B.A. 1972, University of Michigan; Ph.D. 1978, University of North Carolina

Paul D. Friedman, Lecturer in Mathematics (2001). A.B. 1989, Dartmouth College; Ph.D. 1997, State University of New York at Stony Brook

David A. Fuller, Associate Librarian (1999). B.A. 1982, State University College at Oswego; M.A. 1988, New York University; M.L.S. 1989, State University of New York at Albany (On Leave, Fall)

William Garcia, Associate Professor of Spanish (1991). B.A. 1986, University of Puerto Rico; M.A. 1988, Ph.D. 1995, Rutgers University (On Leave, Fall and Spring)

John I. Garver, Professor of Geology and Chair of the Department (1989). B.A. 1984, Middlebury College; M.S. 1985, Ph.D. 1989, University of Washington

David R. Gerhan, Reference Librarian and Head of Information Services, Professor (1972). A.B.

1967, Brown University; M.L. 1972, State University of New York at Albany; M.A. 1977, Union College

Ashraf Ghaly, Professor of Engineering (1993). B.Sc. 1982, M.Sc. 1986, Alexandria University, Alexandria, Egypt; Ph.D. 1990, Concordia University, Montreal, Canada (On Leave, Winter and Spring)

George Gmelch, Roger Thayer Stone Professor of Anthropology (1982). B.A. 1968, Stanford University; M.A. 1970, Ph.D. 1975, University of California, Santa Barbara

Sharon B. Gmelch, Professor of Anthropology and Chair of the Department (1981). B.A. 1969, M.A. 1971, Ph.D. 1974, University of California, Santa Barbara

Gail Golderman, Associate Librarian/Electronic Media (1992). B.A. 1978, State University College at New Paltz; M.L.S. 1992, Nelson A. Rockefeller College of Public Affairs and Policy

Bridgit M. Goldman, Visiting Assistant Professor of Biology (2005). B.A. 1998, Queens College; M.Phil. 2000, Ph.D. 2005, The Graduate School and University Center of the City University of New York

Melinda A. Goldner, Associate Professor of Sociology (1998). B.A. 1990, Tufts University; M.A. 1993, Washington State University; Ph.D. 1998, Ohio State University (On Leave, Fall and Winter)

Seth N. Greenberg, Gilbert R. Livingston Professor of Psychology (1979). B.A. 1968, Queens College; M.A. 1970, Ph.D. 1972, Ohio State University (On Leave, 2006/07)

Janet P. Grigsby, Visiting Associate Professor of Sociology (2000). B.A. 1969, Oberlin College; M.Phil. 1976, Ph.D. 1983, Yale University

Michael E. Hagerman, Associate Professor of Chemistry (1997). B.S. 1991, North Central College; M.S. 1992, Ph.D. 1995, Northwestern University

Karin Hamm-Ehsani, Assistant Professor of German (1996). B.A. University of Trier; M.A. University of Köln; Ph.D. 1995, University of California at Los Angeles

David G. Hannay, Professor of Computer Science (1978). B.S. 1966, Wheaton College; M.A. 1967, State University of New York at Stony Brook; M.S. 1970, State University of New York at Albany; Ph.D. 1973, Rensselaer Polytechnic Institute (On Leave, Spring)

Ekram I. Hassib, Professor of Electrical and Computer Engineering (1980). B.Sc. 1964, University of Cairo; M.Sc. 1968, Al-Azhar; Ph.D. 1971, Warsaw Politechnics

Walter J. Hatke, May I. Baker Professor of Visual Arts (1986). B.A. 1971, DePauw University, M.A. 1981, M.F.A. 1982, University of Iowa (On Leave, Winter and Spring)

David M. Hayes, Professor of Chemistry and Interim Dean of Arts and Sciences (1976). B.S. 1966, Massachusetts Institute of Technology; Ph.D. 1970, Cornell University

James N. Hedrick, Lecturer in Electrical and Computer Engineering (2001). B.S. 1992, M.S. 1996, Union College

