JOHNS HOPKINS UNIVERSITY

2006-2007
SECOND TERM

SCHEDULE
OF
ARTS AND
SCIENCES
AND

ENGINEERING
COURSES

Office of the Registrar  November, 2006
GRADUATION RATES
In compliance with the federal Student Right-to-Know Act of 1990 (Public Law 101-542, Sec.668.46), Johns Hopkins University provides the following information to prospective and currently enrolled undergraduates in the Schools of Arts and Sciences and Engineering:

Entering Freshman Class, September, 1999: 1012
% of freshman returning as sophomores: 96 %
% graduating within 4 years: 81 %
% graduating within 5 years: 89 %
% graduating within 6 years: 90 %
SCHEDULE INFORMATION

This schedule includes all Arts & Sciences and Engineering Courses expected to be offered in the second term and is based upon information received from the departments through October. This schedule presents the following information:

1. The **course** number includes both a departmental indicator and a course indicator. The **number preceding the decimal identifies the department offering the course** (see below):

   ZANVYL KRIEGER SCHOOL OF ARTS & SCIENCES

<table>
<thead>
<tr>
<th>Department</th>
<th>Course Number</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africana Studies</td>
<td>362</td>
<td>Political Science</td>
</tr>
<tr>
<td>Anthropology</td>
<td>070</td>
<td>Psychological &amp; Brain Sciences</td>
</tr>
<tr>
<td>Behavioral Biology</td>
<td>290</td>
<td>Public Health Studies</td>
</tr>
<tr>
<td>Biology</td>
<td>020</td>
<td>Public Policy</td>
</tr>
<tr>
<td>Biophysics</td>
<td>250</td>
<td>Sociology</td>
</tr>
<tr>
<td>Chemistry</td>
<td>030</td>
<td>Theatre Arts and Studies</td>
</tr>
<tr>
<td>Classics</td>
<td>040</td>
<td>Writing Seminars</td>
</tr>
<tr>
<td>Cognitive Science</td>
<td>050</td>
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</tr>
<tr>
<td>Earth &amp; Planetary Science</td>
<td>270</td>
<td>Nondepartmental</td>
</tr>
<tr>
<td>Economics</td>
<td>180</td>
<td>Art</td>
</tr>
<tr>
<td>English</td>
<td>060</td>
<td>Military Science</td>
</tr>
<tr>
<td>Film and Media Studies</td>
<td>061</td>
<td>Music</td>
</tr>
<tr>
<td>German and Romance</td>
<td>210</td>
<td>Programs - Museums &amp; Society</td>
</tr>
<tr>
<td>Humanities Center</td>
<td>300</td>
<td>Applied Math &amp; Statistics</td>
</tr>
<tr>
<td>Language Teaching Center</td>
<td>375</td>
<td>Biomedical Engineering</td>
</tr>
<tr>
<td>Arabic</td>
<td>373</td>
<td>Chemical &amp; Biomolecular Engr.</td>
</tr>
<tr>
<td>Chinese</td>
<td>370</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>E.S.L.</td>
<td>381</td>
<td>Computer Science</td>
</tr>
<tr>
<td>Hindi</td>
<td>378</td>
<td>Entrepreneurship &amp; Mgmt</td>
</tr>
<tr>
<td>African Languages</td>
<td>380</td>
<td>General Engineering</td>
</tr>
<tr>
<td>Korean</td>
<td>382</td>
<td>Geography &amp; Environ. Engr.</td>
</tr>
<tr>
<td>Persian</td>
<td>377</td>
<td>Information Security Institute</td>
</tr>
<tr>
<td>Russian</td>
<td>383</td>
<td>Materials Science &amp; Engr.</td>
</tr>
<tr>
<td>Sanskrit</td>
<td>384</td>
<td>Mechanical Engineering</td>
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<tr>
<td>Mathematics</td>
<td>110</td>
<td>Professional Communication</td>
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<tr>
<td>Near Eastern Studies</td>
<td>130</td>
<td>Neuroscience</td>
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<tr>
<td>Neuroscience</td>
<td>080</td>
<td>Philosophy</td>
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<tr>
<td>Philosophy</td>
<td>150</td>
<td>Physics &amp; Astronomy</td>
</tr>
<tr>
<td>Language &amp; Literatures</td>
<td>180</td>
<td>History</td>
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<td>History of Art</td>
<td>010</td>
<td>History of Science</td>
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<td>History of Science and Technology</td>
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<tr>
<td>Arabic</td>
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<td>Applied Math &amp; Statistics</td>
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<tr>
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<td>373</td>
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<td>Philosophy</td>
<td>150</td>
<td>Physics &amp; Astronomy</td>
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</tbody>
</table>

The number following the decimal identifies the specific course and has the following significance:

**Undergraduate Level courses**
- 100-299 Lower division courses
- 300-499 Upper division courses
- 500-549 Undergraduate level independent study or research type courses

**Graduate Level courses**
- 600-799 Courses normally offered for advanced degree programs. Open to undergraduate students only with permission of the instructor.
- 800-849 Graduate level independent study, dissertation, and research courses.

2. The **code letter** in parentheses following each 100-549-course number identifies the broad area of study for the fulfillment of undergraduate distribution requirements.

   - (E) - Engineering Science
   - (H) - Humanities Studies
   - (N) - Natural Science
   - (Q) - Quantitative Studies
   - (S) - Social and Behavioral Sciences
   - (W) - Writing Intensive

3. The **number** in parentheses after each 100-499 level course title indicates the undergraduate course credit for the term. Independent Study credits vary and are assigned by the faculty sponsor at the time of grading. Graduate level courses do not carry credits, therefore none are shown for 600-849 level courses.

4. The **instructor's name** is indicated in italics following the course title and credits.

5. **Prerequisites** are usually listed in the schedule. It is best however, to check the AS/EN catalog for a more complete statement of any prerequisite requirements.

6. **Meeting times** are indicated whenever they are known. All classes meet for 50 minutes unless otherwise stated. TBA indicates that the time of the course will be announced later. If the time does not appear before the first day of classes, please check with the department.

7. **Classroom assignments** are not made until shortly before the term begins. Please check the Registrar’s home page at [http://www.jhu.edu/registrar/schedule.html](http://www.jhu.edu/registrar/schedule.html) and click on ‘Room Schedule’ to see a complete listing.
A. COMMON EXAMINATIONS FOR MATH AND LANGUAGE COURSES
Mathematics 106, 107, 109, 201, 202, 302 ……………9 -12 Noon, Thursday, May 3
Elementary and Intermediate Language courses……….2-5 PM, Monday, May 7
Room assignments for the final examinations in these courses will be announced in
class in April.

B. Courses with Standard Meeting Time
Classes meeting during the term within the standard meeting times given in the first
column will have their examinations at the time and date indicated in the second and
third columns. The determining factor will be the first class meeting during the first
week of Spring term classes (Monday, January 22 - Friday, January 26). In the case of
lecture style courses, the first lecture meeting will govern, not the section meeting.

M(TW) 8 .........2-5 PM...............Thursday, May 10    (except as noted in A above)
M(TW) 9 .........9-12 Noon..........Tuesday, May 8     (except as noted in A above)
M(TW) 10 ......9-12 Noon..........Friday, May 4       (except as noted in A above)
M(TW) 11 ......9-12 Noon..........Monday, May 7      (except as noted in A above)
M(TW) 12 .......2-5 PM..............Tuesday, May 8     (except as noted in A above)
M(TW) 1 .......2-5 PM..............Monday, May 7      (except as noted in A above)
M(TW) 2 .......9-12 Noon..........Friday, May 4       (except as noted in A above)
M(TW) 3 .......9-12 Noon..........Saturday, May 5     (except as noted in A above)
M(TW) 4 .......2-5 PM...............Tuesday, May 8     (except as noted in A above)
Th(F) 9 .........9-12 Noon...........Thursday, May 10  (except as noted in A above)
Th(F) 10:30 ...2-5 PM...............Thursday, May 3     (except as noted in A above)
Th(F) 12 ...2-5 PM..............Wednesday, May 9     (except as noted in A above)
Th(F) 1 .......2-5 PM..............Thursday, May 10   (except as noted in A above)
Th(F) 2 .......2-5 PM...............Saturday, May 5     (except as noted in A above)
Th(F) 3 .......2-5 PM...............Sunday, May 6      (except as noted in A above)

Examinations for these courses will be held in the regular term classroom unless the
instructor requests an alternate room assignment from the Scheduling Coordinator in
the Registrar's Office. In such cases the instructor will announce the new room
location in class.

D. Conflicts
For any conflicting examinations, the instructor should contact the Scheduling Desk in
the Registrar’s Office to make alternate arrangements.

The Johns Hopkins University does not discriminate on the basis of race, color, sex,
religion, sexual orientation, national or ethnic origin, age, disability or veteran status
in any student program or activity administered by the university or with regard to
admission or employment. Defense Department discrimination in ROTC programs on
the basis of sexual orientation conflicts with this university policy. The university is
committed to encouraging a change in the Defense Department policy.

Questions regarding Title VI, Title IX and Section 504 should be referred to Ray
Gillian, Office of Equal Opportunity and Affirmative Action, 50 Garland Hall, (410)
58-8075.
ANTHROPOLOGY

070.132 (H,S) (W)  INVITATION TO ANTHROPOLOGY  Sec. 01  ThF 12-1:30
This course will introduce students to modes of reasoning in anthropology. How do anthropologists examine questions such as the meaning of family, is writing always linear, is shopping good for society?

070.218 (H,S) (W)  THE POLITICS OF MULTICULTURALISM  (3) Cervone  Sec. 01  TTh 2-3:30
This course examines the political significance and the appeal of the concept of multiculturalism in a number of countries of Latin American and Oceania in the context of native people’s struggles for recognition and justice. Cross-listed with Program for Latin American Studies

070.303 (H,S) (W)  JUNIOR/SENIOR SEMINAR: CHILDREN & YOUTH IN ARMED CONFLICT  (3) Reynolds  Sec. 01  T 1-4
Junior/Senior priority. The course will examine anthropological theory by focusing on the situation of children and young people in war, violence, and on-going conflict. The nature and course of young people’s participation in such situations will be analyzed. A particular focus is on the parts played by the young in resistance movements and on their acquisition of political consciousness. Required course for majors.

070.324 (H,S) (W)  THE SOCIAL HISTORY OF LANGUAGES  (3) Haeri  Sec. 01  M 1-4
A look at the history of languages in terms of their social functions, codification, adaptations for administrative purposes, their use in literature, their dissemination, expansion, or decline. Examples of language we will consider in the course are Latin, Arabic, Hebrew, French and English.

070.325 (H,S) (W)  THE ANTHROPOLOGY OF MONEY  (3) Guyer  Sec. 01  MTW 11
Money has been accorded many roles and meanings, in exchange and as wealth, across society and history. This course combines ethnographic, comparative and historical study with research on the present.

070.328 (H,S) (W)  THE CONCEPT OF THE PATIENT IN ANTHROPOLOGY  (3) Haeri  Sec. 01  ThF 10:30-12
The course will explore the way in which the patient emerges as a category of thought and analysis in anthropology. Cross-listed with History of Science and Technology, the Humanities Center, and Public Health Studies.

070.347 (H,S) (W)  DISCOURSE ANALYSIS  (3) Haeri  Sec. 01  W 1-4
This course will examine distinct notions of discourse in the works of various scholars and learn to carry out discourse analysis in a number of traditions. This will include the analysis of narratives. Open to graduate students.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>070.350 (HS)</td>
<td>NEGOTIATING THE EVERYDAY THROUGH POVERTY: THE SITUATION OF CHILDREN IN BALTIMORE</td>
<td>Reynolds</td>
<td>25</td>
<td></td>
<td>Research seminar in which the class as a group finds out about the situation of children in Baltimore using a variety of methods including the collection of census materials, local survey data, interviews with policy makers and narrative sessions with young people.</td>
</tr>
<tr>
<td>070.351 (HS)</td>
<td>RELIGION AND PLURALISM IN ISLAMIC SOCIETIES</td>
<td>Baxstrom</td>
<td>20</td>
<td></td>
<td>This course explores contemporary issues related to religion and diversity in the Islamic World. Readings will cover issues regarding faith in public life, secularism, freedom of expression, modernization, and globalization.</td>
</tr>
<tr>
<td>070.361 (HS)</td>
<td>ANTHROPOLOGY OF THE SENSES</td>
<td>Khan</td>
<td>30</td>
<td></td>
<td>What is the play of senses in politics? How does historical and ethnographic attention to vision, hearing and smell help us think about the emotions prevalent in everyday life, political judgment and religious practice?</td>
</tr>
<tr>
<td>070.369 (HS)</td>
<td>UNDERSTANDING THE PHILIPPINES IN SOUTHEAST ASIAN CONTEXT</td>
<td>Cannell</td>
<td>35</td>
<td>Prereq: Students must have taken a required course in Anthropology. Permission required if prerequisite is not met.</td>
<td>A look at new ethnographic writing on the Philippines, assessing the viewpoints of both Filipino and non-Filipino scholars. Special emphasis on topics in kinship and gender, and also work on tourism and transnational migration.</td>
</tr>
<tr>
<td>070.386 (HS)</td>
<td>LATIN AMERICAN CITIES: THE DILEMMA OF PUBLIC SPACE</td>
<td>Procupez</td>
<td>25</td>
<td></td>
<td>An exploration of various expressions of political imagination and collective action in Latin American urban public spaces. Will use anthropological perspectives to analyze the porous boundaries between the public and the private, and the impact of globalization on the cities of the region.</td>
</tr>
<tr>
<td>070.390 (HS)</td>
<td>THE GIFT OF JUSTICE</td>
<td>Obarrio</td>
<td>25</td>
<td></td>
<td>This course explores the value of the anthropology of the gift for a discussion of the concept of justice. Focusing on the issue of &quot;transitional justice&quot;, it surveys ethnographies of law in post-war transitions and truth commissions from Latin America and Africa. Theoretical readings on gift, law and pardon, will include essays by Mauss, Sahlins, Bordieu, Strathern and others.</td>
</tr>
<tr>
<td>130.110 (HS)</td>
<td>INTRODUCTION TO ARCHAEOLOGY</td>
<td>McCarter</td>
<td>50</td>
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<td>Cross-listed with Near Eastern Studies</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Instructor</td>
<td>Credits</td>
<td>Limit</td>
<td>Sec.</td>
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<td>361.200 (W)</td>
<td>THE POLITICS OF MULTICULTURALISM (3)</td>
<td>Cervone</td>
<td>3</td>
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<tr>
<td>360.339 (H,S)</td>
<td>BLACK POWER FANTASIES (3)</td>
<td>Carpenter/Spence</td>
<td>3</td>
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<td>Sec. 01</td>
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<tr>
<td>130.351 (H,S)</td>
<td>THE EMERGENCE OF CIVILIZATION: A CROSS CULTURAL EXAMINATION (3)</td>
<td>Schwartz</td>
<td>3</td>
<td>50</td>
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<td>300.357 (H)</td>
<td>WHAT COUNTS AS HUMAN? (3)</td>
<td>Marrati</td>
<td>3</td>
<td>20</td>
<td>Cross listed with Philosophy, the Humanities Center, Political Science, and German and Romance Languages and Literatures</td>
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<td>300.372 (H,S)</td>
<td>HOLOCAUST TESTIMONIES (3)</td>
<td>Leys</td>
<td>3</td>
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<tr>
<td>070.504</td>
<td>INDEPENDENT STUDY</td>
<td>Staff</td>
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<td>070.506</td>
<td>DIRECTED RESEARCH</td>
<td>Staff</td>
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<td>070.508</td>
<td>DIRECTED READINGS</td>
<td>Staff</td>
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<td>070.552</td>
<td>INTERNSHIP</td>
<td>Staff</td>
<td>3</td>
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<tr>
<td>070.562</td>
<td>SENIOR ESSAY</td>
<td>Staff</td>
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<td>50</td>
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<td>070.638</td>
<td>MODERNITY OF RELIGION: BELIEF</td>
<td>Khan</td>
<td>3</td>
<td>15</td>
<td>Open to advanced undergraduates</td>
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<tr>
<td>070.650</td>
<td>DUPLICITY AND LAW</td>
<td>Poole</td>
<td>3</td>
<td>20</td>
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<tr>
<td>360.670</td>
<td>GENERAL SEMINAR: INSTITUTE FOR GLOBAL STUDIES IN CULTURE, POWER &amp; HISTORY</td>
<td>Grovogui</td>
<td>3</td>
<td>15</td>
<td>Graduate students only or instructor's consent for Senior undergraduates. Attendance is mandatory at all seminar meetings</td>
</tr>
<tr>
<td>300.619</td>
<td>TRAUMA THEORY NOW</td>
<td>Leys</td>
<td>3</td>
<td>20</td>
<td>Cross-listed with History, History of Science and Technology, the Humanities Center, Philosophy, and English</td>
</tr>
<tr>
<td>300.671</td>
<td>STANLEY CAVELL’S “THE CLAIM OF REASON”</td>
<td>de Vries/Marrati</td>
<td>3</td>
<td>15</td>
<td>Cross-listed with the Humanities Center, Philosophy, Political Science, English, and German and Romance Languages and Literatures</td>
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</table>
ART

371.131  BASIC STUDIO DRAWING I (2)  
Hankin  Limit 15  Attendance at first class is mandatory  
This course focuses on developing fundamental drawing skills for the student with little or no previous studio experience. Basic concepts of form and composition will be taught through exercises based on the book, Drawing On The Right Side Of The Brain, and with the aid of still-life setups and live models.  
Sec. 01  T 1-4:30

371.133 (H)  PAINTING WORKSHOP I (2)  
Hankin/Gruber  Limit 12 per section  
Prereq: 371.131 or equivalent  
This course offers the fundamentals of oil painting techniques for the serious student with minimal prior studio experience. Observational skills are taught through the extensive use of still-life setups, with particular attention paid to issues of light, color, and composition. Slide lectures and a museum trip give students an art historical context in which to place their own discoveries as beginning painters.  
Sec. 01  W 1-4:30  M 2-5:30

371.139 (H)  STILL LIFE/ INTERIOR/ LANDSCAPE (2)  
Hankin  Limit 15  Prereq: 371.131 or Perm. Req’d  
This intermediate drawing class will examine three grand traditions in representational art. We will explore problems in still life that have occupied artists from Chardin to Morandi; in interiors from Vermeer to Giacometti; in landscape from Corot to Diebenkorn. We will also look at where the boundaries between these genres blur and how they overlap.  
Sec. 01  Th 1-4:30

371.140 (H)  CARTOONING (3)  
Chalkley  Limit 15  Not open to Freshmen  
A history-and-practice overview for students of the liberal arts. The conceptual basis and historical development of cartooning is examined in both artistic and social contexts. Class sessions consist of lecture (slides/handouts), exercises, and ongoing assignments. Topics include visual/narrative analysis, symbol & satire, editorial/political cartoons, character development, animation. Basic drawing skills are preferred but not required.  
Sec. 01  F 1-4
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Credits</th>
<th>Section</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>371.145 (H)</td>
<td>INTRODUCTORY PHOTOGRAPHY</td>
<td>Botz</td>
<td>3</td>
<td>Sec. 01</td>
<td>Th 6-9pm</td>
</tr>
<tr>
<td></td>
<td>(3) Botz: Limit 15 Attendance at first class is mandatory. Students must have either a 35mm camera with manual aperture or shutter speed or a digital camera with the same. An introduction to the intensive classroom environment of photography from a fine arts perspective. Students learn basic camera handling through technical exercises and, with the instructor's guidance, work on projects which expand a personal vision. Darkroom skills not required; students will use a variety of photographic materials specific to their projects.</td>
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<tbody>
<tr>
<td>371.146 (H)</td>
<td>BASIC BLACK &amp; WHITE PHOTOGRAPHY (3) Berger</td>
<td>Berger</td>
<td>3</td>
<td>Sec. 01</td>
<td>M 2-5, F 10-1</td>
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<tr>
<td></td>
<td>Students must have a 35mm camera with manual aperture and shutter speeds. Attendance at first class is mandatory, Limit 7 per section. An introduction to the technical and creative process of producing black &amp; white photographs. Working in the darkroom, students learn the fundamentals of film processing and print development. In-class critiques, discussion, and analysis of historic images develop critical vision. With the instructor's guidance, students work on a project of their choice and produce a portfolio of ten mounted prints.</td>
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<tr>
<td>371.152 (H)</td>
<td>INTRODUCTION TO DIGITAL PHOTOGRAPHY (3) Berger</td>
<td>Berger</td>
<td>3</td>
<td>Sec. 01</td>
<td>W 2-5</td>
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<td></td>
<td>Students must have a digital camera with manual aperture and shutter speed. Attendance at first class is mandatory, Limit 10. In this course, students learn to use their digital cameras through a variety of projects which help them develop technical and creative skills. Students explore documentary, landscape and portrait photography. Critiques and slide lectures of historic photographs, which range from postmortem daguerreotypes to postmodern digital imagery, help students develop a personal vision. Students gain camera proficiency with one-on-one instruction in the field. Basics for print adjustment and output will be covered.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Credits</th>
<th>Section</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>371.300 (H)</td>
<td>BLACK &amp; WHITE PHOTOGRAPHY SEMINAR (3) Berger</td>
<td>Berger</td>
<td>3</td>
<td>Sec. 01</td>
<td>Th 10-1</td>
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<td></td>
<td>Seminar: 371.146 or permission required. Attendance at first class is mandatory. Students develop a project of their choice, working independently in the darkroom and meeting for weekly critiques and discussions. Using the Zone System (a method of pre-visualization developed by Ansel Adams), students will experiment with different film, paper and developer combinations specific to their projects. Frequent gallery trips and visits from guest artists are an integral part of the seminar experience.</td>
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</table>
This course will examine the historical and current theories of sexual orientation and sexual variation development by examining the biological, psychological and social contributing factors that influence the development of sexual orientations and variations along with treatment and modification of problematic sexual behaviors. Cross-listed with Psychological & Brain Sciences and Studies of Women, Gender, and Sexuality.
### BEHAVIORAL BIOLOGY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Sections</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>200.376 (N,S)</td>
<td>PSYCHOPHARMACOLOGY (3)</td>
<td>Gorman</td>
<td>3</td>
<td>Limit 100 Prereq: 200.141 Cross-listed with Psychological and Brain Sciences and Neuroscience</td>
<td>Sec. 01</td>
<td>Th F 1:20</td>
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<tr>
<td>290.502</td>
<td>RESEARCH - FRESHMEN</td>
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<tr>
<td>290.504</td>
<td>RESEARCH - SOPHOMORES</td>
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<tr>
<td>290.506</td>
<td>RESEARCH - JUNIORS</td>
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<tr>
<td>290.508</td>
<td>RESEARCH - SENIORS</td>
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<tr>
<td>290.520</td>
<td>INDEPENDENT STUDY</td>
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### BIOLOGY

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Sections</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>020.100(N)</td>
<td>FRESHMEN SEMINAR: INTRODUCTION TO BIOMEDICAL RESEARCH (1.5)</td>
<td>Roseman</td>
<td></td>
<td>Freshmen only Limit 12</td>
<td>Sec. 01</td>
<td>M 4:30-5:30</td>
</tr>
<tr>
<td>020.125 (H, N)</td>
<td>BIOLOGY IN FILM (1) Schroer</td>
<td>Schroer</td>
<td>1</td>
<td>Limit 300 This course will feature weekly presentations of highly acclaimed, Hollywood films. Each film will be hosted by a different member of the Biology faculty who will provide an introduction and discussion of the film. Film topics include early discoveries in the biomedical arena, genetic and infectious diseases, and the potential consequences of human genetic engineering. Students will be expected to attend all classes and complete a questionnaire based on each film.</td>
<td>Sec. 01</td>
<td>Th 7:30-9:30</td>
</tr>
<tr>
<td>020.152 (N)</td>
<td>GENERAL BIOLOGY II (4) McCarty/Pearlman/Shingles</td>
<td>Prereq: 020.151 Limit 320</td>
<td>4</td>
<td>This course builds on the concepts presented and discussed in General Biology I. The primary focus of this course will be on the diversity of life and on the anatomy, physiology, and evolution of plants and animals. There will be a special emphasis on human biology. The workshops that were introduced in 020.151 General Biology I will include the use of simulation software, a critique of the primary literature, and an exploration of current trends in medicine. Cross-listed with Behavioral Biology</td>
<td>Sec. 01</td>
<td>M W F 11</td>
</tr>
<tr>
<td>020.154 (N)</td>
<td>GENERAL BIOLOGY LAB II (1) Pearlman</td>
<td>Pearlman</td>
<td>1</td>
<td>Corequisite: 020.152</td>
<td>Sec. 01</td>
<td>M W Th F 11</td>
</tr>
<tr>
<td>020.162 (N)</td>
<td>BIOLOGY WORKSHOP II (1) Pearlman</td>
<td>Pearlman</td>
<td>1</td>
<td>Limit 60 Prereq: a score of 4 or 5 on the AP Biology exam The Biology Workshop covers applications and current trends in biology through guest lectures from researchers and hands-on computer programs. Credit will be awarded for either 020.152 or 020.162, but not both.</td>
<td>Sec. 01</td>
<td>F 11</td>
</tr>
<tr>
<td>020.209 (N)</td>
<td>DINOSAURS (3) Weishampel</td>
<td>Weishampel</td>
<td>3</td>
<td>Limit 50 This course covers all of the major groups of dinosaurs, from Triceratops to T. rex and its relatives living today, birds. It will also cover the origins of the group, their near demise 65 million years ago, their behavior, growth, and development, and a history of their study.</td>
<td>Sec. 01</td>
<td>TTh 3:30</td>
</tr>
<tr>
<td>020.306 (N)</td>
<td>CELL BIOLOGY (4) Schroer/ Woodland Moudrianakis</td>
<td>Schroer/ Woodland Moudrianakis</td>
<td>4</td>
<td>Limit 340 Prereq: 020.305 How the molecules of living systems are organized into</td>
<td>Sec. 01</td>
<td>M 1:30-2:30, Th 10:30-11:30</td>
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</tbody>
</table>

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**Notes:**
- Cross-listed courses with Psychological and Brain Sciences and Neuroscience.
- Limitations and prerequisites vary for each course.
- Specific section times are provided for each course.
BIOLOGY

organelles, cells, tissues, and organisms will be explored, as well as how the activities of all of these are orchestrated and regulated to produce “Life”—a phenomenon greater than the sum of its parts. Considerable emphasis is placed on experimental approaches to answering these questions. Topics covered include biological membranes, cytoskeletal elements, cell locomotion, membrane and protein traffic, the nucleus, second messengers, signal transduction, cell growth, the cell cycle, the extracellular matrix, cell contact and adhesion, intercellular communication, epithelial structure and function, and the cell biology of early development and organ function.

020.312 (N) INTRODUCTION TO THE HUMAN BRAIN (3) Hedgecock  Limit 60
This course explores the outstanding problem of biology: how knowledge is represented in the brain. Relating insights from cognitive psychology and systems neuroscience with formal theories of learning and memory, topics include: (1) anatomical and functional relations of cerebral cortex, basal ganglia, limbic system, thalamus, cerebellum and spinal cord; (2) cortical anatomy and physiology including laminar/columnar organization, intrinsic cortical circuit, hierarchies of cortical areas; (3) activity-dependent synaptic mechanisms; (4) functional brain imaging; (5) logical and connectist theories of cognition; and (6) relation of mental representations and natural language. Co-listed as 020.612

020.316 (N) CELL BIOLOGY LAB (2) Horner  Limit 60 per section
Preq: 020.305 Coreq: 020.306
First lab section meeting Jan. 22
This course will reinforce the topics presented in 020.306 Cell Biology through laboratory exercises which use visible and fluorescence microscopy to study chromosomes, cell organelles, cell surface receptors, contractile proteins, and microfilaments.

020.332 (N) PLANT BIOCHEMISTRY AND PHYSIOLOGY (2) Moudrianakis/ Horner  Limit 25  Prereq: 020.305-306
This course will emphasize plant biochemistry, including fundamental physiological processes of plants, cell structure and function, light capture and photosynthesis, plant growth and development, and the metabolism of minerals and nitrogen. The students will have the opportunity to examine and analyze plant cell structures and organelles with the aid of a scanning electron microscope. In this way, they will acquire a first-hand appreciation of structure to function.

020.333 (N) ADAPTATIONS OF PLANTS TO THEIR ENVIRONMENT (2) McCarty  Limit 60  Prereq: 020.151-152 or AP Biology credit
This course is an introduction to the ecological physiology of higher plants. Plants grow in the tropics and the tundra, in extremely dry or wet situations, and even in salt water. The adaptations of plants to their environments will be discussed.

020.335 (N) LANDMARKS IN BIOCHEMICAL RESEARCH (2) Roseman  Limit 20  Prereq: Grades of B or better in the following: Biology 020.305, 020.315; Chemistry 030.205
An advanced biochemistry course designed for upperclassmen. Emphasis will be on the origins of important biochemical concepts, and on the essential role of quantitative thinking in the experiments that led to these ideas. Original and current papers will be analyzed.
BIOLOGY

PROTEINS (3) Privolov
Introduction to the protein world; the immense versatility of protein function. Primary, secondary, tertiary, and quaternary structures of proteins. The forces involved in folding these heteropolymers into unique conformations and their association with partners, other proteins and nucleic acids, forming supramolecular constructions the “molecular machines.”

IMMUNOBIOLOGY (3) Edidin
Limit 60   Prereq: 020.305, 020.306, 020.330 A course for upper-level undergraduates that will introduce them to immunochemistry, immunobiology, and clinical immunology. Emphasis is placed on the language, concepts, and experimental methodology of modern immunology and the application of this information to specific human diseases.

MICROBIAL PATHOGENESIS (3) Schildbach
Prereqs: 020.305 and 020.306 (Formerly taught as Epidemics and Pandemics) The human immune system usually holds infections in check, but occasionally invading microorganisms can evade the immune system and spread through the host’s body and through the population. This course will examine the molecular mechanisms used by bacteria and viruses to cause disease, with a focus on episodes of widespread illness and death.

DEVELOPMENTAL BIOLOGY (3) Corces/Van Doren
Limit 140   Prereqs:020.305-306, 020.330 Development of invertebrates, vertebrates and plants. The course will emphasize the experimental bases for the fundamental concepts of development.

HUMAN EVOLUTION (3) Teaford
Limit 25   Prereq: 020.207 or Perm req’d A close look at the fossil evidence for human evolution. Topics include: introduction to taxonomy, evolutionary theory, paleoclimatology & dating techniques, Miocene hominids, the earliest hominids, the first members of our genus, the position of Neanderthals in our ancestry, and the origins and fate of modern humans.
A history of life on earth has been recorded in the DNA of modern organisms. But what information is contained in this record and how can we understand it? This course introduces basic principles of molecular evolution and a wide array of methodologies used to infer and interpret molecular sequence data. Many interesting studies of gene and genome evolution will be covered as examples of this burgeoning area of research.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Instructor(s)</th>
<th>Enrollment Limit</th>
<th>Prerequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>020.613</td>
<td>BIOLOGY SCIENCE WRITING</td>
<td>Huang</td>
<td>Limit 14</td>
<td>Perm. Req’d</td>
<td>Grad students only</td>
</tr>
<tr>
<td>020.637</td>
<td>ADVANCED DEVELOPMENTAL BIOLOGY &amp; GENETICS</td>
<td>Tan-Dean/Spaeth/Borton</td>
<td>Limit 25</td>
<td></td>
<td>This course covers gametogenesis, embryogenesis, post-embryonic development, genetic analysis, developmental genetics, model developmental systems, and cell determination.</td>
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<tr>
<td>020.674</td>
<td>GRADUATE BIOPHYSICAL CHEMISTRY</td>
<td>Woodson/Brand/Hill</td>
<td>Limit 40</td>
<td>020.305-306</td>
<td>This course provides an overview of protein and nucleic acid structure, fundamentals of thermodynamics and kinetics, ligand binding, folding, and stability of macromolecules, and the physical principles of fluorescence spectroscopy, NMR spectroscopy, and X-ray diffraction. Co-listed as 250.664.</td>
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<tr>
<td>020.682</td>
<td>MOLECULAR RECOGNITION AND SIGNALING</td>
<td>Freire</td>
<td>Limit 25</td>
<td></td>
<td>Open to undergraduate students with instructor’s permission Biological function requires the interaction between macromolecules and small molecules. These interactions trigger specific signals that result in the activation or inhibition of specific pathways in the cell. Molecular interactions require the ability of the interacting partners to recognize each other. Understanding the way in which molecules recognize each other provides a way to understand cell function and the basis for the development of new medical strategies aimed at treating conditions such as cancer, diabetes, Alzheimers, etc. This course will provide an in depth coverage of the fundamentals of molecular recognition, using as specific examples some of the most important and recognized targets for drug development.</td>
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<tr>
<td>020.739</td>
<td>SEMINAR: TOPICS IN BIOCHEMISTRY</td>
<td>Bessman</td>
<td>Limit 20</td>
<td></td>
<td>&quot;Topics in Biochemistry&quot; deals with minireviews taken from the Journal of Biological Chemistry. Students select a topic of their choice from the &quot;Compendium of Minireviews&quot; for the current year, and present it before the class for discussion. The course is open to graduate students and advanced undergraduates.</td>
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<tr>
<td>020.802</td>
<td>RESEARCH IN BIOLOGICAL PROBLEMS</td>
<td>Staff</td>
<td></td>
<td>Biology Graduate students only</td>
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<tr>
<td>020.825</td>
<td>INTRODUCTION TO BIOLOGY RESEARCH</td>
<td>Staff</td>
<td>Open to first year</td>
<td>Biology graduate students only</td>
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<tr>
<td>020.826</td>
<td>INTRODUCTION TO BIOLOGY RESEARCH</td>
<td>Staff</td>
<td>Open to first year</td>
<td>Biology graduate students only</td>
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</tr>
<tr>
<td>250.106 (N)</td>
<td>INTRODUCTION TO BIOMEDICAL RESEARCH &amp; CAREERS</td>
<td>Huang</td>
<td>Limit 40</td>
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<td>Seminar series designed for those interested in or curious about a career in biological sciences and medicine. A novel format combining lectures with “talk show” interviews gives students a broad view of different research problems, experimental approaches, and practical applications, as well as career paths. The emphasis is on the excitement of scientific explorations, rather than an abundance of technical information.</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Instructor(s)</td>
<td>Credits</td>
<td>Prerequisites</td>
<td>Limit</td>
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<td>250.300 (N)</td>
<td>INTRODUCTION TO BIOMEDICAL RESEARCH &amp; CAREERS II (1)</td>
<td>Huang, P-C</td>
<td>1</td>
<td>Freshmen and Non-Science Majors Co-listed with 250.300 &amp; 306</td>
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<tr>
<td>250.306 (N)</td>
<td>INTRODUCTION TO BIOMEDICAL RESEARCH &amp; CAREERS III (1)</td>
<td>Huang, P-C</td>
<td>1</td>
<td>Sophomore, Junior, and Senior Science Majors Co-listed with 250.106 &amp; 306</td>
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<tr>
<td>250.332 (N)</td>
<td>X-RAY CRYSTALLOGRAPHY OF BIOLOGICAL MACROMOLECULES (3)</td>
<td>Lattman</td>
<td>3</td>
<td>For those who have already taken 250.106 or 250.300 Co-listed with 250.106 &amp; 306</td>
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<tr>
<td>250.372 (N)</td>
<td>INTRODUCTION TO BIOPHYSICAL CHEMISTRY (3)</td>
<td>Barrick</td>
<td>3</td>
<td>For those who have already taken 250.106 or 250.300 Co-listed with 250.106 &amp; 306</td>
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<tr>
<td>250.401 (N)</td>
<td>ADVANCED SEMINAR IN BIOPHYSICS (3)</td>
<td>Garcia-Moreno</td>
<td>3</td>
<td>Prereq: 020.305 - Biochemistry and 250.372 - Introduction to Biophysical Chemistry helpful Focus on structural and molecular virology. Topics include structural and physical aspects of viruses, replication cycles, evolution and focused discussion on the structural basis of the life cycle of human pathogens such as the influenza virus and HIV. Course shows integration between quantitative and physical biophysical approaches and contemporary biological questions.</td>
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<td>250.520</td>
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<td>250.522</td>
<td>RESEARCH PROBLEMS</td>
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<tr>
<td>250.597</td>
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<tr>
<td>250.602</td>
<td>BIOPHYSICS SEMINAR</td>
<td>Cone</td>
<td>1</td>
<td>Prereq: 020.305 - Biochemistry and 250.372 - Introduction to Biophysical Chemistry helpful Focus on structural and molecular virology. Topics include structural and physical aspects of viruses, replication cycles, evolution and focused discussion on the structural basis of the life cycle of human pathogens such as the influenza virus and HIV. Course shows integration between quantitative and physical biophysical approaches and contemporary biological questions.</td>
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<tr>
<td>250.632</td>
<td>LAB RESEARCH IN BIOPHYSICS</td>
<td>Staff</td>
<td>1</td>
<td>Prereq: 020.305 - Biochemistry and 250.372 - Introduction to Biophysical Chemistry helpful Focus on structural and molecular virology. Topics include structural and physical aspects of viruses, replication cycles, evolution and focused discussion on the structural basis of the life cycle of human pathogens such as the influenza virus and HIV. Course shows integration between quantitative and physical biophysical approaches and contemporary biological questions.</td>
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<tr>
<td>250.644</td>
<td>GRADUATE BIOPHYSICAL CHEMISTRY</td>
<td>Woodson/Brand/Hill</td>
<td>3</td>
<td>Prereq: 020.305-020.306, 020.668 or equivalent. Review of classical &amp; statistical thermodynamics, protein &amp; nucleic acid structure, ligand binding, enzyme kinetics. Biophysical methods such as fluorescence &amp; NMR spectroscopy &amp; X-ray crystallography will also be discussed. Co-listed as 020.674</td>
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<tr>
<td>250.674</td>
<td>SEMI-ANNUAL THESIS</td>
<td>Rose</td>
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<td>Freshmen and Non-Science Majors Co-listed with 250.300 &amp; 306</td>
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<tr>
<td>250.802</td>
<td>DISSERTATION RESEARCH</td>
<td>Rose</td>
<td>1</td>
<td>Freshmen and Non-Science Majors Co-listed with 250.300 &amp; 306</td>
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### CHEMISTRY

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>030.102 (N)</td>
<td>INTRODUCTORY CHEMISTRY II (3)</td>
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<td>(N) Staff: Limit 280 per section</td>
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<td>Note: Please register as follows:</td>
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<td>Section 01 - Last names A-K</td>
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<td>Section 02 - Last names L-Z</td>
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<td>NO SECTION CHANGES during semester</td>
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<td></td>
<td>Continuation of 030.101 emphasizing chemical kinetics, chemical bonding. Topics: energy levels and wavefunctions for particle-in-a-box and hydrogen atom and approximate wavefunctions for molecules including introduction to hybrid orbitals.</td>
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<tr>
<td>030.106 (N)</td>
<td>INTRODUCTORY CHEMISTRY LAB (1)</td>
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<td>Prereq: 030.105</td>
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<td>Limit 90 per section Fundamental methods of chemistry with related calculations.</td>
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<tr>
<td>030.206 (N)</td>
<td>INTRODUCTORY ORGANIC CHEMISTRY II (4) Staff</td>
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<td></td>
<td>Limit 472</td>
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<td>Prereq: 030.205</td>
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<td></td>
<td>Continuation of 030.205</td>
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<tr>
<td>030.225 (N)</td>
<td>INTRODUCTORY ORGANIC CHEMISTRY LAB (3) Greco</td>
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<td>Prereq: 030.101-102, 030.105</td>
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<td>Limit 66 - Secs 1, 2, and 4</td>
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<td>Limit 46 - Secs 3 and 5</td>
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<tr>
<td>030.228</td>
<td>INTERMEDIATE ORGANIC CHEMISTRY LAB (3) Lecica</td>
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<td>Prereq: 030.225</td>
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<td>Limit 25</td>
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<td></td>
<td>Lab skills already acquired (030.225) will be further developed for synthesis, isolation, purification, and identification of organic compounds. Spectroscopic techniques, applications will be emphasized.</td>
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<tr>
<td>030.302 (N)</td>
<td>PHYSICAL CHEMISTRY II (3) Dagdgian</td>
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<td>Prereq: 030.301</td>
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<td></td>
<td>Introduction to quantum mechanics, its application to simple problems for which classical mechanical fails. Topics: Harmonic oscillator, hydrogen atom, very approximate treatments of atoms and molecules and theoretical basis for spectroscopy.</td>
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<tr>
<td>030.306 (N)</td>
<td>PHYSICAL CHEMISTRY INSTRUMENTATION LAB (3)</td>
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<td>Prereq: 030.305</td>
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<td>Designed to illustrate the principles of physical chemistry, introduce the student to techniques and instruments used in modern chemical research. Chemistry majors expected to take this sequence of courses rather than 030.307.</td>
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<tr>
<td>030.441 (N)</td>
<td>SPECTROSCOPIC METHODS OF ORGANIC STRUCTURE (3)</td>
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<td></td>
<td>Hendrickson Limit 12 The course provides fundamental theoretical background for and emphasizes practical application of ultraviolet/visible and infrared spectroscopy, proton and carbon-13 nuclear magnetic resonance and mass spectrometry to the structure proof of organic compounds.</td>
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<tr>
<td>030.442 (N)</td>
<td>ORGANO METALLIC CHEMISTRY (3) Roth</td>
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<td>Prereq: 030.449 or equivalent</td>
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<td></td>
<td>An introduction to organometallic chemistry beginning with structure, bonding and reactivity and continuing into applications to fine chemical synthesis and catalysis.</td>
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<tr>
<td>030.449 (N)</td>
<td>CHEMISTRY OF INORGANIC COMPOUNDS (3) Goldberg</td>
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<td>Prereq: 030.301-302</td>
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<tr>
<td></td>
<td>Physical and chemical properties of inorganic, coordination and</td>
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</table>
organometallic compounds are discussed in terms of molecular orbital, ligand field and crystal field theories. Emphasis on structure and reactivity of these inorganic compounds. Other topics: magnetic properties, electronic spectra, magnetic resonance spectra, reaction kinetics.

**CHEMISTRY**

030.502 INDEPENDENT RESEARCH IN PHYSICAL CHEMISTRY I
030.504 INDEPENDENT RESEARCH INORGANIC CHEMISTRY I
030.506 INDEPENDENT RESEARCH ORGANIC CHEMISTRY I
030.508 INDEPENDENT RESEARCH IN BIOCHEMISTRY I
030.510 INDEPENDENT RESEARCH IN BIOCHEMISTRY II
030.522 INDEPENDENT RESEARCH INORGANIC CHEMISTRY II
030.524 INDEPENDENT RESEARCH ORGANIC CHEMISTRY II
030.526 INDEPENDENT RESEARCH IN PHYSICAL CHEMISTRY II
030.528 INDEPENDENT STUDY
030.552 INTERNSHIP-CHEMISTRY
030.601 STATISTICAL MECHANICS Poland

- Limit 20
- Prereq: 030.301
- An introduction to statistical mechanics of cooperative phenomena using lattice gases and polymers as the main models.
- Covered topics: phase transitions and critical phenomena, scaling laws, and the use of statistical mechanics to describe time dependent phenomena.

030.611 ELECTRON TRANSFER PROCESSES Meyer

- Limit 20
- Prereq: 030.356 or Perm. Req’d
- Electron transfer processes are distinguished by their ubiquity and essential roles in many physical, chemical, and biological processes. Rates of electron transfer in cytochromes and semiconductors span over 20 orders of magnitude. Therefore, it is important to understand the factors that underlie this large rate variation. This course is concerned primarily with this issue. Electron transfer theories will be developed from historic point of view. Basic concepts and terminology will be discussed as well as the spectroscopic and electrochemical techniques useful for quantitating electron transfer processes. Recent electron transfer studies in biology, the solid state, and solution will also be highlighted.

030.612 NUCLEIC ACIDS CHEMISTRY Draper

- Limit 20
- Prereq: 030.301 or equivalent
- A survey of physical properties of DNA and RNA. Areas explored: conformations of secondary and tertiary structures, polyelectrolyte properties, folding and unfolding reactions, and recognition by small molecules and proteins.

030.614 CHEMICAL BIOLOGY INTERFACE PROGRAM FORUM Greenberg

- Limit 20
- Chemistry-Biology Interface (CBI) program students and faculty will meet weekly in a forum that will host presentations from CBI faculty and students as well as invited guest speakers. These meetings will serve as a valuable opportunity for students to develop presentation skills and interact with CBI students and faculty. Enrollment is required for first and second year CBI students, and is recommended for advanced year graduate students.
CHEMISTRY

030.620 CHEMICAL BIOLOGY II Townsend
Limit 12 Prereq: Chemical Biology I or Perm. Req'd Selected topics of current importance in chemical biology are covered. They include protein engineering and proteomics, cell signaling, protein-nucleic acid interactions (e.g., replication, transcription, DNA repair), catalytic RNA and the ribosome, biosynthesis of natural products, mechanisms of drug action, combinatorial chemistry and chemical genetics, and in vitro selection.

030.622 SEMINAR: LITERATURE OF CHEMISTRY Karlin
Limit 25 Seminars are presented by advanced graduate students on topics from current chemical journals. Most first-year graduate students are expected to attend for credit. Undergraduates may take the course on a satisfactory/unsatisfactory basis.

030.626 ADVANCED MECHANISTIC ORGANIC CHEMISTRY Tovar
Limit 18 Prereq 030.205-206 (Formerly 030.426) This course covers advanced organic reactions and their mechanisms. Emphasis is given both to methods of postulating mechanisms for rationalizing reaction results and to the use of mechanistic thinking for designing reactions and reagents. This course is intended to be taken in sequence with 030.425.

030.634 TOPICS IN BIOORGANIC CHEMISTRY Hendrickson
Limit 20 Prereq: Chemical Biology I or two semesters of Organic Chemistry and one semester of Biochemistry. Each year, topics in modern bioorganic chemistry will be treated in depth, drawing from the current literature as a primary resource. Topics will include natural products chemistry, biosynthetic reaction mechanisms, and drug design. Methods of synthesis, combinatorial synthesis, and genetics will be described throughout. Carbohydrates, lipids, polyketides, polypeptides, terpenes, and alkaloids are some of the molecule classes to be examined. Formerly 030.632

030.667 ORGANIC SYNTHESIS RESEARCH SEminar Posner
Limit 20 Open only to students in Dr. Posner's Research Group

030.678 ADVANCED ORGANIC SYNTHESIS II Lecta
Limit 20 Prereq: 030.677 Advanced discussion of organic stereochemistry & its application to problems in asymmetric reactions and catalysis will be presented. Emphasis will be placed on the latest reports in the literature, especially with respect to the development of new catalytic, asymmetric processes.

030.684 INORGANIC NIGHTS Staff
Limit 30 Contemporary research topics in biological, physical and synthetic aspects of inorganic chemistry will be discussed. Emphasis will be placed on the development of modern experimental techniques and emerging mechanistic themes as they apply to the chemistry of metalloproteins, inorganic compounds and inorganic materials.

030.801 INDEPENDENT STUDY
990.897 DISSERTATION RESEARCH
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Units</th>
<th>Prerequisites</th>
<th>Days</th>
<th>Time</th>
</tr>
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<tbody>
<tr>
<td>040.106</td>
<td>ELEMENTARY ANCIENT GREEK (4)</td>
<td>Driver</td>
<td>4</td>
<td>Limit 20</td>
<td>MTW</td>
<td>10</td>
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<td></td>
<td>Course provides comprehensive, intensive introduction to study of ancient Greek. First semester’s focus is morphology and vocabulary; second semester’s emphasis in syntax and reading. Credit is given only upon completion of a year’s work. Course may not be taken Satisfactory/Unsatisfactory.</td>
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<tr>
<td>040.108</td>
<td>ELEMENTARY LATIN (3.5)</td>
<td>Phin/Solez</td>
<td>3.5</td>
<td>Limit 20 per section</td>
<td>MTW</td>
<td>9</td>
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<tr>
<td></td>
<td>Course provides comprehensive, intensive introduction to study of Latin for new students as well as systematic review for students with background in Latin. First semester’s emphasis is morphology and vocabulary; second semester’s focus is on syntax and reading. Credit is given only upon completion of a year’s work. Course may not be taken Satisfactory/Unsatisfactory.</td>
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<tr>
<td>040.206 (H)</td>
<td>INTERMEDIATE ANCIENT GREEK (3)</td>
<td>Yatromanolakis</td>
<td>3</td>
<td>Limit 20</td>
<td>MTW</td>
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<td></td>
<td>Course aims to increase proficiency and improve comprehension of ancient Greek. Reading ability is developed through a study of various authors, primarily Plato (Fall) and Homer.</td>
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<tr>
<td>040.208 (H)</td>
<td>INTERMEDIATE LATIN (3)</td>
<td>Perriello</td>
<td>3</td>
<td>Limit 20</td>
<td>MTW</td>
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<td></td>
<td>Course aims to increase proficiency and improve comprehension of Latin. Reading ability is developed through the study of various authors, primarily Cicero (Fall) and Vergil.</td>
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<td>040.306 (H)</td>
<td>ADVANCED ANCIENT GREEK (3)</td>
<td>Detienne</td>
<td>3</td>
<td>Limit 10</td>
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<td>Course focuses on Sophocles’ Oedipus Tyrannus.</td>
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<tr>
<td>040.307 (H)</td>
<td>ADVANCED LATIN (LATIN PROSE) (3)</td>
<td>Valladares</td>
<td>3</td>
<td>Limit 20</td>
<td>TW</td>
<td>4.5-30</td>
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<td>Course focuses on various authors, depending on the needs of students. This semester’s focus is on Petronius, “The Satyricon.” (Same course as 040.707)</td>
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<tr>
<td>040.348 (H)</td>
<td>THE WORLD OF HOMER (3)</td>
<td>Shapiro</td>
<td>3</td>
<td>Limit 35</td>
<td>F</td>
<td>10-12</td>
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<td></td>
<td>Course will explore in depth the two epics, Iliad and Odyssey, as well as other early Greek poetry, in its historical, archaeological, and cultural setting.</td>
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<td>Th</td>
<td>10-12</td>
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<tr>
<td>010.350 (H)</td>
<td>ROMAN ARCHITECTURE (3)</td>
<td>Koortbojian</td>
<td>3</td>
<td>Limit 25</td>
<td>MTW</td>
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<td>Cross-listed with History of Art</td>
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<tr>
<td>150.401 (H)</td>
<td>GREEK PHILOSOPHY: PLATO AND HIS PREDECESSORS (3)</td>
<td>Betz</td>
<td>3</td>
<td>Limit 35</td>
<td>MTW</td>
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<td></td>
<td>Course focuses on ancient Greek poetry, in its historical, archaeological, and cultural setting.</td>
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<tr>
<td>040.502</td>
<td>INDEPENDENT STUDY</td>
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<tr>
<td>040.520</td>
<td>HONORS RESEARCH</td>
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<tr>
<td>040.580</td>
<td>MASTER’S RESEARCH</td>
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</tbody>
</table>
040.605  **THE ROMANS AND THEIR PAST**  
Roller-Koorhygian  
Limit 10  
This seminar, focusing on both monuments and texts, examines the ways in which Romans engaged and constructed their past in these two media. Topics include the culture(s) of commemoration and monumentalization, ancestor portraiture, historiography and exemplarity, historical art, and the Roman’s sense of their own antiquity. These topics are considered in light of recent theories of historical understanding.  
*Cross-listed with History of Art*  
Sec. 01  M 1-3

040.608  **ANTHROPOLOGIES OF POLLUTION AND PURIFICATION: FROM OEDIPUS OF THEBES TO THE PEOPLE OF KOSOVO**  
Detienne  
Limit 10  
*Cross-listed with History of Art*  
Sec. 01  W 3-5

040.610  **THE ART OF DESCRIPTION: EKPHRASIS IN GREECE AND ROME**  
Shapiro/Valdarese  
Limit 10  
This seminar will examine in detail representative examples of ekphrasis in Greek and Latin poetry along with relevant works of art from all periods of Antiquity.  
*Cross-listed with History of Art*  
Sec. 01  Th 1:30-4

040.612  **ANCIENT GREEK PROSE COMPOSITION**  
Yatromanolakis  
Limit 10  
Translating modern English prose into ancient Greek. Emphasis on the Attic dialect.  
Sec. 01  T 12-2

040.706  **READING ANCIENT GREEK PROSE**  
Detienne  
Limit 10  
This reading seminar is intended to train graduate students in direct and critical work on primary sources. This semester’s focus is on Sophocles’ Oedipus Tyrannus. (Same course as 040.306)  
Sec. 01  W 12-2

040.707  **READING LATIN PROSE**  
Valdarese  
Limit 10  
This reading seminar is intended to train graduate students in direct and critical work on primary sources. This semester’s focus is on Petronius, “The Satyricon.” (Same course as 040.307)  
Sec. 01  TW 4-5:30

040.712  **READING GREEK PHILOSOPHY**  
Bett  
Limit 10  
Prereq: Two years of Greek or Perm. Req’d: A seminar devoted to close reading and analysis of fragments of the pre-Socratics in the original Greek.  
*Cross-listed with Philosophy*  
Sec. 01  T 2-4

213.662  **ADVOCACY: FÜRSPRACHE**  
Campe  
Limit 15  
We will discuss instances of advocacy – speaking/acting on behalf of someone before someone – in different areas: ancient rhetoric, legal and cultural theory, poetry and the novel. The goal of the course is to develop an understanding of ‘Fürsprache’ as a basic feature of communication. Readings include Aristotle, Quintilian, Derrida, Rawles, Lacan, Austin, Hölderlin and Kafka. Readings and discussion in English.  
*Cross-listed with the Humanities Center, Political Science, and German and Romance Languages and Literatures*  
Sec. 01  Th 3-5pm

040.802  **INDEPENDENT STUDY**

040.815  **DISSERTATION RESEARCH**
COGNITIVE SCIENCE

050.101 (N,S) COGNITION (3) Frank  Limit 135
Introductory course exploring the study of human mental processes within the field of cognitive science. Drawing upon cognitive psychology, cognitive neuropsychology, cognitive neuroscience, linguistics, and artificial intelligence, this course examines theory, methods, and major findings in work on vision, reasoning, and language.

Sec. 01  ThF 10:30-12

050.203 (N,S) COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN (3) Rapp  Limit 135  Perm. Req'd
This course surveys theory and research concerning how mental processes are carried out by the human brain. Currently a wide range of methods of probing the functioning brain are yielding insights into the nature of the relation between mental and neural events. Emphasis will be placed on developing an understanding of both the physiological bases of the techniques and the issues involved in relating measures of brain activity to cognitive functioning. Methods surveyed include electrophysiological recording techniques such as EEG, VEP, ERP, single/multiple unit recording and MEG, functional imaging techniques such as PET and fMRI, and methods that involve lesioning or disrupting neural activity such as WADA, cortical stimulation, animal lesion studies, and the study of brain-damaged individuals.

Cross-listed with Neuroscience

Sec. 01  ThF 2-3:30

050.240 (H,N,S) THE WORLD OF LANGUAGE (3) Legendre  Limit 60  This hands-on course exposes students to the fascinating variety – and uniformity – to be found among the world’s 6000 languages through group lectures on a variety of topics as well as actual linguistic fieldwork conducted in small groups with a native speaker of a language unknown to the participants. Among the fundamental questions examined in lectures and tested against realistic linguistic data are the following. Is knowledge of language encoded in the genes? Is it unique to mankind? How do new languages emerge from the contact of two very different languages? How did English change over time? Are all languages related? Where does language come from?

Sec. 01  MTW 10

050.311 (N,S) WRITTEN LANGUAGE: NORMAL PROCESSING & DISORDERS (3) Rapp  Limit 40  Prereq: 050.101, 050.102, or 050.105
This course surveys both the historical development of written language as well as current cognitive theories that account for the manner in which the written language is represented and processed by “readers/writers” of a language. Issues regarding the relationship between the written and spoken language, the acquisition of written language skills, as well as developmental and acquired disorders of reading and writing will be examined. Cross-listed with Neuroscience

Sec. 01  ThF 10:30-12

050.315 (N,S) COGNITIVE NEUROPSYCHOLOGY OF VISUAL PERCEPTION (3) McCloskey  Limit 35  Prereq any one of the following: 050.101 and 105
When the visual areas of the brain are damaged or fail to develop normally, remarkable perceptual deficits may result (for example, inability to determine where objects are even though the objects can be seen clearly). This course explores a variety of visual deficits, focusing on what the deficits

Sec. 01  M 2-4:15
### COGNITIVE SCIENCE

Cognitive Science can tell us about normal visual perception. Topics include object recognition and visual agnosia, spatial perception and spatial deficits, and attention and visual neglect. *Cross-listed with Neuroscience*

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tr>
<td>050.320</td>
<td>Syntax I</td>
<td>Legrande Limit 20, 050.102, 050.140, 050.427</td>
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<tr>
<td></td>
<td>Syntactic Principles</td>
<td>Introduction to the basic principles underlying the mental representation and manipulation of language sounds and their relation to human perception and vocal articulation: how units of sound are both decomposable into elementary features, and combined to form larger structures like syllables and words. The role of rules and constraints in a formal theory of phonological competence and in accounting for the range of variation among the world's languages. <em>Same course as 050.620</em></td>
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<tr>
<td>050.325</td>
<td>Phonology I</td>
<td>Bucio Limit 20, Previous experience with one other language-related course desirable but not obligatory</td>
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<tr>
<td></td>
<td>Phonological Principles</td>
<td>Introduction to the basic principles underlying the mental representation and manipulation of language sounds and their relation to human perception and vocal articulation: how units of sound are both decomposable into elementary features, and combined to form larger structures like syllables and words. The role of rules and constraints in a formal theory of phonological competence and in accounting for the range of variation among the world's languages. <em>Same course as 050.625</em></td>
</tr>
<tr>
<td>050.333</td>
<td>Psycholinguistics</td>
<td>Badecker Limit 75, This course provides a broad survey of current research on natural language processing. Topics include the recognition and production of words, the planning and production of sentences, and how listeners understand spoken sentences. The types of evidence examined include speech errors, the analysis of acquired language impairments, eye-tracking and Event-Related Potential (ERP) measurements, and various measures of lexical access and relative processing complexity that can be exploited to reveal how the brain represents and processes language. <em>Same course as 050.625</em></td>
</tr>
<tr>
<td>050.358</td>
<td>Language and Thought</td>
<td>Landau Limit 20, Majors in Cogsci, Psych &amp; Philos. welcome but course is open to all majors. Have you ever wondered about the relationships between language and thought? Philosophers, linguists, psychologists, and cognitive scientists have too and this course will survey the current thinking on this matter. Classical papers such as those by Whorf and Sapir, more recent philosophical papers by people such as Fodor and Dennett, and recent empirical work by linguists and psychologists on the relationship between language and thinking in development and in adults will be covered. Discussions will focus on the theoretically possible relationships between language and thought and the empirical data that speak to these. <em>Cross-listed with Psychological and Brain Sciences</em></td>
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<tr>
<td>20.206</td>
<td>Foundations of Mind</td>
<td>Fegerson/Mutheda Limit 20, An interdisciplinary investigation into the inner workings of the mind, exploring the question of how the brain represents the world. Evidence from animals, infants, patients, brains. Students collect data in sections investigating claims from the readings. <em>Cross-listed with Behavioral Biology, Cognitive Science, and Philosophy</em></td>
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<tr>
<td>050.502</td>
<td>Readings in Cognitive Science for Freshmen</td>
<td><em>Cross-listed with Cognitive Science for Freshmen</em></td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Instructor</td>
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<tr>
<td>050.504</td>
<td>RESEARCH IN COGNITIVE SCIENCE FOR FRESHMEN</td>
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<tr>
<td>050.506</td>
<td>READINGS IN COGNITIVE SCIENCE FOR FRESHMEN</td>
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<tr>
<td>050.508</td>
<td>RESEARCH IN COGNITIVE SCIENCE FOR SOPHOMORES</td>
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<td>050.510</td>
<td>COGNITIVE SCIENCE INTERNSHIP</td>
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<tr>
<td>050.512</td>
<td>READINGS IN COGNITIVE SCIENCE FOR SOPHOMORES</td>
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<td>050.514</td>
<td>RESEARCH IN COGNITIVE SCIENCE FOR JUNIORS</td>
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<tr>
<td>050.516</td>
<td>READINGS IN COGNITIVE SCIENCE FOR SENIORS</td>
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<tr>
<td>050.518</td>
<td>RESEARCH IN COGNITIVE SCIENCE FOR SENIORS</td>
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<tr>
<td>050.620</td>
<td>SYNTAX I <strong>Legendre</strong> Limit 20 Perm. Req'd Prereq: 050.320 See 050.320 for description (same course)</td>
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<tr>
<td>050.625</td>
<td>PHONOLOGY I <strong>Burzio</strong> Limit 20 See 050.325 for description (same course)</td>
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<tr>
<td>050.633</td>
<td>PSYCHOLINGUISTICS <strong>Badecker</strong> Limit 35 See 050.333 for description (same course)</td>
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<tr>
<td>050.680</td>
<td>LEARNING THEORY <strong>Smolensky, Frank</strong> Limit 40 Recently, statistical learning has played a leading role in informing the empiricist/nativist and connectionist/symbolic debates. But just what is “statistical learning” and what’s new about it? This course presents theories of statistical learning, such as Bayesian models, causal networks, information-theoretic models (e.g., Minimum Description Length and Maximum Entropy formulations). These methods have caused revolutions in machine vision and natural language processing. During the course, these methods will be compared with other numerical learning methods such as connectionist networks, and with non-numerical learning theories such as Gold’s classic learnability theory and its probabilistic extension to PAC (probably approximately correct) learning theory. This recent work has fundamental implications for the ancient problem of induction.</td>
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<tr>
<td>050.800</td>
<td>DIRECTED READINGS Staff Guided independent readings in special fields of cognitive science</td>
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<tr>
<td>050.801</td>
<td>RESEARCH SEMINAR IN COGNITIVE NEUROPSYCHOLOGY <strong>McCluskey</strong> Participants in this graduate seminar will read and discuss current research articles in cognitive neuropsychology of vision or language, and present their own research.</td>
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<tr>
<td>050.811</td>
<td>RESEARCH SEMINAR: LANGUAGE &amp; COGNITION <strong>Landau</strong> Perm. Req'd A specialized research seminar for individual researching language acquisition, cognitive development and the interface between language and cognition. Students must actively carry out empirical or theoretical research in these areas.</td>
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<tr>
<td>050.821</td>
<td>RESEARCH SEMINAR IN GRAMMATICAL STRUCTURE <strong>Burzio</strong> Limit 25 Perm. Req'd Topics in phonological, morphological, syntactic, and/or semantic theory. Discussion of the current literature and specifically of the relevance of linguistic results for the study of the mind.</td>
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EARTH AND PLANETARY SCIENCES

270.102 (N)  FRESHMEN SEMINAR: CONVERSATION WITH THE EARTH (2-3) Freshman only
Please register accordingly:
Sec. 01: 2 credits (normal participation)
Sec. 02: 3 credits (requires term paper)
A discussion of current topics on Earth's origin, evolution, and habitability. Topics will include extinction of life from meteorite impact, global warming, ozone depletion, volcanism, ice ages, and catastrophic floods, among others.

270.114 (N)  GUIDED TOUR: THE PLANETS (3) An introduction to planetary science and planetary exploration primarily for non-science majors. A survey of concepts from astronomy, chemistry, geology, and physics applied to the study of the solar system.

270.220 (N)  THE DYNAMIC EARTH (4) Prereq: S03.101 or S01.102
Introduction to geological concepts and techniques using geological tools, such as mineral/rock samples, microscopes, and maps. Field trips are its essential part.

270.221 LAB: THE DYNAMIC EARTH (1) Coreq: 270.220
This course is a hands-on learning experience for introductory geological concepts and techniques using geological tools, such as mineral/rock samples, microscopes, and maps. Field trips are its essential part.

270.315 (N)  PRINCIPLES OF NATURAL DISASTERS (3) Intended for students in science and engineering, a survey of naturally occurring catastrophic phenomena, with emphasis on the underlying physical processes. Topics include hurricanes, tornadoes, lightning, earthquakes, tsunamis, landslides, and volcanic eruptions and climate change.

270.350 (N)  SEDIMENTARY ENVIRONMENTS LAB (1.5) Coreq: 270.350
Laboratory work in petrology of sedimentary rocks.

270.351 SEDIMENTARY ENVIRONMENTS LAB (1.5) Coreq: 270.350
Laboratory work in petrology of sedimentary rocks.

270.360 (N)  CLIMATE CHANGE: SCIENCE & POLICY (3) Juniors and seniors only
This course will investigate the policy and scientific debate over global warming. It will review the current state of scientific knowledge about climate change, examine the potential impacts and implications of climate change, explore our options for responding to climate change, and discuss the present political debate over global warming.

COGNITIVE SCIENCE
EARTH AND PLANETARY SCIENCES

270.369 (N) GEOCHEMISTRY OF THE EARTH AND ENVIRONMENT (3) Sawyeransky Limit 20
An introduction to all aspects of geochemistry: theoretical, experimental, and observational, including the application of geochemistry to issues such as the migration of toxic metals and nuclear waste.

270.378 (N) PRESENT AND FUTURE CLIMATE (3) Arking Limit 20 Prereq: 110.108-109 (Calculus I & II) and 171.101-102 (Physics) Intended for science majors who are interested in the science that underlies the current debate on global warming. The focus is on recent observations and what one can glean from model simulations.

270.395 (N) PLANETARY PHYSICS AND CHEMISTRY (3) Strobel/Marsh Limit 10 Prereqs: Calculus II, 030.101.171.101-102 or 103-104 or 105-106 The fundamental principles governing the dynamic processes within and around the planets are treated in some detail. Core equations are developed and used to analyze nebula condensation, planetary accretion, convection in mantles and atmospheres, radiative and conductive heat transport, seismic waves, hurricanes, volcanism, and meteorite impacts, among others. Emphasis is on fundamentals and problem solving.

270.475 (E,Q,N) GROUNDWATER CONTAMINATION (3) Garven Limit 15 Prereq: 270.375 or prior coursework in hydrology. Introduction to groundwater chemistry; sources of contamination, transport processes, modeling of transport and fates of contaminants; monitoring, non-aqueous phase liquids; case studies; nuclear waste.

270.496 (W) SENIOR THESIS (4) Staff Limit 10 Preparation of a thesis is based upon independent student projects supervised by at least one faculty member in Earth and Planetary Sciences. Open to Senior departmental majors only. Required for department honors.

270.502 INDEPENDENT STUDY Staff

270.504 INDEPENDENT RESEARCH (1-3) Staff Research under the direction of members of the Earth and Planetary Sciences faculty. Prerequisites: Permission of instructor.

270.508 INTERNSHIP Staff

270.604 GEOPHYSICAL PETROLOGY SEMINAR Marsh Limit 15 Discussion of present research topics in geophysics and igneous petrology.

270.606 JOURNAL CLUB Conrad Limit 15 Review and discussion of new geologic literature and current research. All geology students participate and deliver at least one paper a year.

270.622 TRANSMISSION ELECTRON MICROSCOPY: THEORY AND UNDERSTANDING Hender/Velken Limit 30 Prereq: 270.621 This course, which follows and complements 270.621, introduces the student to more detailed aspects of kinematical and dynamical theories of electron diffraction. Theory of conventional TEM imaging, phase-contrast imaging, X-ray and energy loss analytical TEM, and computer-based image simulation are included.

270.624 SEMINAR IN STABLE ISOTOPE TECHNIQUES Jahreis Limit 10 This laboratory course will compare the new automated preparation systems attached to the isoprobe mass spectrometer with more traditional off-line vacuum apparatus, on the basis of ease/rapidity of analysis, sensitivity, precision and flexibility. We will focus on the stable isotopes of C in organic matter (modern and fossil) and H2O and D in water.

270.640 COMPUTER GEOSCIENCE (3) Conrad Limit 20 Investigation of computational methods (e.g., finite element, finite difference, spectral) and techniques (e.g., visualization,
**EARTH AND PLANETARY SCIENCES**

Parallel computing) that are used to solve complex and computationally – intensive problems in the geosciences.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Section</th>
<th>Room</th>
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<tbody>
<tr>
<td>270.643</td>
<td>Oceanic Turbulence and Mixing</td>
<td>Osborn</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>270.647</td>
<td>Earth’s Interior</td>
<td>Olson</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>270.653</td>
<td>Geophysical Fluid Dynamics</td>
<td>Waugh/Haine</td>
<td>Sec. 01</td>
<td>MW 10-11:30</td>
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<tr>
<td>270.653</td>
<td>Fluid Dynamics II</td>
<td>Waugh/Haine</td>
<td>Sec. 01</td>
<td>MW 9-10:30</td>
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<tr>
<td>270.676</td>
<td>Numerical Methods in Hydrology</td>
<td>Garven</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>500.602</td>
<td>Seminar: Environmental and Applied Fluid Mechanics</td>
<td>Meneveau</td>
<td>Sec. 01</td>
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**ECONOMICS**

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<tbody>
<tr>
<td>180.102</td>
<td>Elements of Microeconomics</td>
<td>Hamilton</td>
<td>Sec. 01</td>
<td>W 9</td>
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<tr>
<td>180.231</td>
<td>Comparative Economic Systems</td>
<td>Argenti</td>
<td>Sec. 01</td>
<td>TW 1</td>
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<tr>
<td>180.242</td>
<td>International Monetary Economics</td>
<td>Gapen</td>
<td>Sec. 01</td>
<td>F 2-3:50</td>
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Prereq: 180.101-102
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Limit</th>
<th>Prerequisite(s)</th>
<th>Time/Day(s)</th>
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<tr>
<td>180.261 (S)</td>
<td>MONETARY ANALYSIS (3) Ball</td>
<td>Ball</td>
<td>75</td>
<td>180.101-102, 110.106</td>
<td>MT 11</td>
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<td></td>
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<td></td>
<td>An analysis of the financial and monetary system of the U.S. economy and the</td>
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<td>design and implementation of U.S. monetary policy. Among other topics, we will</td>
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<td>examine the role of banks in the economy, the term structure of interest rates,</td>
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<td>the stock market, the supply of money, the role of the Federal Reserve in the</td>
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<td>economy, the objectives of monetary policy in the United States and current</td>
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<td>monetary policy practice. Formerly 180.361</td>
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<td>180.302 (S)</td>
<td>MACROECONOMIC THEORY (4.5) Driscoll</td>
<td>Driscoll</td>
<td>40</td>
<td>180.101-102, 110.106 or Perm Req’d.</td>
<td>T 2, W 3</td>
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<td>The course provides a treatment of macroeconomic theory including a static</td>
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<td>analysis of the determination of output, employment, the price level, the rate</td>
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<td>of interest, and a dynamic analysis of growth, inflation, and business cycles.</td>
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<td>In addition, the role and effectiveness of monetary and fiscal policy to bring</td>
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<td>about full employment, price stability, and steady economic growth will be</td>
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<td>180.334 (Q, S)</td>
<td>ECONOMETRICS (3) Williams</td>
<td>Williams</td>
<td>30</td>
<td>180.101-102, 110.106 or Perm Req’d.</td>
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<td>Introduction to the methods of estimation in economic research. The first part</td>
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<td>of the course develops the primary method employed in economic research, the</td>
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<td>method of least squares. This is followed by an investigation of the performance</td>
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<td>of the method in a variety of important situations. The development of a way to</td>
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<td>handle many of the situations in which ordinary least squares is not useful, the</td>
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<td>method of instrumental variables, concludes the course.</td>
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<tr>
<td>180.336 (S)</td>
<td>THE ART AND SCIENCE OF ECONOMIC FORECASTS (3)</td>
<td>Barbera</td>
<td>25</td>
<td>180.101-102, 110.106 or Perm Req’d.</td>
<td>M 3-5</td>
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<td>Will sketch out a strategy for anticipating economic turning points. Business</td>
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<td>cycle basics, monetary policy/financial market/real economy interactions will</td>
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<td>be reviewed. Long-term growth issues will be explored.</td>
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<td>180.351 (Q, S)</td>
<td>LABOR ECONOMICS (3) Barnow</td>
<td>Barnow</td>
<td>25</td>
<td>180.301, 550.111 - Statistical Analysis or Perm. Req’d.</td>
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<td>The economics of the determination of earnings and the allocation of labor. The</td>
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<td>theory of labor supply and labor demand will be developed, and then applied to</td>
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<td>questions of income distribution, unions, government intervention in the labor</td>
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<td>market, and discrimination. If time allows, the relation between unemployment and</td>
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<td>inflation will be discussed.</td>
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<td>180.367 (S)</td>
<td>INVESTMENTS AND PORTFOLIO MANAGEMENT (3)</td>
<td>Pritsker</td>
<td>25</td>
<td>180.301, 550.111 - Statistical Analysis or Perm. Req’d.</td>
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<td>Investment securities and their markets, especially the stock market. The</td>
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<td>relation between expected return and risk. The determination of security prices,</td>
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<td>Financial portfolio selection. The assessment of the performance of managed</td>
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<td>portfolios.</td>
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<td>180.368 (S)</td>
<td>MANAGERIAL ECONOMICS AND BUSINESS STRATEGY (3)</td>
<td>Knapp</td>
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<td>180.301, 550.111 - Statistical Analysis or Perm. Req’d.</td>
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<td>Seminar on quantitative concepts, decision-making, and strategy in business</td>
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<td>organizations. Overall context is “value” – how it is measured and maximized</td>
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<td>long-term. Microeconomic theory of the firm, competitive analysis, corporate</td>
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<td>finance.</td>
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<td>180.369 (S)</td>
<td>RESEARCH IN ECONOMICS OF FINANCIAL MARKETS (3) Fohlin</td>
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<td>Limit 20 Prereq: 180.301</td>
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<tr>
<td>180.371 (S)</td>
<td>INDUSTRIAL ORGANIZATION (3) Shum</td>
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<td>Limit 25 Prereq: 180.301 or Perm. Req'd</td>
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<td>180.375 (S)</td>
<td>ELECTRONIC COMMERCE (3) Harrington</td>
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<td>Limit 20 Prereq: 180.301</td>
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<td>180.390 (S)</td>
<td>HEALTH ECONOMICS AND DEVELOPING COUNTRIES (3) Gersovitz</td>
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<td>Limit 20 Prereq: 180.301</td>
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<tr>
<td>180.502</td>
<td>INDEPENDENT STUDY</td>
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<td>180.522</td>
<td>SENIOR HONORS THESIS IN ECONOMICS (5) Fohlin</td>
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<td>Limit 20 Prereq: 180.301</td>
<td>Sec. 01</td>
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<tr>
<td>360.528</td>
<td>APPLIED ECONOMICS INTERNSHIP Hande</td>
<td></td>
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<td>Limit 20 Prereq: 180.101-102 Perm. Req'd. Satisfactory/ Un satisfactory only</td>
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<tr>
<td>180.602</td>
<td>MICROECONOMIC THEORY Khan</td>
<td></td>
<td></td>
<td>Limit 25 Prereq: 180.601, 110.106 or perm. Req d. First term: a systematic</td>
<td>Sec. 01</td>
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<td>presentation of microeconomic theory both its partial equilibrium and general</td>
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<td>equilibrium aspects. Topics covered will include preferences and utility,</td>
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<td>exchange, production, theory of the firm, capital and interest, competition and</td>
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<td>monopoly, stability of equilibrium, and welfare economics. Second term: a more</td>
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<td>intensive discussion of selected topics, emphasizing recent contributions.</td>
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<td>180.604</td>
<td>MACROECONOMIC THEORY Carroll</td>
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<td></td>
<td>Limit 25 Prereq: 180.603 or Perm. Req d. First term: a comprehensive treatment</td>
<td>Sec. 01</td>
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<td>of macroeconomic theory, including static analysis of aggregate output</td>
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<td>employment, the rate of interest, and the price level; aggregative theory of</td>
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<td>investment, consumption, demand and supply of money; empirical work on</td>
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<td>aggregative relationships. Second term: the macrodynamic theory of growth,</td>
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<td>cycles, unemployment and inflation, and selected subjects.</td>
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<tr>
<td>180.606</td>
<td>ADVANCED MACROECONOMICS II Carroll</td>
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<td>Limit 25 Prereq: 180.603-604</td>
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<tr>
<td>180.608</td>
<td>MACROECONOMETRICS II Faust</td>
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<td>Limit 20 Prereq: 180.603-604</td>
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<tr>
<td>180.612</td>
<td>ECONOMICS OF INFORMATION Karwo</td>
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<td>Limit 25 Prereq: 180.601 &amp; 603 or Perm. Req d.</td>
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<tr>
<td>180.614</td>
<td>MATHEMATICAL ECONOMICS Khan</td>
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<td>Limit 10 Prereq: 180.601-602</td>
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<tr>
<td>180.616</td>
<td>MATHEMATICAL METHODS IN ECONOMICS II Tallarini</td>
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<td>Limit 20 Prereq: 180.615 or Perm. Req d.</td>
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This is a continuation of 180.615 and is a cross-listed with Public Health Studies.
ECONOMICS

course in dynamic aspects of optimization models. Techniques of dynamic programming and the calculus of variations will also be developed.

180.618 GAME THEORY Zamir Limit 20 Prereq: 180.601 Thin course is an introduction to cooperative and non-cooperative games. Its focus is non-cooperative game theory with applications in economics. Topics include foundations of solution concepts, refinements of Nash equilibrium, repeated games, games with incomplete information, differential games, and experimental testing of hypotheses.

180.633 ECONOMETRICS Woutersen Limit 20 Prereq: 180.636 or equivalent, differential calculus, matrix algebra, or permission req’d. Mathematical models of economic behavior and the use of statistical methods for testing economic theories and estimating economic parameters. Subject matter will vary from year to year; statistical methods, such as linear regression, multivariate analysis, and identification, estimation and testing in simultaneous equation models, will be stressed.

180.637 MICROECONOMETRICS I Woutersen Limit 12 Prereq: 180.633-634 or equivalent

180.642 INTERNATIONAL MONETARY ECONOMICS Guerrieri Limit 20 Prereq: 180.603 and 180.604 A link between the balance of payments and asset accumulation/decumulation, microeconomics of international finance and open-economy macroeconomics. The section on open-economy macroeconomics covers approaches to balance-of-payments adjustments, theories of exchange rate determination and monetary, fiscal, and exchange-market policies under fixed and flexible rate regimes.

ENGLISH

INTRODUCTION TO LITERARY STUDY (H) Hertz Limit 18
This is a course in how to read alertly and write cogently about a variety of literary forms—poems, essays, short fiction, and at least one really good novel.

EXPOSITORY WRITING (D) Staff Limit 15 per section.
This course teaches students the concepts and strategies of academic argument. Students learn to analyze sources, to develop their thinking with evidence, and to use analysis to write clear and persuasive arguments. Each section focuses on its own intellectually stimulating topic or theme, but the central subject of all sections is using analysis to create arguments.

Please note: Seniors must have the permission of the director to register. To review individual course descriptions, go to the following web site: http://web.jhu.edu/ewp.
The novel in nineteenth-century Britain was a hugely popular cultural form, much like the serial television drama today. It was also a form of cultural expression that began to compete with the claims and consolations of some of the most influential intellectual and moral discourses of the time, including social science and religion. In this course we will read celebrated writers such as Jane Austen, Charles Dickens, and George Eliot as well as lesser-known authors whose novels hold special artistic, intellectual, and/or political interest. This course has been designated a Gilman Lecture Course in the Humanities.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
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<th>Prerequisites</th>
<th>Sections</th>
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<tr>
<td>060.386 (H)</td>
<td>Poetry in America Post WW II</td>
<td>Noble</td>
<td>3</td>
<td>Must have taken one English Literature Class</td>
<td>Sec. 01</td>
<td>Th 1:30-4</td>
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<tr>
<td>060.395 (H)</td>
<td>The Modern Irish Writers</td>
<td>Attell</td>
<td>3</td>
<td>Must have taken one English course</td>
<td>Sec. 01</td>
<td>M 2-5</td>
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<tr>
<td>213.347 (H)</td>
<td>Creature Feature</td>
<td>Kolarov</td>
<td>3</td>
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<td>Sec. 01</td>
<td>M 1-3</td>
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<tr>
<td>220.379 (H)</td>
<td>Eliot, Crane, and Stevens</td>
<td>Irwin</td>
<td>3</td>
<td>Juniors and Seniors only Perm. Req’d.</td>
<td>Sec. 01</td>
<td>W 3-6pm</td>
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<tr>
<td>060.402</td>
<td>Independent Study</td>
<td>Staff</td>
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<tr>
<td>060.406</td>
<td>History of Reading &amp; Practical Criticism</td>
<td>Ferguson</td>
<td>3</td>
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<td>060.456</td>
<td>Joseph Conrad</td>
<td>Daring</td>
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<td>060.496</td>
<td>Journal Club</td>
<td>Staff</td>
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<td>Sec. 01</td>
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<td>060.504</td>
<td>Queer Times: Narrative, Sequence, Sexuality</td>
<td>Jagose</td>
<td>3</td>
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<td>Sec. 01</td>
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<tr>
<td>060.506</td>
<td>Independent Study</td>
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<tr>
<td>300.604</td>
<td>Literature of the City: Paris</td>
<td>Hertz</td>
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<td>Sec. 01</td>
<td>F 9-12</td>
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</table>
ENGLISH

300.619 TRAUMA THEORY NOW Leys
Sec. 01 T 1-4

300.671 STANLEY CAVELL'S “THE CLAIM OF REASON” de Vries/Marrati
Limit 15 This seminar will explore Cavell’s magnum opus and discuss his contribution to the understanding of philosophical skepticism, literature, film, ethics, politics, and religion. Cross-listed with Philosophy, Anthropology, Political Science, German and Romance Languages and Literatures, and the Humanities Center.
Sec. 01 Th 1-4

FILM AND MEDIA STUDIES

061.145 (H) INTRODUCTION TO VISUAL LANGUAGE (3) Yasinsky
Lab Fee: $40 Limit 12 Introduction to the aesthetics and meaning of moving images. Films and videos (Murneau, Bresson, Lynch, etc.) will be screened to analyze picture, sound, editing. Students will produce 3 videos.
Lec. Th 3-4:30
Scr. 01 W 7:30-9:30pm

061.304 (H) INTERMEDIATE FILM PRODUCTION (3) Mann
Perm. Req’d. Prereq: Intro to Film Production. Limit 9 Lab Fee: $100 Expands the work accomplished in Introduction to Film Production with the inclusion of sound. Students work individually, from concept to completed short 16mm film (black and white, color, non-sync. sound). All editing is performed through digital non-linear system.
Sec. 01 Th 12-2:30

061.312 (H) WRITING THE SCREEN PLAY (3) Roper
Limit 15 Course is a rigorous introduction to writing in screenplay form, based on writing exercises, the reading of scripts, and the screening of popular films.
Sec. 01 W 2-4:30

061.313 (H) STORY AND CHARACTER DESIGN FOR THE SCREENPLAY (3) Bucknell
Lab Fee: $40 A workshop devoted to developing dimensional characters and compelling, original stories.
Sec. 01 M 3:30-6pm
Scr. Th 7:30-10pm

061.322 (H) WOMEN IN HOLLYWOOD FILM (3) Bucknell
Limit 15 Lab Fee: $40 Female beauty, villainy, and humanity in popular film from the silent era to the present.
Sec. 01 M 12-2:30, 15 MTH 7:30-10pm

061.328 (H) GANGSTER FILMS (3) Bucknell
Limit 15 Prereq: One core course or Perm. Req’d Lab Fee: $40 The bad guy as hero from Little Caesar to Goodfellas.
Sec. 01 M 7:30-10pm

061.331 (H) AMERICA SINCE BRANDO (3) DeLibero
Lab Fee: $40 Traces the actor's influence on American film and culture. Close examination of the actor's performance methods, life, and movies, as well as the cultural contexts that informed his work.
Sec. 01 W 7:30-10pm

061.362 (H) AMERICAN & EUROPEAN EXPERIMENTAL FILM (3) Mann
Lab Fee: $40 Examines an eclectic group of experimental filmmakers including Stan Brakhage, Trim T. Mush-
FILM AND MEDIA STUDIES

Includes screenings of filmmakers' works and their writings on the subject.

061.420 (H)  THE FRENCH NEW WAVE (3) Ross
Lab Fee: $40  Limit 15  Study of the major films of the French New Wave, their origins, context, and afterlife.
Sec. 01  Th 2:30-5  TBA
Scr:  T 7-9pm

061.441  SENIOR PROJECT IN FILM PRODUCTION (3) Mann
Perm. Req’d
Sec. 01  TBA

061.443 (H)  SENIOR PROJECT IN DIGITAL VIDEO PRODUCTION (3) Staff
Perm. Req’d.
Sec. 01  TBA

213.255 (H)  VOICES: FROM THE ROMANTIC TEXT TO GRAMMOPHONE AND TELEPHONE (3) Campe
Limit 15  Cross-listed with German and Romance Languages and Literatures and the Humanities Center
Sec. 01  T 1-3

213.347 (H)  CREATURE FEATURE (3) Kolarov
Limit 15  Cross-listed with German and Romance Languages and Literatures and English
Sec. 01  M 1-3  Scr.  Th 7-9pm

215.455 (H)  CUBA NOIR (3) E. Gonzalez
Limit 20  Taught in Spanish  Cross-listed with Program in Latin American Studies and German and Romance Languages and Literatures
Sec. 01  M 3-5

061.501  INDEPENDENT STUDY IN FILM AND MEDIA Staff  Perm. Req’d.
Lab Fee: $100 (if production related)

061.503  INDEPENDENT STUDY IN FILM PRODUCTION Mann  Prereq: 061.240, 061.301, 061.304  Perm. Req’d.
Lab Fee: $100

061.505  INTERNSHIP IN FILM AND MEDIA DeLibero  Satisfactory/ Unsatisfactory only

GERMAN AND ROMANCE LANGUAGES AND LITERATURES

FRENCH

Placement in all language courses is determined by previous course work at Hopkins or by a Placement Examination.

210.102  FRENCH ELEMENTS II (4.5) Beauvois
Limit 17 per section
Prereq: 210.101 or Webcape score below 340  May not be taken
Satisfactory/ Unsatisfactory
Sec. 01  MTWF 9 02 MTW 10, 12 F 10:30-11:30
03 MTWF 12
**LEARNER MANAGED SECTION OF FRENCH ELEMENTS (4.5)**  
Beauvois  
Limit 12  
Year course; must complete both semesters successfully in order to receive credit. Prereq: 210.101 or Webcape score below 340. This course is designed for students with scheduling conflicts. Special section meets two times a week for 1 and 1/4 hours. On-line materials are designed for 1 and 1/2 more hours a week required for the course. It must be noted that there is less classroom contact time in this course, and therefore this course is recommended for those who have some knowledge of French and need a review of the language. Only highly self-motivated students should attempt this course. No Satisfactory/ Unsatisfactory

**INTERMEDIATE FRENCH (3.5)**  
Guillemard  
Limit 15 per section  
Prereq: 210.201 or 210.203 or Webcape score between 320 and 420  
Lab Req’d.  
Continuation of 210.201, Develops the four communication skills through multimedia material. Extensive reading of *Oscar et La dame rose* and projects on newspapers. WebCT-based. Taught exclusively in French.