Peter D. Heinegg, Professor of English (1976). B.A. 1965, Fordham University; Ph.D. 1971, Harvard University

David Hemmendinger, Professor of Computer Science (1989). B.A. 1962, Harvard University; M.S. 1963, Stanford University; M.A. 1966, Ph.D. 1973, Yale University, M.S. 1982, Wright State University (On Leave, Spring)

Christine Henseler, Associate Professor of Spanish and Director of Latin American and Caribbean Studies (2001). B.S. 1993, B.A. 1993, M.A. 1995, University of Kansas; Ph.D. 1999, Cornell University (On Leave, Winter and Spring)

Robert Hislope, Associate Professor of Political Science (1999). B.S. 1985, Bradley University; M.A. 1990, Ph.D. 1995, Ohio State University

David Hodgson, Visiting Instructor of Mechanical Engineering (2005). B.S. 1994, Rensselaer Polytechnic Institute

Kurt Thomas Hollocher, Professor of Geology (1985). B.S. 1978, Antioch College; M.S. 1981, Ph.D. 1985, University of Massachusetts

John Stephen Horton, Associate Professor of Biology (1993). B.Sc. 1981, Ph.D. 1990, University of Toronto

Yuwen Hsiung, Visiting Instructor of Chinese (2006). B.A. 1996, National Chen-Chi University; M.A. 1999, Michigan State University

Leslie A. Hull, Professor of Chemistry (1972). B.S. 1965, University of Rochester; M.S. 1967, Ph.D. 1971, Harvard University

anupama jain, Assistant Professor of English (2002). B.A. 1994, Bryn Mawr College; M.A. 1995, Ph.D. 2001, University of Wisconsin at Madison

Hugh Jenkins, Associate Professor of English (1992). B.A. 1981, Carleton College; M.A. 1988,

Ph.D. 1991, Cornell University

Thomas K. Jewell, Carl B. Jansen Professor of Engineering (1978). B.S. 1968, U.S. Military Academy; M.S. Envir. Engr. 1974, Ph.D. C.E. 1980, University of Massachusetts; P.E.

Brenda Johnson, Professor of Mathematics and Chair of the Department (1991). B.A. 1985, Grinnell College; Sc.M. 1987, Ph.D. 1991, Brown University

Ilene M. Kaplan, Joseph C. Driscoll Professor of Sociology and Marine Policy and Chair of the Department of Sociology (1978). B.S. 1973, Cornell University; M.A. 1976, Ph.D. 1980, Princeton University

William D. Keat, Associate Professor of Mechanical Engineering (1996). B.S. 1976, M.S. 1983, Worcester Polytechnic Institute; Ph.D. 1989, Massachusetts Institute of Technology

Joanne D. Kehlbeck, Assistant Professor of Chemistry (2002). B.S. 1992, Duquesne University; Ph.D. 1999, Carnegie Mellon University

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Research Professors

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Degrees Offered

Degree Program	*Degrees*	*HEGIS*
American Studies	B.A.	0313
Anthropology	B.A.	2202
Arts	B.A.	1001
Astronomy	B.A.	1911
Biochemistry	B.S.	0414
Biology	B.S.	0401
Chemistry	B.S.	1905
Classics	B.A.	1504
Computer Science	B.S.	0701
Computer Engineering	B.S.	0909
Economics	B.A.	2204
Electrical Engineering	B.S.	0909
English	B.A.	1501
Geology	B.S.	1914
History	B.A.	2205
Humanities	B.A.	4903
Interdepartmental Program	B.A., B.S.	4901
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
Science	B.S.	4902
Science, Medicine and Technology in Culture	B.A.	4902
Social Science	B.A.	2201
Sociology	B.A.	2208
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Joint Programs in Conjunction with Other Institutions

Eight-Year Leadership in Medicine -Health Management or -Health Systems Administration (with Albany Medical College and Union Graduate College)	B.S.	0499

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