**ADVANCED INTERMEDIATE FRENCH (3.5)**  
Roos  
Limit 17 per section  
Prereq: 210.201 or 210.203 or Webcape score between 420 and 480  
Credit will not be given if previously enrolled in 210.201-202 or the equivalent  
A two-semester intermediate course offering a systematic review of language structures, conducted exclusively in French. This course is for students who can express themselves more fluently in both their written and oral work and can analyze more difficult texts than in Intermediate French. Students will study authentic texts, including film “text”, and focus on their written and oral skills.

**INTRODUCTION TO PHONETICS (3)**  
Beauvois  
Limit 12  
Prereq: 210.201 or equivalent  
This course is designed for intermediate – advanced students seeking to improve their pronunciation in French. The focus of the course is improvement through awareness of the sounds of standard spoken French, through extensive monitored practice, and through phonetic transcription (the International Phonetic Alphabet). The course will address the particular challenges facing adult speakers of English who are learning French for the first time and assumes no previous instruction in Phonetics. Students will explore the different accents of French through film, audiocassette, CD’s and personal recordings. The textbook for the course is *Facile à dire: Les Sons du français*.

**FRENCH CONVERSATION AND COMPOSITION II (3.5)**  
Mobarek  
Limit 12  
Prereq: 210.301 or Webcape and Supplementary test (Contact Prof. Guillemard at claude@jhu.edu)  
Lab Req’d.  
This is a third-year language course intended to bridge the intermediate level and more advanced levels in French literature and cultural studies. Over two semesters, students will be given the opportunity to continue strengthening their linguistic skills. This course will offer students an individualized review of grammar based on the students’ written work. Students will be presented with
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
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<th>Description</th>
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<tr>
<td>210.314 (H)</td>
<td>BUSINESS FRENCH (3)</td>
<td>Beauvois</td>
<td>15</td>
<td>210.301-302</td>
<td>Taught in French. This course covers the fundamentals of the business world in the French language. It is a two-semester course in which students study commercial and economic vocabulary, trade and business practices in the public and private sectors. Students take the exam for the Chambre de Commerce et d'Industrie de Paris certificate at the end of the spring semester. Only the second semester counts as credit for the major.</td>
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<td>210.502</td>
<td>FRENCH INDEPENDENT STUDY - LANGUAGE</td>
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<td>211.314 (H)</td>
<td>PENSÉE POLITIQUE FRANÇAIS (3)</td>
<td>Sullerot</td>
<td>20</td>
<td>210.301-302</td>
<td>Taught in French. À partir de l'idée de liberté, on restituerait le développement historique du vocabulaire politique contemporain en prenant une vue d'ensemble de la pensée politique française au travers de textes philosophiques, littéraires et historiques.</td>
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<td>211.402 (H)</td>
<td>LA FRANCE CONTEMPORAINE II (3)</td>
<td>Staff</td>
<td>15</td>
<td>210.301-302 or 210.301 and Perm. Req’d.</td>
<td>Contemporary French culture and society studied through newspapers, French broadcast news, videos, and directed readings. During the first semester students study general trends in French society, during the second semester they concentrate on French youth and family. Oral presentation and independent research are required.</td>
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<td>212.202 (H)</td>
<td>INTRODUCTION À LA LITTÉRATURE FRANÇAIS II (3)</td>
<td>Russo/Roos</td>
<td>25</td>
<td>Both semesters of 210.301-302, or at least one semester of 210.301-302 with a grade of “A” and written permission of the instructor.</td>
<td>Taught in French. Readings and discussion of texts of various genres from the Middle Ages to the 20th century. The two semesters may be taken in either order. This sequence is a prerequisite to all further literature courses. Students may co-register with an upper-level course during their second semester.</td>
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<td>212.319 (H)</td>
<td>LITERATURE CONFRONTS SCIENCE: ZOLA (3)</td>
<td>Anderson</td>
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<td>Taught in French. Zola worked with the theories of heredity of his time in the Rougon-Macquart novels. But he also attempted to use his understanding of biology and thermodynamics to reform the theory of the novel in general. This course will examine these two different effects of science on literature and will try to see what leads an author to undertake such a project.</td>
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<tr>
<td>212.409 (H)</td>
<td>SADE: PHILOSOPHIE AND LITTERATURE (3)</td>
<td>Mobarek</td>
<td>15</td>
<td>210.301 or Perm. Req’d</td>
<td>Erotisme, politique, morale et philosophie dans l’œuvre de Sade.</td>
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<td>212.430 (H)</td>
<td>SENIOR SEMINAR (3)</td>
<td>Delacampagne</td>
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<td>Taught in French. For French majors in their senior year only. An in-depth and closely supervised initiation to research and thinking, oral and written expression, which leads to the</td>
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### GERMAN AND ROMANCE LANGUAGES AND LITERATURES

**SAVAGES, WOMEN AND ECCENTRICS: THE INVENTION OF SOCIETY IN EIGHTEENTH CENTURY FRANCE**

**Composi6n of a senior thesis in French.**

**212.435 (H)**

**SAVAGES, WOMEN AND ECCENTRICS: THE INVENTION OF SOCIETY IN EIGHTEENTH CENTURY FRANCE (3)**

Russo

Limit 15

This course will focus on the Enlightenment taste for social experiment: from the clash with the primitive other, to the creation of utopian sexualities, to devising new and perilous methods of education, novelists, playwrights and philosophers seek to develop new conceptions of the social bond through odd encounters and the invention of a new human being. Texts by Voltaire, Diderot, Rousseau, Marivaux, Sade, Mercier and others. In French.

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<td>3-5</td>
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**FRENCH INDEPENDENT STUDY -- LITERATURE**

**212.502**

**GERMAN**

**ELEMENTARY GERMAN II (4.5)**

Mifflin

Limit 18 per section

Prereq: 091.101 or equivalent

Continuation to the introduction to the German language and a development of reading, speaking, writing, and listening skills through the use of basic texts and communicative language activities.

Language lab is required. Both semesters must be completed with passing grades to receive credit. May not be taken on a satisfactory/unsatisfactory basis.

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<th>Section</th>
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**ELEMENTARY YIDDISH II (4.5)**

B. Caplan

Limit 15

Prereq: 091.103 or equivalent

Year-long course. Includes the four language skills—reading, writing, listening, and speaking—and introduces students to Yiddish culture through text, song, and film. Emphasis is placed both on the acquisition of Yiddish as a tool for the study of Yiddish literature and Ashkenazic history and culture, and on the active use of the language in oral and written communication.

Both semesters must be taken with a passing grade to receive credit. May not be taken on a satisfactory/unsatisfactory basis.

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<th>Section</th>
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**INTERMEDIATE GERMAN II (3.5)**

Wheeler

Limit 16 per section

Prereq: 091.201 or equivalent

This course is designed to continue the four skills (reading, writing, speaking, and listening) approach to learning German. Readings and discussions are topically based and expanded upon through audio-visual materials. Students will also review and deepen their understanding of the grammatical concepts of German. Language lab is required. Taught in German.

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<th>Section</th>
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**ADVANCED GERMAN CONVERSATION & COMPOSITION II: CONTEMPORARY GERMAN ISSUES (3)**

Mifflin

Limit 15 per section

Prereq: 091.301 or equivalent

Topically, this course focuses on contemporary issues such as national identity, multiculturalism, and the effects of globalization. Pertinent historical and cultural developments of the 19th and 20th centuries are highlighted to help students understand contemporary German society. Readings include literary and journalistic texts. Emphasis on style and clarity in both written and oral expression. Review of advanced
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

210.461 (H) INTRODUCTION TO LITERARY GENRE & STYLISTICS (3) Wheeler
Limit 15 Prereq. 091.301-302 or equivalent Introduction to major literary periods and genres in German literature. Course will provide a background for further literary study. Students will develop critical, interpretive reading skills through the analysis of genre-specific language, as well as improve written and spoken German. Taught in German
Sec. 01 MTW 10

211.211 (H) INTRODUCTION TO YIDDISH CULTURE (3) B. Caplan
Limit 18 This course will explore a thousand years of European Jewish culture through its vernacular, Yiddish. Topics covered will demonstrate the geographical, intellectual, and artistic breadth of this culture, and will include the history of the Yiddish language, selections of pre- modern and modern Yiddish literature, folklore, the press, film, theater, and song. All readings will be in English. Cross-listed with Jewish Studies
Sec. 01 MTW 12

213.255 (H) VOICES: FROM THE ROMANTIC TEXT TO GRAMMOPHONE AND TELEPHONE (3) Campe
Limit 15 Artificial production and reproduction of the human voice is an age-old desire. We will follow the development from the ‘Speaking Machine’ in Romanticism to the invention of grammophone and telephone in literary stories, essays and documentary material. Discussion will probe into the theory of modern media and the philosophy of the voice. Readings include Schiller, E.T.A. Hoffmann, Jules Verne, Cocteau, Proust, Kafka, Wellershof, Nicholson Baker. Readings in German and English. Cross-listed with Film & Media Studies and the Humanities Center
Sec. 01 T 1-3

213.331 (H) DETECTIVE FICTION IN ITS NASCENCE (3) Tobias
Limit 15 Prereq. 091.301-302 The detective novel has roots in German Romanticism. Kleist and E.T.A. Hoffmann wrote novellas concerning historical crimes and mysteries from the past. We will read several 18th and 19th century mysteries as well as contemporary essays on the detective genre. Readings and discussion in German
Sec. 01 W 3-5

213.347 (H) CREATURE FEATURE (3) Kolarov
Limit 15 We will study the emblematic signatures of the creature between text and film. Direct hits like Creature of the Black Lagoon, King Kong, Godzilla, and Faust I serve as raw data, whereas campy works like Faust II, Shelley’s Frankenstein, and Huysmans’ La-Bas frame the creature in more livable contexts. A few of Freud’s famous cases along with other examples from German literature provide the map for the course experiment and a container for the toxic legacies of the creature. Cross-listed with Film and Media Studies and English
Sec. 01 MTh 1-3 Scra. Th 7-9pm

213.351 (H) JEWISHNESS & THE IDEA OF MODERNITY (3) Gold
Limit 15 How is it possible to understand the phenomenon of modernity through the figure of “Jewishness” and Jews? How have modernity and Enlightenment been defined as either a fundamentally “Jewish” undertaking in nature or antithetical to Jewishness, particularly Judaism? Taking this problem as its point of departure, this course considers
Sec. 01 MTh 3-4:30
### GERMAN AND ROMANCE LANGUAGES AND LITERATURES

The ways in which modernity has been associated with Jewish identity. In addition to examining how Jewishness has been associated with cosmopolitanism and liberal values, we will also read philosophers who have described Judaism as a religion whose emphasis upon law is opposed to the modern emphasis upon individualism. We will also take into account how the problematic relationship between Judaism and modernity has been articulated in relation to such late nineteenth- and early twentieth-century phenomena as psychoanalysis, Marxism, literary Modernism, and Zionism. Finally, this course poses the following question: Can anti-Semitism be understood as a form of resentment against modern values?

Cross-listed with Jewish Studies

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<th>Course Code</th>
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<th>Instructor</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>213.365 (H)</td>
<td>CONTEMPORARY ISRAELI FICTION (3)</td>
<td>Abecassis</td>
<td>3</td>
<td>Limit 15</td>
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<td>THE LITERATURE OF BLACKS AND JEWS IN THE 20TH CENTURY (3)</td>
<td>M. Caplan</td>
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<td>Limit 10</td>
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<td>Prereq: Prior knowledge of literary study</td>
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<td>MODERNISM AND THE METROPOLIS (3)</td>
<td>M. Caplan</td>
<td>3</td>
<td>Limit 15</td>
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the topics we will consider are the role of mobility and urbanization in creating modern culture, the dislocations and juxtapositions that constitute urban culture, and the aesthetic role of modernist literature in reflecting the kaleidoscopic experience of the city through techniques such as free verse, multimedia theatre, and stream-of-consciousness narration. Authors discussed will include, among others, Charles Baudelaire, T. S. Eliot, Mayakovsky-Hilpern, Allen Ginsburg, Bertolt Brecht, Knut Hamsun, David Bergelson, Sh. Y. Agnon, André Breton, Chaim Potok, and John Kennedy Toole. All readings and discussions conducted in English. Cross-listed with Jewish Studies.

360.233 (H) FEMINIST AND QUEER THEORY THEORY (3) Pahl. Limit 25 Cross-listed with Interdepartmental and Studies of Women, Gender, and Sexuality

213.502 INDEPENDENT STUDY - GERMAN

213.510 GERMAN HONORS PROGRAM Staff

ITALIAN

210.152 (W) ITALIAN ELEMENTS (3.5) Zannirato Limit 17 per section 02 MTW 9 Prereq: Prereq: 210.151 or Perm. Req’d. Students develop five basic skills: oral production, oral comprehension, written production, written comprehension and spoken interaction. All classes are conducted in Italian; oral participation is encouraged from the beginning. May not be taken Satisfactory/ Unsatisfactory.

210.252 (H) INTERMEDIATE ITALIAN II (3.5) Zannirato Limit 15 per section 02 MTW 10 Prereq: 210.251 or Perm. Req’d. Course provides further development of students’ language skills through intensive listening, speaking, reading, writing and interaction activities and an in-depth review of grammar. The course is conducted entirely in Italian.

210.352 (H) ADVANCED ITALIAN CONVERSATION AND COMPOSITION (3.5) Zannirato Limit 12 per section. Prereq: 210.351 or Perm. Req’d. Course presents a systematic introduction to a variety of contemporary cultural topics, emphasizing role-playing, vocabulary building, style and clarity in writing. Texts drawn from different media and ample use of audio-visual and electronic materials will stress everyday spoken Italian. The course is conducted entirely in Italian.

214.251 (H) SURVEY OF ITALIAN LITERATURE (3) Ghias. Limit 15 An overview of the key texts of the Italian literary canon from the Middle Ages to the present. Taught in Italian.

214.366 (H) LITERATURE & ETHICS (3) Fornari Limit 15. This course focuses on the moral implications of the arts. Reading and writing literature. Aristotle, Horace, Dante, Boccaccio, and Freud are among the featured authors.

214.380 (H) ITALIAN SHORT FICTION (3) Stephens Limit 15 We will read major examples of the Italian short story and novella, beginning with contemporary writers and working backward through several centuries of Italian fiction to build
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

vocabulary and knowledge of Italian cultural and literary history. Important questions include the formation of the Italian state, the politics of gender, social class and regional identity, and dialect versus “official” Italian or lingua. Taught entirely in Italian.

214.562 ITALIAN INDEPENDENT STUDY

210.178 PORTUGUESE ELEMENTS (3.5) Bensabat-Ott Limit 25
Prereq: 210.177 or equivalent on placement test. This one-year course is conducted entirely in Portuguese. It introduces students to the basic language skills: reading, writing, listening, speaking. The focus of the course is on oral communication, however, with extensive training in written and listening skills. Language lab is required. Students must complete both semesters with passing grades to receive credit. May not be taken Satisfactory/ Unsatisfactory

Sec. 01 MWF 11

210.278 (H) INTERMEDIATE/ADVANCED PORTUGUESE (3.5) Bensabat-Ott Limit 25
Prereq: 210.277 or equivalent of placement test. This one-year course is conducted entirely in Portuguese. Emphasis is placed on vocabulary building, ease and fluency in the language through the use of a multi-faceted approach. Materials used immerse students with the cultures of Brazil, Portugal, and Portuguese-speaking Africa, and reflect the mix of cultures at work in contemporary Lusophone world. Lab work required. Both semesters must be completed with passing grades to receive credit. May not be taken Satisfactory/ Unsatisfactory

Sec. 01 MWF 10

210.392 (H) ADVANCED PORTUGUESE: LANGUAGE AND LITERATURE (3.5) Bensabat-Ott Limit 25
Prereq: 210.391 or equivalent on placement test. This third year Portuguese course focuses on reading, writing and oral expression. Under the supervision of the instructor, students will read one or two complete works by major Brazilian, Portuguese, and/or Afro-Portuguese writers each semester, followed by intensive writing and oral discussion on the topics covered. Grammar will be reviewed as necessary. Lab work required. Taught entirely in Portuguese

Sec. 01 MWF 12

211.394 (H) BRAZILIAN CULTURE AND CIVILIZATION Bensabat-Ott Limit 20 per section
Sec. 01: 3 credits (Course work in English)
Sec. 02: 4 credits (Course work in Portuguese)
This course is intended as an introduction to the culture and civilization of Brazil. It is designed to provide students with basic information about Brazilian history, art, literature, popular culture, theater, cinema, and music. The course will focus on how indigenous Asian, African, and European cultural influences have interated to create the new and unique civilization that is Brazil today. The course is taught in English, but ONE extra credit will be given to students who wish to do the course work in Portuguese.

Sec. 01 M 2-4
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<th>Course</th>
<th>Title</th>
<th>Section</th>
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<tr>
<td>210.111</td>
<td>SPANISH ELEMENTS I (3.5)</td>
<td>Sec. 01</td>
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<td>Limit 17 per section</td>
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<td>Prereq: 210.111 or appropriate</td>
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<td>Further development of the four basic</td>
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<td>language skills of reading, writing,</td>
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<td>listening and speaking. Extensive use of</td>
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<td>an online component delivered via WebCT,</td>
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<td>sustained class participation, and three</td>
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<td>hourly exams (no midterm and no final).</td>
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<td>May not be taken</td>
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| 210.112 | SPANISH ELEMENTS II (3.5)                 | Sec. 01 | On-Line|
|         | Weingarten                                |         |       |
|         | Limit 17 per section                      |         |       |
|         | Prereq: 210.111 or appropriate            |         |       |
|         | Placement Exam (S-Cape) score             |         |       |
|         | Further development of the four basic     |         |       |
|         | language skills of reading, writing,      |         |       |
|         | listening and speaking. Extensive use of  |         |       |
|         | an online component delivered via WebCT,  |         |       |
|         | sustained class participation, and three  |         |       |
|         | hourly exams (no midterm and no final).   |         |       |
|         | Section 01 (Spring semesters) is offered  |         |       |
|         | totally online (Limit 24). May not be    |         |       |
|         | taken Satisfactory/ Unsatisfactory         |         |       |

| 210.211 (H) | INTERMEDIATE SPANISH I (3.5) | Sec. 01 | MTW 9 |
|             | Gonzalez                                |         |       |
|             | Limit 17 per section                   |         |       |
|             | Prereq: 210.211 or appropriate         |         |       |
|             | Placement Exam (S-Cape) score.         |         |       |
|             | Continues building on the four essential |         |       |
|             | skills for communication presented in    |         |       |
|             | Spanish Elements courses. Extensive     |         |       |
|             | use of an online component delivered    |         |       |
|             | via WebCT, sustained class participation,|         |       |
|             | and three hourly exams (no midterm and  |         |       |
|             | no final). May not be                  |         |       |
|             | taken satisfactory/ Unsatisfactory       |         |       |

| 210.212 (H) | INTERMEDIATE SPANISH II (3.5) | Sec. 01 | MTW 9 |
|             | Gonzalez                                |         |       |
|             | Limit 17 per section                   |         |       |
|             | Prereq: 210.211 or appropriate         |         |       |
|             | Placement Exam (S-Cape) score.         |         |       |
|             | Continues building on the four essential |         |       |
|             | skills for communication presented in   |         |       |
|             | Spanish Elements courses and in         |         |       |
|             | Intermediate Spanish I. Extensive use of|         |       |
|             | an online component delivered via WebCT,|         |       |
|             | sustained class participation, and three|         |       |
|             | hourly exams (no midterm and no final). |         |       |
|             | May not be taken satisfactory/ Unsatisfactory |       |       |

| 210.311 (H) | ADVANCED SPANISH I (3)                 | Sec. 01 | MTW 9 |
|             | Encinas                                 |         |       |
|             | Limit 15 per section                   |         |       |
|             | Prereq: 210.212 or 210.213 or          |         |       |
|             | appropriate S-Cape score               |         |       |
|             | Advanced Spanish I is designed to      |         |       |
|             | improve the four skills: Reading,      |         |       |
|             | writing, listening and speaking,       |         |       |
|             | essential for communication. This      |         |       |
|             | third-year course aims to improve the  |         |       |
|             | students' reading and writing skills by|         |       |
|             | focusing on various types of texts.    |         |       |
|             | Students will also engage in more      |         |       |
|             | formal levels of written communication.|         |       |
|             | This course also focuses on refinement |         |       |
|             | of grammar. Students are exposed to a   |         |       |
|             | deeper understanding of the cultures of |         |       |
|             | the Spanish-speaking world. Extensive   |         |       |
|             | use of an online component delivered    |         |       |
|             | via WebCT, sustained class participation,|         |       |
|             | and three hourly exams (no midterm and  |         |       |
|             | no final). May not be                  |         |       |
|             | taken satisfactory/ Unsatisfactory       |         |       |

| 210.312 (H) | ADVANCED SPANISH II (3)                | Sec. 01 | MTW 9 |
|             | Encinas                                 |         |       |
|             | Limit 15 per section                   |         |       |
|             | Prereq: 210.311 or appropriate S-Cape  |         |       |
|             | score. This third-year course aims at   |         |       |
|             | improving the students' oral skills by  |         |       |
|             | focusing on the use of standard, spoken |         |       |
|             | Spanish with an emphasis on colloquial  |         |       |
|             | and idiomatic expressions. Students will|         |       |
|             | also engage in more formal levels of    |         |       |
|             | communication by discussing assigned    |         |       |
|             | literary and non-literary topics. They  |         |       |
will increase their listening skills through movies and other listening comprehension exercises. The course will also focus on vocabulary acquisition. May not be taken Satisfactory/Unsatisfactory

210.313 (H)  MEDICAL SPANISH (3) Sanchez/ I. Gonzalez Limit 15 Prereq: 210.326 or 210.311 or appropriate S-Cape score Students will increase their vocabulary and practice grammar structures closely related to the medical and health administration professions. All language skills are equally emphasized. Highly recommended to students in any of the health-related majors. There will be an intensive on-line component. May not be taken Satisfactory/Unsatisfactory

Sec. 01 MTW 1

210.315 (H)  LEGAL SPANISH (3) Sanchez Limit 15 Prereq: 210.311 or appropriate S-Cape score Students will increase their vocabulary and practice grammar structures closely related to legal services. All language skills are equally emphasized. Highly recommended for students interested in a career in Law, Business and International Relations. There will be an intensive on-line component. May not be taken Satisfactory/Unsatisfactory

Sec. 01 MTW 12

210.316 (H)  CONVERSATIONAL SPANISH (3) Encinas Limit 15 Prereq: 210.311 or appropriate S-Cape score This course is designed for students who have attained an advanced level of proficiency in Spanish 210.312 and wish to improve their oral skills by focusing on the use of standard, spoken Spanish with an emphasis on colloquial and idiomatic expressions. Students are exposed to a deeper understanding of the cultures of the Spanish-speaking world through movies and other listening comprehension exercises. The course will mainly focus on conversation and vocabulary acquisition. This course is highly recommended for students going to JHU study abroad programs. May not be taken Satisfactory/Unsatisfactory

Sec. 01 MTW 10

210.317 (H)  ADVANCED SPANISH COMPOSITION (3) Encinas Limit 12 Prereq: 210.312 or appropriate S-Cape score This third-year course aims at improving the students' reading and writing skills by focusing on various types of texts. Students will also engage in more formal levels of written communication on both literary and non-literary topics. The course also focuses on refinement of grammar. May not be taken Satisfactory/Unsatisfactory

Sec. 01 MTW 10

210.411 (H) (W)  CURSO DE TRADUCCIÓN PARA LAS PROFESIONES (3) Sanchez/ I. Gonzalez, Limit 12 Prereq: 210.315, 210.314, or 210.315. Students will learn the basics of translation theory and be presented with the tools needed (specialized dictionaries, web resources, etc) for the translation of literature, business, medical, legal, technological, political, and journalistic texts from Spanish to English and English to Spanish. May not be taken Satisfactory/Unsatisfactory

Sec. 01 MTW 10

210.412 (H) (W)  SPANISH LANGUAGE INTERNSHIP (3) Sanchez Limit 12 Prereq: 210.411 Internship involves a
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

specially designed project related to student’s minor concentration. Provides an opportunity to use Spanish language in real world contexts. May be related to current employment context or developed in agencies or organizations that complement student’s research and experimental background while contributing to the improvement of language proficiency. May not be taken Satisfactory/Unsatisfactory

210.413 (H) (W) CURSO DE PERFECCIONAMIENTO (3) Sanchez/ Limit 10 sec 01 MT 11
Prereq: 210.311 and 210.312 plus one of the following: 210.313, 210.314 or 210.315, or appropriate S-Cape score. This course is designed for students who, having attained an advanced level of proficiency, wish to master Spanish grammar as well as oral and written expression. The course seeks to acquaint the students with a wider range of idiomatic expression and usages than they have previously managed. May not be taken Satisfactory/Unsatisfactory

211.290 (H) MODERN SPANISH CULTURE (3) Sanchez/ Encinas Limit 20 sec 01 M 12, T 2-4
Prereqs: 210.212 or 210.213 or appropriate S-Cape score. This course will explore the fundamental traits of Spanish culture as it has developed from the 18th to the 21st centuries (although the first three weeks will serve as a general overview of the historical development of Spain). Class time will focus on discussion of different texts, movies, songs, pictures, and paintings, considering their relation to the specific historical, political, and social contexts. The active participation of students in debates and discussions is fundamental. In addition, students will be expected to make oral presentations on assigned topics. The pace of the course will be determined mainly by the group's progress. This course will be of particular interest for students planning in spending a semester abroad in Spain—especially for those students going to the JHU Fall Semester in Madrid, at Carlos III University. May not be taken Satisfactory/Unsatisfactory

215.231 (H) (W) INTRODUCTION TO SPANISH LITERATURE (3) Galasso/ Hatfield Limit 15 per section sec 01 MTW 10
Prereq: 210.311. A writing intensive course designed in order to (1) continue to develop the student’s linguistic proficiency through the careful reading of a wide-range of literary texts written in Spanish, (2) help the student develop and refine the skills and terms required for advanced studies in literature; and (3) provide the student with an overview of Spanish and Spanish-American literary history. Although the course focuses on texts written in Spanish, students who go on to study literature in other languages will benefit from the critical skills developed in this course. This course is required for the Major in Spanish

215.336 (H) DON QUIJOTE (3) Sieber Limit 17 sec 01 T 3-5
Prereq: 210.311. A close reading and discussion primarily in Spanish of Cervantes' masterpiece, with concentration on its major themes and contributions to the formation of the modern novel.

215.370 (H) STUDIES IN SPANISH & LATIN AMERICAN POETRY (3) Egginton Limit 20 sec 01 ThF 10:30-12
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

In this course we will approach the question of what poetry is and how to read it through the examples of two Spanish poets—Federico García Lorca and Antonio Machado—and two Latin American poets—Rubén Darío and Pablo Neruda. We will read their work in the context of questions opened up by the German philosopher Martin Heidegger around the nature of poetry and its relation to human being. The course will be taught in English with readings in Spanish.

Cross-listed with Program in Latin American Studies

215.380 (H) (W) AUTobiography, testimoNio and memoir (3) Castro-Klaren
Limit 25 The course will and analyze the autobiographies, memoirs and fictional autobiographies of several Latin American canonical writers. Starting with the memoirs by Domingo Sarmiento and Rómulo Gallegos, moving through Borges and José María Arguedas we will go on to Rigoberta Menchú's testimony and finalize with the memoirs of García Marquez and Mario Vargas Llosa.

Cross-listed with Program in Latin American Studies

215.455 (H) CUBA NOIR (3) E. Gonzalez
Limit 20 The genre of noir in-and-around detective fiction as portrayed in novels, short stories, and movies. Readings and viewings centered on mutual influences high-and-low between Cuba and the US from Hemingway and the Mafia to the now forclosed cultural openings between the two countries in the 1990s. Taught in Spanish

Cross-listed with Program in Latin American Studies and Film and Media Studies

215.491 (H) MUSLIM, JEWISH AND CHRISTIAN LITERATURES OF IBERIA (3) Altschul
Limit 10 From 711 to 1492 the Iberian Peninsula was a multilingual society administered by members of the three monotheistic faiths. This course will discuss the Hispano-Muslim, Hispano-Jewish and Hispano-Christian literatures of Iberia during these times. Texts and authors include Ibn Hazm, Shmuel HaNaguid, Petrus Alfonsus, the Kathlah wa Dinnah and the Sendibhar. Hebrew and Arabic texts will be read in translation. Taught in Spanish

Same course as 215.691

215.526 SPANISH INDEPENDENT STUDY
Sec. 01 TBA

300.357 (H) WHAT COUNTS AS HUMAN? (3) Marrati
Limit 20 Cross listed with Philosophy, Anthropology, Political Science, and the Humanities Center

Sec. 01 F 1-3:30

300.382 (H) PHILOSOPHY, MEMORY, AND RECONSTRUCTION: WESTERN EUROPE AFTER WW II (3) Geroulanos
Limit 25 This course on the intellectual history of Western Europe with focus on the war’s legacy, reconstruction, existentialism, the appeal of Soviet communism, the crisis of humanism, and film. Cross-listed with History and the Humanities Center Dean’s Teaching Fellowship Course

Sec. 01 Scr. W 5-8 pm T 7-9 pm
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<th>Course Code</th>
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<tr>
<td>212.673</td>
<td>GRADUATE SEMINAR IN FILM AND FILM THEORY: EUROPEAN AUTEURS</td>
<td>Wegenstein</td>
<td>Sec. 01</td>
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<td>212.692</td>
<td>RESEARCH METHODS FOR GRADUATE STUDENTS</td>
<td>Waterman</td>
<td>Sec. 01</td>
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<td>212.601</td>
<td>FRENCH READING AND TRANSLATION</td>
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<td>212.608</td>
<td>THINKING WITH DREAMS: POETRY AND PHILOSOPHY IN THE MIDDLE AGES</td>
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<td>212.629</td>
<td>FLAUBERT ET LA TRADITION: MADAME BOVARY</td>
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GERMAN AND ROMANCE LANGUAGES AND LITERATURES

a “close reading” des textes majeurs de Flaubert, de préciser ce constat: Flaubert déchiffre son temps, lui donne un sens, à travers la lecture des textes antiques et des textes bibliques. Dans un deuxième pas sera explorée la relecture que subissent les textes antiques, et spécialement les textes bibliques, et leur interprétation romantique dans les textes flaubertiens. Le religieux et le politique apparaîtront sous un autre jour. Flaubert érige son autorité, en incarnant son époque, sa vie, dans la tradition, tout en la déformant violemment. En ce sens, l’autorité de Flaubert serait tout à fait canonique.

212.645
PASCAL: A PHILOSOPHICAL ANTHROPOLOGY
Abecassis
Limit 15 Close reading of Pascal’s Pensées, Lettres Provinciales and other writings, primarily set against the background of Augustine, Montaigne and Descartes, but also extending forward to Rousseau, Schopenhauer and Nietzsche as well as contemporary critical theory. We will study a series of issues ranging from Christian vs. modern anthropology, existential analytics of subjectivity, rhetorical theory. Primary readings in French where applicable. Seminar language to be determined at first meeting dependent on seminar composition. Also open to humanities and history graduate students.

Sec. 01 T 1-3

212.713
Delacampagne Limit 15 Cent ans après sa naissance, Sartre est-il encore le plus grand intellectuel français du 20e siècle ? Que vaut sa philosophie ? Que valent ses romans, son théâtre et ses essais ?

Sec. 01 Th 1-3

212.801
FRENCH INDEPENDENT STUDY
Sect. 01 – Nichols
Sect. 02 – Neefs
Sect. 03 – Russo
Sect. 04 – Jeananver
Sect. 05 – Delacampagne
Sect. 06 - Anderson

212.802
FRENCH DISSERTATION RESEARCH
Sect. 01 – Nichols
Sect. 02 – Neefs
Sect. 03 – Russo
Sect. 04 – Jeananver
Sect. 05 – Delacampagne
Sect. 06 - Anderson

212.803
FRENCH PROPOSAL PREPARATION
See also 213.638

EPISTEMOLOGY IN HISTORICAL PERSPECTIVE located in
German Graduate Listings

GERMAN

210.662
READING AND TRANSLATING GERMAN FOR ACADEMIC PURPOSES II
Clark Limit 15 Prerequisite: 091.601 or permission Graduate students only. This course is designed for graduate students in other departments who wish to gain a reading knowledge of the German language. This semester assumes a basic knowledge of German grammar and vocabulary and concentrates on reading practice. For certification or credit.

Sec. 01 MW 9

213.608
THE LITERATURES OF BLACKS & JEWS IN THE 20TH CENTURY
M Caplan Limit 10 This course will be a seminar comparing representative narratives and poetry by African,
GERMAN AND ROMANCE LANGUAGES AND LITERATURES
Caribbean, and African-American authors of the past 100 years, together with European and American Jewish authors writing in Yiddish, Hebrew, and English. This comparison will examine the paradoxically central role played by minority, "marginal" groups in the creation of modern literature and the articulation of the modern experience. Among the topics to be considered in this course will be the question of whether minority literatures require a distinct interpretive strategy from "mainstream" literary traditions; the problem of political discrimination and the question of identity politics in the creation, and interpretation, of literature; the commonalities of historical experience between Black and Jewish peoples; and the challenge of multiculturalism in modern society. Authors discussed will include, among others, Sholem Aleichem, Charles Chesnutt, Sh. Ansky, Jean Toomer, Sh. Y. Agnon, Amos Tutuola, Bernard Malamud, Caryl Phillips, and Anna Deavere Smith. All readings and discussions conducted in English; enrollment open to graduate and advanced undergraduate students

Cross-listed with Jewish Studies

213.638  EPISTEMOLOGY IN HISTORICAL PERSPECTIVE: Rheinberger
Limit 15  Meets 3/26-4/23 (plus additional session)
In this seminar, we will discuss the French and German traditions of introducing historical thinking into philosophy of science. Readings will include Gaston Bachelard, Georges Canguilhem, Michel Foucault and Jacques Derrida (his reading of Husserl) on the French part, and Ernst Cassirer, Edmund Husserl (his late Crisis work) and Martin Heidegger on the German part. Reading and discussion in English
Cross-listed with the Humanities Center, Philosophy, and History of Science and Technology

Sec. 01  M 3-6pm

213.649  AESTHETICISM RECONSIDERED
Teobos  Limit 15
Few terms are more maligned in contemporary criticism than aestheticism and enchantment. This course will reconsider conventional definitions of aestheticism as a privileging of art over life through readings of Weber, Adorno, Horkheimer, Simmel, Mann, Huysmans, Klages, George, Adrian and Rilke.

Sec. 01  T 3-5pm

213.662  ADVOCACY: FÜRSPRACHE
Campe
Limit 15
We will discuss instances of advocacy – speaking/acting on behalf of someone before someone – in different areas: ancient rhetoric, legal and cultural theory, poetry and the novel. The goal of the course is to develop an understanding of Fürsprache as a basic feature of communication. Readings include Aristotle, Quintilian, Derrida, Rawles, Lucan, Austin, Hölderlin and Kafka. Readings and discussion in English.
Cross-listed with the Humanities Center, Political Science, and Classics

Sec. 01  Th 3-5pm

213.667  THE RHETORIC OF VISION: SIEGFRIED KRACAUER AND WIEMAR CULTURAL CRITICISM
Gold
Limit 15
Siegfried Kracauer has recently gained recognition as one of the most significant German cultural and social critics of the 20th century along with Walter Benjamin and T. W. Adorno. However, despite the fact that some of his earlier works have now been translated into English, the nature of his intellectual project remains largely unfamiliar to English-speaking audiences. Turning away from the later,
more empirical studies that his reputation rested upon for decades, this course focuses on Kracauer's earlier, more theoretical writings, above all the essay collection “The Mass Ornament.” By approaching this text and others in conjunction with works by Benjamin, Adorno, Bela Balazs, Robert Musil, and others, this course has two aims: to introduce Kracauer's thought through Weimar cultural criticism, and to introduce Weimar cultural criticism through Kracauer's thought. Although we will pay special attention to the significance of visual media such as photography and film, we will also address the relationship of these topics to architecture, urban modernity, and history.

213.703  INTERCULTURAL LITERATURE  
Pahl  Limit 15  
We will read contemporary intercultural literature (Turkish-German, Japanese-German, authors from Central and Eastern Europe who write in German) with particular attention to the poetics of translingualism. When appropriate, we will discuss historical links (Celan, Canetti, Kafka, Chamisso, etc.). Readings in German. Discussion in English or German (depending on enrollment)

213.800  INDEPENDENT STUDY - GERMAN  
Sect. 01 – Campe  
Sect. 02 – Tobias  
Sect. 03 – Pahl  
Sect. 04 – M. Caplan

213.812  DIRECTED DISSERTATION RESEARCH - GERMAN  
Sect. 01 – Campe  
Sect. 02 – Tobias  
Sect. 03 – Pahl  
Sect. 04 – M. Caplan

ITALIAN

214.670  SCRIVERRE DI LETTERATURA IN ITALIANO E IN INGLESE  
Forni  Limit 15  
This course is an introduction to the writing of essays on literature.

214.672  TASSO, THE EPIC AND TRADITION  
Stephens  Limit 15  
We will read Gerusalemme liberata (1581) and its transformation into Gerusalemme conquistata (1593) in relation to Tasso's own production in other genres, as well as to the literary traditions of epic and romance, the upheavals of Reformation and Counter-Reformation religion, and the arts. Special attention will be paid to Tasso's literary and philosophical theories. Firm reading knowledge of Italian required.

214.861  ITALIAN INDEPENDENT STUDY  
Sect. 01 – Stephens  
Sect. 02 – Forni  
Sect. 03 – Celenza

214.862  ITALIAN DISSERTATION RESEARCH  
Sect. 01 – Stephens  
Sect. 02 – Forni  
Sect. 03 – Celenza

214.863  ITALIAN PROPOSAL PREPARATION

SPANISH

215.634  THE PICARESQUE NOVEL IN SPAIN  
Sieber  Limit 15  
A close reading of the Lazarillo de Tormes, Almaran’s Guzman de Alfarache, two of Cervantes' Novelas
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

ejemplares and the Picara Justina. These novels’ socio-historical references will be researched; the picaresque as literary genre will also be a primary topic.

215.640 SELF-REPRESENTATION IN LATIN AMERICAN FICTION, TESTIMONIO AND MEMOIR

Castro-Klaren Limit 15
Taking into account the crisis is self (national) representation and the fluidity of identities, the course will delve into the work of various major Latin American writers in order to study issues of self-representation across time and specific contexts. The course will start with Sarmiento’s memoirs, move on to Teresita de la Parra and Clarise Lispector. Machado de Assis, Borges, Agüedas will preface reading the memoirs by Rosario Castellanos, García Márquez and Mario Vargas Llosa.
Cross-listed with Program in Latin American Studies

Sec. 01 Th 3-5

215.685 LITERATURE AND RELIGIOUS EXPERIENCE

Egginton Limit 15
The focus of this course is how the mystical, the sacred, the ineffable is expressed in literary language. We will look at both contemporary theoretical discussions of religion and its renewed importance in philosophical debates, as well as examine cases of literary religious expression from the Middle Ages to the modern period. Case studies will be comparative, but the emphasis will be on Spanish examples. Reading knowledge of Spanish is required.
Cross-listed with the Humanities Center

Sec. 01 Th 1-3

215.691 MUSLIM, JEWISH AND CHRISTIAN LITERATURES IN IBERIA

Altschul Limit 10
From 711 to 1492 the Iberian Peninsula was a multilingual society administrated by members of the three monotheistic faiths. This course will discuss the Hispano-Muslim, Hispano-Jewish and Hispano-Christian literatures of Iberia during these times. Texts and authors include Ibn Hazm, Shmuel HaNaguid, Petrus Alfonssus, the Katiblah wa Dimah and the Sendebar. Hebrew and Arabic texts will be read in translation. Taught in Spanish.
Graduate students interested in taking this course should contact the instructor before registering.

Same course as 215.491

Sec. 01 F 1-3

215.826 SPANISH INDEPENDENT STUDY

Sect. 01 – E. Gonzalez
Sect. 02 – Castro-Klaren
Sect. 03 – Sieber
Sect. 04 – Egginton

215.827 SPANISH DISSERTATION RESEARCH

Sect. 01 – E. Gonzalez
Sect. 02 – Castro-Klaren
Sect. 03 – Sieber
Sect. 04 – Egginton

215.828 SPANISH PROPOSAL PREPARATION

GRADUATE CROSS-LISTINGS

300.671 STANLEY CAVEAU’S "THE CLAIM OF REASON"

de Vries/Marrati Limit 15
This seminar will explore Cavell’s magnum opus and discuss his contribution to the understanding of philosophical skepticism, literature, film, ethics, politics, and religion.
Cross-listed with Philosophy, Anthropology, Political Science, English, and the Humanities Center

Sec. 01 Th 1-4
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<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Time and Days</th>
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<tr>
<td>100.104 (H,S)</td>
<td>HISTORY OF OCCIDENTAL CIVILIZATION: MODERN EUROPE</td>
<td>Brooks</td>
<td>W 10</td>
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<td>A survey of European history from the French Revolution to the present that provides political, social, economic, and cultural perspectives.</td>
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<td>T 14</td>
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<tr>
<td>100.122 (H,S)</td>
<td>HISTORY OF AFRICA (3) Berry</td>
<td>Berry</td>
<td>MT 10</td>
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<td></td>
<td>Introduction to the African past, Africa's experiences with colonial rule, and its place in the contemporary world.</td>
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<tr>
<td>100.180 (H,S)</td>
<td>CLASSICS OF AMERICAN THOUGHT (3) Ross Limit 13</td>
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<td>M 12-2</td>
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<td></td>
<td>An introduction to American intellectual history by way of some of the classic texts in the American tradition, from the Puritans to the modern era.</td>
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<tr>
<td>100.194 (H,S)</td>
<td>UNDERGRADUATE SEMINAR IN HISTORY (3) Johnson Limit 45 Dept. majors only Required for all history majors and normally taken during the sophomore year. Deals with the elements of historical thinking and writing. Must be taken in sequence.</td>
<td>Johnson</td>
<td>W 12-2</td>
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<td>100.235 (H,S)</td>
<td>APOSTATES AND CONVERTS: JEWISH-CHRISTIAN RELATIONS IN MEDIEVAL AND MODERN TIMES (3) Horowitz Limit 45 Through the individual histories of Jews and Christians who converted from one religion to the other, this course examines the complex relations between two biblically-based religions and their adherents between 800-1800, primarily in Europe. Cross-listed with Jewish Studies</td>
<td>Horowitz</td>
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<td>100.244 (H,S)</td>
<td>SHIPWRECK AND EMPIRE (3) Russell-Wood Limit 25 Using contemporary shipwreck narratives for the Atlantic, Arabian Sea, and Indian Ocean from the 16th and 17th centuries, this course will address topics such as gender, ethnicity, identity, power and authority, social mobility, relationships between men and women, and the reactions of passengers and crew to disaster and its aftermath. Cross-listed with Latin American Studies</td>
<td>Russell-Wood</td>
<td>MT 11</td>
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<td>100.261 (H,S)</td>
<td>ROME'S RESONANCE: CATHOLICISM IN AMERICAN CULTURE (3) Morave Limit 15 An investigation of Catholicism's role in the making of American culture. We will explore how Catholicism was practiced by the faithful, debated by intellectuals, and portrayed in popular culture. Dean's Teaching Fellowship Course</td>
<td>Morave</td>
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<tr>
<td>100.263 (H,S)</td>
<td>WOMEN IN ENGLAND, 1500-1700 (3) Herbert Bilsby Limit 20 This course explores how early modern English women lived, worked, and played. We will read women's diaries, letters, and other primary sources to discover women's own voices, and get an intimate view of their hopes, thoughts, and daily lives. Dean's Teaching Fellowship Course</td>
<td>Herbert Bilsby</td>
<td>MTh 2-3:15</td>
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</table>
HISTORY

100.281 (H,S) (W) GOSSIP, SCANDAL AND REPUTATION: A CULTURAL HISTORY OF EARLY AMERICA (3) Roney  Limit 20  This course uses the lens of reputation and scandal to analyze topics including governance, witchcraft, gender, capital punishment and slavery in early America.
Dean's Teaching Fellowship Course

100.283 (H,S) (W) CRISIS & CATASTROPHE IN 18TH CENTURY THOUGHT (3) Ashburn Miller  Limit 15  This course analyzes eighteenth-century disasters and crises, such as earthquakes, plague, and revolution, and their impact on the thought of the Enlightenment.
Dean's Teaching Fellowship Course

100.284 (H,S) (W) WAR AND POSTWAR REMINISCENCES IN EAST ASIA: THE IMJIN AND MANCHU INVASIONS OF CHINA AND KOREA (3) Park  Limit 25  An exploration of these wars and their emotional repercussions in the 17th and 20th centuries, the experience and memory of these conflicts and the dialogue between our pasts and presents.
Dean's Teaching Fellowship Course

100.310 (H,S) (W) THE VARIETIES OF RELIGIOUS LIFE DURING THE MIDDLE AGES (3) Lehmijoki-Gardner  Limit 50  This course looks at the history of medieval church and civilization from the perspectives of eremitical, monastic, parochial, mendicant, and lay ways of religious life. We shall examine the historical circumstances that shaped the central medieval religious institutions as well as analyze the key concepts and practices associated with these different ways of life.
Dean's Teaching Fellowship Course

100.329 (H,S) (W) CHINESE THOUGHT SEMINAR (3) Lievens  Limit 30  Introduction to ancient Chinese philosophy, Confucianism, and Daoism.

100.348 (H,S) (W) TWENTIETH-CENTURY CHINA (3) Rowe  Limit 70  The history of China from about 1900 to the present.

100.353 (H,S) (W) REMEMBERING VIETNAM: DOCUMENTING, CAPTURING, AND PRESERVING A DIVISIVE WAR (4) Walters  Limit 16  This is a course to teach students about a divisive war through gathering images, interviews, and other data. A lab unit in digital media is required (represented by Thurs 10 to 12 component of the course scheduled in the Digital Media Center).

100.359 (H,S) (W) WOMEN'S LABOR MIGRATIONS & THE POLITICS OF EXCHANGE IN THE AMERICAS (3) Shell-Weiss  Limit 10  Comparative history of women's regional and international labor migrations over the last 120 years from the standpoint of both sending and receiving regions.

100.376 (H,S) (W) BALTIMORE AS HISTORIC SITE (3) Ryan  Limit 15  Examines American history and the cultural landscape from on the ground and in the streets of Baltimore.

100.380 (H,S) (W) HISTORY OF ISLAMIC MYSTICISM (3) Hall  Limit 30  This course traces the intellectual and social development of Islamic mysticism (Sufism) from its origins in the early Islamic Middle East up to the 20th century. The focus will be on both primary texts written by Sufis and their opponents, and the social & political use of Sufism in a range of geographical locations in Africa and Asia.
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<th>Course Code</th>
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<th>Instructor</th>
<th>Notes</th>
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<tbody>
<tr>
<td>100.388 (HS) (W)</td>
<td>EUROPEAN INTELLECTUAL HISTORY FROM ADAM SMITH TO NIETZSCHE (3) Jelavich</td>
<td>Limit 40</td>
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<td></td>
<td>A survey of major thinkers who supported or opposed capitalism and democracy.</td>
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<td>100.402 (HS) (W)</td>
<td>THE ENLIGHTENMENT (3) Marshall</td>
<td>Limit 25</td>
<td>MT 10</td>
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<td></td>
<td>Seminar-style course discussing Enlightenment thought from Locke and Spinoza to the Scottish Enlightenment, Rousseau, and Kant, combining readings of their works with historians' accounts of Enlightenment thought and culture.</td>
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<tr>
<td>100.412 (HS) (W)</td>
<td>THE MIND OF THE FOUNDERS: POLITICAL THOUGHT IN THE ERA OF THE AMERICAN REVOLUTION (3) Salasy</td>
<td>Limit 20</td>
<td>ThF 9-10:30</td>
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<td>Seminary-level course focusing on questions of politics, government, empire, the Constitution, natural and moral philosophy.</td>
<td>Req’d: Preprq: 100.112 or other previous course in pre-1820 U.S. History or Perm. Req’d.</td>
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<td>100.426 (HS) (W)</td>
<td>LONDON IN THE TWENTIETH CENTURY (3) Walkowitz</td>
<td>Limit 15</td>
<td>W 2-4</td>
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<td></td>
<td>Metropolis and Empire, rise of mass culture and consumption, social investigations and fictions of the city, war, built environment, shums and suburbia, fascism and popular front politics, multiracial London.</td>
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<tr>
<td>100.473 (HS) (W)</td>
<td>THE INDIAN OCEAN: ECONOMY, SOCIETY, DIASPORA (3) Larson</td>
<td>Limit 20</td>
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<td>A seminar level survey of the history of the Indian Ocean with an emphasis on human diaspora.</td>
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<td>100.479 (HS) (W)</td>
<td>CHINESE URBAN HISTORY (3) Rose</td>
<td>Limit 12</td>
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<td>Reading and discussion of works in Western languages on the role of cities in Chinese society, from the Tang dynasty to the present. Topics include city formation, rural-urban and inter-urban relations, urban social structure, conflict and community, and urban policies of the imperial, republican, and communist states.</td>
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<tr>
<td>100.498 (HS)</td>
<td>COLLOQUIUM: HISTORY OF FAMILY AND GENDER IN THE UNITED STATES (3) Ditz</td>
<td>Limit 17</td>
<td>T 2-4</td>
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<td>Reading and discussion, topics vary from year to year, but may include patriarchal households and property relations in early America; women and wage work during early industrialization; ideology of domesticity and its critics; African American family and gender relations; the politics of reproduction and childbearing. Emphasis is on the 18th and 19th centuries, with some attention to the 20th century. Readings stress interdisciplinary perspectives.</td>
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<td>070.386 (HS) (W)</td>
<td>“MAIL ORDER BRIDES?” UNDERSTANDING THE PHILIPPINES IN SOUTHEAST ASIAN CONTEXT (3) Cannell</td>
<td>Limit 35</td>
<td>WF 2-3:30</td>
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<td>Preprq: Students must have taken a required course in Anthropology. Permission required if prerequisite is not met. Cross-listed with Studies of Women, Gender, and Sexuality, Anthropology, and Political Science.</td>
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<td>300.334 (H)</td>
<td>MODERN JEWISH THOUGHT AND PHILOSOPHY (3) Shuster</td>
<td>Limit 25</td>
<td>T 3-5:30</td>
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<td>Cross-listed with Jewish Studies, the Humanities Center, and Philosophy.</td>
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<td>300.372 (H)</td>
<td>HOLOCAUST TESTIMONIES (3) Keys</td>
<td>Limit 20</td>
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<td>Cross-listed with History of Science and Technology, the Humanities Center, and Anthropology.</td>
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HISTORY

300.382 (H) PHILOSOPHY, MEMORY, AND RECONSTRUCTION: WESTERN EUROPE AFTER WORLD WAR II (3) Geroulanos Limit 25 Cross-listed with German and Romance Languages and Literatures and the Humanities Center Dean’s Teaching Fellowship Course Sec. 01 W 5-8pm Scr. T 7-9pm

389.203 (H,S) Museums Matters (3) Rodini Limit 15 Prereq: Freshmen & Sophomores only or Perm. Req’d Students who have enrolled in 390.219.02 may not register for this course Cross-listed with History of Art, Anthropology, and Museums and Society Sec. 01 Th 1-5

100.502 INTERNSHIP Staff Satisfactory/ Unsatisfactory only

100.508 (H,S) (W) SENIOR THESIS Knight Dept. Majors only A seminar supervised by the Director of Undergraduate Studies and designed to provide a forum for collective exchange among seniors undertaking the senior thesis. All students undertaking the senior thesis must register and attend.

100.536 (W) INDEPENDENT STUDY Staff

100.635 RUSSIAN HISTORY SEMINAR Brooks Limit 10

100.650 THE AMERICAN SOUTH Johnson Limit 15 Continuation of 100.649 (Fall) Sec. 01 W 6-8pm

100.659 THE FIRST FRENCH EMPIRE, 1535-1804 Shell Limit 20 An intensive introduction to French expansion abroad through 1804. Focus on Canada and the Caribbean. Sec. 01 T 2-4

100.671 GERMANY SINCE 1918 Jelavich Limit 25 Political, social, and cultural developments from the Weimar Republic to Reunification. Sec. 01 T 12-2

100.678 RESEARCH SEMINAR: EARLY MODERN COLONIAL BRITISH AMERICA Greene Limit 15 Sec. 01 TBA

100.696 PROBLEMS IN AMERICAN SOCIAL AND CULTURAL HISTORY Walters Limit 15 Intensive reading in 19th & 20th century U.S. social and cultural history. Sec. 01 TBA

100.701 ON THE ROAD: EUROPEAN AND AMERICAN TRAVELERS ENCOUNTER THE JEWS Horowitz Limit 15 Through the accounts of travelers in Europe and the Middle East between the sixteenth and nineteenth centuries the course will explore the impact of the travel experience upon attitudes towards Jews and Judaism. It will also examine the interactions of these attitudes with racism and Orientalism. Cross-listed with Jewish Studies Sec. 01 T 4-6pm

100.702 RACE AND MIGRATION IN MODERN HISTORY Shell-Weiss Limit 12 This graduate seminar explores how the movement of people reshapes how we understand modern world history and the historical construction of racial identities. Readings will include a range of interdisciplinary works, including core texts in migration and social theory. Sec. 01 T 10-12

100.704 AFRICA AND THE INDIAN OCEAN Larson Limit 15 An examination of Africa and its relationship to the Indian Ocean from antiquity to the present. A counterpoint to Africa and the Atlantic. Sec. 01 T 2-4

100.708 COLONIAL LATIN AMERICA Russell-Wood Limit 15 Sec. 01 TBA
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<tr>
<td>100.710</td>
<td>MODERN LATIN AMERICA</td>
<td>Knight</td>
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<td>W 2-4</td>
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<tr>
<td>100.722</td>
<td>TOPICS IN AFRICAN HISTORY</td>
<td>Berry</td>
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<tr>
<td>100.728</td>
<td>MEDIEVAL SEMINAR, HISTORICAL WRITING IN THE</td>
<td>Spiegel</td>
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<td>MIDDLE AGES</td>
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<tr>
<td>100.736</td>
<td>EARLY MODERN BRITAIN</td>
<td>Marshall</td>
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<tr>
<td>100.743</td>
<td>THE CITY AND THE SEXES</td>
<td>Ryan</td>
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<td>100.764</td>
<td>COMPARATIVE WORLD HISTORY</td>
<td>Staff</td>
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<tr>
<td>100.768</td>
<td>LONDON WORLD CITY</td>
<td>Walkowitz</td>
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<tr>
<td>100.780</td>
<td>RESEARCH SEMINAR IN THE HISTORY OF WOMEN &amp; GENDER</td>
<td>Staff</td>
<td>15</td>
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<td>W 9-12</td>
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<tr>
<td>100.782</td>
<td>THE SEMINAR</td>
<td>Staff</td>
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<tr>
<td>100.784</td>
<td>SEMINAR: MEDIEVAL EUROPE</td>
<td>Staff</td>
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<td>100.786</td>
<td>GENERAL SEMINAR: EARLY MODERN EUROPE</td>
<td>Staff</td>
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<tr>
<td>100.788</td>
<td>GENERAL SEMINAR: MODERN EUROPE</td>
<td>Staff</td>
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<td>100.790</td>
<td>GENERAL SEMINAR: AMERICA</td>
<td>Staff</td>
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<td>100.792</td>
<td>GENERAL SEMINAR: LATIN AMERICA</td>
<td>Staff</td>
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<td>100.794</td>
<td>GENERAL SEMINAR: AFRICA</td>
<td>Staff</td>
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<td>300.619</td>
<td>TRAUMA THEORY NOW</td>
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<td>360.670</td>
<td>GENERAL SEMINAR: INSTITUTE FOR GLOBAL STUDIES IN</td>
<td>Grovogui</td>
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<td>CULTURE, POWER &amp; HISTORY</td>
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<td>100.802</td>
<td>DISSERTATION RESEARCH</td>
<td>Staff</td>
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<tr>
<td>100.804</td>
<td>INDEPENDENT STUDY</td>
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### HISTORY OF ART

**010.102 (H) INTRODUCTION TO THE HISTORY OF EUROPEAN ART-PART II (4)**

Forgione; Limit 25 per section

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A survey of painting, sculpture, and architecture from the Renaissance to the present.

**010.122 (H) LEONARDO, MICHELANGELO, RAPHAEL (3)**

Campbell; Limit 50

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An examination of the three most celebrated artists of the Italian Renaissance, focusing on the relation between their achievements in architecture, sculpture, and painting, and the historical conditions in which the works were produced. Through these figures, Renaissance and modern myths of artistic independence and individuality will be subjected to a critical scrutiny. Lectures will deal with the interpretation of the works themselves, and with the artist’s careers, their interactions and rivalries, their relation to patrons and other artists.

**010.171 (H) AMERICAN ART, 1860-PRESENT (3)**

Maynard; Limit 20

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The course explores the development of American art from the Civil War era to today, from nineteenth-century artists such as Eakins and Homer to twentieth-century innovators Pollock and Warhol.

**010.218 (H) “EXPRESSIONISM IS DEAD!” THE RETURN TO REALISM BETWEEN THE WORLD WARS (3)**

Ellis; Limit 25

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This course examines the artistic and political diversity of controversial realist painting, graphic art and photography in 1920’s Germany. Otto Dix, George Grosz, Max Beckmann, August Sander, among others.

**010.305 (H) ARCHITECTURE ON THE UNITED STATES (3)**

Maynard; Limit 20

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<td>4-7pm</td>
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The course explores stylistic and technological changes in American architecture with emphasis on the contributions of great architects, including Louis Sullivan and Frank Lloyd Wright.

**010.334 (H) PROBLEMS IN ANCIENT AMERICAN ART (3)**

DeLeonardis; Limit 25

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Selected topics which may include art of the ancient scribe and visual communication (Maya, Aztec, Mixtec, Inka), imperial art and architecture (Aztec, Moche, Inka), sacred media and indigenous aesthetics (Mesoamerica, Andes).

**010.350 (H) ROMAN ARCHITECTURE (3)**

Koortbojian; Limit 25

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The design and function of architectural forms and their combination in the Roman world ca. 300 B.C.-500 A.D. (Republic and Empire). Emphasis is on monumental forms and their combinations, public and private (temples, basilicas, fora, sanctuaries, porticoes, baths, theatres, arches, palaces, villas, baths). Topics include Hellenistic roots, construction techniques, architectural orders, the articulation of interior and exterior space, facade aesthetics and decorative schemes, representation of architecture in art and literature, the historical role of patronage, and the principal systems of architectural iconography and programmatic planning. The focus will be on Rome and Italy, and on selected sites around the Empire. Cross-listed with Classics.

**010.352 (H) ART AND DESIGN (3)**

Ober; Limit 25

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Whereas the histories of modern art and design are usually taught separately, this course will examine the close interrelationship between the two from the late nineteenth century to the present.

**010.384 (H) EARLY CHRISTIAN AND EARLY MEDIEVAL ART (3)**

Maguire, H.; Limit 25

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This course will cover the art of the late Roman Empire, of early medieval
HISTORY OF ART

Europe, and of the eastern Mediterranean from the third to the eighth centuries.

010.392 (H) CREATING A MUSEUM EXHIBITION: THE MAGIC OBJECT (3) Maguire, H.; Maguire, E.
Limit 12 Perm. Req'd
Students working hands-on with the Johns Hopkins Archaeological Collection will research and present an exhibition on magic in the ancient world.

010.400 (H) STRUCTURING EXPERIENCE IN 15TH CENTURY EUROPEAN PAINTING (3) Spicer
Limit 10
The challenge to create an illusion of 3-dimensional space that incorporated the viewer’s own experience underlies much of 15th century European paintings, from the Arnolfini Wedding (London) by the Flemish Jan van Eyck to the Ideal City (Baltimore), attributed to the Italian Fra Carnavale. Approaches involved personal observation, inthematics and possibly optics. Some classes will be at the Walters.

389.203 (LS) MUSEUM MATTERS (3) Radini
Limit 15 Prereq: Freshmen & Sophomores only or Perm. Req'd
Students who have enrolled in 360.219.02 may not register for this course
Cross-listed with Museums and Society, Anthropology, and History

389.354 (H) PAPER MUSEUMS: EXHIBITING PRINTS AT THE BMA (3) Rodini
Limit 12 Prereq: 300-level art history class or permission of instructor
Cross-listed with Museums and Society

010.502 INDEPENDENT STUDY

010.522 (W) HONORS THESIS Staff
Open to students by arrangement with a faculty adviser in the History of Art Department. Interested students should review program description available in department office.

010.552 MUSEUM INTERNSHIP Maguire, H./ Maguire, E.
Open to students by arrangement with a faculty adviser in the History of Art Department. Interested students should review program description available in department office.

010.658 SPECIAL TOPICS IN THE ART OF LOMBARDY AND THE VENETO, 1500-1600 Campbell
Limit 15
An examination of the confrontation of Venetian with other North Italian traditions of art in the 1500s, with the careers of Giulio Romano in Mantua and Titian in Venice as a focus.

040.605 THE ROMANS AND THEIR PAST Roller/Koortbojian
Limit 10
This seminar, focusing on both monuments and texts, examines the ways in which Romans engaged and reconstructed their past in these two media. Topics include the culture(s) of commemoration and monumentalization, ancestor portraiture, historiography and exemplarity, historical art, and the Roman’s sense of their own antiquity. These topics are considered in light of recent theories of historical understanding.
Cross-listed with Classics

040.610 THE ART OF DESCRIPTION: EKPHRASIS IN GREECE AND ROME Shapiro/Valladares
Limit 10
This seminar will examine in detail representative examples of ekphrasis in Greek and Latin poetry along with relevant works of art from all periods of Antiquity.
Cross-listed with Classics

010.802 SPECIAL RESEARCH AND PROBLEMS: This course is for students who wish or need special instruction in
HISTORY OF ART
areas of art history not included in the currently offered courses.

010.804 INDIVIDUAL WORK Students preparing dissertations will enroll in this course with the permission of their doctoral advisers.

HISTORY OF SCIENCE AND TECHNOLOGY

140.106 (H,S) HISTORY OF MODERN MEDICINE
(3) Marks Limit 20 per section
This course examines medical and bodily practices in their social and historical settings, in Europe and America, from the 18th century to the present. Graduate students should register for ME 150.702, School of Medicine.

140.106 Lec. MT 10
Sec. 01 W 10

140.143 (H,S) GENETICS IN MEDICINE & SOCIETY (3) Comfort Limit 20
If you have ever become seriously ill, have children, or read the newspaper, you cannot afford to be ignorant of the science of heredity. Some of the principal concepts of genetics and their social impact, from Gregor Mendel to the Human Genome Project will be explored. Class will read original papers as well as review articles and historical analyses. Topics covered include: the rediscovery of Mendel's principles; eugenics, the introduction of genetics into medicine; concepts of genetic disease; genetic and biochemical individuality; genetics, race and gender, and genetic screening and testing. This course is discussion heavy. Term Paper.

140.143 Sec. 01 MTW 9

140.302 (H,S) RISE OF MODERN SCIENCE (3) Kingsland Limit 20 per section
Considers some of the most important scientific developments that have shaped the modern world from 18th century to late 20th century.

140.302 Lec. MT 10
Sec. 01 W 10

140.353 (H,S) MUSEUMS, PARKS AND MONUMENTS: THE PROBLEMS OF REMEMBERING THE PAST (3)
Nystrom Limit 15
Museums, parks and monuments are built to commemorate a particular version of the past. Analyze the multiple meanings of these sites and explore the intersections of memory and the built environment. Cross-listed with Museums and Society Dean Teaching Fellowship Course

140.353 Sec. 01 MT 2-3:30

140.360 (H,S) CHANGES IN THE LAND: SCIENCE, TECHNOLOGY, AND THE ENVIRONMENT (3) Kingsland Limit 10
An examination of environmentalism from Dust Bowl to global warming, with emphasis on scientific study of environmental problems. Students will do research papers.

140.360 Sec. 01 T 2-5

140.363 (H,S) MUSEUMS AND CONTROVERSY: FROM THE ENOLA GAY TO BODY WORLDS (3) Molella Limit 15
Exhibitions on Freud, Darwin, the Bomb, environment, the human body, and similar "hot" topics have stirred unexpected controversy. This seminar explores the origins of such heated public and scientific disagreements. Cross-listed with Museums and Society

140.363 Sec. 01 W 2-5

140.367 (H,S) SCIENCE, TECHNOLOGY, AND THE EVOLUTION OF THE AMERICAN UNIVERSITY (3) Kargon Limit 15 Seminar examining the role of science and technology in the development of the research university in America from the Civil War to the present. Readings, discussion, presentation of original historical research.

140.367 Sec. 01 W 2-4:30

140.412 (H,S) SENIOR RESEARCH SEMINAR (2) Staff Limit 10 For departmental majors writing a senior thesis only

140.412 Sec. 01 TBA
### HISTORY OF SCIENCE AND TECHNOLOGY

**070.328 (H,S) (W)**
**The Concept of the Patient in Anthropology (3)**
Meyers
Limit 25
- The course will explore the way in which the patient emerges as a category of thought and analysis in anthropology.
- Cross-listed with Anthropology, the Humanities Center, and Public Health Studies
- Dean’s Teaching Fellowship Course

**300.372 (H,S)**
**Holocaust Testimonies (3)**
Leys
Limit 20
- A seminar on topics and issues associated with Holocaust testimony.
- Cross listed with History, the Humanities Center, and Anthropology

### 140.502
**Independent Study**

### 140.637
**Science, Technology, and Culture in Industrial Society**
Kargon, Fox
Limit 15
- Seminar examines comparatively the development of an industrial culture in the late 18th and 19th centuries, with emphasis on Europe. Topics include the role of science in the Industrial Revolution, ideas of the university, culture and industrial spirit, research and industrial performance, and representations of science and technology in museums and popular culture.

### 140.642
**Colloquium**
Kingsland, Comfort
Limit 10
- Meets 3/26-4/23 (plus additional session)
- Reading and discussion in English
- Cross listed with the Humanities Center, Philosophy, and German and Romance Languages and Literatures

### 300.619
**Trauma Theory Now**
Leys
Limit 20
- A discussions of current debates about trauma, testimony, and representation after Auschwitz. Texts by Freud, Derrida, Felman, Caruth, Spiegelman, Agamben, and others.
- Cross listed with History, the Humanities Center, Anthropology, Philosophy, and English

### 140.802
**Directed Readings & Dissertation**
Kargon
Sec. 01
TBA

### 140.812
**Directed Readings & Dissertation**
Kargon
Sec. 01
TBA

### 140.832
**Directed Readings & Dissertation**
Leslie
Sec. 01
TBA

### 140.836
**Directed Readings & Dissertation**
Principe
Sec. 01
TBA

### 140.838
**Directed Readings & Dissertation**
Low
Sec. 01
TBA

### 140.854
**Directed Readings & Dissertation**
Packard
Sec. 01
TBA

### 140.872
**Directed Readings & Dissertation**
Marks
Sec. 01
TBA

### 140.874
**Directed Readings & Dissertation**
Comfort
Sec. 01
TBA

### 140.876
**Directed Readings & Dissertation**
Hanson
Sec. 01
TBA

### 140.892
**Directed Readings & Dissertation**
Fissell
Sec. 01
TBA

### 140.894
**Directed Readings & Dissertation**
Mooney
Sec. 01
TBA

### 140.896
**Directed Readings & Dissertation**
Todes
Sec. 01
TBA
300.303 (H) EARLY MODERN WOMEN WRITERS: POETRY OF THE EUROPEAN RENAISSANCE (3) Patton  Limit 12  This seminar begins with women orators of the Italian Quattrocento and then explores the poetry of European salons and social circles: Gaspara Stampa, Vittoria Colonna, Louise Labé, Léa Dames des Roches, Elizabeth I, Katherine Parr, Mary Sidney, and Elizabeth Cary. Cross-listed with English, and Studies of Women, Gender, and Sexuality

300.319 (H) THE HISTORY OF IDEAS (3) Macksey/Dechand  Limit 15  A tour of interdisciplinary activities largely focused on Hopkins, from Peirce’s Metaphysical Club and Lovejoy’s History of Ideas Club to more recent developments in cooperative studies in philosophy, history, and literature: a narrative of people, ideas, institutions, and their consequences.

300.334 (H) MODERN JEWISH THOUGHT AND PHILOSOPHY (3) Shuster  Limit 25  This course will serve to introduce students to the diversity of Modern Jewish philosophy and thinking, from theology to philosophy, Hasidism to Zionism, politics to history. Cross-listed with Jewish Studies, History, and Philosophy

300.338 (H) MODERN KOREAN LITERATURE IN TRANSLATION (3) Rhee  Limit 20  The course examines twentieth century Korean literature in historical context. Readings include Yi Kwangsu, Yi Sang, Kim So-young, Park Kyoung-ti, and Hwang Chai. There will be a film component to this course that focuses on the director, Im Kwon Taek. Cross-listed with East Asian Studies

300.350 (H) MORAL PERFECTIONISM (3) de Vries/Lefebvre  Limit 20  Taking Stanley Cavell’s Cities of Words as our guide, this course explores themes and principles of moral perfectionism in philosophy, literature, and film. Attendance at weekly film screenings is mandatory.

300.357 (H) WHAT COUNTS AS HUMAN? (3) Marrati  Limit 20  This course analyzes different concepts of the human and others. Readings include: Plato, Descartes, Kant, Levinas, Arendt, and Butler. Cross-listed with Philosophy, Anthropology, Political Science, German and Romance Languages and Literatures

300.360 (H) THE BODY IN PRE-MODERN CHINESE CULTURE (3) Guo  Limit 15  An examination of the body in pre-modern China in comparative perspectives. We shall look at the ways in which the body is imagined medically, cosmologically, artistically, and legally. Among the topics we shall treat are the medical body (yin yang relationships), the cross-dressing body (theatrical and everyday transvestism), the body of the friend (friendship), the “fashion-able body” (footbinding), the sacrificial/sacrificed body (male and female suicide), and the legally imagined body (gender, sex, and law). No prior knowledge of Chinese is required. Cross-listed with East Asian Studies and the Study of Women, Gender, and Sexuality

300.363 (H) READING JUDITH SHAKESPEARE: WOMEN PLAYWRIGHTS OF EARLY MODERN ENGLAND (3) Patton  Limit 12  Virginia Woolf’s account of the thwarted
HUMANITIES CENTER

career of Shakespeare’s hypothetical sister, Judith, frames our reading of women playwrights, poets and diarists of the 16th and early 17th century England. Cross-listed with English, and Studies of Women, Gender, and Sexuality

300.372 (H,S) HOLOCAUST TESTIMONIES (3)  Sec. 01 M 2-4  
A seminar on topics and issues associated with Holocaust testimony  
Cross-listed with History, History of Science and Technology, and Anthropology

300.382 (H) PHILOSOPHY, MEMORY, AND RECONSTRUCTION: WESTERN EUROPE AFTER WW II (3)  Sec. 01 W 5-8 pm  
Sec. T 7-9pm  
Geroulanos  
Limit 25  
This course on the intellectual history of Western Europe with focus on the war’s legacy, reconstruction, existentialism, the appeal of Soviet communism, the crisis of humanism, and film. Cross-listed with History, German and Romance Languages and Literatures  
Dean’s Teaching Fellowship Course

300.502 INDEPENDENT STUDY  Staff

300.504 (H) (W) INDIVIDUAL HONORS WORK – JUNIORS Macksey and Sponsoring faculty  
Open only to students admitted to the Honors Program in Humanistic Studies

300.506 (H) (W) INDIVIDUAL HONORS WORK – SENIORS Macksey and Sponsoring faculty  
Open only to students admitted to the Honors Program in Humanistic Studies

300.508 (W) HONORS SEMINAR: METHODS IN HUMANISTIC STUDIES  Macksey/Dechand  
A workshop on Honors projects in progress and their relation to methods in humanistic scholarship. Open only to members of the Honors Program in Humanistic Studies

300.526 (H) (W) EDITORIAL INTERNSHIP  Macksey  
S/U only  
Students with a serious commitment to critical journalism may contract a supervised internship with one of the University publications or cooperating sponsors in the Baltimore community. Admission by interview

213.255 (H) VOICES: FROM THE ROMANTIC TEXT TO GRAMMOPHONE AND TELEPHONE (3)  
Campe  
Limit 15  
Cross-listed with Film & Media Studies and German and Romance Languages and Literatures

070.328 (H,S) (W) THE CONCEPT OF THE PATIENT IN ANTHROPOLOGY (3)  
Meyers  
Limit 25  
Cross-listed with History of Science and Technology, Anthropology, and Public Health Studies  
Dean’s Teaching Fellowship Course

070.361 (H,S) (W) RELIGION AND PLURALISM IN ISLAMIC SOCIETIES (3)  
Baxstrom  
Limit 20  
Cross-listed with Political Science and Anthropology

070.369 (H,S) (W) ANTHROPOLOGY OF THE SENSES (3)  
Khan  
Limit 30  
Cross-listed with Studies of Women, Gender and Sexuality, Anthropology and, Political Science

300.604 LITERATURE OF THE CITY: PARIS  
Hertz  
Limit 20  
Readings in the works of novelists and poets, historians, sociologists, journalists, and urban theorists on life in Western cities (e.g., London, Paris, Chicago, and Los Angeles) from 18th century to the present. Cross-listed with English and German and Romance Languages and Literatures

Sec. 01  F 9-12
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Time</th>
<th>Days</th>
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<tbody>
<tr>
<td>300.619</td>
<td>TRAUMA THEORY NOW</td>
<td>Leys</td>
<td>20</td>
<td>T 1-4</td>
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<tr>
<td>300.631</td>
<td>TOPICS IN ESTHETICS AND CRITICISM</td>
<td>Fried</td>
<td>20</td>
<td>TBA</td>
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<tr>
<td>300.635</td>
<td>AMERICAN MODERNISM: STEVENS, WILLIAMS, AND MOORE</td>
<td>Macksey</td>
<td>20</td>
<td>M 8-10:30pm</td>
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<td>Limit 20: Poetry and selected prose by three American originals: Wallace Stevens, Marianne Moore, and William Carlos Williams. An interlude will be devoted to the homemade worlds of Charles Ives, George Herriman, and Chuck Jones. Seminar meets at instructor's home.</td>
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<tr>
<td>300.671</td>
<td>STANLEY CAVEll'S &quot;THE CLAIM OF REASON&quot;</td>
<td>de Vries/Marrati</td>
<td>15</td>
<td>Th 1-4</td>
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<td>Limit 15: This seminar will explore Cavell's magnum opus and discuss his contribution to the understanding of philosophical skepticism, literature, film, ethics, politics, and religion. Cross listed with Philosophy, Anthropology, Political Science, English, German and Romance Languages and Literatures.</td>
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<tr>
<td>213.638</td>
<td>EPISTEMOLOGY IN HISTORICAL PERSPECTIVE</td>
<td>Rheinberger</td>
<td>15</td>
<td>M 3-6pm</td>
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<td>Limit 15: Cross listed with the German and Romance Languages and Literatures, Philosophy, and History of Science and Technology.</td>
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<tr>
<td>213.662</td>
<td>ADVOCACY: FÜRSPRACHE</td>
<td>Campe</td>
<td>15</td>
<td>Th 3-5pm</td>
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<td>Limit 15: Cross listed with German and Romance Languages and Literatures, Political Science, and Classics.</td>
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<tr>
<td>212.673</td>
<td>GRADUATE SEMINAR IN FILM AND FILM THEORY: EUROPEAN</td>
<td>Wegener</td>
<td>15</td>
<td>W 4-6pm</td>
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<td>AUTEURS Wegenstein: Limit 15: Cross listed with German and Romance Languages and Literatures</td>
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<td>212.685</td>
<td>LITERATURE AND RELIGIOUS EXPERIENCE</td>
<td>Egginton</td>
<td>15</td>
<td>Th 1-3</td>
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<td>Egginton: Limit 15: Cross listed with German and Romance Languages and Literatures</td>
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<td>300.800</td>
<td>INDEPENDENT STUDY</td>
<td>Leys</td>
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<td>300.802</td>
<td>INDEPENDENT STUDY - FIELD EXAM</td>
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<td>300.804</td>
<td>DISSERTATION RESEARCH</td>
<td>Leys</td>
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<tr>
<td>300.806</td>
<td>LITERARY PEDAGOGICS</td>
<td>Macksey</td>
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<tr>
<td>300.808</td>
<td>HUMANITIES RESEARCH PRACTICUM</td>
<td>Fried</td>
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</table>
LANGUAGE TEACHING CENTER

ARABIC

375.116 BEGINNING ARABIC II (4.5) Tahrawi/ Glueck  Limit 18 per section  Sec. 01 MTWThF 9  May not be taken Satisfactory/ Unsatisfactory  02 MTWThF 10  Continuation of 375.115. Introductory course in speaking, listening, reading, and writing Modern Standard Arabic. Presents basic grammatical structures and a basic vocabulary. Through oral-aural drill in classroom, tapes in Language Laboratory, and reading/writing exercises, students attain a basic level of competence on which they can build in subsequent years of study.

375.216 (H) INTERMEDIATE ARABIC II (4) Glueck  Limit 18  Continuation of 375.215. Designed to bring students up to competency level required for third/fourth year Arabic. Students will consolidate and expand their mastery of the four basic skills acquired in 375.115-116. More authentic material--written, audio, and visual--will be used, and culture will be further expanded on as a fifth skill.

375.302 (H) ADVANCED ARABIC READING AND WRITING (2) Tahrawi  Limit 18  Prereq: Two years of Arabic or Perm Req’d. Continuation of 375.301. Designed to enhance students’ ability to read, discuss, and write about various topics covered in traditional and contemporary Arabic texts.

375.402 (H) UPPER ADVANCED ARABIC (3) Tahrawi  Limit 15  Prereq: 375.302 or equivalent  Continuation of 375.401. This is an introductory course to different periods of the Arabic literature. Selections of famous Arabic poetry and short prose works are the substance of the course.

CHINESE

373.112 ACCELERATED BEGINNING CHINESE (3.5) Hsieh  Limit 17 per section  Sec. 01 MWhTh 12  Prereq: 373.111 or Perm Req’d. Lab Req’d. Continuation of 373.115. For students who have significant, previously acquired ability to understand and speak Modern Standard Chinese. Course focuses on reading and writing. Teaching materials are the same as used in 373.115-116; however, both traditional and simplified versions of written Chinese characters are used.

373.116 ELEMENTARY CHINESE (4.5) Lievens  Limit 17 per section  Sec. 01 MTWThF 10  Prereq: 373.115 or Perm Req’d. Continuation of 373.115. Introductory course in Modern Standard Chinese. Goals: mastery of elements of pronunciation and control of basic vocabulary of 800-900 words and most basic grammatical patterns. Students work first with Pin-Yin system, then with simplified version of written Chinese characters. Note: Student with existing demonstrable skills in spoken Chinese should take 373.111-112.

373.212 (H) ACCELERATED INTERMEDIATE CHINESE (3.5) Zheng  Limit 17  Sec. 01 TTh 2-3:30  Prereq: 373.211 or Perm Req’d. Continuation of 373.211. For students who possess native-like abilities in comprehension and speaking. The course focuses on reading and writing. Students will work with either simplified or traditional characters.

373.303 (H) CHINESE CALLIGRAPHY (3) Hsieh  Limit 25  Sec. 01 Th 2-4:30  This is an introductory course on Chinese brush writing. Knowledge of the Chinese language is useful but not essential. You will hear lectures on history, theory and techniques of Brush writing plus aspects of Chinese culture.
associated with characters used. Remaining time will be used for hands-on practice. Taught in English.

373.316 (H)  UPPER INTERMEDIATE CHINESE (3.5)  Zheng/Hsieh  Limit 17 per section  Prereq: 373.315 or Perm Req’d.  Continuation of 373.315. This two-semester course consolidates and further expands students’ knowledge of grammar and vocabulary and further develops reading ability through work with textbook material and selected modern essays and short stories. Class discussions will be in Chinese so far as feasible, and written assignments will be given.

373.416 (H)  ADVANCED CHINESE (3)  Feng  Limit 17  Continuation of 373.415. Readings in modern Chinese prose, including outstanding examples of literature, newspaper articles, etc. Students should understand most of the readings with the aid of a dictionary, so that class discussion need not focus primarily on detailed explanations of grammar. Discussion, to be conducted in Chinese, will concentrate on the cultural significance of the readings’ content.

373.421 (H)  CLASSICAL CHINESE (3)  Staff  Limit 17  Students are required to have knowledge of traditional Chinese characters in order to read short selections of early literary prose.

ENGLISH AS A SECOND LANGUAGE

370.601  COMMUNICATION STRATEGIES IN THE AMERICAN CLASSROOM  Shiffman  Limit 10 per section  Open to graduate students  No auditors  Perm Req’d.  Prospective international teaching assistants work to improve their English language skills while familiarizing themselves with the culture of the American classroom and effective teaching strategies. Students are videotaped practice teaching.

HINDI

381.102  BEGINNING HINDI II (3)  Saini  Limit 17  Continuation of 381.101. Course focuses on acquisition of additional vocabulary and grammatical structures in culturally authentic contexts, listening, speaking, reading, and writing comprehension.

381.202 (H)  INTERMEDIATE HINDI II (3)  Rana  Limit 10  Prereq: 381.201 or Perm Req’d.  Continuation of 381.201. Course provides refinement of basic language skills in cultural context. Emphasis will be on expansion of vocabulary and grammatical structures and further development of communicative skills.

381.311 (H)  HINDI/URDU CONVERSATION (3)  Rana  Limit 18  Prereq: 381.202 or equivalent  Advanced training in spoken Hindi for students who have completed Intermediate Hindi or have equivalent knowledge and fluency. Communicative activities such as task-oriented acts, role plays, and group discussions will assist in the development of good interactive skills. Course not offered every semester.

JAPANESE

378.102  SLOW PACED BEGINNING JAPANESE II (3)  Saito  Prereq: 378.101 or Perm req’d  Limit 17  A continuation of 378.101, part two of a four-semester introductory course for students who wish to study Japanese at a slower pace attending three classes rather than five classes per week. Lab required.
## LANGUAGE TEACHING CENTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prerequisite(s)</th>
<th>Limit</th>
<th>Section(s)</th>
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<tr>
<td>378.104</td>
<td>SLOW PACED BEGINNING JAPANESE IV (3)</td>
<td>Katagiri</td>
<td>3</td>
<td>Prereq. 378.103 or Perm. req'd Limit 17 A continuation of 378.103, part four of a four-semester introductory course for students who want to study Beginning Japanese at a slower pace, attending three classes rather than five classes per week. Lab required.</td>
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<td>01 TBA</td>
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<tr>
<td>378.116</td>
<td>BEGINNING JAPANESE (4.5)</td>
<td>Zou</td>
<td>4.5</td>
<td>Prereq. 378.115 Limit 17 per section May not be taken Satisfactory/Unsatisfactory Continuation of 378.115, Continuation of 378.115. Goals of the course are mastery of pronunciation, basic grammar and vocabulary. Chinese characters, or Kanji, will be introduced. In addition to written exercises and tests, oral-aural drill in class and work in the language laboratory are important.</td>
<td></td>
<td>01 MTWThF 11</td>
</tr>
<tr>
<td>378.216 (H)</td>
<td>INTERMEDIATE JAPANESE (4.5)</td>
<td>Katagiri</td>
<td>4.5</td>
<td>Prereq. 378.213 or equivalent Lab required Limit 15 per section Continuation of Beginning Japanese and Intermediate Japanese I, with training in spoken and written language, increasing their knowledge of more complex patterns. At completion, students will have a working knowledge of about 250 Kanji.</td>
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<td>01 MTWThF 11</td>
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<tr>
<td>378.312 (H)</td>
<td>JAPANESE CONVERSATION (2.5)</td>
<td>Katagiri</td>
<td>2.5</td>
<td>Prereq. 378.311 or equivalent Advanced training in spoken Japanese, at the completion of Intermediate Japanese, available to those with equivalent proficiency. Students will develop more interactive skills, using authentic audio/video materials. No reading/writing instructions.</td>
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<td>01 M 9, W 3</td>
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<tr>
<td>378.316 (H)</td>
<td>UPPER INTERMEDIATE JAPANESE (3.5)</td>
<td>Zou</td>
<td>3.5</td>
<td>Prereq. 378.315 or equivalent. Continuation of 378.315. Emphasis shifts toward reading, while development of oral-aural skills also continues pace. The course presents graded readings in expository prose and requires students to expand their knowledge of Kanji, grammar, and both spoken and written vocabulary. Lab required.</td>
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<td>01 MTW 10</td>
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<tr>
<td>378.416 (H)</td>
<td>ADVANCED JAPANESE (3.5)</td>
<td>Nakao</td>
<td>3.5</td>
<td>Prereq. 378.415 Lab Req’d. By using four skills in participatory activities (reading, presentation, and discussion), students will develop reading skills in modern Japanese and deepen and enhance their knowledge on Kanji and Japanese culture.</td>
<td></td>
<td>01 Lec. MW 10</td>
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### AFRICAN LANGUAGES

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<tr>
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<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prerequisite(s)</th>
<th>Limit</th>
<th>Section(s)</th>
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<tbody>
<tr>
<td>379.152</td>
<td>BEGINNING KISWAHILI II (3)</td>
<td>Mugambi</td>
<td>3</td>
<td>Prereq. 379.151 Limit 15. Continuation of 379.151. This introductory course focuses on vocabulary and presents some of the basic grammatical, phonological, and sociological elements of the Kiswahili language. Students are exposed to different facets of the cultures of eastern Africa (especially Tanzanian and Kenyan). Cross-listed with Africana Studies.</td>
<td></td>
<td>01 MW 4-5:30</td>
</tr>
<tr>
<td>379.162</td>
<td>BEGINNING HAUSA II (3)</td>
<td>Mamane</td>
<td>3</td>
<td>Prereq. 379.161 Limit 18 Continuation of 379.161. This course focuses on conversational skills as well as reading, writing and composition skills of the language. Cross-listed with Africana Studies.</td>
<td></td>
<td>01 Sec. TTh 5:45-7pm</td>
</tr>
<tr>
<td>379.252 (H)</td>
<td>INTERMEDIATE KISWAHILI II (3)</td>
<td>Mugambi</td>
<td>3</td>
<td>Prereq. 379.251 Limit 18 Continuation of 379.251. This course focuses on conversational skills.</td>
<td></td>
<td>01 M 5-6:30-7pm</td>
</tr>
</tbody>
</table>
as well as reading, writing and composition skills. It includes analyses of the culture, history and socio aspects of this linguistic group. Resources in the Language Lab are incorporated in the course. Cross-listed with Africana Studies.

KOREAN

380.102 ELEMENTS OF KOREAN II (3) Kang
Prereq. 380.101 or Perm. Req’d. Continuation of 380.101. Focuses on improving speaking fluency to Limited Proficiency so that one can handle simple daily conversations with confidence. It provides basic high-frequency structures and covers Korean holidays.

380.202 (H) INTERMEDIATE KOREAN FOR READING AND WRITING II (3) Kang
Prereq. 380.201 or equivalent. Continuation of 380.201. Aims for improving writing skills with correct spelling. Reading materials of Korean people, places, and societies will enhance cultural understanding and awareness, including discussion on family tree.

380.302 (H) ADVANCED KOREAN II (3) Kang
Prereq. 380.301 or equivalent. Continuation of 380.301. Emphasizes cultural understanding and awareness, including discussion on family tree.

PERSIAN

382.102 BEGINNING PERSIAN II (3) Dehghan
Prereq. 382.101 or equivalent. Limit 18 Taught in Persian. Continuation of 382.101. The basic modern Persian enables students to learn the Persian alphabet, phonology, morphology, and the basic syntax. Students will also learn reading, writing, and translating basic sentences.

RUSSIAN

377.132 ELEMENTARY RUSSIAN II (4) Samilenko/Czeczulin
Section 11 MTWF 11:10-12:00
Section 12 MTWF 9:10-10:00
Continuation of 377.131. Designed to give students a firm foundation in the language, with special emphasis on the development of vocabulary, basic reading, and conversational skills.

377.209 (H) INTENSIVE INTERMEDIATE RUSSIAN II (4) Czeczulin
Sec. 01 MTWF 11
Continuation of 377.208. Intensive oral work; continued emphasis on grammar and reading comprehension.

377.253 (H) THE SOUL OF RUSSIA: RUSSIAN CULTURE AND CIVILIZATION (3) Czeczulin
Limit 17. The evolution of Russian culture and civilization from the Mongol invasion to the present day conducted through a study of literary texts, architecture, art, music, film, and multimedia. Taught in English at Goucher.

377.318 (H) CHEKHOV (3) Samilenko
Limit 17. Taught in Russian. Chekhov’s short stories and plays studied against the social, political, and philosophical background of his time. Close readings and in-depth stylistic analysis. Designed for advanced students.

377.396 (H) SENIOR RUSSIAN SEMINAR II: 20TH CENTURY RUSSIAN CLASSICS (3) Samilenko
Limit 17 Perm Req’d. Rotating topics in 20th century prose, poetry, drama, or film.

377.506 INDEPENDENT STUDY Samilenko
LANGUANGE TEACHING CENTER

SANSKRIT

383.112 BEGINNING SANSKRIT II (3) Saini
Limit 18 Continuation of 383.111
Additional emphasis will be placed on
listening, reading, and writing of the
language. Basic sentences will be drawn
from the Sanskrit Literature. Simple
Vedic Mantras from the Vedas and
Ishopanishad, verses from the Bhagavad
Gita, and the sutras from the Yoga
Sookas will be read.

MATHEMATICS

110.106 (Q) CALCULUS I (4) Wilkin
For Biological and Social Sciences
Majors Limit 25 per section
Differential and integral calculus.
Includes analytic geometry, functions,
limits, integrals and derivatives,
introduction to differential equations,
functions of several variables, linear
systems, and applications for systems of
linear differential equations, probability
distributions.

110.107 (Q) CALCULUS II (4) Spinu
For Biological and Social Sciences
Majors Limit 28 per section
Prereq: Calculus I
Calculus of functions of more than one
variable: partial derivatives, and
applications; multiple integrals, line and
surface integrals; Green's Theorem,
Stokes' Theorem, and Gauss' Divergence
Theorem.

110.109 (Q) CALCULUS II (4) Zucker
For Physical Sciences and Engineering
Majors Limit 28 per section
Prereq: Calculus I
Calculus of functions of more than one
variable: partial derivatives, and
applications; multiple integrals, line and
surface integrals; Green's Theorem,
Stokes' Theorem, and Gauss' Divergence
Theorem.

110.201 (Q) LINEAR ALGEBRA (4) Paupert
Limit 25 per section
Prereq: Calculus I
Vector spaces, matrices, and linear
transformations. Solutions of systems of
linear equations. Eigenvalues, eigenvectors,
and diagonalization of matrices. Applications to
differential equations.

110.202 (Q) CALCULUS III (4) Ha/Ching
Limit 25 per section
Prereq. 130.107, 130.109 or 110.112.
Calculus of functions of more than one
variable: partial derivatives, and
Lec. II MTW 10
applications; multiple integrals, line and
surface integrals; Green's Theorem,
Lec. I MTW 10
Stokes' Theorem, and Gauss' Divergence
Theorem.

110.204 (Q) ELEMENTARY NUMBER THEORY (4) Zhang
Limit 30
Prereq: a good high school background including a year of
Calculus. Primes and prime factorization,
congruences, Euler's function, quadratic
reciprocity, primitive roots, solutions to
polynomial congruences (Chevalley's theorem),
Diophantine equations including the Pythagorean, Pell
equations, Gaussian integers, Dirichlet's
theorem on primes.

110.211 (Q) HONORS MULTIVARIABLE CALCULUS (4) Wilkin
Limit 35
Prereq. B+ or better in Calculus II or 5 in
the BC AP exam. This course includes
the material in Calculus III (202) with
some additional applications and theory.
Recommended for mathematically able
students majoring in physical science,
engineering, or especially mathematics.
110.211-212 used to be an integrated
MATHEMATICS

yearlong course, but now the two are independent courses and can be taken in either order.

110.212 (Q)  HONORS LINEAR ALGEBRA (4)  Ha
Limit 45  Prereq: Calculus II or III or equivalent, preferably honors. This course includes the material in Linear Algebra (201) with some additional applications and theory. Recommended for mathematically able students majoring in physical science, engineering, or mathematics.

110.302 (E,Q)  DIFFERENTIAL EQUATIONS WITH APPLICATIONS (4)  DeSilva/Brown
Limit 35 per section  Prereq: Calculus III
This is an applied course in ordinary differential equations, which is primarily for students in the biological, physical and social sciences, and engineering. The purpose of the course is to familiarize the student with the techniques of solving ordinary differential equations.

110.328 (Q)  NON-EUCLIDEAN GEOMETRY (4)  Paupert
Limit 25  Prereq: Calculus III
This is an applied course in ordinary differential equations, which is primarily for students in the biological, physical and social sciences, and engineering. The purpose of the course is to familiarize the student with the techniques of solving ordinary differential equations.

110.402 (Q)  ADVANCED ALGEBRA II (4.5)  Kong

110.405 (Q)  ANALYSIS I (4.5)  DeSilva
Limit 35  Prereq: Calculus III, Linear Algebra
Real and complex number systems, topology of metric spaces, limits, continuity, infinite sequences and series, differentiation, Riemann-Stieltjes integration.

110.406 (Q)  ANALYSIS II (4.5)  Nakamura
Limit 35  Prereq: 110.405  Continuation of 110.405 notions of modern analysis. Sequences and series of functions, Fourier series, equicontinuity and the Arzela-Ascoli theorem, the Stone-Weierstrass theorem. Functions of several variables, the inverse and implicit function theorem, introduction to the Lebesgue integral.

110.413 (Q)  INTRODUCTION TO TOPOLOGY (4.5)  Ching
Limit 15  Topological spaces, connectedness, compactness, quotient spaces, metric spaces, function spaces. An introduction to algebraic topology: covering spaces, the fundamental group, and other topics as time permits.

110.416 (Q)  HONORS ANALYSIS II (4)  Goldberg
Limit 15  Prerequisite: 110.415, or 110.405 and permission of the instructor. Continuation of 110.415; introduction to real analysis. Lebesgue integration and differentiation. Elementary Hilbert and Banach space theory. Baire category theorem.

110.417 (E,Q)  PARTIAL DIFFERENTIAL EQUATIONS FOR APPLICATIONS (4.5)  Blair
Limit 35  Prereq: Calculus III, Linear Algebra
Recommended: 110.405 Classification of second order equations, well-posed problems, separation of variables and expansions of solutions. The wave equation: Cauchy problem, Poisson's solution, energy inequalities, domains of influence and dependence.
MATHEMATICS

110.421 (Q) **DYNAMICAL SYSTEMS** (4) Brown
Limit 15 Prereq: Calculus III, Linear Algebra, ODEs. This is a course in the modern theory of Dynamical Systems. Topics include existence and uniqueness of general ODEs, nonlinear analysis and stability, including bifurcation theory and stable and center manifolds, smooth flows, limit sets, Hamiltonian mechanics, perturbation theory and structural stability.

Sec. 01 MTW 3

110.423 (Q) **LIE GROUPS FOR UNDERGRADUATES** (4) Boardman
Limit 25 Prereq: Calculus III, Prior knowledge of group theory would be helpful. This course is an introduction to Lie Groups and their representations at the upper undergraduate level. It will cover basic Lie Groups such as SU (2), U (n), the Euclidean Motion Group and Lorentz Group. This course is useful for students who want a working knowledge of group representations. We will also discuss some aspects of the role of symmetry groups in particle physics such as some of the formal aspects of the electroweak and the strong interactions. A good reference is the book Lie Algebras in Particle Physics by Howard Georgi.

Sec. 01 MTW 1

110.602 **ALGEBRA** Shokurov
Limit 20 Prereq: 110.401-402 An introductory graduate course on fundamental topics in algebra to provide the student with the foundations for Number Theory, Algebraic Geometry, and other advanced courses. Topics include group theory, commutative algebra, Noetherian rings, local rings, modules, and rudiments of category theory, homological algebra, field theory, Galois theory, and non-commutative algebras.

Sec. 01 MTW 1

110.607 **COMPLEX VARIABLES** Zelditch
Limit 20 Prereq: 110.311, 110.405 Analytic functions of one complex variable. Topics include Mittag-Leffler Theorem, Weierstrass factorization theorem, elliptic functions, Riemann-Roch theorem, Picard theorem, and Nevanlinna theory.

Sec. 01 MTW 2

110.616 **ALGEBRAIC TOPOLOGY** Boardman
Limit 20 Prereq: 110.401, 110.413 Polyhedra, simplicial and singular homology theory, Lefschetz fixed-point theorems, cohomology and products, homological algebra, Kähler and universal coefficient theorems, Poincaré and Alexander duality theorems.

Sec. 01 ThF 2-3:15

110.632 **PARTIAL DIFFERENTIAL EQUATIONS** Minicozzi
Limit 20 Prereq: 110.605-606 An introductory graduate course in partial differential equations. Classical topics include first order equations and characteristics, the Cauchy-Kowalewski theorem, Laplace's equation, heat equation, wave equation, fundamental solutions, weak solutions, Sobolev spaces, maximum principles. The second term focuses on special topics such as second order elliptic theory.

Sec. 01 MW 9:30-11

110.640 **SPECTRAL THEORY** Goldberg
Limit 20

Sec. 01 MTW 3

110.644 **ALGEBRAIC GEOMETRY** Shokurov
Limit 20 Affine varieties and commutative algebras. Hilbert's theorems about polynomials in several variables with their connections to geometry. General varieties and projective geometry. Dimension theory and smooth varieties. Sheaf theory and cohomology. Applications of sheaves to geometry; e.g., the Riemann-Roch Theorem. Other topics may include Jacobian varieties, resolution of singularities, geometry on surfaces, schemes, connections with
MATHEMATICS

110.646  Riemannian Geometry  Mese
Limit 20  Prereq: 110.405, 110.413
Differential manifolds, vector fields, Frobenius’ theorem. Differential forms, deRham’s theorem, vector bundles, connections, curvature, Chern classes, Cartan structure equations. Riemannian manifolds, Bianchi identities, geodesics, exponential maps. Geometry of submanifolds, hypersurfaces in Euclidean space. Other topics as time permits, e.g. harmonic forms and Hodge’s theorem, Jacobi equation, variation of arc length and area, Chern-Gauss-Bonnet theorems.

110.660  Qualifying Exam Problems  Staff
Limit 20

110.726  Topics in Analysis (Nonlinear Wave Equations)  Sogge
Limit 20

110.730  Topics in Complex Geometry  Shiffman
Limit 20

110.732  Topics in Mathematical Physics  Zelditch
Limit 20

110.734  Topics in Algebraic Number Theory  Ono
Limit 20

110.738  Topics in Algebraic Geometry (Motives)  Consani
Limit 20

110.742  Topics in PDE (Monge-Ampere Equations)  Spruck
Limit 20

110.762  Jami Seminar  Nakamura
Sec. 01  TBA

110.799  Thesis Research  Staff

110.800  Independent Study

MEDICINE TUTORIALS

These School of Medicine courses are open only to selected junior and senior premedical students with the approval of their faculty advisor and Preprofessional Advising, Garfield Hall - Third Floor. Interdivisional registration is required.

A separate list of the tutorials to be offered will be available at the Registrar's Office after classes begin. Do not list tutorial courses on your course list form. Registration for these courses is accomplished by submitting an approved “add” slip and interdivisional registration form to Preprofessional Advising, as soon as possible after classes begin, and in any event, not later than the fourth week of classes.

Please note: No area code credit is given toward degree for the Medicine tutorials and all tutorials are graded Satisfactory/ Unsatisfactory.

MILITARY SCIENCE

374.002 (S)  Military Science Leadership Lab (1)  Butera
Limit 100
ROTC cadets only. Students practice their leadership skills in a variety of settings to build a better understanding of the students’ strengths and weaknesses and to provide a forum for discussion of leader development.

374.102 (S)  Introduction to Leadership II (2)  Butera
Prereq: 374.101 or Perm. Req’d
Register accordingly:
Sec. 01 – Limit 25 (Freshmen only)
Sec. 02 – Limit 20
Establishes a foundation of basic leadership fundamentals such as: problem solving, communications, effective writing, goal setting, improving speaking and listening skills, and an introduction to counseling.
374.202 (S) **FOUNDATIONS OF LEADERSHIP & TEAMWORK II** (2) Langston
Limit 25 per section
Prereq: 374.201 or Perm Req’d
Class examines how to build effective teams, various methods for influencing action, effective communication in setting and achieving goals, decision-making, creativity in problem solving, and providing feedback.

374.302 (S) **APPLIED LEADERSHIP AND TACTICS THEORY II** (2) Ballesteros
Coreq: 374.002
ROTC cadets only
Limit 25
Examines the role communications, values, and ethics play in effective leadership through application of principles in tactical scenarios. Emphasis is on improving written and oral communications skills and military tactics proficiency.

374.402 (S) **ADAPTIVE LEADERSHIP AND PROFESSIONALISM (2)** Romaine
Coreq: 374.002
ROTC cadets only
Limit 20
Study includes practical exercises on establishing an ethical command climate and developing values required of a professional officer. Students apply their leadership skills in the ROTC battalion and prepare for commissioning.

374.512 (S) **INTERNSHIP** Romaine
Perm Req’d
Limit 5
Students will select a topic relevant to the study of military leadership and will complete a project based on current military doctrine and the contemporary operating environment of current military operations.

**PROGRAMS IN MUSEUMS & SOCIETY**

389.203 (H,S) **MUSEUM MATTERS (3)** Rodini
Limit 15
Prereq: Freshmen & Sophomores only or Perm. Req’d
Students who have enrolled in 360.219.02 may not register for this course
Cross-listed with History of Art, Anthropology, and History

389.354 (H) **PAPER MUSEUMS: EXHIBITING PRINTS AT THE BMA (3)** Rodini
Limit 12
Prereq: 300-level art history class or permission of instructor
Cross-listed with History of Art

140.353 (H,S) **MUSEUMS, PARKS AND MONUMENTS: THE PROBLEMS OF REMEMBERING THE PAST (3)** Nystrom
Limit 15
Museums, parks and monuments are built to commemorate a particular version of the past. Analyze the multiple meanings of these sites and explore the intersections of memory and the built environment. Cross-listed with Museums and Society
Dean Teaching Fellowship Course

140.363 (H,S) **MUSEUMS AND CONTROVERSY: FROM THE ENOLA GAY TO BODY WORLDS (3)** Molella
Limit 15
Exhibitions on Freud, Darwin, the Bomb, environment, the human body, and similar “hot” topics have stirred unexpected controversy. This seminar explores the origins of such heated public and scientific disagreements. Cross-listed with Museums and Society

389.501 **INDEPENDENT STUDY IN MUSEUMS & SOCIETY** Staff

389.599 **INTERNSHIP IN MUSEUMS & SOCIETY** Rodini
MUSIC

376.111 (H) RUDIMENTS OF MUSIC THEORY AND MUSICIANSHIP (3) Osowski
Limit 15 per section. This course introduces written and aural music fundamentals including notation, scales, intervals, chords, rhythm, meter and sight-singing. Composition of melodies and short pieces as well as listening projects will be undertaken. Course does not count towards the completion of the minor.

376.211 MUSIC THEORY AND MUSICIANSHIP I (3) Hardaway
Prereq: Qualifying examination or Rudiments of Music Theory and Musicianship. Limit 15. Introduction to basic principles of tonal music through listening, analysis and music making. Students study melody, harmony, voice leading, figured bass and dissonance treatment, and will also undertake short composition projects.

376.212 MUSIC THEORY AND MUSICIANSHIP II (3) Hardaway
Prereq: Music Theory and Musicianship I. Limit 15. This course continues the written and aural work of the previous course but focuses on chromatic harmony while continuing the study of melody, counterpoint and figured bass.

376.213 MUSIC THEORY AND MUSICIANSHIP III (3) Osowski
Prereq: Music Theory & Musicianship II. Limit 15. Continuation of written and aural work of the previous two semesters. Projects in four-voice writing from figured bass and counterpoint in two and three voices are completed, using as models a variety of styles and composers. Students study simple binary, rounded binary and ternary forms, and compose a short work in a tonal idiom.

376.242 (H) INTRODUCTION TO POPULAR MUSIC (3) Mathews
Limit 20 per section. A survey of the stylistic features and social contexts of American popular music since the 1950s.

NEAR EASTERN STUDIES

130.103 (H) “NONE WHO GO AWAY RETURN AGAIN!” DEATH IN ANCIENT EGYPT (3) Jasnow
Limit 15. We will explore Ancient Egyptian conceptions of death which, contrary to popular belief, were often profound and moving. Selectively drawing from the vast number of preserved texts and images, we will try to understand how the Egyptians planned for their afterlife. Meets with 134.661.

130.110 (H,S) INTRODUCTION TO ARCHAEOLOGY (3) McCarter, S.
Limit 50. Cross-listed with Anthropology.

130.302 (H) HISTORY: ANCIENT SYRIA-PALESTINE II (3) McCarter, K.

130.318 (H) ANCIENT TREATIES (3) Westbrook
Limit 10. Prereq: Sophomore standing and above. An undergraduate seminar in which we read cuneiform treaties in translation and analyze their content from a political, diplomatic, and legal point of view.

130.346 (H) INTRODUCTION TO THE HISTORY OF RABBINIC LITERATURE (3) Katz
Sec. 01 MW 10
NEAR EASTERN STUDIES
Limit 20

Broadly surveying classic rabbinic literature, including the Talmud and its commentaries, the legal codes and the response, this seminar explores the immanent as well as the external factors that shaped the development of this literature, the seminal role of this literature in Jewish self-definition and self-perception, and the role of this literature in pre-modern and modern Jewish culture.
Cross-listed with Jewish Studies

130.351 (H,S) THE EMERGENCE OF CIVILIZATION: A CROSS CULTURAL EXAMINATION (3)
Schwartz
Limit 50
Investigation of the emergence of the earliest urban societies in Mesopotamia, Egypt, Indus, China, and Mesoamerica, with attention to commonalities and differences.
Cross-listed with Anthropology
Sec. 01 MW 10

130.352 (H) HISTORY OF HASIDISM (3) Katz
Limit 20
Although it appears to be a relic of pre-modern Judaism, Hasidism is a phenomenon of the modern era of Jewish history. This course surveys the political and social history of the Hasidic movement over the course of the last three centuries. Students will also explore basic features of Hasidic culture and thought in their historical development.
Cross-listed with Jewish Studies
Sec. 01 MW11 F 1

130.401 (H) INTRODUCTION TO MIDDLE EGYPTIAN (Hieroglyphs) (3) Waraksa/Jasnow
Limit 10
Introduction to the grammar and writing system of the classical language of the Egyptian Middle Kingdom (ca. 2135-2000 B.C.). Taught jointly with 133.601
Sec. 01 MF 2-4

130.441 ELEMENTARY BIBILICAL HEBREW (3) Kang
Limit 10
Survey of grammar and reading of sample texts.
Cross-listed with Jewish Studies
Sec. 01 ThF 12-1:30

130.451 ELEMENTARY MODERN HEBREW (3) Braun
Limit 12
Credit given only on completion of both semesters. May not be taken on a satisfactory/unsatisfactory basis. Designed to provide reading and writing mastery, to provide a foundation in Hebrew grammar, and to provide basic conversational skills.
Cross-listed with Jewish Studies
Sec. 01 TTh 11

130.453 (H) INTERMEDIATE MODERN HEBREW (3) Braun
Limit 12
Prereq: 130.450 or 130.451
Designed to enrich vocabulary and provide intensive grammatical review, and enhance fluency in reading, writing, and comprehension.
Cross-listed with Jewish Studies
Sec. 01 TTh 12

130.455 (H) ADVANCED MODERN HEBREW (3) Braun
Limit 10
Prereq: 130.453 or 130.454
Cross-listed with Jewish Studies
Sec. 01 TTh 1

360.219 (H,S) EXPLORING THE MUSEUM: HISTORY, THEORY, AND PRACTICE
Leslie/Rodini
Sec. 01: Limit 30 – 3 credits
Sec. 02: Limit 15 – 5 credits (requires lab)
Cross-listed with History, History of Science & Technology, Interdepartmental, Romance Languages and Literature, and History of Art
Sec. 01 MTW 2 02 MTW 2, F 1-5

130.591 INDEPENDENT STUDY
Staff

131.655 SEMINAR: NEAR EASTERN ARCHAEOLOGY
Schwartz
Limit 15
Graduate seminar in the archaeology of historic period Mesopotamia
Sec. 01 T 10-12
NEAR EASTERN STUDIES

131.801 READINGS AND RESEARCH
Sec. 01 – Staff
Sec. 02 – P.K. McCarter
Sec. 03 – Lewis
Sec. 04 – Westbrook
Sec. 05 – Schwartz
Sec. 06 – Bryan
Sec. 07 – Cooper
Sec. 08 – Jasnow

131.849 DISSERTATION RESEARCH
Sec. 01 – Bryan
Sec. 02 – Schwartz
Sec. 03 – P.K. McCarter
Sec. 04 – Cooper
Sec. 05 – Westbrook
Sec. 06 – Lewis
Sec. 07 – Jasnow

132.631 LITERATURE AND RELIGIOUS TEXTS
Cooper Limit 10
Sec. 01 T 4-6

132.721 SUMERIAN LEGAL TEXTS
Cooper/Westbrook Limit 20
A critical reading of the Ur-nammu Code and related materials.
Sec. 01 Th 2-4

132.801 MESOPOTAMIA SEMINAR
Cooper Limit 20
Research and discussion on topics of current interest.
Sec. 01 TBA

133.601 INTRODUCTION TO MIDDLE EGYPTIAN (Hieroglyphs)
Waraksa/Jasnow Limit 10
Prereq: 133.600 Introduction to the grammar and writing system of the classical language of the Egyptian Middle Kingdom (ca. 2135-2000 B.C.)
Taught jointly with 130.401
Sec. 01 Th 2-4

133.611 MIDDLE EGYPTIAN TEXTS
Bryan/Jasnow Limit 15
The reading of texts, primarily in the Sahidic Dialect.
Sec. 01 Th 9-12

133.649 ADVANCED COPTIC
Jasnow Limit 15
The reading of texts, primarily in the Sahidic Dialect.
Sec. 01 F 9-11

133.656 ADVANCED DEMOTIC
Jasnow Limit 5
Reading of texts of varying content in Demotic Egyptian.
Sec. 01 M 9-11

133.751 SEMINAR IN EGYPTIAN ART
Bryan/Schultz Limit 15
A graduate level course reading selected passages in the Hebrew Bible having to do with the Persian period. In addition to incorporating text critical discussions, the course will also interact with various aspects of interpretation (e.g., philological, literary, and historical questions).
Cross-listed with Jewish Studies
Sec. 01 Th 2-4

134.644 PERSIAN PERIOD TEXTS FROM THE HEbrew BIBLE
Lewis Limit 10
A graduate level course reading selected passages in the Hebrew Bible having to do with the Persian period. In addition to incorporating text critical discussions, the course will also interact with various aspects of interpretation (e.g., philological, literary, and historical questions).
Cross-listed with Jewish Studies
Sec. 01 T 2-4

134.652 SEMINAR IN ANCIENT ISRAELITE RELIGION
Lewis Limit 10
A graduate seminar on the origins of ancient Israelite religion, its emergence from and continuities with ancient West Semitic religion and culture. Students will be exposed to comparative and historical approaches for reconstructing this time period including Syro-Palestinian archaeology and neighboring ancient Near Eastern religions.
Cross-listed with Jewish Studies
Sec. 01 F 2-4

134.661 HISTORY: ANCIENT SYRIA-PALESTINE II
McCarter K Limit 10
A survey of the history of Ancient Syria and Canaan, including Ancient Israel. Meets with 130.661
Cross-listed with Jewish Studies
Sec. 01 MW 2

134.700 NORTHWEST SEMITIC EPIGRAPHY
McCarter K Limit 10
Introduction to epigraphic method and paleography; study of Phoenician, Hebrew, and Aramaic inscriptions.
Cross-listed with Jewish Studies
Sec. 01 Th 2-4
080.203 (N,S) COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN (3) Rapp Limit 30
Freshmen by permission. This course surveys theory and research concerning how the human brain carries out mental processes. Co-listed as 050.203 in Cognitive Science

080.250 (N,S) NEUROSCIENCE LAB: A PRACTICAL APPROACH (ST,CM,CG) (3) Gorman Limit 20
Prereq: 080.203
Course will give students the "hands-on" experience of the interdisciplinary nature of neuroscience. Students will use anatomical, behavioral, and neurophysiological techniques to understand the basic underlying principles of neuroscience.

080.340 (N) NEUROPLASTICITY (ST) (CM) (3) Gorman
Prereq: 080.305 and 080.306 or 080.205 and 080.306 Limit 30
Course will investigate mechanisms associated with changes that occur within the nervous system. We will use journal articles to discuss current issues related to developmental, adaptive, and restorative neuroplasticity.

080.411 (N) ADVANCED SEMINAR IN NEUROSCIENCE (3) Yoshioka Limit 10
Department majors only Perm. Req’d

080.412 (N) ADVANCED SEMINAR IN NEUROSCIENCE (3) Yoshioka Limit 10
Department majors only Perm. Req’d

080.413 (N) ADVANCED SEMINAR IN NEUROSCIENCE (3) Yoshioka Limit 10
Department majors only Perm. Req’d

080.414 (N) ADVANCED SEMINAR IN NEUROSCIENCE (3) Yoshioka Limit 10
Department majors only Perm. Req’d

020.310 (N) DEVELOPMENTAL NEUROBIOLOGY (CM) (3) Norris/Kirkwood
Prereq: 080.304 or Perm. Req’d. Cross-listed with Biology

050.203 (N,S) COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN (3) Rapp Limit 135 Perm. Req’d
This course surveys theory and research concerning how mental processes are carried out by the human brain. Currently a wide range of methods of probing the functioning brain are yielding insights into the nature of the relation between mental and neural events. Emphasis will be placed on developing an understanding of both the physiological bases of the techniques and the issues involved in relating measures of brain activity to cognitive functioning. Methods surveyed include electrophysiological recording techniques such as EEG, VEP, ERP; single/multiple unit recording and MEG; functional imaging techniques such as PET and fMRI; and methods that involve lesioning or disrupting neural activity such as WADA, cortical stimulation, animal lesion studies, and the study of brain-damaged individuals.

050.311 (N,S) WRITTEN LANGUAGE: NORMAL PROCESSING & DISORDERS (3) Rapp Limit 40
Prereq: 050.101, 050.102, or 050.105 This course surveys both the historical development of written language as well as current cognitive theories that account for the manner in which the written language is represented and processed by "reader/writers" of a language. Issues regarding the
relationship between the written and spoken language, the acquisition of written language skills, as well as developmental and acquired disorders of reading and writing will be examined. Cross-listed with Cognitive Science

050.315 (N,S) COGNITIVE NEUROPSYCHOLOGY OF VISUAL PERCEPTION (3) McCloskey Limit 35 Prereq: any one of the following: 050.105 and 050.101 Cross-listed with Cognitive Science

200.329 (S) BRAIN, COMMUNICATION, AND EVOLUTION (ST) (3) Ramcharran Prereq: Systems Neuroscience or equiv. recommended. Cross-listed with Psychological and Brain Sciences

050.332 (N,S) COGNITIVE DEVELOPMENT NEUROSCIENCE (3) Landau Limit 20 Prereq: 200.103, 050.101, 050.105, 050.245 In-depth examination of the current literature on cognitive development in the context of development cognitive neuroscience. Cross-listed with Cognitive Science

050.358 (N,S) SLEEP, DREAMS, AND ALTERED STATES OF CONSCIOUSNESS (3) Allen Limit 50 Prereq: Intro Psych or 080.101 Cross-listed with Psychological and Brain Sciences

200.370 (N,S) FUNCTIONAL HUMAN NEUROANATOMY (CM, ST) (3) Hondry Limit 50 Prereq: 080.205 & Perm. Req’d. Cross-listed with Behavioral Biology and Psychological and Brain Sciences

200.374 (N,S) BEHAVIORAL MEDICINE (ST) (3) Figer Limit 55 Prereq: 200.114 or 200.141 or 200.146. Cross-listed with Behavioral Biology Psychological and Brain Sciences

200.376 (N,S) PSYCHOPHARMACOLOGY (CM, ST) (3) Germain Limit 100 Prereq: 200.141 Cross-listed with Behavioral Biology and Psychological and Brain Sciences

520.432 (E) MEDICAL IMAGING SYSTEMS (3) Prince Limit 50 Prereq: 520.214 Co-listed as 580.472

080.512 INDEPENDENT STUDY
080.534 NEUROSCIENCE RESEARCH: FRESHMEN
080.544 NEUROSCIENCE RESEARCH: SOPHOMORES
080.554 NEUROSCIENCE RESEARCH: JUNIORS
080.564 NEUROSCIENCE RESEARCH: SENIORS
080.621 THEORETICAL & COMPUTATIONAL NEUROSCIENCE Niebur Limit 20 Perm. Req’d
080.631 BODIAN SEMINAR SERIES Staff Limit 10 undergraduates Perm. Req’d.
080.650 MENTORED RESEARCH IN NEUROSCIENCE Yoshioka Perm. Req’d For students in the BA/MS Program
080.652 MENTORED RESEARCH IN NEUROSCIENCE Yoshioka Perm. Req’d For students in the BA/MS Program
020.610 DEVELOPMENTAL NEUROBIOLOGY (CM) Norris/ Kirkwood Prereq: 080.304 Cross-listed with Biology

050.632 COGNITIVE DEVELOPMENT NEUROSCIENCE Landau Limit 20 Prereq: 200.103, 050.101, 050.105, 050.245 See 050.332 for
NEUROSCIENCE

description (same course)
Cross-listed with Cognitive Science

200.670 ADVANCED SEMINAR IN VISION
Egeth/Yantis
Graduate students only
Cross-listed with Psychological and Brain Sciences
Sec. 01 F 9:30-11:30

580.630 THEORETICAL NEUROSCIENCE
X. Wang
Prereq: Introduction to Neuroscience (580.422 or equivalent), Probability (550.420 or equivalent), and Signals and Systems (520.214).
Cross-listed with Biomedical Engineering
Sec. 01 MW 8:30-10

080.811 READINGS IN SYSTEMS NEUROSCIENCE II (ST)
Niebur
Sec. 01 T 5-6:30pm

PHILOSOPHY

150.118 (H,Q) INTRODUCTION TO FORMAL LOGIC (3)
Limit 20 per section
Achinstein
The fundamentals of symbolic logic, including truth functions, quantification theory, and identity; probability and decision theory. No prerequisites.
Sec. 01 M 1 T 2 T 12

150.205 (H) INTRODUCTION TO THE HISTORY OF MODERN PHILOSOPHY (3)
Greenberg
An introduction to early modern philosophy, examining Descartes' Meditations on First Philosophy, Locke's Essay Concerning Human Understanding, Hume's Enquiry Concerning Human Understanding, and selections from Kant's Critique of Pure Reason. We will consider such topics as the relation between philosophy and science, the nature and scope of human knowledge, the nature of the human mind, and the nature of human freedom.
Sec. 01 MTW 1

150.220 (H) INTRODUCTION TO MORAL PHILOSOPHY (3)
Jenkins
Limit 20 per section
Philosophers have questions. The attractions, presuppositions, justifications and limitations of those answers will be the focus of this historically oriented introduction to moral philosophy featuring close reading of primary texts.
Sec. 01 MT 11 W 11 W 11 W 11 W 12 W 12 W 1

150.235 (H) PHILOSOPHY OF RELIGION (3)
Gross
Can one prove or disprove the existence of God? What is the relation between reason and faith? Are science and religion at odds with one another? We will consider historically significant discussions of these questions (for example, by Plato, Anselm, Aquinas, Pascal, Hume, and Kierkegaard) as well as important contemporary writings (for example, by Adams, Boyer, Plantinga, and Van Inwagen).
Sec. 01 MTW 1

150.260 (H) PHILOSOPHY & FEMINISM: TRADITIONAL PHILOSOPHICAL PROBLEMS (3)
Jenkins
What is the relationship between the mind and the body? Can you be a good person and be happy? How do you know if your beliefs are true, or held for good reasons? We will use themes and techniques from several feminist philosophers to probe these traditional questions. We will critically examine a variety of philosophical approaches that draw on feminist commitments, and even ask question whether there is a such a thing as feminist philosophy at all.
Cross-listed with the Program for the Study of Women, Gender, and Sexuality
Sec. 01 MTW 10

150.301 (H) UNDERGRADUATE SEMINAR FOR PHILOSOPHY MAJORS: FREE WILL AND RESPONSIBILITY (3)
Greenberg
Sec. 01 W 1-4

LIMITATIONS: UNDuplicated Sections
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
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<tr>
<td>150.302 (H)</td>
<td>PHILOSOPHY: ARE WE REALLY IN CONTROL OF OUR ACTIONS?</td>
<td>Lewis</td>
<td>3</td>
<td>Sec. 01</td>
<td>T 2-5</td>
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<td>150.401 (H)</td>
<td>GREEK PHILOSOPHY: PLATO AND HIS PREDECESSORS</td>
<td>Bett</td>
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<td>150.421 (H,Q)</td>
<td>MATHEMATICAL LOGIC</td>
<td>Rynasiewicz</td>
<td>3</td>
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<td>150.441 (H,Q)</td>
<td>PHILOSOPHY OF LANGUAGE PART II: FROM QUINE TO PRESENT</td>
<td>Williams, Michael</td>
<td>3</td>
<td>Sec. 01</td>
<td>ThF 9-10:30</td>
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<td>150.442 (H)</td>
<td>WITTGENSTEIN</td>
<td>Williams, Meredith</td>
<td>3</td>
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<td>150.444 (H)</td>
<td>ADVANCED PHILOSOPHY OF MIND: REPRESENTATIONALIST THEORY OF MIND</td>
<td>Williams, Meredith</td>
<td>3</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<td>Course</td>
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<td>150.474 (H)</td>
<td>JUSTICE AND HEALTH (3)</td>
<td>Bok</td>
<td>Limit 20</td>
<td>Intro. to Bioethics 150.219 and Intro. to Moral Philosophy 150.220 or Perm. Req'd</td>
<td>Sec. 01 MTW 2 F 1 Th 1 W 1</td>
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<tr>
<td>200.206 (S)</td>
<td>FOUNDATIONS OF MIND (4)</td>
<td>Feigenson/Halberda</td>
<td>Limit 20 per section</td>
<td>An interdisciplinary investigation into the innateness of concepts: perception, number, language, and morality, physics discussed. Evidence from animals, infants, patients, brains. Students collect data in sections investigating claims from the readings. Cross-listed with Behavioral Biology, Cognitive Science, and Philosophy.</td>
<td>Sec. 01 MTW 2 F 1 Th 1 W 1</td>
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<td>300.344 (H)</td>
<td>MODERN JEWISH THOUGHT AND PHILOSOPHY (3)</td>
<td>Shuster</td>
<td>Limit 25</td>
<td>This course will serve to introduce students to the diversity of Modern Jewish philosophy and thinking, from theology to philosophy, Hasidism to Zionism, politics to history, Cross-listed with Jewish Studies and History</td>
<td>Sec. 01 T 3-5:30</td>
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<td>300.357 (H)</td>
<td>WHAT COUNTS AS HUMAN? (3)</td>
<td>Marrari</td>
<td>Limit 20</td>
<td>This course analyzes different concepts of the human and others. Readings include: Plato, Descartes, Kant, Levinas, Arendt, and Butler. Cross-listed with the Humanities Center, Anthropology, Political Science, German and Romance Languages, and Literatures</td>
<td>Sec. 01 F 1-3:30</td>
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<td>150.552</td>
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<td>150.622</td>
<td>SEMINAR IN HEGEL’S PHENOMENOLOGY OF SPIRIT PART II</td>
<td>Förster</td>
<td>Limit 20</td>
<td>Open ONLY to students who attended 150.621</td>
<td>Sec. 01 Th 2-4</td>
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<tr>
<td>150.625</td>
<td>SEMINAR IN PHILOSOPHY OF GERMAN IDEALISM: FICHTE’S EARLY WISSENSCHAFTSLEHRE</td>
<td>Förster</td>
<td>Limit 10</td>
<td>An in-depth study of Fichte’s 1794 Science of Knowledge together with his “Outline of the Distinctive Character of the Wissenschaftslehre with respect to the Theoretical Faculty.”</td>
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<td>150.644</td>
<td>SEMINAR IN CONTEMPORARY ETHICS: MORALITY AND THE EMOTIONS</td>
<td>Jenkins</td>
<td>Limit 20</td>
<td>No topic has generated more philosophical work over the past ten or fifteen years than the emotions, most of it straightforwardly directed at determining what sort of thing they are. This seminar will consider the implications of some select portion of that work for ethics.</td>
<td>Sec. 01 T 2-4</td>
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<tr>
<td>150.652</td>
<td>SEMINAR IN PHILOSOPHY OF SCIENCE</td>
<td>Achinstein</td>
<td>Limit 20</td>
<td>Realism v. antirealism: scientific and metaphysical. How should these doctrines be formulated? Are they empirical or a priori? Can either be established? The seminar will not presuppose previous work in philosophy of science</td>
<td>Sec. 01 F 2-4</td>
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<td>150.653</td>
<td>SEMINAR IN PHILOSOPHY OF PHYSICS</td>
<td>Rynasiewicz</td>
<td>Limit 20</td>
<td>Everyone agrees that in, relativity theory, the simultaneity of distant events is frame relative. However, in 1905 Einstein had made a more radical claim that, even given a frame of reference, there is no fact of the matter as to exactly which events are simultaneous with one another, and</td>
<td>Sec. 01 T 2-4</td>
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PHILOSOPHY
thus simultaneity is conventional. Various existence and uniqueness results, beginning with Malament have been interpreted to indicate that Einstein's bolder thesis is simply wrong. This seminar examines the history of the conventionality thesis and the challenges to it over the past century. The problem has been definitely solved in only the last year. Open to physics undergraduates as well as graduate students.

150.657 PHILOSOPHY OF LANGUAGE: FREGE
This seminar will be devoted to reading those of Frege's works that shed most light on his theory of sense, and to reading some of the many contemporary philosophers who have views on what that theory was (or even denied he had one). So we will be reading a great deal of Frege, and some of: Davidson, Dummett, Evans, McDowell, Noonan, Perry, and Weiner.

150.658 TOPICS IN THE PHILOSOPHY OF LANGUAGE
An examination of significant recent work in the philosophy of language.

040.712 READING GREEK PHILOSOPHY
A seminar devoted to close reading and analysis of fragments of the pre-Socratics in the original Greek. Cross-listed with Classics

213.638 EPISTEMOLOGY IN HISTORICAL PERSPECTIVE
In this seminar, we will discuss the French and German traditions of introducing historical thinking into philosophy of science. Readings will include Gaston Bachelard, Georges Canguilhem, Michel Foucault and Jacques Derrida (his reading of Husserl) on the French part, and Ernst Cassirer, Edmund Husserl (his late Crisis work) and Martin Heidegger on the German part. Reading and discussion in English Cross-listed with the Humanities Center, and History of Science and Technology

300.619 TRAUMA THEORY NOW
A discussion of current debates about trauma, testimony, and representation after Auschwitz. Texts by Freud, Derrida, Fink, Spiegelman, Agamben, and others. Cross listed with History, History of Science and Technology, Anthropology, and English

300.671 STANLEY CAPELL'S "THE CLAIM OF REASON"
This seminar will explore Cavell's magnum opus and discuss his contribution to the understanding of philosophical skepticism, literature, film, ethics, politics, and religion. Cross listed with Anthropology, Political Science, English, German and Romance Languages and Literature

650.630 MORAL AND LEGAL FOUNDATIONS OF PRIVACY
This course explores the ethical and legal underpinnings of privacy. Inquires into the values that underlie the right; constitutional and common law foundations; balancing privacy against other rights and interests. Core Policy course for MSSI degree Cross-listed with Information Security

150.810 INDEPENDENT STUDY
150.812 DIRECTED STUDY
PHYSICS AND ASTRONOMY

171.101 (E, N)  
GENERAL PHYSICS FOR PHYSICAL SCIENCE MAJORS I  (4)  
Barnett  
Limit 24 per section  Coreq: 110.109, 109, 173.112  
One-year course in general physics covering mechanics, heat, sound, electricity and magnetism, optics, and atomic physics.

171.102 (E, N)  
GENERAL PHYSICS FOR PHYSICAL SCIENCE MAJORS II (4)  
Heckman  
Limit 22 per section  Prereq: Grade of C- or better in 171.101 or 171.103  
Coreq: 110.109, 173.112  
One-year course in general physics covering mechanics, heat, sound, electricity and magnetism, optics, and atomic physics.

171.104 (E, N)  
GENERAL PHYSICS FOR BIOLOGICAL SCIENCE MAJORS II (4)  
Norman  
Limit 24 per section  Prereq: Grade of C- or better in 171.101 or 171.103  
Coreq: 110.109, 173.112  
Standard calculus based physics tailored to students majoring in one of the biological sciences. Topics in modern physics and in fluid dynamics will be covered in this course.

171.106 (E, N)  
INTRODUCTION TO CLASSICAL PHYSICS (4)  
Lokopy  
Limit 22 per section  Prereq: Grade of C- or better in 171.105; Co-req: 173.116, 110.109  
Classical electricity and magnetism with fewer topics than 171.101-102 and 171.103-104 but in greater depth, and is for students who intend to take 171.201-202. Particularly recommended for students who plan to major or minor in physics.

171.112 (N)  
GREAT DISCOVERIES IN ASTRONOMY AND ASTROPHYSICS (3)  
Riess  
Limit 45  
Course focuses on key discoveries in astronomy and astrophysics from the speed of light to the speed of the expanding and now accelerating Universe, from the discovery of Neptune to the modern detection of extrasolar planets, spanning hundreds of years and many orders of magnitude of astronomical breakthroughs.

172.114 (N)  
INTRODUCTION TO FRONTIER PHYSICS (1)  
Domagala/Markovic  
Limit 25  
Explains modern experimental methods and theoretical ideas in physics.
PHYSICS AND ASTRONOMY

171.118 (N)  STARS & THE UNIVERSE: COSMIC EVOLUTION (3)  Henry  Limit 45
Evolution of the universe: from origin in a cosmic explosion to emergence of life on Earth and possibly other planets throughout the universe.
Sec. 01  ThF 9:30-10:30

171.202 (N)  MODERN PHYSICS (4)  Chien, C.L.  Limit 20  Prereq: 171.201  Course completes four-semester introductory sequence that includes 171.105-106 and 171.201. Planck’s hypothesis, de Broglie waves, Bohr atom, Schrödinger equation in one dimension, hydrogen atom, Pauli exclusion principle, conductors and semiconductors, nuclear physics, particle physics.
Sec. 01  MTW 11  Conf.  Th 12

Sec. 01  MTW 9  Conf.  Th 9

171.210 (N)  BIOLOGICAL PHYSICS (4)  Reich  Limit 35  Prereq: 171.101-102 or 171.103-104 or 171.105-106  Covers aspects of statistical physics, fluid mechanics and electricity and magnetism that are relevant to understanding biological systems. Topics include diffusion, entropic forces, self-assembly, membrane physics, and nerve conduction. Occasional laboratory exercises are included.
Sec. 01  MTW 11  Conf.  Th 12

171.302 (N)  TOPICS IN ADVANCED ELECTROMAGNETIC THEORY (4)  Kowist-Damokos  Limit 25  Prereq: 171.301  Topics include electromagnetic waves; reflection and refraction, waveguides; retarded potentials and electromagnetic radiation; relativistic electrodynamics.
Sec. 01  MTW 10  Conf.  Th 12

171.408 (N)  INTRODUCTION TO NUCLEAR AND PARTICLE PHYSICS (5)  Brodsky  Limit 24  Prereq: 171.304, 110.201-202  Basic properties of nuclei, masses, spins, parity. Nuclear scattering, interaction with electromagnetic radiation, radioactivity, Pions, muons and elementary particles, including resonances.
Sec. 01  MTW 10

171.410 (N)  PHYSICAL COSMOLOGY (3)  Bennett  Limit 15  Course provides an insight into modern physical cosmology, a non-technical overview of the physical principles governing the expansion of the universe, and conveys the excitement in this rapidly evolving area.
Sec. 01  ThF 9:30-10:30

171.411 (N)  GEOMETRIC AND PHYSICAL OPTICS (3)  Feldman, P.  Limit 15  Course covers conceptual and experimental topics of importance for scientists and engineers in the practice of their professions.
Sec. 01  ThF 10:30-12

171.416 (N)  NUMERICAL METHODS FOR PHYSICISTS (4)  Neudl, G.  Limit 30  Prereq: 171.415, 110.201-202  Topics in applied mathematics used by physicists, covering numerical methods.
Sec. 01  ThF 9:30-10:30  Conf.  T 12
INTRODUCTION TO PLASMA PHYSICS AND ATOMIC PROCESSES IN HOT PLASMAS (J): Finkenthal
Limit 30 Course consists of three parts: an introduction of the basic concepts and approaches to plasma physics, a review of the atomic processes which determine the properties of hot plasmas and a brief overview of major laboratory and astrophysical plasma research today. Part 1 considers fluid and kinetic theories (knowledge of basic undergraduate classical mechanics and electromagnetism an asset); part 2 assumes students have an understanding of quantum mechanics at an introductory level. Course gives general overview of subjects under discussion, in preparation for more advanced - specific courses in these areas offered in coming years.

UNDERGRADUATE INDEPENDENT RESEARCH
Research done in senior year in conjunction with experimental equipment of intermediate laboratory or as special project in research group. Credit for independent study given to junior and senior students who act as tutors.

SENIOR THESIS
Preparation of a substantial thesis based upon independent student research, supervised by at least one faculty member in Physics and Astronomy.

ELECTROMAGNETIC THEORY
Donahoe Limit 20 Theory of the Maxwell equations, with static and dynamic applications, boundary-value problems, guided and free waves, diffraction, scattering, special relativity, electron theory.

QUANTUM MECHANICS
Tesanovic Limit 20 Prereq: 171.303 and 171.304 Review of wave mechanics and the Schrodinger equation, Hilbert space, harmonic oscillator, the WKB approximation, central forces and angular momentum, scattering, electron spin, density matrix, perturbation theory (time-independent and time-dependent), quantized radiation field, absorption and emission of radiation, identical particles, second quantization, Dirac equation.

ADVANCED LABORATORY
Wyse Limit 24 Experiments carried out on cosmic rays, X-ray scattering Mössbauer effect, atomic beams, and optical spectroscopy.

EXTRAGALACTIC ASTRONOMY
Ford Limit 15 Establishing the extragalactic distance scale; kinematics of an expanding universe; light element nucleosynthesis; formation of the microwave background. Clusters of galaxies. The Hubble sequence and inventory of internal galactic structures: bulges, disks, star clusters; measurements of distance within the galaxy; stellar kinematics; stellar populations; chemical evolution.

CONDENSED MATTER PHYSICS
Markiew Limit 30 This sequence is intended for graduate students in physics and related fields. Topics include superconductivity, magnetism, metal-insulator transitions, low dimensional materials, quantized Hall effect.
### PHYSICS AND ASTRONOMY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Section</th>
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<td>172.632</td>
<td>PHYSICS SEMINAR Broholm</td>
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<td>Graduate students only Intended for beginning</td>
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<td>graduate students. Study of the methods and</td>
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<td>results of modern physics and other topics of</td>
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<td>171.636</td>
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<td>Limit 20. Introduction to single-scale</td>
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<td>methodologies for continuum fluid and solid</td>
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<td>followed by study of new multiscale algorithms</td>
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<td>that span length and time scales.</td>
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<td>171.672</td>
<td>INTRODUCTION TO PLASMA PHYSICS AND ATOMIC</td>
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<td>PROCESSES IN HOT PLASMAS Finkenthal</td>
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<td>an introduction to plasma physics and an</td>
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<td>overview of the basic atomic processes which</td>
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<td>171.702</td>
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<td>Standard Model of particle physics.</td>
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<td>interest, supplementing the material of the</td>
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<td>standard courses and including recent advances</td>
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<td>in physics.</td>
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<td>172.722</td>
<td>HOT TOPICS IN ASTROPHYSICS SEMINAR Norman</td>
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<td>30</td>
<td>01</td>
<td>M 4-6pm</td>
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<tr>
<td>171.731</td>
<td>EXPERIMENTAL PARTICLE PHYSICS Gritsan</td>
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<td>Limit 15. For graduate students interested in</td>
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<td>experimental particle physics, or theory students,</td>
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<td>or students from other specialties. Subjects</td>
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<td>covered: experimental techniques, including</td>
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<td>particle beams, targets, electronics, and various</td>
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<td>particle detectors; and a broad description of</td>
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<td>high energy physics problems.</td>
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<td>172.732</td>
<td>CENTER FOR ASTROPHYSICAL SCIENCES RESEARCH</td>
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<td>30</td>
<td>01</td>
<td>T 3:30-5</td>
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<td>SEMINAR Matter</td>
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<td>172.736</td>
<td>STARBURST JOURNAL CLUB Heckman</td>
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<td>30</td>
<td>01</td>
<td>F 12</td>
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<td>172.752</td>
<td>ELEMENTARY PARTICLE PHYSICS SEMINAR Barnett</td>
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<td>171.754</td>
<td>ACTIVE GALACTIC NUCLEI Krolik</td>
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<td>Limit 25. Phenomenology of the zoo; samples and</td>
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<td>search techniques; cosmological evolution of the</td>
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<td>AGN population; physics of black holes;</td>
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<td>accretion disks; X-ray and gamma-ray emission</td>
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<td>mechanisms; pair plasmas; relativistic jets and</td>
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<td>radio emission; emission lines; broad</td>
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<td>absorption lines; obscuration, reflection, and</td>
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<td>unified schemes; host galaxies and fueling.</td>
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<td>172.754</td>
<td>ADVANCED PARTICLE THEORY SEMINAR Staff</td>
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<td>171.762</td>
<td>ADVANCED CONDENSED MATTER PHYSICS Chernyshykov</td>
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<td>Limit 20. This course is designed for graduate</td>
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<td>students interested in learning the language,</td>
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<td>techniques, and problematic issues of modern</td>
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<td>quantum many-body theory as applied to</td>
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<td>condensed matter physics.</td>
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<td>172.764</td>
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<td>Sec. 02 – Sundrum</td>
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<td>Sec. 03 – Feldman</td>
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<td>Sec. 04 – C.L. Chen</td>
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<td>Sec. 05 – Domokos</td>
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PHYSICS AND ASTRONOMY

Sec. 06 - Reich
Sec. 07 - C.Y. Chien
Sec. 08 - Krolik
Sec. 09 - Barnett
Sec. 10 - Norman
Sec. 11 - Blumenfeld
Sec. 12 - Heckman
Sec. 13 - Moss
Sec. 14 - Szalay
Sec. 15 - Ford
Sec. 16 - Bagger
Sec. 17 - Wise
Sec. 18 - Henry
Sec. 19 - Neufeld
Sec. 20 - Tesanovic
Sec. 21 - Blair
Sec. 22 - Robbins
Sec. 23 - Open
Sec. 24 - Bricks
Sec. 25 - Bianchi
Sec. 26 - Falk
Sec. 27 - Kaplan
Sec. 28 - Vinkenthal
Sec. 29 - Leheny
Sec. 30 - Markovic
Sec. 31 - Tchernyshyov
Sec. 32 - Bennett
Sec. 33 - Vishniac
Sec. 34 - Gritsan

POLITICAL SCIENCE

190.228 (S) THE AMERICAN PRESIDENCY (PT) (3) Sheingate Limit 20 per section
This course is an introduction to the study of the presidency. It assumes a basic understanding of the American political system as provided in a course such as Introduction to American Politics or its equivalent. We explore the evolution of the modern presidency, how contemporary presidents operate in the political System, and we question the sources of successful presidential leadership.

Lec. Sec. 01  MT 1
Sec. 02  W 2
Sec. 03  Th 1
Sec. 04  W 11

190.280 (S) CLASSICS OF POLITICAL THOUGHT (PT) (3) Glezos Limit 35
An introduction to political thought and philosophy, focusing on issues such as Sovereignty, the state, citizenship and political community. We will discuss this through close examination of texts by Plato, Machiavelli, Hobbes and Marx.

Sec. 01  MW 11

360.313 (S) CUBA AND U.S. DECISION MAKING (3) Smith Limit 35
This course consists of a series of case studies in U.S. decision making related to Cuba from 1959 to the present, everything from the initial decision signed by Eisenhower to launch efforts to remove the Castro government (which led to the Bay of Pigs) to President Bush’s decision this past May to launch new measures to remove the Castro regime. Cross-listed with Latin American Studies and Interdepartmental

Sec. 01  T 2-4

190.326 (S) DEMOCRACY AND ELECTIONS (CP/PT) (3) Katz Limit 50
An examination of most aspects of democratic elections with the exception of the behavior of voters. Topics include the impact of various electoral systems and administrative reforms on the outcome of elections, standards for evaluations of electoral systems, and the impact of the Arrow problem on normative theories of democratic elections.

Sec. 01  TW 11
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Section</th>
<th>Days</th>
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<tbody>
<tr>
<td>190.329 (S)</td>
<td>NATIONAL SECURITY - NUCLEAR AGE (IR) (3)</td>
<td>David</td>
<td>Limit 20</td>
<td>Sec. 01</td>
<td>MT 4</td>
<td>190.329 (S)</td>
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<td>This course examines the impact of weapons of mass destruction on international politics with an emphasis on security issues. The first half of the course focuses on the history of nuclear weapons development during the Cold War and theories of deterrence. The second half of the class considers contemporary issues including terrorism, chemical and biological weapons, ballistic missile defense and proliferation. Requirements include a midterm, final and a ten page paper.</td>
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<td>190.334 (S)</td>
<td>CONSTITUTIONAL LAW (AP/LP) (3)</td>
<td>Grossman</td>
<td>Limit 60</td>
<td>Sec. 01</td>
<td>MW 3-4:30</td>
<td>190.334 (S)</td>
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<td>This course will examine the creation of public opinion from the standpoint of racial politics.</td>
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<tr>
<td>190.336 (S)</td>
<td>RACIAL POLITICS AND PUBLIC OPINION (AP) (3)</td>
<td>Spence</td>
<td>Limit 20</td>
<td>Sec. 01</td>
<td>T 10-12</td>
<td>190.336 (S)</td>
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<td>This class will analyze the impact of weapons of mass destruction on international politics with an emphasis on security issues. The first half of the course focuses on the history of nuclear weapons development during the Cold War and theories of deterrence. The second half of the class considers contemporary issues including terrorism, chemical and biological weapons, ballistic missile defense and proliferation. Requirements include a midterm, final and a ten page paper.</td>
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<td>360.339 (HS)</td>
<td>BLACK POWER FANTASEES (AP) (3)</td>
<td>Spence/ Carpenter</td>
<td>Limit 16</td>
<td>Sec. 01</td>
<td>T 1-4</td>
<td>360.339 (HS)</td>
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<td>This course will look at the origins and evolution of Black Power and notions of Black Empowerment from political, anthropological, media and arts perspectives. The class will also be engaged in a dialogue with a similar course taught at the School of the Art Institute of Chicago. Cross-listed with Interdepartmental, Anthropology and Africana Studies</td>
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<td>190.342 (S)</td>
<td>AMERICAN FOREIGN POLICY (IR) (3)</td>
<td>Shepard</td>
<td>Limit 20 per section</td>
<td>Sec. 01</td>
<td>MT 3</td>
<td>190.342 (S)</td>
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<td>This course will provide an overview of the key themes and debates in the evolution of American foreign policy from isolation to unipolar hegemony.</td>
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<td>191.344 (S)</td>
<td>JAPANESE POLITICS (IR) (3)</td>
<td>Yamagishi</td>
<td>Limit 15</td>
<td>Sec. 01</td>
<td>T 1-3</td>
<td>191.344 (S)</td>
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<td>This course focuses on institutions, ideas, and critical events that drive the Japanese political development. It starts with the pre-WWII period and discusses contemporary political issues at the end.</td>
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<tr>
<td>191.347 (S)</td>
<td>“THE WALL OF SEPARATION:” DEMOCRACY AND RELIGIOUS FREEDOM AROUND THE WORLD (3)</td>
<td>Golabiewski</td>
<td>Limit 25</td>
<td>Sec. 01</td>
<td>MW 10</td>
<td>191.347 (S)</td>
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<td>This course examines the development of political institutions and policies in Japan. It focuses on institutions, ideas, and critical events that drive the Japanese political development, comparing mainly with the American case. It starts with the pre-WWII period and discusses contemporary political issues at the end. Dean’s Teaching Fellowship Course</td>
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<tr>
<td>191.351 (S)</td>
<td>FILM AND POLITICS (AP) (3)</td>
<td>Shogan</td>
<td>Limit 20 Altichison Fellows only (Taught in Washington D.C.)</td>
<td>Sec. 01</td>
<td>T 1:30-3:30</td>
<td>191.351 (S)</td>
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<td>This course will provide an overview of the key themes and debates in the evolution of American foreign policy from isolation to unipolar hegemony.</td>
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<td>191.357 (S)</td>
<td>AMERICAN POLITICAL THOUGHT (AP) (3)</td>
<td>Wolfson</td>
<td>Limit 20 Altichison Fellows only (Taught in Washington D.C.)</td>
<td>Sec. 01</td>
<td>T 3:30-5:30</td>
<td>191.357 (S)</td>
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<td>This course will provide an overview of the key themes and debates in the evolution of American foreign policy from isolation to unipolar hegemony.</td>
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Note: Sec. indicates the section of the course.
POLITICAL SCIENCE

070.361 (H,S) (W) RELIGION AND PLURALISM IN ISLAMIC SOCIETIES (3) Baxstrom
Limit 20
Cross-listed with Anthropology and the Humanities Center Sec. 01 ThF 1:30-3

191.362 (S) FOREIGN REALTIONS OF INDIA AND PAKISTAN (CP/IR) (3) Thornton
Limit 25 An historical survey of the international relationships of the major South Asian nations. Particular emphasis is placed on the interaction between the regional subsystem and the global system. Sec. 01 T 2-4

190.363 (S) POLITICS IN EUROPE (FORMERLY “POLITICS IN WESTERN EUROPE”) (CP) (3) Katz
Limit 25 An examination of political institutions and behavior in selected European countries and in the European Union. Sec. 01 TW 10

070.369 (H,S) (W) ANTHROPOLOGY OF THE SENSES (3) Khan Limit 30
Cross listed with Studies of Women, Gender, and Sexuality, the Humanities Center, and Anthropology Sec. 01 ThF 10:30-12

190.370 (S) BALTIMORE: RACE & PLACE (AP) (3) Crenson
Limit 30 This course attempts to introduce students to concrete examples of the urban problems that plague cities around the country, but it attempts to do so with respect to a particular city whose distinctive "placehood" reflects, not only its present circumstances, but two centuries of stored up experience. The course will focus on the issue of race in local policy and politics-attempts to avoid it as well as efforts to confront it. Students will be expected to write research papers that rely, at least in part, on information collected outside the library. Sec. 01 W 2-4

190.380 (S) LAW, MORALITY AND THE STATE (PT/LP) (3) Culbert
Limit 20 What is law? How is law related to the state? Does the state have a relationship to morality or a sense of justice? Does law? This course examines how these questions have been posed by various schools of legal thought. Readings will include Austin, Hart, Dworkin, Unger, Fish, MacKinnon, and Cover. Sec. 01 TW 10

190.381 (S) INTRODUCING GEOPOLITICS (IR) (3) Sheppard
Limit 25 Rec.: CP/IR 190.209 or IP 190.213 This course will introduce the basic principles behind the concept of geopolitics and explore how geographical realties have defined cultures and structured domestic politics and international relations throughout history. Sec. 01 T 12-2

190.386 (H,S) (W) "MAIL ORDER BRIDES"? UNDERSTANDING THE PHILIPPINES IN SOUTHEAST ASIAN CONTEXT (3) Cannell
Limit 35 Prereq: Students must have taken a required course in Anthropology. Permission required if prerequisite is not met
Cross-listed with Studies of Women, Gender, and Sexuality, History, and Anthropology Sec. 01 WF 2-3:30

190.392 (S) INTRODUCTION TO LATIN AMERICAN POLITICS (CP) (3) Keck
Limit 20 per section A survey of modern Latin American politics and political development. Cross-listed with Latin American Studies Sec. 01 TTh 11
Sec. 02 M 11
Sec. 03 W 11

190.394 (S) UNDERSTANDING CONGRESS (AP) (3) Cooper
Limit 25 An examination of the structure, processes, and outcomes of collective action in Congress. Emphasis is placed on the changing character of member and institutional behavior and the changing role of Congress in the constitutional order. Sec. 01 F 10:30-12:30
<table>
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<th>Course Code</th>
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<tr>
<td>190.402 (S)</td>
<td>WASHINGTON INTERNSHIP PROGRAM (3) Staff</td>
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<td>190.403 (S)</td>
<td>WASHINGTON SEMINAR (3) Ginsberg Aitchison Fellows only</td>
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<td>T 10:30-12:30</td>
<td>1717 Massachusetts Ave. Washington, DC</td>
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<tr>
<td>190.421 (S)</td>
<td>ISSUES IN INTERNATIONAL RELATIONS (3) David Limit 20</td>
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<td>Will consider contemporary issues in international relations theory and American foreign policy. Students will be expected to read selected texts critically and be prepared to discuss them in class. Requirements include oral presentations, a final examination and a research paper.</td>
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<td></td>
<td>Cross-listed with Africana Studies and Sociology</td>
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<td>360.469 (H,S)</td>
<td>ISSUES IN GLOBALIZATION (IR) Grossman Limit 25</td>
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<td>Cross-listed with Africana Studies, Interdepartmental, and Sociology</td>
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<td>190.499 (S)</td>
<td>SENIOR THESIS: INTERNATIONAL STUDIES AND POLITICAL SCIENCE (6) Staff Pre req. 190.471 Limit 40</td>
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<tr>
<td>300.357 (H)</td>
<td>WHAT COUNTS AS HUMAN? (3) Marrati Limit 20 This course analyzes different concepts of the human and others. Readings include: Plato, Descartes, Kant, Levinas, Arendt, and Butler. Cross-listed with Philosophy, Anthropology, the Humanities Center, German and Romance Languages and Literatures</td>
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<td>190.502</td>
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<td>190.504</td>
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<td>190.506</td>
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<td>190.536</td>
<td>INDEPENDENT STUDY - FRESHMEN</td>
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<td>190.538</td>
<td>INDEPENDENT STUDY - SOPHOMORES</td>
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<td>190.540</td>
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<tr>
<td>190.542</td>
<td>INDEPENDENT STUDY - SENIORS</td>
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<tr>
<td>190.544</td>
<td>INDEPENDENT RESEARCH - POLITICAL SCIENCE</td>
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<tr>
<td>190.574</td>
<td>INTERNSHIP</td>
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<tr>
<td>190.609</td>
<td>COMPARATIVE CONSTITUTIONAL LAW (LP) Grossman Limit 15 Perm. Req'd. Discussion of the formation, architecture, significance, and adjudication of the national constitutions of numerous countries, including the United States, Canada, India, South Africa, United Kingdom, Germany, France, Russia, Japan, Israel, and Australia.</td>
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<td>T 5:30-7:15pm</td>
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<tr>
<td>190.611</td>
<td>THE CONSTITUTION AND THE INTERNATIONAL SYSTEM Deadwyler Grossman Limit 20 Prereq: Graduate students and advanced undergraduates with permission of instructor Analysis of interaction between the U.S. Constitution and international threats, crises, and institutions. Topics include presidential, congressional, and judicial roles, sovereignty, international law and organizations, the I.C., laws of war, torture, and surveillance.</td>
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<td>Th 5:30-7:15pm</td>
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### POLITICAL SCIENCE

**190.618 NATIONALISM**

Despite the clamor over globalization and regionalization in the contemporary world, nationalism remains a central preoccupation for both political actors and students of politics. Though motivated by questions resonant within the discipline of political science (and the field of comparative politics in particular), this course is designed to familiarize students with key texts and debates in the literatures on nationalism in political science, sociology, history and anthropology. The objective of this course is to provide students with a comprehensive overview of major themes, scholarly approaches and forms of nationalist mobilization in national and cross-spatial perspective. Some of the questions to be addressed in this course are: a) what are the roots and routes of nationalism? b) who are nationalist political actors, and where do they come from? c) what is nationalism’s relation to race, racism and ethnicity? d) what is the relationship between various forms of nationalism and contemporary considerations of regionalism and globalization?

**190.628 THE POLITICAL PHILOSOPHY OF HANNAH ARENDT**

This course will examine Arendt’s political theory through a close reading of her works, including The Human Condition, Between Past and Future, Eichmann in Jerusalem, Life of the Mind, and Lectures on Kant’s Political Philosophy. The course will focus on Arendt’s theories of action, judgment, subjectivity, attending in particular to the existential and phenomenological philosophies that inform her thinking.

**190.630 CONSTRUCTIVISM IN INTERNATIONAL RELATIONS & COMPARATIVE POLITICS**

This graduate level seminar focuses upon the development of constructivist theory in international relations and parallel developments in comparative politics. The evolution of third image constructivism in IR is contrasted to its more institutional form in IPE and its more agent-centered form in comparative politics. Differences between key concepts across these fields; norms, ideas, identities, institutions are examined and points of synthesis and divergence are noted.

**190.632 THE DEVELOPMENT OF AMERICAN POLITICAL INSTITUTIONS**

This seminar explores the historical development of American political institutions since the Civil War. Particular attention will be paid to development and change in American political parties, Congress, and the Presidency. Our guiding assumption is that such an exploration will illuminate the dynamics of institutional change in American politics, enhance understanding of key features of the contemporary political system, and cast light on the manner in which changes in rules, organizations, or other structural features of institutions have both shaped and responded to political agency. Finally, on a more practical level, this seminar is intended to provide an introduction to several literatures that could be included in a major or minor field exam in American politics.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Section Details</th>
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<tbody>
<tr>
<td>190.635</td>
<td>CONVENTIONS OF HUMAN RIGHTS (IR/PT)</td>
<td>Grovogui</td>
<td>15</td>
<td>M 2-4</td>
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<td></td>
<td>An introduction course to the origins of contemporary debates over the meanings, implications and applications of human rights in different regional, social-political, cultural and economic contexts.</td>
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<tr>
<td>190.636</td>
<td>INTERNATIONAL POLITICAL ECONOMY (IR/PT)</td>
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<td>This graduate level seminar surveys developments in the field of International Political Economy (IPE). Specifically, the growing links between comparative and international political economy; the emergence of multiple ‘schools’ of IPE; the ‘narrowing’ of American IPE; and the expansion of IPE as a distinct agenda in related subfields (Geography, Sociology) are examined.</td>
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<tr>
<td>190.638</td>
<td>CONTENTIOUS POLITICS Keck</td>
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<td>M 2-4</td>
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<td></td>
<td>Social movements and revolution in comparative and global perspective. Exploration of the major theoretical approaches, and of what difference globalization makes.</td>
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<tr>
<td>213.662</td>
<td>ADVOCACY: FÜRSPRACHE Campe</td>
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<td>Th 3-5pm</td>
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<td>We will discuss instances of advocacy – speaking/acting on behalf of someone before someone – in different areas: ancient rhetoric, legal and cultural theory, poetry and the novel. The goal of the course is to develop an understanding of Fürsprache as a basic feature of communication. Readings include Aristotle, Quintilian, Derrida, Rawles, Lacan, Austin, Hölderlin and Kafka. Readings and discussion in English. Cross-listed with the Humanities Center, German and Romance Languages and Literatures, and Classics.</td>
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<tr>
<td>300.671</td>
<td>STANLEY CAPELL'S &quot;THE CLAIM OF REASON&quot; de Vries/Marrati</td>
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<td>Cross-listed with the Humanities Center, Philosophy, Anthropology, English, and German and Romance Languages and Literatures</td>
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<td>190.680</td>
<td>ISSUES IN LIBERALISM Flathman</td>
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<td>Thinkers considered include Constant, Mill, Berlin, Rawls, and Dworkin. Consideration of the possibility of augmenting liberal theory by recourse to ideas from voluntarist thinkers such as Ockham, Hobbes, Nietzsche, and William James.</td>
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<td>190.800</td>
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<tr>
<td>190.849</td>
<td>DISSERTATION RESEARCH</td>
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This course surveys all the major areas of scientific psychology, including the physiological bases of behavior; sensation and perception; learning, memory and cognition; development, social, and personality psychology; and psychopathology.

An introductory survey of social psychology. Topics include social perception, social cognition, attitudes, prejudice, attraction, social influence, altruism, aggression, and group behavior.

Course focuses on sexual development, sexuality across the lifespan, gender identity, sexual attraction and arousal, sexually transmitted disease, and the history of commercial sex workers and pornography. Cross-listed with Behavioral Biology and Studies of Women, Gender, and Sexuality

This course will help students to increase their efficacy in creating behavior change, for both themselves and others, through the understanding and utilization of empirically tested psychological principles. In addition, it will provide an overview of modern-day behavior therapies and their approaches to treating psychological disorders.

An interdisciplinary investigation into the innateness of concepts: perception, number, language, and morality, physics discussed. Evidence from animals, infants, patients, brains. Students collect data in sections investigating claims from the readings. Cross-listed with Behavioral Biology, Cognitive Science, and Philosophy

This course examines basic principles of animal behavior (orientation, migration, communication, reproduction, parent-offspring relations, ontogeny of behavior and social organization). Evolution and adaptive significance of behavior will be emphasized.

An overview of the major theories of personality, with their empirical bases and applications.

Course focuses on the developmental psychological theories and research relevant to the study of learning disabilities as contrasted with the studies of acquired disorders. This is not a course on diagnosis or remediation of learning disabilities.

Second half of graduate statistics sequence, covering complex research design and analysis.
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<tr>
<th>Course Code</th>
<th>Title</th>
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<th>Sections</th>
<th>Time</th>
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<tbody>
<tr>
<td>200.317 (S)</td>
<td>INTERPERSONAL RELATIONSHIPS (3) Drigotas Limit 35 Prereq. 200.153 and Psychology majors only. Study of the psychological concepts involved in the research and application of personnel planning, recruitment, selection practices, and performance management within organizations.</td>
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<td>MW 2-3:30</td>
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<tr>
<td>200.325 (S)</td>
<td>LAW &amp; PSYCHOLOGY: CLINICAL APPLICATIONS (3) Raffman Limit 100 Introduction to legal standards governing criminal forensic psychology assessments, e.g., competence to stand trial, criminal responsibility, mitigation of death penalty, negation of insanity, and other criminal law forensic applications. Cross-listed with Behavioral Biology</td>
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<td>200.326 (S)</td>
<td>LAW, PSYCHOLOGY, AND PUBLIC POLICY (3) Hoffer Limit 20 Prereq. One intro. course in psychology or Perin. Req’d. Priority to Psychology majors with senior standing. Cross-listed with Behavioral Biology</td>
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<tr>
<td>200.328 (S)</td>
<td>THEORY AND METHODS IN CLINICAL PSYCHOLOGY (3) Edwin Limit 30 Prereq. 200.131 Senior Psychology majors only A critical examination of the methods of observation, description, reasoning, and inference that underlie the clinical practice of psychology and psychiatry. Cross-listed with Behavioral Biology</td>
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<td>Sec. 01</td>
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<tr>
<td>200.339 (S)</td>
<td>ISSUES IN COUNSELING &amp; MENTAL HEALTH CARE (3) McComb Limit 30 Priority to Psychology Majors This course examines important mental health issues in the context of contemporary clinical practice. It explores major theories of counseling and psychotherapy through readings, case narratives, accounts of clinical processes, and research studies of clinical effectiveness.</td>
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<tr>
<td>200.343 (S)</td>
<td>MOTIVATION (3) Petri Limit 25 Prereq. 200.101 and 200.146 or Perim. Req’d. Cross-listed with Behavioral Biology</td>
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<td>Sec. 01</td>
<td>ThF 9-10:30</td>
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<tr>
<td>200.357 (S)</td>
<td>COGNITIVE NEUROSCIENCE OF MEMORY (3) Staud Limit 20 Prereq. 200.109 or 200.141 or 080.203 This seminar-style course takes an integrative approach to understanding the neural basis of memory. Multiple approaches to the study of memory (e.g., cellular/molecular, neuropsychology, animal models, computational models, and neuroimaging) will be covered.</td>
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<tr>
<td>200.368 (N,S)</td>
<td>SLEEP, DREAMS, AND ALTERED STATES OF CONSCIOUSNESS (3) Allen Limit 50 Prereq. Intro Psych or 080.101 Cross-listed with Neuroscience</td>
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<tr>
<td>200.370 (N,S)</td>
<td>FUNCTIONAL HUMAN NEUROANATOMY (3) Hendry Limit 50 Prereq. 080.205 or Perim. Req’d. Cross-listed with Behavioral Biology and Neuroscience</td>
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<tr>
<td>200.374 (N,S)</td>
<td>BEHAVIORAL MEDICINE (3) Piferi Limit 55 Prereq. 200.114 or 200.141 or 200.146. Cross-listed with Behavioral Biology and Neuroscience</td>
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<tr>
<td>200.376 (N,S)</td>
<td>PSYCHOPHARMACOLOGY (3) Geurman Limit 109 Prereq. 200.141 Cross-listed with Behavioral Biology and Neuroscience</td>
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<td>Sec. 01</td>
<td>ThF 1-2:30</td>
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<td>050.358 (H,N,S)</td>
<td>LANGUAGE AND THOUGHT (3) Landau Limit 20 Juniors and Seniors only, others by permission. Majors in Cogsci, Psych &amp; Philos. welcome but course is open to all majors. Cross-listed with Cognitive Science</td>
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<td>Course Code</td>
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<td>200.420 (S)</td>
<td>ORIGINS OF HUMAN SEXUAL ORIENTATION &amp; VARIATION (3)</td>
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<td>200.502</td>
<td>PSYCHOLOGICAL RESEARCH – Freshmen</td>
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<td>200.504</td>
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<td>200.506</td>
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<td>200.510</td>
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<td>200.512</td>
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<td>200.614</td>
<td>GRADUATE SEMINAR IN FUNCTIONAL NEUROIMAGING</td>
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<td>TOPICS IN SPATIAL COGNITION</td>
<td>Shelton</td>
<td>Sec. 01</td>
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<td>200.639</td>
<td>GRADUATE SEMINAR IN MEMORY</td>
<td>Shelton</td>
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<td>200.642</td>
<td>NEURAL CIRCUITS &amp; BEHAVIOR</td>
<td>Fortune</td>
<td>Sec. 01</td>
<td>M 1-3:30</td>
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<td>200.670</td>
<td>ADVANCED SEMINAR IN VISION</td>
<td>Egeth/Yantis</td>
<td>Sec. 01</td>
<td>F 9:30-11:30</td>
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<td>200.680</td>
<td>PBS SEMINAR</td>
<td>Yantis</td>
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<td>200.806</td>
<td>RESEARCH SEMINAR: MEMORY AND SPATIAL COGNITION</td>
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<td>200.810</td>
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<td>200.811</td>
<td>RESEARCH SEMINAR: HUMAN PERFORMANCE</td>
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<td>200.813</td>
<td>RESEARCH SEMINAR: COGNITIVE DEVELOPMENT</td>
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<td>200.815</td>
<td>RESEARCH SEMINAR: LEARNING</td>
<td>Holland</td>
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<td>200.818</td>
<td>NEUROSCIENCE DECISION MAKING</td>
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<td>200.821</td>
<td>RESEARCH SEMINAR IN BEHAVIORANAL NEUROSCIENCE</td>
<td>Ball</td>
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<td>W 12-1:30</td>
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<td>200.824</td>
<td>RESEARCH SEMINAR: MEMORY LAB</td>
<td>Stark</td>
<td>Sec. 01</td>
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<td>200.825</td>
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<td>Gallagher</td>
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<td>200.828</td>
<td>RESEARCH SEMINAR IN PERCEPTION AND ATTENTION</td>
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<td>200.840</td>
<td>RESEARCH SEMINAR: NEURAL SYSTEMS OF MEMORY AND ATTENTION</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>T 9:30-11:30</td>
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<tr>
<td>200.849</td>
<td>TEACHING PRACTICUM</td>
<td>Graduate students only</td>
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<tr>
<td>280.101 (S)</td>
<td>INTRODUCTION TO PUBLIC HEALTH (3) Alexander Limit 100</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>TTh 12-2</td>
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<tr>
<td>280.340 (S)</td>
<td>INTRODUCTION TO HEALTH POLICY &amp; MANAGEMENT (3) Steinwachs Limit 175</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>MW 3:30-4:30, W 4:30-5:30</td>
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<tr>
<td>280.350 (N,S)</td>
<td>INTRODUCTION TO EPIDEMIOLOGY (3) Feinleib Juniors and Seniors only, or Perm. Req'd Limit 125</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>TTh 1-2:30</td>
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<tr>
<td>280.375 (S)</td>
<td>CULTURAL FACTORS IN PUBLIC HEALTH (3) LaForest Limit 75</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<tr>
<td>280.499 (W)</td>
<td>HONORS IN PUBLIC HEALTH</td>
<td>Staff</td>
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<td>070.328 (H,S)</td>
<td>THE CONCEPT OF THE PATIENT IN ANTHROPOLOGY (3) Meyers Limit 25 Cross-listed with History of Science and Technology, the Humanities Center, and Anthropology</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<tr>
<td>180.390 (S)</td>
<td>HEALTH ECONOMICS AND DEVELOPING COUNTRIES (3) Gerwitz Limit 20 Prereq 180.381 Cross-listed with Economics</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>T 3-5</td>
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<td>150.302 (H)</td>
<td>TOPICS IN BIOETHICS, BIOETHICS AND THE HUMAN GENOME (3) Lewis Limit 15 Prereq 150.219 Limited to undergraduates only Cross-listed with Philosophy</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
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<td>230.307 (S)</td>
<td>SOCIOLOGY OF LATIN AMERICA (3) Von der Heide Limit 25 Cross-listed with Latin American Studies, Sociology, and Studies of Women, Gender and Sexuality</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<tr>
<td>280.502</td>
<td>INTERNSHIP IN PUBLIC HEALTH</td>
<td>Staff</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<td>280.508</td>
<td>INDEPENDENT STUDY IN PUBLIC HEALTH Staff Limited to Public Health Option students or Perm. Req'd. (See Dr. James Goodyear)</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<td>280.512</td>
<td>RESEARCH IN PUBLIC HEALTH Staff Limited to Public Health Option students or Perm. Req'd. (See Dr. James Goodyear)</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<tr>
<td>280.520</td>
<td>PUBLIC HEALTH PRACTICE</td>
<td>Graduate students only</td>
<td>Sec. 01</td>
<td>TBA</td>
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</table>
PUBLIC POLICY

195.606 STATISTICS AND DATA ANALYSIS FOR POLICYMAKING II
Dworak-Fisher  Limit 35 Prereq. 195.605 or Perm. Req’d
Sec. 01  W 5:15-7:45pm

195.608 (W) THE POLICY TOOLS
Salamon  Limit 35 MPP Students Only
Sec. 01  M 5-7:30pm

195.621 INTERNSHIP
Arndt  Limit 30
Sec. 01  TBA

195.632 LEADERSHIP
Calvin  Limit 20
Sec. 01  TBA

195.633 ETHICS AND ACCOUNTABILITY
Berns  Limit 30
Sec. 01  TBA

195.638 PROGRAM DEVELOPMENT
Staff  Limit 30
Sec. 01  TBA

195.639 NONPROFIT MARKETING
Staff  Limit 20
Sec. 01  M 5-7:30pm

195.640 POLICY IMPLEMENTATION
Pines  Limit 20
Sec. 01  Th 10-12:30

195.649 STRATEGIC PLANNING
Staff  Limit 25
Sec. 01  W 5:30-7pm

195.651 BOARDS AND GOVERNANCE
Krupp  Limit 30
Sec. 01  TBA

195.652 SOCIAL POLICY – SPECIAL TOPICS
Seminar Nightingale  Limit 20
Sec. 01  T 1-3

195.654 SOCIAL POLICY
Nightingale  Limit 20
Sec. 01  M 1-3

195.658 WRITING FOR THE OP-ED PAGE
Staff  Limit 20  MPP Students Only
Sec. 01  W 9:30-11

195.660 ETHICS AND ACCOUNTABILITY
Berns  Limit 30
Sec. 01  TBA

195.682 SEMINAR: APPLIED EVALUATION
Baron  Limit 30  MPP Students Only
Sec. 01  M 3-4:30

195.801 MASTERS THESIS
Newman  Sec. 01  TBA

195.826 INDEPENDENT STUDY

SOCIOLOGY

230.112 (S) FRESMEN SEMINAR ON RACE AND EDUCATION IN THE U.S. (3)
Bennett  Limit 15  Freshmen only; must not have taken 230.212
Sec. 01  T 2-5

230.199 (S) CRIMINAL JUSTICE AND CORRECTIONS (3)
Harris  Limit 50  An overview of the criminal justice system including court
watching and riding with a police officer. Class includes guest visits, field trips, and
term projects.
Sec. 01  W 2-5

230.202 (S) RESEARCH METHODS FOR THE SOCIAL SCIENCES (3)
Hao  Limit 25  Formerly 230.302
Sec. 01  MT 9

230.210 (S) CLASS, CULTURE, AND SCHOOLING (3)
Richards  Limit 25
Sec. 01  ThF 2-3:30

230.213 (S) SOCIAL THEORY (3)
Andreasson  Limit 30  The course provides an introduction to classical sociological
Sec. 01  ThF 9-10:50
Weber, and Durkheim). Contemporary theoretical perspectives on social inequality, conflict, and social change are also explored. Emphasis is placed on understanding the theoretical constructs as well as on applying them in the analysis of current social issues.

230.307 (S)  
**SOCIETY OF LATIN AMERICA**  
(Von der Heydt) Limit 25  
This course will offer an overview of Latin America’s reality through its economic, social, political and cultural dimensions. Latin American development will be analyzed as a historical process determined by intertwined internal socio-economic factors, however, within the constraints of the world economy.  
*Cross-listed with Latin American Studies, Public Health Studies, and Studies of Women, Gender and Sexuality*

230.313 (S)  
**SPACE, PLACE, POVERTY, AND RACE: SOCIOLOGICAL PERSPECTIVES ON NEIGHBORHOODS AND PUBLIC HOUSING**  
(Deluca) Limit 25  
Is a neighborhood just a grouping of individuals living in the same place, or do neighborhoods have collective meanings and impacts on children and families? We will capitalize on neighborhoods and their effects on economic and educational outcomes. These include case studies, census data, surveys, quasi/experimental data. Focus is on how research measures neighborhood effects and incorporates community level processes in models of social causation (e.g., social capital/control, community efficacy, civic engagement). Also examined: patterns in residential mobility, segregation, and preferences within black and white populations; development of housing policy in the U.S.; programs to determine how neighborhoods affect issues of social importance. Statistics and public policy background is helpful but not required.

230.317 (S)  
**SOCIETY OF IMMIGRATION**  
(Hao) Limit 25  
This course surveys sociological theories and research on immigration to the U.S. theoretical approaches include theories of international migration, economic sociology, immigration, and assimilation. Research topics include the impact of U.S. stocks, self-selection of immigrants, the impact of immigration on the native-born population and the U.S. labor market and economy, and the adaptation of the first and second generations. The course focuses on immigration since 1965 and its related controversies and debates.

230.320 (S)  
**EDUCATION AND INEQUALITY:**  
**INDIVIDUAL, CONTEXTUAL, AND POLICY PERSPECTIVES**  
(Deluca) Limit 25  
This course examines classic and current debates in sociology of education. Topics covered include the function and purpose of schooling in modern society; inequality and social mobility (as affected by labor market returns to school and the institutional mechanisms that affect status, such as tracking); social interactions in the classroom and student achievement; racial differences in achievement; The Effort vs. Ability debate; schools as organizations in the larger societal context; the function of community colleges; and the school to work transition. The relevance of education research to policy-making and school reform is emphasized throughout the course.
QUALITATIVE RESEARCH PRACTICUM (3) McDonald/Buford
Limit 20 This course provides "hands on" research experience applying sociological research tools and a sociological perspective to problems of substance. Qualitative observational and/or interviewing methods will be emphasized. Students will design and carry out a research project and write a research report. The focus of this year's research will be African migration to the U.S.

MEDICAL SOCIOLOGY (3) Eaton
Limit 20 per section This course introduces students to medical sociology, which is the application of the sociological perspective to health and health care.

THEORIES OF INTERNATIONAL DEVELOPMENT (3) Hough
Limit 25 Theories of political, economic, and social development. National development and the development of international systems. Although contemporary development and underdevelopment are emphasized, patterns of change in recent centuries are also examined in order to provide a comparative backdrop for understanding recent developmental processes.

RICHARD WRIGHT & MODERNISM: PHILOSOPHY, LITERATURE & POLITICS (3) Hayes
Limit 25 Cross-listed with Political Science and Africana Studies

ISSUES IN GLOBALIZATION (IR) (3) Grovogui
Limit 25 Cross-listed with Political Science, Interdepartmental, and Africana Studies

INDEPENDENT STUDY

RESEARCH ASSISTANSHIP

HONORS PROGRAM-SENIOR HONORS PROGRAM

HONORS PROGRAM

INDEPENDENT RESEARCH

INTERNSHIP

REGRESSION ANALYSIS Plass
Limit 15 Graduate students should have completed 230.600 or the equivalent. Undergraduates only admitted with instructor's permission, and 230.205 or equivalent. A seminar in multiple regression (least squares and alternative estimation procedures) with a focus on sociological problems and software applications. Extensions to hierarchical linear models will be included.

DISSERTATION SEMINAR Andreas
Limit 15 A semester long course designed to facilitate graduate students' formulation of a dissertation proposal. This course is designed for advanced graduate students actively preparing their dissertation proposals.

SEMINAR ON SOCIAL INEQUALITY Alexander
Limit 15 This seminar attempts a broad survey of sociological theorizing and research on social stratification and the role of social institutions in generating and mitigating inequality.

SEMINAR ON INTERNATIONAL DEVELOPMENT (3) Agarwala
Limit 15 This seminar offers a graduate level introduction to the theoretically guided study of national development. The first part of the course analyzes the development theories that dominated the first four decades of the development effort. The second half of the course examines more recent perspectives that have attempted to fill the intellectual void left by the demise of the development paradigm. Throughout the seminar,
SOCIOLOGY

discussions and readings will focus on the intellectual history of the development theories: appropriate units of analysis for the study of social and political change? What forces have propelled transformations across the world? What explanatory power do the theories hold for our future?

230.631 CONFIRMATORY FACTOR ANALYSIS AND LINEAR STRUCTURAL-EQUATIONS MODELING  
Kohn  Limit 15  
Non-mathematical introduction to the use of these advanced methods for dealing with measurement error and causal modeling. Emphasis will be given to examining underlying assumptions and critically evaluating the advantages and disadvantages of these methods. Participants will be expected to do analyses using own data or data provided by the instructor. Prereq: some knowledge of multiple regression analysis, some familiarity with computers.

Sec. 01  Th 10-12

230.643 SOCIOLOGICAL ANALYSIS  
Kohn  Limit 15  
An intensive analysis of a wide range of sociological studies, designed to acquaint the student with how sociologies deal with important theoretical issues, using a variety of methods and sources of data. Particular attention will be paid to the logical coherence of the studies and to the fit between data and interpretation.

Sec. 01  T 10-12

230.649 QUALITATIVE RESEARCH METHODS IN THE SOCIAL SCIENCES  
McDonald  Limit 15  
Undergraduates by permission. This course provides in-depth familiarity with qualitative research methods, including ethnographic research, participant observation, and intensive interviewing. Alternative conventions in the elaboration of narratives are also explored. The course includes the application of relevant methods.

Sec. 01  W 10-12

360.670 GENERAL SEMINAR: INSTITUTE FOR GLOBAL STUDIES IN CULTURE, POWER & HISTORY  
Grovogui  Limit 15  
Graduate students only or instructor’s consent for Senior undergraduates. Attendance is mandatory at all seminar meetings. Cross-listed with History, Interdepartmental, and Anthropology.

Sec. 01  Th 4-6pm

THE THEATRE ARTS & STUDIES PROGRAM

225.300 (H) CONTEMPORARY THEATRE AND FILM: AN INSIDER'S VIEW  
Astin  Limit 40  
An introduction to the performing arts, including an overview of theatre history, acting styles and the interaction of art and society. A personal view from inside.

Sec. 01  W 3-5:30

225.301 (H) ACTING AND DIRECTING WORKSHOPS  
Astin  Limit 12  
An introduction to the fundamentals of acting through exercises, improvisation, and work on scenes from established plays and Shakespearean sonnets, based on the teachings of Stanislavsky, Greet, Boleslavsky, Michael Chekhov, Chumman,

Sec. 01  TTh 2-3:30
This course also includes a brief survey of major playwrights. Plays will be read, analyzed, and employed in scene work.

225.308 (H)  
**SHAKESPEARE IN PERFORMANCE**  
(3) Glossman  
Limit 12  
The techniques and craft of following a Shakespearean text directly into character and action. Students will work with a selection of Shakespeare's plays—Twelfth Night, Hamlet, The Winter’s Tale, and King Lear—in exploring specific ways in which the power of the lines can be translated dynamically and immediately into vocal and physical performance. (Some background in the acting sequence is encouraged.)  
Sec. 01  M 6-8pm

225.309 (H)  
**PLAY PRODUCTION AND STAGE MANAGEMENT** (4) Astin/Roche  
Limit 12  
Students will learn the basics of producing a play, including play selection, budgeting, organization and management of the staff during both the pre-rehearsal and rehearsal periods. The course will also detail the job of the stage manager and relationships with crew, producer, director, and actors. Students will participate in practical application of management skills outside of class hours.  
Sec. 01  TTh 12-1:30

225.312 (H)  
**ACTING CHEKHOV AND O’NEILL**  
(3) Astin  
Limit 16  
Prereq: At least one acting workshop  
Using the plays of Anton Chekhov and Eugene O’Neill, fundamentals from the Acting Workshops are applied in both preparation and scene work as the student employs the basics in order to build a character for the stage. Play analysis is included.  
Sec. 01  TTh 4-5:30

225.320 (H)  
**PERFORMANCE** (3) Smith  
Limit 8  
Perm. Req’d. The student is given specific acting assignments, and develops them as special projects for public performance under the direct supervision of the instructor. The goal is performance on a professional level.  
Sec. 01  M 3-6pm

225.345 (H)  
**HISTORY OF MODERN THEATRE AND DRAMA** (3) Quattrone  
Limit 30  
Designed to impart a deepened appreciation and understanding of today’s theatre by surveying the major playwrights, historical movements, and theatre practices of the 20th century. The course also seeks to help students understand theatre’s relationship to the societal and political power structure of each era and to introduce students to great dramatic literature in its intended form, which is performance.  
Sec. 01  M 3-6pm

225.520  
**INDEPENDENT STUDY: PROJECTS IN THEATRE**  
Astin  
Perm. Req’d. Special projects created for and tailored to the individual theatre student. Enrollment limited.  
Sec. 01  TBA

**WRITING SEMINARS**

220.105 (H) (W)  
**INTRODUCTION TO FICTION AND POETRY WRITING I: TELLING IT STRAIGHT**  
(3) Staff  
Limit 17 per section  
This course is a prerequisite for most upper level courses. Note: Section 03 and 04 are limited to Writing Seminar’s majors and are Permission Required. Students wishing to register for these sections should see Doug Basford in Gilman 135  
Sec. 01 MTW 9

A course in the arts of realist fiction and traditional verse, with reading in American literature, most recently: Eudora Welty, Vladimir Nabokov, Henry James, Donald Justice, Robert Frost and Gwendolyn Brooks. Students will learn to read as writers; they will compose short stories and
WRITING SEMINARS

poems of their own. Classes meet two or three times a week with a day set aside for a writing workshop. This course is part one of the year-long Introduction to Fiction and Poetry, and must be taken before 220.106.

220.106 (H) INTRODUCTION TO FICTION AND POETRY WRITING II: TELLING IT SLANT (3) Staff. Prereq: 220.105 Limit 17 per section. This course is a prerequisite for most upper level courses. Staff. Prereq: 220.105 Limit 17 per section. This course is a prerequisite for most upper level courses. Note: Sections 01, 03, 04, and 10 are limited to Writing Seminar’s majors and are Permission Required. Students wishing to register for these sections should see Doug Basford in Gilman 135.

A course in the counter-traditional arts of anti-realist fiction, free verse, and the prose poem, with readings in 20th Century world literature (Virginia Woolf, Franz Kafka, Italo Calvino, Francis Ponge, William Carlos Williams, Russell Edson). This course will follow the format of 220.105, IFP I, and should be taken after the completion of 220.105.

220.142 (H) INTRODUCTION TO POETRY WORKSHOP (3) Rustyed Perm. Req. d. Limit 15. A discussion and critical evaluation of the work of a number of contemporary poets in conjunction with a workshop concentrating on student poems.

220.146 (H) UNDERGRADUATE WORKSHOP IN SCIENCE WRITING (3) Rayman Limit 15. Science writing: science written in plain English and told as a story. Students research, write, edit others, rewrite. They also analyze published stories for structure, substance, accessibility, and clarity.


220.303 (H) ADVANCED PLAYWRITING (3) Lapadula. Perm. Req’d. Limit 15. Sec. 01 F 12:30-2:30.

220.308 (H) RUSSIAN SHORT STORY (3) Frydman. Perm. Req’d. Limit 15. A discussion seminar designed as both a study of the short story form so well used by many Russian writers, and of those writers themselves. Readings will include works of Pushkin, Gogol, Turgenev, Tolstoy with heaviest emphasis on works of Chekhov, and Babel. In the last weeks we will be looking at possible influences on American writers.

220.316 (H) OPINION WRITING (3) Kane. Perm. Req’d. Limit 15. Instructor will assign student topics on which they will write essays. Essays will be discussed in class and critiqued for style, grammar, coherence and effectiveness.


220.329 (H) FORMING THE SHORT STORY (3) Davies. Limit 15. Perm. Req’d. Readings in the first hundred years of the short story in the Western tradition. Authors include Hoffmann, Klesl, Pushkin,
### Writing Seminars

Gogoi, Turgenev, Maupassant, James, Chekhov, and Wharton. Numerous pastiches will be assigned.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Credits</th>
<th>Units</th>
<th>Time</th>
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<tbody>
<tr>
<td>220.337 (H)</td>
<td>Advanced Screen Writing Seminar (3)</td>
<td>Lapadula</td>
<td>Perm. Req'd.</td>
<td>M</td>
<td>F 2:30-4:30</td>
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<td>Stillman, Perm. Req'd.</td>
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<td>Numerous pastiches will be assigned.</td>
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<td>220.343 (H)</td>
<td>Contemporary Asian American Fiction (3)</td>
<td>Deluna</td>
<td>Limit 20</td>
<td>M</td>
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<td>Stillman, Perm. Req'd.</td>
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<td>An introduction to Asian American literature</td>
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<td>through study of major novels in the field.</td>
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<td>Selected novels include Frank Chin, Ronyoung Kim,</td>
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<td>Maxine Hong Kingston, Jampa Lharm, Chang-rae Lee,</td>
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<td>Belte Bao Lez, Bharati Mukherjee, and Amy Tan.</td>
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<td>Class discussion will mainly center on the</td>
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<td>content and literary artistry of the novels.</td>
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<td>Students will be given the opportunity to</td>
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<td>interpret and reflect on these works in writing.</td>
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<td>and to try their hand at producing stories or</td>
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<td>essays, by focusing on subjects of interest</td>
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<td>from within a broad range of issues concerning</td>
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<td>race and ethnicity in America.</td>
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<td>220.356 (H)</td>
<td>Writing of Fiction (3)</td>
<td>McGarry</td>
<td>Subm. Manuscript and Perm. Req'd.</td>
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<td>Stillman, Juniors and Seniors only</td>
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<td></td>
<td>One-semester workshop in the writing of fiction.</td>
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<td>Most of the class time will be devoted to</td>
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<td>discussion of student work.</td>
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<td>Students will write several short pieces at</td>
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<td>the beginning of the semester</td>
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<td>based on exercises given by the professor.</td>
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<td>and then write two to three short stories.</td>
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<td>Students will also have to revise one of these</td>
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<td>short stories.</td>
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<td>220.378 (H)</td>
<td>Poetic Forms II (1)</td>
<td>Williamson</td>
<td>Perm. Req'd.</td>
<td>Th</td>
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<td>Stillman, Limit 15</td>
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<td>One-semester workshop</td>
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<td>develops on the information and techniques</td>
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<td>encountered in Poetic Forms I, and uses</td>
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<td>them in reading and imitating a range of</td>
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<td>contemporary poets.</td>
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<td>220.379 (H)</td>
<td>Eliot, Crane, and Stevens (3)</td>
<td>Biddle</td>
<td>Juniors and Seniors only Perm. Req'd.</td>
<td>W</td>
<td>3-6pm</td>
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<td>Stillman, Juniors and Seniors only</td>
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<td></td>
<td>An examination of the poetry of Eliot, Crane</td>
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<td>and Stevens in the context of the modernist</td>
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<td>movement in the verbal and visual arts.</td>
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<td>Cross-listed with English</td>
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<td>220.384 (H)</td>
<td>I, Me, Mine: American Autobiography (3)</td>
<td>Biddle</td>
<td>Submit to English</td>
<td>W</td>
<td>2-4</td>
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<td>Stillman, 220.145</td>
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<td>A study of the genre’s evolution from</td>
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<td>Benjamin Franklin to Malcolm X.</td>
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<td>220.388 (H)</td>
<td>Science and Society (3)</td>
<td>Riddle</td>
<td>Limit 15</td>
<td>W</td>
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<td>Stillman, 220.145</td>
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<td>A study of science and technology as value-laden</td>
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<td>or value-free with focus on commercial and</td>
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<td>political influence, government oversight, and</td>
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<td>press coverage.</td>
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<tr>
<td>220.396 (H)</td>
<td>Advanced Poetry (3)</td>
<td>Williamson</td>
<td>Permission Required Limit 15</td>
<td>W</td>
<td>2-4</td>
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<td></td>
<td>Stillman, Limit 15</td>
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<td>A seminar focused on major and minor poets of</td>
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<td>past centuries that continue to be important</td>
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<td>to writers of today. Course work includes</td>
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<td>critical essays, imitation/response poems, and</td>
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<td>limited workshop.</td>
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<td>220.502</td>
<td>Independent Study</td>
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<td>220.508</td>
<td>Honors Thesis</td>
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<td>Course Code</td>
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<tr>
<td>220.510</td>
<td>PRACTICING JOURNALISM</td>
<td>Dixon/Basford</td>
<td>Perm. Req'd</td>
<td>Sec. 01</td>
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<tr>
<td>220.514</td>
<td>INTERNSHIP; TEACHING WRITING</td>
<td>Dixon</td>
<td></td>
<td>Sec. 01</td>
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<tr>
<td>220.614</td>
<td>GRADUATE SCIENCE WORKSHOP</td>
<td>Finkbeiner</td>
<td>Limit 12</td>
<td>Sec. 01</td>
<td>F 3-6pm</td>
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<tr>
<td>220.624</td>
<td>FICTION WORKSHOP</td>
<td>Dixon</td>
<td>Limit 15</td>
<td>Sec. 01</td>
<td>T 3-6pm</td>
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<tr>
<td>220.626</td>
<td>POETRY WORKSHOP</td>
<td>Irwin</td>
<td>Limit 15</td>
<td>Sec. 01</td>
<td>M 3-6pm</td>
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<tr>
<td>220.629</td>
<td>CONTEMPORARY AMERICAN POETRY: ROBERT PENN WARREN</td>
<td>Smith</td>
<td>Limit 15</td>
<td>Sec. 01</td>
<td>T 2-5</td>
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<tr>
<td>220.800</td>
<td>INDEPENDENT STUDY</td>
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<td>220.802</td>
<td>THESIS</td>
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**INTERDEPARTMENTAL**

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<tbody>
<tr>
<td>360.206 (H)</td>
<td>RE WRITING WOMEN IN MEXICO</td>
<td>DeLeon</td>
<td>Limit 25</td>
<td>Sec. 01</td>
<td>W 2-5</td>
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<td></td>
<td>This course explores how scholars have</td>
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<td>reconstructed a “female” voice in six</td>
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<td>iconic Mexican women writers, artists,</td>
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<td>and symbols in pre-Hispanic, Colonial,</td>
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<td></td>
<td>and Modern time periods. Figures include: Aztec</td>
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<td>female poets, Malinche,</td>
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<td>Sor Juana, Virgen de Guadalupe, Frida</td>
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<td>Kahlo, and Rosario Castellano.</td>
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<td>Cross-listed with Latin American Studies</td>
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<td>and Study of Women, Gender, and Sexuality</td>
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<td>360.233 (H)</td>
<td>INTRODUCTION TO FEMINIST AND QUEER THEORY (3)</td>
<td>Pahl</td>
<td>Limit 24</td>
<td>Sec. 01</td>
<td>T 3-5</td>
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<td>Rather than tracing an overview of feminist and</td>
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<td>queer theory, this course aims at mapping forms</td>
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<td>of reason at play in a selection of feminist</td>
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<td>issues that cross discipline and national</td>
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<td>boundaries. Emphasis will be placed on German</td>
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<td>issues (sexuality after fascism), French</td>
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<td>feminist poetry, Italian philosophy,</td>
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<td>German, and Latino-American lesbian film and</td>
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<td>film theory, Chicana Lesbian film and</td>
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<td>film theory, Chicana Lesbian bilingualism, and</td>
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<td>French and US-American Chicana Lesbian</td>
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<td>film and film theory, Chicana lesbian</td>
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<td>translingualism, and French and US-American</td>
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<td>American Explorations into animal love.</td>
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<td>Cross-listed with Women, Gender and Sexuality</td>
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<tr>
<td>360.258 (S)</td>
<td>GENDER AND HEALTH (3)</td>
<td>Staff</td>
<td>Limit 15</td>
<td>Sec. 01</td>
<td>Th 9-10:30</td>
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<td></td>
<td>This course will examine literature in public</td>
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<td>health and anthropology on gender and health.</td>
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<td>We will look at different institutional sites to</td>
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<td>examine how individual experience is formed</td>
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<td>through their operation. Cross-listed with</td>
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<td>Studies of Women, Gender, and Sexuality</td>
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<tr>
<td>360.313 (S)</td>
<td>CUBA AND U.S. DECISION MAKING (3)</td>
<td>Smith</td>
<td>Limit 35</td>
<td>Sec. 01</td>
<td>T 2-4</td>
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<td></td>
<td>This course consists of a series of case studies</td>
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<td>in U.S. decision making related to Cuba from</td>
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<td>1959 to the present, everything from the initial</td>
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<td>decision signed by Eisenhower to launch effort</td>
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<td>to remove the Castro government (which led to the</td>
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<td>Bay of Pigs) to President Bush’s decision this</td>
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<td>past May to launch new measures to remove the</td>
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<td>Castro regime. Cross-listed with Latin American</td>
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<td>American Studies and Political Science</td>
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### INTERDEPARTMENTAL

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<tr>
<td>360.339 (H,S)</td>
<td>BLACK POWER FANTASIES (AP)</td>
<td>Spence/ Carpenter</td>
<td>3</td>
<td>Sec. 01</td>
<td>T 1-4</td>
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<tr>
<td>360.404 (E,N)</td>
<td>INTERFACIAL PHENOMENA IN NANOSTRUCTURED MATERIALS</td>
<td>Erlebacher/Stebe</td>
<td>3</td>
<td>Sec. 01</td>
<td>TTh 1-2:15</td>
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<td>360.469 (H,S)</td>
<td>ISSUES IN GLOBALIZATION (IR)</td>
<td>Grovogui</td>
<td>3</td>
<td>Sec. 01</td>
<td>Th 4-6pm</td>
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<td>360.528</td>
<td>APPLIED ECONOMICS INTERNSHIP (3)</td>
<td>Hanke</td>
<td>3</td>
<td>Sec. 01</td>
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<td>360.534</td>
<td>DIRECTED READINGS - WGS</td>
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<td>360.536</td>
<td>DIRECTED WRITINGS - WGS</td>
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<td>360.644</td>
<td>INTERFACIAL PHENOMENA IN NANOSTRUCTURED MATERIALS</td>
<td>Erlebacher/Stebe</td>
<td>3</td>
<td>Sec. 01</td>
<td>TTh 1-2:15</td>
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<tr>
<td>360.670</td>
<td>GENERAL SEMINAR: INSTITUTE FOR GLOBAL STUDIES IN CULTURE, POWER &amp; HISTORY</td>
<td>Grovogui</td>
<td>3</td>
<td>Sec. 01</td>
<td>Th 4-6pm</td>
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### NON-DEPARTMENTAL PROGRAMS

### CENTER FOR AFRICANA STUDIES

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<tr>
<th>Course Code</th>
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<tr>
<td>362.101 (H,S)</td>
<td>INTRODUCTION TO AFRICANA STUDIES</td>
<td>Staff</td>
<td>3</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<tr>
<td>362.260 (H,S)</td>
<td>HERETICAL POLITICAL THEORY: HANNAH ARENDT AND C.L.R. JAMES</td>
<td>Roberts</td>
<td>3</td>
<td>Sec. 01</td>
<td>Th 1-4</td>
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</table>
political theorist Hannah Arendt and Trinidadian thinker C.L.R. James as heretics – those persons existing at the margins of society whose thought seeks to transform the prevailing normative structures of a society’s order of things. Exegesis of select primary texts followed by secondary interpretations of those works will be emphasized within the context of the recurring trope of the heretic and the perspective of heretical political theory.

362.330 (H,S)  AFRICAN AND NATIVE INTERSECTIONS IN THE AMERICAS (3) Coleman  Limit 20  This course is an interdisciplinary exploration of the interactions that have characterized African American and Native American lives in the region now known as the Americas. During the term we will examine several key themes including the struggle of Native Americans and African Americans to maintain traditions as independent, self-defining communities and the broader phenomenon of Red/Black intermarriage, conflict, and common historical experiences.

362.457 (H,S)  RICHARD WRIGHT AND MODERNISM: PHILOSOPHY, LITERATURE, AND POLITICS (3) Hayes  Limit 25  This seminar provides an examination of the modern black writer Richard Wright. We will interrogate Wright's critique of modern Western civilization, his interpretation of the black experience, and his involvement in radical politics. The broad purpose of this course is to develop an analysis that accounts for Wright's philosophical, literary and political commitments. In order to understand his development as a writer and intellectual activist, we will examine his life experiences in the South and later in the Communist Party, as well as the complex philosophical ideas that shaped his thinking and writing. Through a critical reading of works by and about Wright, seminar members will examine his contribution to Africana existential thought, which is premised upon concerns of freedom, anguish, resentment, responsibility, embodied agency, sociality, and liberation.  Cross-listed with Political Science and Sociology

362.500 (H,S)  AFRICAN DIASPORA RESEARCH PRACTICUM: THE DIASPORA IN BALTIMORE (3) Vinson  Limit 12  This research intensive course is designed to introduce and familiarize students with basic research techniques for conducting historical and ethnographic work (oral histories) on the African Diaspora, using Baltimore as a research site. Students will be responsible for employing a number of methodologies in the field to gain a deeper understanding of a set of fundamental questions: 1) how have African-Americans historically interpreted the migration of immigrants into the Baltimore region? 2) how have immigrants themselves processed their interaction with local African-American communities? 3) what are the implications of these interactions for our understanding of the greater African Diaspora?

379.152  BEGINNING KISWAHILI II (3) Mugambi  Limit 15  Continuation of 379.151. Continuation of 379.151  Cross-listed with Language Teaching Center

379.162  BEGINNING HAUSA II (3) Mamane  Limit 18  Prereqs: 379.161. Continuation of 379.161.  Cross-listed with Language Teaching Center

379.252 (H)  INTERMEDIATE KISWAHILI II (3) Mugambi  Limit 18  Prereq: 379.151-152  Continuation of 379.251  Cross-listed with Language Teaching Center

360.339 (H,S)  BLACK POWER FANTASIES (AP) (3) Spence/ Carpenter  Limit 16  This course will look at the origins and evolution of Black Power and notions of Black Empowerment from political, anthropological, media and arts perspectives. The class will also be engaged in a dialogue with a similar course taught at the School of the Art Institute of Chicago.
DEAN'S TEACHING FELLOWSHIP COURSES

ANTHROPOLOGY

070.328 (H,S) (W)  THE CONCEPT OF THE PATIENT IN ANTHROPOLOGY (3) Meyers  Limit 25  Sec. 01  ThF 10:30-12
The course will explore the way in which the patient emerges as a category of thought and analysis in anthropology.

070.390 (H,S)  LATIN AMERICAN CITIES: THE DILEMMA OF PUBLIC SPACE (3) Procopio  Limit 25  Sec. 01  ThF 9-10:30
The course explores various expressions of political imagination and collective action in Latin American urban public spaces. It uses anthropological perspectives to analyze the porous boundaries between the public and the private, and the impact of globalization on the cities of the region.

ENGLISH

060.306 (H) (W)  EARLY MODERN LITERATURE AND TECHNOLOGY (3) Myers  Limit 18  Sec. 01  F 1-3:30
This seminar examines how early modern writers represent the positive and negative effects of technology on the individual and society.

060.386 (H) (W)  POETRY IN AMERICA POST WW II (3) Noble  Limit 18  Sec. 01  Th 1:30-4
This course will study the works of six mid-century American poets (Lowell, Bishop, Plath, Ginsberg, O'Hara, and Ashberry) in order to examine the complex relationship between American poetry and culture after WWII.

HISTORY

100.261 (H,S)  ROMES RESONANCE: CATHOLICISM IN AMERICAN CULTURE (3) Moran  Limit 15  Sec. 01  Th 2-5
An investigation of Catholicism's role in the making of American culture. We will explore how Catholicism was practiced by the faithful, debated by intellectuals, and portrayed in popular media.

100.263 (H,S) (W)  WOMEN IN ENGLAND, 1500-1700 (3) Herbert-Bilby  Limit 20  Sec. 01  MTh 2-3:15
This course explores how early modern English women lived, worked, and played. We will read women's diaries, letters, and other primary sources to discover women's own voices, and get an intimate view of their hopes, thoughts, and daily lives.

100.281 (H,S) (W)  GOSSIP, SCANDAL AND REPUTATION: A CULTURAL HISTORY OF EARLY AMERICA (3) Roney  Limit 20  Sec. 01  MW 10
This course uses the lens of reputation and scandal to analyze topics including governance, witchcraft, gender, capital punishment and slavery in early America.

100.283 (H,S) (W)  CRISIS & CATASTROPHE IN 18TH CENTURY THOUGHT (3) Ashburn  Miller  Limit 15  Sec. 01  Th 1-4
This course analyzes eighteenth-century disasters and crises, such as earthquakes, plague, and revolution, and their impact on the thought of the Enlightenment.
DEAN’S TEACHING FELLOWSHIP COURSES

WAR AND POSTWAR REMINISCENCES IN EAST ASIA: THE IMJIN AND MANCHU INVASIONS OF CHINA AND KOREA
100.284 (H,S) Park
Limit 25
An exploration of these wars and their emotional repercussions in the 17th and 20th centuries, the experience and memory of these conflicts and the dialogue between our pasts and presents.

HISTORY OF SCIENCE & TECHNOLOGY
140.353 (H,S) (W)
MUSEUMS, PARKS AND MONUMENTS: THE PROBLEMS OF REMEMBERING THE PAST (3)
Nystrom
Limit 15
Museums, parks and monuments are built to commemorate a particular version of the past. Analyze the multiple meanings of these sites and explore the intersections of memory and the built environment.

HUMANITIES
300.382 (H)
PHILOSOPHY, MEMORY, AND RECONSTRUCTION: WESTERN EUROPE AFTER WW II (3) Geroulanos
Limit 25
This course on the intellectual history of Western Europe with focus on the war’s legacy, reconstruction, existentialism, the appeal of Soviet communism, the crisis of humanism, and film.

POLITICAL SCIENCE
191.347 (S)
"THE WALL OF SEPARATION:" DEMOCRACY AND RELIGIOUS FREEDOM AROUND THE WORLD (3) Golubiewski
Limit 25
Examines the development of political institutions and policies in Japan. It focuses on institutions, ideas, and critical events that drive the Japanese political development, comparing mainly with the American case. It starts with the pre-WWII period and discusses contemporary political issues at the end.

JEWISH STUDIES

Please refer to the departmental listings for complete information regarding these courses.

ENGLISH
060.378 (H) (W)
JEWISH AMERICAN WRITERS AND RACE (3) Conn
Sec. 01 MW 3:30-5

HISTORY
100.235 (H,S) (W)
APOSTATES AND CONVERTS: JEWISH-CHRISTIAN RELATIONS IN MEDIEVAL AND MODERN TIMES (3) Horowitz
Sec. 01 TTh 12

POLITICAL SCIENCE
191.347 (S)
"THE WALL OF SEPARATION:" DEMOCRACY AND RELIGIOUS FREEDOM AROUND THE WORLD (3) Golubiewski
Limit 25
Examines the development of political institutions and policies in Japan. It focuses on institutions, ideas, and critical events that drive the Japanese political development, comparing mainly with the American case. It starts with the pre-WWII period and discusses contemporary political issues at the end.

JEWISH STUDIES

Please refer to the departmental listings for complete information regarding these courses.

ENGLISH
060.378 (H) (W)
JEWISH AMERICAN WRITERS AND RACE (3) Conn
Sec. 01 MW 3:30-5

HISTORY
100.235 (H,S) (W)
APOSTATES AND CONVERTS: JEWISH-CHRISTIAN RELATIONS IN MEDIEVAL AND MODERN TIMES (3) Horowitz
Sec. 01 TTh 12

POLITICAL SCIENCE
191.347 (S)
"THE WALL OF SEPARATION:" DEMOCRACY AND RELIGIOUS FREEDOM AROUND THE WORLD (3) Golubiewski
Limit 25
Examines the development of political institutions and policies in Japan. It focuses on institutions, ideas, and critical events that drive the Japanese political development, comparing mainly with the American case. It starts with the pre-WWII period and discusses contemporary political issues at the end.
JEWISH STUDIES
Please refer to the departmental listings for complete information regarding these courses.

Braun

130.455 (H) ADVANCED MODERN HEBREW
Braun  Sec. 01 TTh 1

134.644 PERSIAN PERIOD TEXTS FROM THE
BEHEBRE BIBLE Lewis  Sec. 01 T 2-4

134.652 (H) SEMINAR IN ANCIENT ISRAELITE
RELIGION Lewis  Sec. 01 F 2-4

134.661 HISTORY: ANCIENT SYRIA-PALESTINE
McCarrey  Sec. 01 MW 2

134.700 NORTHWEST SEMITIC EPIGRAPHY
McCarrey  Sec. 01 Th 2-4

GERMAN AND ROMANCE LANGUAGES AND LITERATURES

211.211 (H) INTRODUCTION TO YIDDISH CULTURE
B. Caplan  Sec. 01 MTW 12

213.351 (H) JEWISHNESS & THE IDEA OF
MODERNITY 3 (cool)
Gold  Sec. 01 MTh 3-4:30

213.365 (H) CONTEMPORARY ISRAELI FICTION
Abecassis  Sec. 01 Th 1-3

213.408 (H) THE LITERATURE OF BLACKS AND
JEWS IN THE 20TH CENTURY 3
M. Caplan  Sec. 01 ThF 10:30-12

213.608 THE LITERATURES OF BLACKS & JEWS
IN THE 20TH CENTURY M. Caplan  Sec. 01 W 1-3

PROGRAM IN LATIN AMERICAN STUDIES

361.124 (H) LATIN AMERICAN FILM: MINI-COURSE
DeLeon/Galasso  Sec. 01 TTh 2-4
This is a 90 minute mini-course.

361.135 (H) INTRODUCTION TO LATIN AMERICAN
STUDIES II 3 (Staff
Limit 50)

361.140 (H) INTRODUCTION TO LATIN AMERICAN
FILM 3 Castro-Klaren
Limit 25

361.200 (H) THE POLITICS OF MULTICULTURALISM
3 Cervone  Limit 25 *Reading intensive This course examines the political significance and the
appeal of the concept of multiculturalism in a number of countries of Latin American and
Oceania in the context of native people’s struggles for recognition and justice. Cross-listed with Anthropology

361.300 (H) INDIGENOUS PEOPLES OF CHILE AND
ARGENTINA 3 Delrio  Limit 25
This course explores the experiences of native peoples of Pampa, Patagonia, and Araucania from Spanish colonization to the present day. Cross-listed with Anthropology

360.208 (H) RE-WRITING WOMEN IN MEXICO 3
DeLeon  Limit 25 Cross-listed with Interdepartmental and Study of Women, Gender, and Sexuality.

070.218 (H,S) THE POLITICS OF MULTICULTURALISM
3 Cervone  Limit 25 Cross-listed with Anthropology

100.244 (H,S) SHIPWRECK AND EMPIRE 3
Russell-Wood  Limit 25 Cross-listed with History

230.307 (S) SOCIOLOGY OF LATIN AMERICA 3 Van
der Heute  Limit 25 Cross-listed with Sociology, Public Health Studies, and Studies of Women, Gender and Sexuality
PROGRAM IN LATIN AMERICAN STUDIES

360.313 (S) CUBA AND U.S. DECISION MAKING (3) Smith Limit 25 Cross-listed with Interdepartmental and Political Science

215.370 (H) STUDIES IN SPANISH & LATIN AMERICAN POETRY (3) Eggenberg Limit 20 Cross-listed with German and Romance Languages and Literatures

215.380 (H) AUTOBIOGRAPHY, TESTIMONIO AND MEMOIR (3) Castro-Klaren Limit 25 Cross-listed with German and Romance Languages and Literatures

070.390 (HLS) LATIN AMERICAN CITIES: THE DILEMMA OF PUBLIC SPACE (3) Procupez Limit 25 Cross-listed with Anthropology Dean's Teaching Fellowship Course

190.392 (S) INTRODUCTION TO LATIN AMERICAN POLITICS (CP) (3) Keck Limit 20 per section Cross-listed with Political Science

211.394 (H) BRAZILIAN CULTURE AND CIVILIZATION Bensabat-Ott Limit 20 per section Sec. 01: 3 credits (Course work in English) Sec. 02: 4 credits (Course work in Portuguese) Cross-listed with German and Romance Languages and Literatures

215.455 (H) CUBA NOIR (3) E. Gonzalez Limit 20 Cross-listed with German and Romance Languages and Literatures and Film and Media Studies

215.640 SELF-REPRESENTATION IN LATIN AMERICAN FICTION, TESTIMONIO AND MEMOIR Castro-Klaren Limit 15 Cross-listed with German and Romance Languages and Literatures

STUDY OF WOMEN, GENDER & SEXUALITY
Please refer to the departmental listings for complete information regarding these courses.

ANTHROPOLOGY

070.369 (HLS) ANTHROPOLOGY OF THE SENSES (3) Khan

070.386 (HLS) "MAIL ORDER BRIDES"? UNDERSTANDING THE PHILIPPINES IN SOUTHEAST ASIAN CONTEXT (3) Cannell

BEHAVIORAL BIOLOGY

290.420 (S) ORIGINS OF HUMAN SEXUAL ORIENTATION AND VARIATION (3) Kraft

INTERDEPARTMENTAL

360.208 (H) RE-WRITING WOMEN IN MEXICO (3) DeLeon

360.233 (H) INTRODUCTION TO FEMINIST AND QUEER THEORY (3) Pahl

360.258 (S) GENDER AND HEALTH (3) Staff

360.534 DIRECTED READINGS - WGS

360.536 DIRECTED WRITINGS - WGS

PSYCHOLOGICAL AND BRAIN SCIENCES

200.204 (N,S) HUMAN SEXUALITY (3) Kraft
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor</th>
<th>Limit</th>
<th>Section</th>
<th>Schedule</th>
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</thead>
<tbody>
<tr>
<td>550.111 (E,Q)</td>
<td><strong>STATISTICAL ANALYSIS I (4)</strong></td>
<td></td>
<td>Torcaso</td>
<td>50</td>
<td>Sec. 01</td>
<td>M, T, W 1</td>
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<tr>
<td></td>
<td>Topics include descriptive statistics, probability models, random variables, expectation, sampling, the central limit theorem, classical and robust estimation of location, confidence intervals, hypothesis testing, two-sample problems, introductory analysis of variance, introductory nonparametric methods. Three lectures and a conference weekly. Some use of computing with the MinStat statistical package, but prior computing experience not required. Prerequisite: four years of high school mathematics. Students who may wish to undertake more than two semesters of probability and statistics should consider 550.420-430.</td>
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<tr>
<td>550.112 (E,Q)</td>
<td><strong>STATISTICAL ANALYSIS II (4)</strong></td>
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<td>Staff</td>
<td>50</td>
<td>Sec. 01</td>
<td>M, T, W 12</td>
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<td>Topics include least squares and regression analysis, correlation, further nonparametric methods, chi-square tests, the likelihood concept, decision theory, Bayesian inference, time series, simultaneous equations, sample survey design. Prerequisite: 550.111. Students who may wish to undertake more than two semesters of probability and statistics should consider 550.420-430.</td>
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<tr>
<td>550.122 (Q)</td>
<td><strong>CHANCE AND RISK (3)</strong></td>
<td></td>
<td>Wierman</td>
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<td>Sec. 01</td>
<td>M, T, W 12</td>
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<td>The course will help students develop an appreciation of probability and randomness, and an understanding of its applications in real life situations involving chance and risk. Applications, controversies, and paradoxes involving risk in business and economics, health and medicine, law, politics, sports, and gambling will be used to illustrate probabilistic concepts such as independence, conditional probability, expectation, and variance. The course is intended primarily for humanities and social science majors. There is no prerequisite beyond high school mathematics. Not open to students who have taken two semesters of Calculus.</td>
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<tr>
<td>550.171 (E,Q)</td>
<td><strong>DISCRETE MATHEMATICS (4)</strong></td>
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<td>Towcaso</td>
<td>50</td>
<td>Sec. 01</td>
<td>M, T, W 10</td>
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<td>Introduction to the mathematics of finite systems. Logic; Boolean algebra; induction and recursion; sets, functions, relations, equivalence, and partially ordered sets; elementary combinatorics; modular arithmetic and the Euclidean algorithm; group theory; permutations and symmetry groups, graph theory. Selected applications. The concept of a proof and development of the ability to recognize and construct proofs are part of the course. Co-listed with 650.471</td>
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<tr>
<td>550.255 (E,Q)</td>
<td><strong>MATHEMATICAL MODELS FOR DECISION MAKING:</strong></td>
<td></td>
<td>Castello</td>
<td></td>
<td>Sec. 01</td>
<td>M, T, W 1</td>
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<tr>
<td></td>
<td><strong>DETERMINISTIC MODELS (4)</strong></td>
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</table>
APPLIED MATHEMATICS AND STATISTICS

Prereq: One semester of calculus
This course is an introduction to management science and the quantitative approach to decision making. Our focus will be on deterministic models, in which we assume that all problem parameters are known with certainty. The covered topics may include Linear and Integer Programming, Network Models, Inventory Models (Stationary Demand), Nonlinear Programming, Goal Programming, and Dynamic Programming. We emphasize model development and case studies, using spreadsheets and other computer software. The applications we study occur in manufacturing and transportation systems, as well as in finance and general management.

550.281 (E,Q) COMPUTING IN APPLIED MATHEMATICS (4) Naiman
Overview of some of the more common computational platforms in which to do applied mathematics. The course will cover computing in at least three general areas: numerical linear algebra using Matlab, symbolic mathematics using Maple, and statistics using R. Students will be presented with applications, basic mathematics that underlies the problems to be solved, and computational approaches to their solution.

550.291 (E,Q) LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS (4) Castillo
Prereq: Calculus I
An introduction to the basic concepts of linear algebra, matrix theory, and differential equations that are used widely in modern engineering and science. Intended for engineering and science majors whose program does not permit taking both 110.201 and 110.302.

550.310 (E,Q) PROBABILITY AND STATISTICS FOR THE PHYSICAL AND INFORMATION SCIENCES AND ENGINEERING (4) Fishkind
Prereq: One year of calculus
An introduction to probability and statistics at the calculus level, intended for engineering and science students planning to take only one course on the topics. This course will be at the same technical level as 550.311. Students are encouraged to consider 550.420-430 instead.

550.311 (E,Q) PROBABILITY AND STATISTICS FOR THE BIOLOGICAL SCIENCES AND ENGINEERING (4) Fishkind
Prereq: One year of calculus; Coreq: Multivariable Calculus
An introduction to probability and statistics at the calculus level, intended for students in the biological sciences planning to take only one course on the topics. The basic scope of this course is similar to 550.310, with an emphasis on examples and problems in the biological sciences. This course will be at the same technical level as 550.310.
Students are encouraged to consider 550.420-430 instead. Combinatorial probability, independence, conditional probability, random variables, expectation and moments, limit theory, estimation, confidence intervals, hypothesis testing, tests of means and variances, and goodness-of-fit will be covered. Students cannot receive credit for both 550.310 and 550.311.

550.362 (E,Q) INTRODUCTION TO OPTIMIZATION II (4) Castillo  
Limit 60  Prerequisites: 550.361 and multivariable calculus  
An introductory survey of optimization methods, supporting mathematical theory and concepts, and application to problems of planning, design, prediction, estimation, and control in engineering, management, and science. Study of varied optimization techniques including linear programming, network-problem methods, dynamic programming, integer programming, and nonlinear programming. Appropriate for undergraduate and graduate students without the mathematical background required for 550.661.

550.371 (E,Q) CRYPTOLOGY & CODING (4) Scheinerman  
Limit 30 per section  
Prerequisites: 550.171 (110.204 with permission of instructor), linear algebra, computing experience  
A first course in the mathematical theory of secure and reliable electronic communication. Cryptology is the study of secure communication: How can we ensure the privacy of messages? Coding theory studies how to make communication reliable: How can messages be sent over noisy lines? Topics include finite field arithmetic, error detecting and error-correcting codes, data compressions, ciphers, one-time pads, the Enigma machine, one-way functions, discrete logarithm, primality testing, secret key exchange, public key cryptosystems, digital signatures, and key escrow.

550.386 (E,Q) SCIENTIFIC COMPUTING: DIFFERENTIAL EQUATIONS (4) Eyink  
Limit 40  
Prerequisites: Calculus III, and 550.291 or approved alternative (e.g., 110.201)  
A first course on computational differential equations and applications. Topics include floating-point arithmetic, algorithms and convergence, root-finding (midpoint, Newton, and secant methods), numerical differentiation and integration, and numerical solution of initial value problems (Runge-Kutta, multistep, extrapolation methods, stability, implicit methods, and stiffness). Theoretical topics such as existence, uniqueness, and stability of solutions to initial-value problems, conversion of higher order non-autonomous equations to systems, etc., will be covered as needed. Matlab is used to solve all numerical exercises; no previous experience with computer programming is required.

550.413 (E,Q) APPLIED STATISTICS AND DATA ANALYSIS (4) Staff  
Limit 60  
Prerequisite: 550.112 or equivalent  
An introduction to basic concepts, techniques, and major computer software packages in applied statistics and data analysis. Topics include numerical descriptive statistics, observations and variables, sampling distributions, statistical inference, linear regression, multiple regression, design
### APPLIED MATHEMATICS AND STATISTICS

of experiments, nonparametric methods, and sample surveys. Real-life data sets are used in lectures and computer assignments. Intensive use of statistical packages such as S+ to analyze data.

**550.426 (E,Q)**

**STOCHASTIC PROCESSES I (4)**

Fall Limit 50  Prereq: 550.420

Mathematical theory of stochastic processes. Emphasis on deriving the dependence relations, statistical properties, and sample path behavior including random walks, Markov chains (both discrete and continuous time), Poisson processes, martingales, and Brownian motion. Applications that illuminate the theory.

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<tr>
<th>Lec.</th>
<th>Sec. 01</th>
<th>MW 4:50pm</th>
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**550.430 (E,Q)**

**INTRODUCTION TO STATISTICS (4)**

Jedynak  Limit 75 per section

Prereq: 550.420

Sec. 01 – Meant for undergraduates

Sec. 02 – Meant for graduates

Introduction to the basic principles of statistical reasoning and data analysis. Emphasis on techniques of application. Classical parametric estimation, hypothesis testing, and multiple decision problems; linear models, analysis of variance, and regression; nonparametric and robust procedures; decision-theoretic setting, Bayesian methods.

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<th>Lec.</th>
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**550.435 (Q,N)**

**BIOINFORMATICS & STATISTICAL GENETICS (3)**

Staff  Limit 50  Prereq: 550.310, 550.311 or equivalent

Biological research has evolved to the point where complex quantitative tools are playing an ever increasing role. The aim of this course is to survey various computational and statistical methodologies that have been put into play in the analysis of biological data to better understand biological phenomena. A large spectrum of biological applications used to motivate the choice of topics. Probabilistic methods, as well as algorithmic ideas related to the assembly, alignment, and matching of DNA sequences, will be developed, and statistical inference methods for making genotype to phenotype connections will be presented.

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<th>Sec. 01</th>
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**550.438 (E,Q)**

**STATISTICAL METHODS FOR COMPUTER INTRUSION DETECTION (3)**

Marchette  Limit 40  Prereq: 550.310 or 550.311, or equivalent

This course will give an introduction to the data and methodologies of computer intrusion detection. The focus will be on statistical and machine learning approaches to detection of attacks on computers. Topics will include network monitoring and analysis, including techniques for studying the Internet, and estimating the number and severity of attacks; network-based attacks such as probes and denial of service attacks; host-based attacks such as buffer overflows and race conditions; malicious code such as viruses and worms. Statistical pattern recognition methods will be described for the detection and classification of attacks. Techniques for the visualization of network data will be discussed. The book will be supplemented with readings of various articles. Cross-listed with JHUISI

| Sec. 01 | W 1-4 |

**550.442 (E,Q)**

**INVESTMENT SCIENCE (4)**

Tzitzouris  Limit 60 per section

Prereq: One year of calculus, an introductory course in probability and statistics (such as 550.310, 550.311) or its equivalent; some familiarity with optimization is desirable but not

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<td>MW 5:30-6:45pm</td>
<td>Th 12</td>
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necessary. Intended for upper-level undergraduate and graduate students, this course offers a rigorous treatment of the subject of investment as a scientific discipline. Mathematics is employed as the main tool to convey the principles of investment science and their use to make investment calculations for good decision-making. Topics covered in the course include the basic theory of interest and its application to fixed-income securities, cash flow analysis and capital budgeting, mean-variance portfolio theory, and the associated capital asset pricing model, utility function theory and risk, analysis, derivative securities and basic option theory, portfolio valuation. The student is expected to be comfortable with the use of mathematics as a method of deduction and problem solving.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Units</th>
<th>Sections</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>550.444 (E,Q)</td>
<td>MODELING AND ANALYSIS OF SECURITIES AND FINANCIAL MARKETS (4) Audley</td>
<td>Limit 60</td>
<td>3.5</td>
<td>T 1-3 F (TBA)</td>
<td>Sec. 01</td>
<td>MTW 4</td>
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<tr>
<td>550.457 (E,Q)</td>
<td>TOPICS IN OPERATIONS RESEARCH APPLICATIONS TO SPORTS (4) Goldman</td>
<td>Limit 40</td>
<td>3.5</td>
<td>Sec. 01 MTW 4</td>
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<tr>
<td>550.472 (E,Q)</td>
<td>GRAPH THEORY (4) Schinerman</td>
<td>Limit 40</td>
<td>3.5</td>
<td>MTW 10 Th 10</td>
<td>Sec. 01</td>
<td>MTW 11 Th 11</td>
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<tr>
<td>550.486 (E,Q)</td>
<td>ASYMPTOTIC METHODS (4) Towsaw</td>
<td>Limit 50</td>
<td>3.5</td>
<td>MTW 11 Th 11</td>
<td>Sec. 01</td>
<td>MTW 11 Th 11</td>
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<td>550.500</td>
<td>UNDERGRADUATE RESEARCH Staff Reading, research, or project work for undergraduate students. Pre-arranged individually between students and faculty.</td>
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<td>550.600</td>
<td>DEPARTMENT SEMINAR F30 Limit 50 A variety of topics discussed by speakers from within and outside the university. Required of all resident department graduate students.</td>
<td>Limit 50</td>
<td>3.5</td>
<td>Th 3-5</td>
<td>Sec. 01</td>
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<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Instructor</td>
<td>Prerequisites/Notes</td>
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<td>550.621</td>
<td>Probability Theory II</td>
<td>Priebe</td>
<td>Limit 45 Prereq: 550.620, 310.405, or equivalents. Probability at the level of measure theory, focusing on limit theory. Modes of convergence, Poisson convergence, three-series theorem, strong law of large numbers, continuity theorem, central limit theorem, Berry-Esseen theorem, infinitely divisible and stable laws.</td>
<td>Lec. 01</td>
<td>MW</td>
<td>1:30-2:45</td>
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<tr>
<td>550.631</td>
<td>Statistical Theory II</td>
<td>Priebe</td>
<td>Limit 45 Prereq: 550.630 Advanced concepts and tools fundamental to research in mathematical statistics and statistical inference: asymptotic theory, optimality, various mathematical foundations.</td>
<td>Sec. 01</td>
<td>TTh</td>
<td>10:15-12:15</td>
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<tr>
<td>550.640</td>
<td>Machine Learning</td>
<td>Spall</td>
<td>Limit 40 Prereq: 550.430 This course will focus on theoretical and practical aspects of statistical learning. We will review a collection of learning algorithms for classification and regression estimation, including linear methods, kernel methods, tree-based and boosting methods; we will also discuss unsupervised methods for linear and nonlinear data reduction and clustering. We will introduce fundamental concepts of the theory of model selection and validation: bias/variance dilemma, penalty methods, and some measures of complexity; the course will also include standard validation algorithms, like cross-validation and bootstrap.</td>
<td>Sec. 01</td>
<td>MW</td>
<td>2:30-3:45</td>
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<tr>
<td>550.662</td>
<td>Optimization Algorithms</td>
<td>Han</td>
<td>Limit 45 Prereq: 550.661 Design and analysis of algorithms for linear and nonlinear optimization. The revised simplex method, the primal-dual algorithm, algorithms for network problems, first- and second-order methods for nonlinear problems, quadratic programming techniques, and methods for constrained nonlinear problems.</td>
<td>Lec. 01</td>
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<tr>
<td>550.672</td>
<td>Graph Theory</td>
<td>Scheinerman</td>
<td>Limit 45 Prereq: Linear Algebra An introduction to graph theory at the graduate level. Meets concurrently with 550.472. See 550.472 for course description.</td>
<td>Lec. 01</td>
<td>MTW</td>
<td>10:30</td>
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<tr>
<td>550.681</td>
<td>Numerical Analysis</td>
<td>Han</td>
<td>Limit 45 Prereq: Multivariable calculus, linear algebra, computing experience; Coreq: 110.405 Mathematical formulation and analysis of numerical algorithms. Brief review of topics in elementary numerical analysis such as floating-point arithmetic, Gaussian elimination for linear equations, interpolation and approximation. Core topics to be covered: numerical linear algebra including eigenvalue and linear least-squares problems, iterative algorithms for nonlinear equations and least-squares problems, and convergence theory of numerical methods. Other possible topics: sparse matrix computations, numerical solution of partial differential equations, finite element methods, and parallel algorithms.</td>
<td>Lec. 01</td>
<td>MTW</td>
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<tr>
<td>550.700</td>
<td>Master’s Research</td>
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<td>Reading, research, or project work for Master’s level students. Arranged individually between students and faculty.</td>
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<tr>
<td>550.730</td>
<td>Topics in Statistics</td>
<td>Spall</td>
<td>Limit 45 Prereq: Matrix Theory and</td>
<td>Sec. 01</td>
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<td>2-3:30</td>
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</table>
graduate course in probability (should have prior exposure to maximum likelihood & Bayes’ Rules)
Roundtable course covers maximum likelihood (ML) and Markov chain Monte Carlo (MCMC), including EM (expectation-maximization) and variants, Fisher information, standard MCMC and popular extensions, and Monte Carlo algorithms for ML.

550.735 STATISTICAL PATTERN RECOGNITION
Prerequisite: Limit 45
This course will cover topics in classifier design and dimensionality reduction from a statistical perspective.

550.800 DISSERTATION RESEARCH
Staff, Limit 20 per section
Sec. 01-09
Note: Section corresponds to team number

550.810 PROBABILITY & STATISTICS SEMINAR
Staff, Limit 20
Sec. 01-09

550.865 OPTIMIZATION & DISCRETE MATH SEMINAR
Staff, Limit 20
Sec. 01-09

BIOMEDICAL ENGINEERING

580.112 (E,N) BME DESIGN GROUP (3)
Allen, Limit 10 per section
A two-semester course sequence where freshmen work with groups of BME upperclassmen mentors, and learn to use engineering principles to solve design problems that are biological, physiological, and/or medical. Freshmen are expected to use the information content being taught in calculus, physics, and chemistry and apply this knowledge to the solution of practical problems encountered in biomedical engineering.

580.202 (E,S) BME IN THE REAL WORLD (1)
Popel, Limit 100
Open only to engineering students. A series of weekly lectures to inform students about careers in biomedical engineering and to discuss technological, social, ethical, legal, and economic issues relevant to the profession. Topics include academic careers in biomedical engineering, biomedical engineering in industry (large corporations to sole entrepreneurship), health care delivery, ethical issues, legal issues (patenting, licensing, product liability), standards and government regulations, and economic issues in biomedical engineering industry (start-up companies, global businesses).

580.212 (E,N) BME DESIGN GROUP (3)
Allen, Limit 10 per section, Sophomore-level version of 580.111-112. Permission of course directors required
Sec. 01-09
Note: Section corresponds to team number

580.222 (E,N) SYSTEMS AND CONTROLS (4)
Miller/Fadul, Limit 20 per section
Prerequisite: 171.102, Physics II and 110.302 Differential equations. An introduction to linear systems: analysis, stability and control. Topics include first and second order systems, linear time invariant discrete and continuous systems, convolution, Fourier series, Fourier transforms, Laplace transforms, stability of linear systems, input output and state space representation of
BIOMEDICAL ENGINEERING

linear systems, stability, observability, controllability, and PID controller design.

580.223 (E) MODELS AND SIMULATIONS (4)
Lec. MW 4-5:30
Sec. 01 T F 9
02 F 10
03 F 11
04 F 12
05 F 1
06 F 2
Pre: 550.291 or equiv.

580.302 (E,S) CAREERS IN BIOMEDICAL ENGINEERING (1)
Lec. Sec. 01 T 4-5:30
Popel Limit 50
Junior/Senior Engineers only
See description for 580.202. This course is designed for upperclassmen that wish to meet with weekly speakers to discuss careers issues.

580.312 (E,N) BME DESIGN GROUP (3)
Allen Limit 5 per section
A two semester course sequence where juniors and seniors work with a team leader and a group of BME freshmen and sophomores, to solve open-ended problems in biomedical engineering. Upperclassmen are expected to apply their general knowledge and experience, and their knowledge in their concentration area, to teach lower classmen and to generate the solution to practical problems encountered in biomedical engineering.
Permission of course directors required

580.412 (E,N) SYSTEMS BIOENGINEERING II (4)
Shadmehr Limit 24 per section
A quantitative, model-oriented approach to the study of the nervous system. Topics include functional anatomy of the central and autonomic nervous systems, neurons and networks, learning and memory, structure and function of the auditory and visual systems, motor systems, and neuro-engineering.

580.424 SYSTEMS BIOENGINEERING LAB II (2)
Haase Coreq: 580.422
Lec. MWF 4
Sec. 01 Th 2-3:30
02 T 4-5:30
03 T 4-5:30
04 T 7-8:30pm
Pre: 580.422

580.448 (E,N) BIOMECHANICS: CELLS AND ORGANISMS (1)
Sun/Spector Limit 20
Prereq. Intro. Physics, Calculus I and II and Linear Algebra (preferred)
Mechanical aspects of the cell are introduced using the concepts in continuum mechanics. Discussion of the role of proteins, membranes and cytoskeleton in cellular function and how to describe them using simple mathematical models.
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<tr>
<td>580.452 (E,N)</td>
<td>CELL AND TISSUE ENGINEERING LAB (2) Haase  Limit 8 per section $100 Lab Fee  This laboratory course will consist of three experiments that will provide students with valuable hands-on experiences in cell and tissue engineering. Experiments include the basics of cell culture techniques, gene transfection and metabolic engineering, basics of cell-substrate interactions I, cell-substrate interactions II, and cell encapsulation and gel contraction.</td>
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<td>580.466 (E,Q)</td>
<td>STATISTICAL METHODS IN IMAGING (3) Jedynak  Limit 20  Prerequisites: 110.202 and 550.310/eqiv. Denoising, segmentation, texture modeling, tracking, object recognition are challenging problems in imaging. We will present a collection of statistical models and methods in order to address these, including the E.M algorithm, Maximum Entropy Modeling, Markov Random Fields, Markov Chain Monte Carlo, Boltzmann Machines and Multilayer Perceptrons.</td>
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<td>580.470 (E,N)</td>
<td>BIOMEDICAL INSTRUMENTATION II: MOLECULES AND CELLS (3) Thakor  Prereq: 520.345  Limit 20  Senior/Grad students only, juniors with permission  This core design course will explore the fundamentals of molecular and cellular measurements, related technologies and their applications in scientific research. Course will include a guided lab.</td>
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<td>580.472 (E)</td>
<td>MEDICAL IMAGING SYSTEMS (3) Prince  Limit 30  Prereq: 520.214  An introduction to the physics, instrumentation, and signal processing methods used in general radiography, X-ray computed tomography, ultrasound imaging, magnetic resonance imaging, and nuclear medicine. The primary focus is on the methods required to reconstruct images within each modality, with emphasis on the resolution, contrast, and signal-to-noise ratio of the resulting images. Cross-listed with Neuroscience and co-listed with Electrical and Computer Engineering (520.432)</td>
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<td>580.491 (E,N)</td>
<td>LEARNING THEORY (3) Shadmehr  Limit 10  Prereq: Probability and linear algebra. This course introduces the probabilistic foundations of learning theory. We will discuss topics in regression, estimation, Kalman filters, Bayesian learning, classification, reinforcement learning and active learning. Our focus is on iterative rather than batch methods for parameter estimation. Our aim is to use the mathematical results to model learning processes in the biological system.</td>
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<td>580.502</td>
<td>FRESMEN/SOPHOMORE RESEARCH  Staff  Practicum in Biomedical Engineering Research projects or engineering design projects under the supervision of any member of the BME faculty.</td>
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<td>580.512</td>
<td>FRESMEN/SOPHOMORE INDEPENDENT STUDY  Directed readings or other literature research under the direction of any member of the BME faculty.</td>
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<tr>
<td>580.532</td>
<td>JUNIOR/SENIOR RESEARCH  Research projects or engineering design projects under the supervision of any member of the BME faculty.</td>
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580.542  JUNIOR/SENIOR INDEPENDENT STUDY  Directed readings or other literature research under the direction of any BME faculty member.

580.580  SENIOR DESIGN PROJECT  Perm Req d. Allen  Independent or team design project to design and evaluate a system. The design should demonstrate creative thinking and experimental skills, and must draw upon advanced topics of biomedical and traditional engineering. Project proposal and permission of Dr. Robert Allen required and must be approved by 2/13/07

580.602  TOPICS IN BIOMEDICAL ENGINEERING  Shadmehr  Open to doctoral students in BME. Limit 20  Advanced papers and topics in systems bioengineering will be surveyed in a three-semester sequence. Topics are thematically related to those covered in the Systems Bioengineering course. Topics, as they relate to the ongoing research in the Whitaker Biomedical Engineering Institute, will be introduced by WBMEI faculty. Students are required to present an original research proposal based on one of the topics covered in the course. This course is required of all BME first-year PhD students.

580.610  COMPUTATIONAL FUNCTIONAL GENOMICS  Goutsias  Limit 5  Co-listed as 520.610

580.629  TOPICS IN SYSTEMS NEUROSCIENCE  Wang  Limit 30

580.650  THEORETICAL NEUROSCIENCE  Wang  Limit 20

580.651  INTRODUCTION TO NONLINEAR DYNAMICS  Shadmehr  Limit 20  Prereq: Basic knowledge of signals and systems or permission of the instructor  This course is designed for students who may be interested in applying the techniques of nonlinear dynamics and chaos to the analysis of physiological data. Topics covered will include fractals, strange attractors, bifurcations, state-space attractor reconstruction, Poincare sections, dimension calculations, Lyapunov exponents, entropy, tests for determinism, nonlinear forecasting. Examples will be drawn from studies in cardiology, brain function, and the oculomotor system. Organizational meeting Thurs., 1/25 at 3pm (Traylor 709 – School of Medicine)

580.670  BIOMEDICAL INSTRUMENTATION II  Thakor  Limit 20  Senior/Grad students only, juniors with permission

580.672  BIOSENSING AND BIOMEMS  J. Wang  Limit 15  Co-listed as 580.672

580.691  LEARNING THEORY  Shadmehr  Limit 10

580.702  NEUROENGINEERING SEMINAR  Thakor  Limit 20  PhD students only  Neuroengineering represents the application of engineering principles to develop systems for neurological research and clinical applications. Examples of research in this area includes design of instrumentation for brain monitoring, development of signal processing methods to analyze brain rhythms, contemporary imaging methods ranging from optical/CT/MRI, use of mini and nanotechnologies to probe from neurons and brain, and development and application of neural stimulators, prostheses, and deep brain stimulations and robotic/image-guided therapeutic
devices. This two semester course will have one hour long weekly lectures and seminars by training program faculty (from BME, EE, Radiology, Neurology and Neurosurgery). During the second semester, the students will then engage in a short project of clinical (or scientific) significance to increase awareness of the literature, work with the faculty members and their lab and gain hands-on experience.

580.802 RESEARCH IN BIOMEDICAL ENGINEERING Staff
Directed research for MSE and PhD students.

CHEMICAL AND BIOMOLECULAR ENGINEERING

540.203 (E) ENGINEERING THERMODYNAMICS (3) Freschette
Lec. Sec. MTW9
Limit 125 Prereq: 110.202; Coreq: 030.102, 171.101 Formulation and solution of material, energy, and entropy balances with an emphasis on open systems. A systematic problem-solving approach is developed for chemical and biomolecular process-related systems. Extensive use is made of classical thermodynamic relationships and constitutive equations for one and two component systems. Applications include the analysis and design of engines, refrigerators, heat pumps, compressors, and turbines.

540.301 (E) KINETIC PROCESSES (4) Hanes
Lec. Sec. MTW 11,

540.303 (E,N) TRANSPORT PHENOMENA I (4) Stebe
Lec. Sec. MTThF 3
Limit 115 Coreq: Differential Equations Introduction to the field of transport phenomena. Molecular mechanisms of momentum transport (viscous flow), energy transport (heat conduction), and mass transport (diffusion). Isothermal equations of change (continuity, motion, and energy). The development of the Navier-Stokes equation. The development of non isothermal and multi component equations of change for heat and mass transfer. Exact solutions to steady state, isothermal unidirectional flow problems, to steady state heat and mass transfer problems. The analogies between heat, mass, and momentum transfer are emphasized throughout the course.

540.306 (E) CHEMICAL AND BIOLOGICAL SEPARATIONS (4) Betenbaugh
Lec. Sec. TTh 2-4
Limit 65 Prereq: 540.303, 540.202 This course covers staged and continuous-contacting separations processes critical to the chemical and biochemical industries. Processes considered include distillation, liquid-liquid extraction, gas absorption, leaching chromatography, crystallization, precipitation, filtration, and drying. Particular emphasis is placed on the biochemical uses of these processes and consequently on how the treatment of these processes differs from the more traditional approach.
This course guides the student through the contrasting aspects of product design and of process design. Product design concerns the recognition of customer needs, the creation of suitable specifications, and the selection of best products to fulfill the needs. Process design concerns the quantitative description of processes, which serve to produce many commodity chemicals, the estimation of process profitability, and the potential for profitability improvement through incremental changes in the process. Students work in small teams to complete a major project demonstrating their understanding of and proficiency in the primary objectives of the course. Students report several times both orally and in writing on their accomplishments.

Cross-listed with Materials Science and Engineering and Interdepartmental

Sec. 01
TTh 1-2:15
### CHEMICAL AND BIOMOLECULAR ENGINEERING

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>540.522</td>
<td>INDEPENDENT RESEARCH</td>
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<tr>
<td>540.601</td>
<td>CHEMICAL ENGINEERING SEMINAR</td>
<td>Gray</td>
<td>50</td>
<td>Sec. 01</td>
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<tr>
<td>360.644</td>
<td>INTERFACIAL PHENOMENA IN NANOSTRUCTURE MATERIALS</td>
<td>Stebe/Erlebacher</td>
<td>15</td>
<td>Sec. 01</td>
<td>TTh 1-2:15</td>
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All materials properties of materials change when encountered or fabricated with nanoscale structure. In this class, we will examine how the properties of nanostructured materials differ from their macroscopic behavior, primarily due to the presence of large interfacial areas relative to the characteristic volume scale. General topics include the structure of nanostructured materials (characterization & microscopy), thermodynamics (effects of high curvatures and surface elasticity), kinetics and phase transformations (diffusion and morphological stability), and electronic properties (quantum confinement and effects of dimensionality). Graduate level of 360.494 Cross-listed with Materials Science and Engineering and Interdepartmental.

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<th>Course Code</th>
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<tr>
<td>540.640</td>
<td>MICRO &amp; NANOTECHNOLOGY</td>
<td>Gracia</td>
<td>20</td>
<td>Sec. 01</td>
<td>MW 5:30-6:30</td>
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Micro/Nanotechnology is the field of fabrication, characterization and manipulation of extremely small objects (dimensions on the micro to nanometer length scale). Microscale objects, because of their small size are expected to be at the frontier of technological innovation for the next decade. This course will include a description of the materials used in nanotechnology, methods employed to fabricate nanoscale objects, techniques involved in characterizing and exploiting the properties of small structures, and examples of how this technology is revolutionizing the areas of Electronics & Medicine. Same class as 540.440.

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<th>Course Code</th>
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<tr>
<td>540.642</td>
<td>ADVANCED TOPICS IN BIOCHEMICAL KINETICS</td>
<td>Betenbaugh/ Hance/ Ostermeier</td>
<td>15</td>
<td>Sec. 01</td>
<td>TTh 4-5:15</td>
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<th>Course Code</th>
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<tr>
<td>540.660</td>
<td>DESIGN OF BIOLOGICAL MOLECULES AND SYSTEMS</td>
<td>Ostermeier/ Gray</td>
<td>20</td>
<td>Sec. 01</td>
<td>MW 2:30-3:45</td>
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Prelq: 020.305 & 020.306 or permission of instructor. Current research problems in biomolecular engineering will be used to illustrate principles in the design of biomolecules (i.e. protein engineering, RNA/DNA engineering), metabolic pathways, signaling pathways, genetic circuits and complex biological systems including cells. Emphasis will be placed on experimental approaches to design (especially those approaches that employ the principles of evolution). Graduate level of 540.460.

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<th>Course Code</th>
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<tbody>
<tr>
<td>540.801</td>
<td>GRADUATE RESEARCH</td>
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<tr>
<td>540.811</td>
<td>INDEPENDENT STUDY</td>
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### CIVIL ENGINEERING

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<tr>
<th>Course Code</th>
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<th>Limit</th>
<th>Section</th>
<th>Days</th>
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<tbody>
<tr>
<td>560.141</td>
<td>PERSPECTIVES ON THE EVOLUTION OF STRUCTURES</td>
<td>Schuler</td>
<td>35</td>
<td>Sec. 01</td>
<td>MT 3</td>
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(W) Section 02 | MT 3  | W 3  |

Students will be provided the tools to answer this question for themselves through a study of the history of the design of buildings and bridges throughout the world from both engineering and architectural/aesthetic perspectives. Simple math required (no calculus). Note: sections meet together for lecture (MT) and separately for discussion (W). Cross-listed with General Engineering.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Prerequisites</th>
<th>Sections</th>
<th>Times</th>
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<tbody>
<tr>
<td>560.202 (E,N)</td>
<td>DYNAMICS (4) Dalrymple Limit 75 Basic principles of classical mechanics applied to the motion of particles, system of particles, and rigid bodies. Kinematics: analytical description of motion, rectilinear and curvilinear motions of particles, rigid body motion. Kinetics: force, mass, and accelerations, energy, and momentum principles. Introduction to vibrations.</td>
<td>Dalrymple</td>
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<td>Sec. 01 MTWTh 2</td>
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<tr>
<td>560.206 (E,N)</td>
<td>SOLID MECHANICS AND THEORY OF STRUCTURES (4) Staff Limit 80 Prereq: 560.201 Application of the principles of structural analysis for statically determinate and indeterminate structures (trusses, cables, beams, arches, and frameworks). Calculation of internal forces and stresses in members and structures. Determination of deflections by equilibrium and energy methods. Analysis of indeterminate structures by flexibility and stiffness solutions.</td>
<td>Staff</td>
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<td>Sec. 01 MTW, Th 12</td>
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<tr>
<td>560.320 (E)</td>
<td>STEEL STRUCTURES (3) Staff Limit 30 Prereq: 560.301 Principles, analysis, and methodologies for conceptual and detailed design of steel structures. Emphasis on the role of mechanics in modern structural engineering design specifications with a focus on load and resistance factor design. Topics include behavior and design of hot-rolled and cold-formed steel connections, members, frames, and advanced analysis techniques.</td>
<td>Staff</td>
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<td>Sec. 01 MW 4-5:30</td>
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<tr>
<td>560.330 (E)</td>
<td>FOUNDATION DESIGN (3) Anandarajah Limit 30 Prereq: 560.305 Application of soil mechanic theory and soil test results to the analysis and design of foundations for structures; retaining walls; embankments; design of pile and shallow footing foundations, slope stability.</td>
<td>Anandarajah</td>
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<td>Sec. 01 ThF 10:30-12</td>
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<tr>
<td>560.350 (E)</td>
<td>DESIGN AND SYNTHESIS (3) Staff Limit 25 Departmental majors only Seniors are organized into a consulting engineering firm to prepare and design a project. Students execute the design process from conceptual design through the preparation of drawings and specifications. Facets of the design process include building technology, structural engineering, geotechnical engineering, green design in accordance with USBC LEED guidelines, and project budgeting and scheduling. The “student firm” prepares final design submittal and makes a formal presentation.</td>
<td>Staff</td>
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<td>Sec. 01 Th 11-1:45</td>
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<tr>
<td>560.380 (E)</td>
<td>INTRODUCTION TO OCEAN SCIENCE AND ENGINEERING (3) Show Limit 20 Fundamentals of hydrodynamics, waves, sea loads and wind loads on structures, flow past bluff bodies, and flow-induced structure vibrations, with applications in civil engineering practice in coastal-ocean environment.</td>
<td>Show</td>
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<td>Sec. 01 ThF 9-10:30</td>
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<tr>
<td>560.435 (E)</td>
<td>PROBABILITY AND STATISTICS IN CIVIL ENGINEERING (3) Igusa Limit 50 Prereq: 110.109 Development and applications of the analysis of uncertainty, including basic probability, statistics and decision theory, in civil engineering areas of soil mechanics, structures, transportation and water resources.</td>
<td>Igusa</td>
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<td>Sec. 01 MTW 12</td>
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<td>560.492 (E,Q)</td>
<td>SEMINAR IN CIVIL ENGINEERING - JUNIORS (3) Staff</td>
<td>Staff</td>
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<td>Sec. 01 T 4</td>
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<tr>
<td>560.494 (E,Q)</td>
<td>SEMINAR IN CIVIL ENGINEERING – SENIORS (3) Staff</td>
<td>Staff</td>
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<td>Sec. 01 T 4</td>
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<td>560.692</td>
<td>CIVIL ENGINEERING SEMINAR - GRADUATE STUDENTS Staff</td>
<td>Staff</td>
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<td>Sec. 01 T 4</td>
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<tr>
<td>560.730</td>
<td>FINITE ELEMENT METHODS Anandarajah Limit 15 The basic concepts of the FEM are presented for one, two-, and three-dimensional problems.</td>
<td>Anandarajah</td>
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<td>Sec. 01 ThF 1:30-3</td>
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CIVIL ENGINEERING

three-dimensional boundary value problems (BVPs). Problems from heat conduction and solid mechanics are addressed. The key topics include relationships between strong, weak, and variational statements of BVPs, weighted residual methods with an emphasis on the Galerkin method, specialization of Galerkin approximations of weak statements and Ritz approximations of variational statements to obtain finite element formulations, specific element formulations, convergence properties, solutions of linear systems of equations, and time-dependent problems. Co-listed as 530.730

560.760 STRUCTURAL STABILITY Schafer

560.783 HYDRODYNAMIC LOADS ON STRUCTURES AND SHIPS Shen
Limit 30: Hydrodynamics with applications in ocean vehicles, structures, and aquatic animal propulsion. Waves, winds and currents in sea environment. Interactions between waves and floating bodies. Sea loads on offshore structures.

560.785 COASTAL AND OCEAN MODELING Dalrymple
Limit 15: Course discusses the numerical and physical modeling techniques used in coastal and ocean engineering, including finite difference, finite and boundary element methods, and particle methods. Some aspects of parallel computing will be included.

560.787 STRUCTURAL OPTIMIZATION Guest
Limit 30: Introduction to structural optimization with focus on topology optimization using finite element methods. Applications to design of structural and mechanical systems and use of inverse homogenization to design material macrostructures that yield extreme/prescribed properties.

560.836 GRADUATE RESEARCH
Sec. 01 – Staff
Sec. 02 – Dalrymple
Sec. 04 – Ghaniani
Sec. 09 – Anandarajah
Sec. 11 – Igou
Sec. 15 – Guest

COMPUTER SCIENCE

600.101 (E) COMPUTER FLUENCY (4) Houlahan
Limit 15 per section: This course replaces the older version 600.101 Computer Literacy, and incorporate some topics from 600.113 Internet as well. Students will become fluent with information technology through coverage of basic underlying concepts and use of common applications. Concepts will include the building blocks of computer systems and software, as well as historical perspectives and social implications. Students will learn basic and selected advanced skills with MS Office (word processing, spreadsheets, presentations, databases), as well as webpage design with programming in JavaScript, and Unix operating system basics. The goal is to empower students so that they remain skilled computer users and will have confidence and success learning and applying new technologies on their own in the future.
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<th>Course Code</th>
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<th>Instructor</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>600.104 (E)</td>
<td>Computer Ethics (1) Kosaraju</td>
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<td>Sec. 01</td>
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<td>Computer Science majors only</td>
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<td>An examination of a variety of topics regarding</td>
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<td>policy, legal, and moral issues related to the</td>
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<td>computer science profession itself and to the</td>
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<td>proliferation of computers in all aspects of</td>
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<td>society, especially in the era of the Internet.</td>
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<td>Course will cover various general issues related</td>
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<td>to ethical frameworks and apply those frameworks</td>
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<td>more specifically to the use of computers and</td>
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<td>the Internet. Topics include: privacy issues,</td>
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<td>computer crime, intellectual property law —</td>
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<td>specifically copyright and patent issues,</td>
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<td>globalization, and ethical responsibilities</td>
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<td>for computer science professionals</td>
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<tr>
<td>600.107 (E)</td>
<td>Introduction to Programming in Java (3)</td>
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<td></td>
<td>Houlahan Limit 120 Prereq: familiarity with</td>
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<td>computers An introduction to fundamental</td>
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<td>programming concepts and techniques in Java.</td>
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<td>Intended for all who plan to use computer</td>
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<td>programming in their studies and careers.</td>
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<td>Topics include: control structures, arrays,</td>
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<td>functions, recursion, dynamic memory allocation,</td>
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<td>simple data structures, files, and structured</td>
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<td>program design. Elements of object-oriented</td>
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<td>design and programming are also introduced.</td>
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<td>Students without prior exposure are</td>
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<td>strongly advised to also take 600.108.</td>
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<tr>
<td>600.108 (E)</td>
<td>Introduction to Programming Lab (1)</td>
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<td>Sec. 01</td>
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<td>Houlahan Limit 15 per section Coreq: 600.107</td>
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<td>W 6-9 pm</td>
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<td>Satisfactory: Unsatisfactory only The purpose</td>
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<td></td>
<td>of this course is to give novice programmers</td>
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<td>extra hands-on practice with guided supervision</td>
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<td>Students will work in pairs each week to</td>
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<td>develop working programs, with checkpoints for</td>
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<td>each development phase.</td>
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<tr>
<td>600.120 (E)</td>
<td>Intermediate Programming (4)</td>
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<td>Froelich Limit 20 per section Prereq: 600.107</td>
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<td></td>
<td>or 600.109 This course covers intermediate</td>
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<td>to advanced object-oriented programming in both</td>
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<td>C and C++. Focus is on programming techniques,</td>
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<td>class design, and the use of class libraries.</td>
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<td>Topics covered: polymorphism, overloading,</td>
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<td>inheritance, pointers, dynamic memory allocation,</td>
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<td>templates, collections, exceptions, and others</td>
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<td>as time permits. Students are expected to learn</td>
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<td>syntax and low-level language features</td>
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<td>independently. Coursework involves significant</td>
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<td>programming projects in both languages.</td>
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<tr>
<td>600.211 (E)</td>
<td>UNIX Systems Programming (3)</td>
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<td>3</td>
<td>Sec. 01</td>
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<td>Froelich Limit 40 Prereq: 600.120 This course</td>
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<td>MTW 11</td>
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<td></td>
<td>covers a variety of topics in UNIX programming,</td>
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<td>including process control, signal handling,</td>
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<td>daemon processes, and interprocess</td>
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<td>communication. Participants must be familiar</td>
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<td>with using the UNIX environment and be fluent in</td>
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<td></td>
<td>the C programming language.</td>
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<tr>
<td>600.226 (E)</td>
<td>Data Structures (3) Hager</td>
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<td>3</td>
<td>Sec. 01</td>
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<td></td>
<td>Limit 100 Prereq: 600.107 This course covers</td>
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<td>Th 9-10:15</td>
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<td>the design and implementation of data structures</td>
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<td>including arrays, stacks, queues, linked lists,</td>
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<td>binary trees, heaps, balanced trees (e.g. 2-3</td>
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<td>trees, AVL-trees) and graphs. Other topics</td>
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<td>include sorting, hashing, memory allocation,</td>
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<td>and garbage collection. Course work involves</td>
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<td>both written homework and Java programming</td>
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<td>assignments.</td>
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<td>600.316 (E)</td>
<td>Transaction Processing Systems (3)</td>
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<td>Sec. 01</td>
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<td>Berne Limited 20 Prereq: 600.315/415, 600.120</td>
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<td>Course covers the design and implementation of</td>
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<td>transaction processing and database systems.</td>
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<td>Topics include transaction semantics, write-ahead</td>
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<td>logging, memory</td>
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COMPUTER SCIENCE

management, checkpoints, concurrency control, replication, restart recovery, and distributed commit protocols. The course employs examples of advanced database applications to develop this material. Examples include Internet databases, TP monitors, multidatabases, and federated databases. Course work includes a project.

600.318 (E) OPERATING SYSTEMS (4) Doerrie/ Srirah Limit 20 Prereq: 600.120, 600.226, 600.333, 600.211 – recommended. Students may receive credit for 600.318 or 600.418 but not both. This course covers fundamental topics related to operating systems theory and practice. Topics include processor management, storage management, concurrency control, multi-programming and processing, device drivers, operating system components (e.g., file system, kernel), modeling and performance measurement, protection and security, and recent innovations in operating system structure. Course work includes the implementation of operating systems techniques and routines, and critical parts of a small but functional operating system.

600.325 (E) DECLARATIVE METHODS (3) Eisner Limit 40 Prereq: 600.226 & 600.271 & Calculus II Students get credit for 600.325 or 425, not both. Suppose you could simply write down a description of your problem, and let the computer figure out how to solve it. What notation could you use? What strategy should the computer then use? In this survey class, students learn to recognize when your problem is a special case of satisfiability, integer programming, rational pattern transduction, Bayesian network inference, or weighted logic programming. For each of these paradigms, students learn to reformulate hard problems in the required notation and apply off-the-shelf software that can solve *any* problem in that notation – including many of the problems found in other courses and in the real world. Students also gain some understanding of the general-purpose algorithms that power file software.

600.328 (E) COMPILING AND PROGRAM ANALYSIS (3) Froehlich Limit 30 Prereq. 600.120 and 600.226. Introduction to compiler design, including lexical analysis, parsing, syntax-directed translation, symbol tables, run-time environments, and code generation and optimization. Students are required to write a compiler as a course project.

600.335 (E) ARTIFICIAL INTELLIGENCE (3) Sheppard Limit 30 Prereq: 600.226, 550.171; Recommended: Linear Algebra, Prob/Stat Artificial intelligence (AI) is introduced by studying knowledge representation mechanisms, automated reasoning, automatic problem solvers and planners, production systems, game playing and machine learning. The class is recommended for all scientists and engineers with a genuine curiosity about the fundamental obstacles to getting machines to perform tasks such as deduction, learning, and planning and navigation.

600.344 (E) COMPUTER NETWORK FUNDAMENTALS (3) Tsouin Limit 60 Prereq: 600.333 or 600.433 or Perm. Req'd Students may receive credit for 600.344 or 600.444 but not both. This course considers intranet and communications issues. Topics covered include layered network architectures; the OSI model; bandwidth, data rates, modems, multiplexing, error detection/correction, switching; queuing models, circuit switching, packet switching; performance analysis of protocols, local...
COMPUTER SCIENCE

600.357 (E,Q) COMPUTER GRAPHICS (3) Kazhdan
Limit 20  Prereq: 600.120, 600.226, linear algebra, or Perm Req
Students may receive credit for 600.357 or 600.457, but not both.
This course introduces computer graphics techniques and
applications, including image processing, rendering, modeling and animation.
[Applications]

Sec. 01  MTW 11

600.402 (E) MEDICAL INFORMATICS (1)
Lehmann  Limit 30  Computers and
information technology has become major
forces in transforming American medicine.
Course discusses some of the new entities—
the computer-based patient record, clinical
practice guidelines, and digital libraries—
and their underlying technologies:
networks, databases, controlled
vocabularies, and decision analysis.
Course only meets for 4 weeks

Sec. 01  MW 4:5-5:15

600.416 (E) TRANSACTION PROCESSING
SYSTEMS (3) Barro  Limit 20
Prereq: 600.315-315, 600.320  Graduate
level version of 600.116.  [Systems]

Sec. 01  MTW 1

600.418 (E) OPERATING SYSTEMS (3)
 Doone/Shehur  Limit 10
Prereq: 600.226, 600.333-333, Graduate
level version of 600.118  Students may
receive credit for 600.318 or 600.418 but
not both.  [Systems]

Sec. 01  MTW 10

600.425 (E) DECLARATIVE METHODS (3)
Eisner  Limit 30  Prereq:  600.226, 600.271 and
Calculus II  Graduate level version of 600.325

Sec. 01  MTW 2

600.426 (E,Q) PROGRAMMING LANGUAGES (3)
Smith  Freshmen and Sophomores by
permission only  Limit 30  Prereq: 600.226
Functional, object-oriented, and other
language features are studied independent
of a particular programming language.
Students become familiar with these
features by implementing them. Most of the
implementations are in the form of small
language interpreters. Some type checkers
and a small compiler will also be written.
The total amount of code written will not
be overly large, as the emphasis is on
concepts. The ML programming language
is the implementation language used.
[Analysis]

Sec. 01  ThF 1:2-1:15

600.435 (E) ARTIFICIAL INTELLIGENCE (3)
Sheppard  Limit 10 plus CS Grads
Prereq: 600.226, 550.171  Recommended:
Linear Algebra, Prob/Stats  Graduate level
version of 600.335  [Applications]

Sec. 01  MTW 10

600.443 (E) SECURITY AND PRIVACY IN
COMPUTING (3) Dobos  Limit 50
Prereq: Basic course in operating systems
& networks  Perm. Req.  Lectures topics
will include Computer security, network
security, basic cryptography, system design
methodology, and privacy. There will be a
heavy workload, including written
homework, programming assignments,
exams and a comprehensive final. The class
will also include a semester-long project
that will be done in teams and will include
a presentation by each group to the class.
[Applications]  Cross-listed with JHUISI

Sec. 01  ThF 2:30-3:45

600.444 (E) COMPUTER NETWORKS (3) Tzorvi
Limit 60 plus CS Grads  Prereq: 600.333
or 600.433  Prereq  Students may receive credit for 600.444 or 600.445
but not both. Graduate level version of
600.444  [Systems]

Sec. 01  MTW 11

600.446 (E) COMPUTER INTEGRATED
SURGERY II (3) Taylor  Limit 20 plus
This weekly lecture/seminar course
addresses similar material to 600.445, but
covers selected topics in greater depth. In

Sec. 01  ThF 1:2-1:15
COMPUTER SCIENCE

addition to material covered in lectures/seminars by the instructor and other faculty, students are expected to read and provide critical analysis/presentations of selected papers in recitation sessions. Students taking this course are required to undertake and report on a significant term project under the supervision of the instructor and clinical end users. Typically, this project is an extension of the term project from 600.445, although it does not have to be. Grades are based both on the project and on classroom recitations. Students wishing to attend the weekly lectures as a 1-credit seminar should sign up for 600.452. Students may also take this course as 600.646. The only difference between 600.446 and 600.646 is the level of project undertaken. Typically, 600.646 projects require a greater degree of mathematical, image processing, or modeling background. Prospective students should consult with the instructor as to which course number is appropriate. Students may receive credit for 600.446 or 600.646, but not both. [Applications]

600.452 (E) COMPUTER INTEGRATED SURGERY SEMINAR II (1) Taylor Limit 30 Lecture version of 600.446 (no project) Prereq: 600.445 or Perm. Req’d Students may receive credit for 600.446 or 600.452, but not both. Sec. 01 ThF 1-2:15

600.457 (E,Q) COMPUTER GRAPHICS (3) Kazhdan Limit 10 plus CS grad Prereq: 600.120, 600.226, linear algebra or Perm. Req’d Graduate level version of 600.357. Students may receive credit for 600.357 or 600.457, but not both. Sec. 01 MTW 11

600.464 (E,Q) RANDOMIZED ALGORITHMS (3) Kosaraju Limit 30 Prereq: 600.363 or 600.463 Students may receive credit for 600.464 or 600.664, but not both. Selected topics in algorithm design and analysis such as advanced data-structures, amortization, graph algorithms, algebraic complexity, network flow, circulations, matching, randomization. [Analysis] Sec. 01 MTW 1

600.466 (E) INFORMATION RETRIEVAL AND WEB AGENTS (3) Yarowsky Limit 90 Prereq: 600.226 An in-depth, hands-on study of current information retrieval techniques and their application to developing intelligent WWW agents. Topics include a comprehesive study of current document retrieval models, title/keywords routing and filtering, document clustering, automatic indexing, query expansion, relevance feedback, user modeling, information visualization and usage pattern analysis. In addition, the course explores the range of additional language processing steps useful for template filling and information extraction from retrieved documents, focusing on recent, primarily statistical methods. The course concludes with a study of current issues in information retrieval and data mining on the World Wide Web. Topics include web robots, spiders, agents and search engines, exploring both their practical implementation and the economic and legal issues surrounding their use. [Analysis] Sec. 01 ThF 2:30-3:45

600.492 (E) COMPUTER SCIENCE WORKSHOP II Perm. Req’d When registering please use the following faculty section numbers: Sec. 01-30 TBA

[Applications]
ROBOCUP I (1) Hager  Limit 30
Prereq: 600.226, Calculus, Probability & Statistics. This course allows students to participate in the development of a robot soccer team. Students will work with a development team to improve some aspect of the team infrastructure, sensing, world modeling, or strategy components.

Sec. 01 T 4-5:45

ROBOCUP II (2) Hager  Limit 30
Prereq: 600.493 or permission
This course is for students who wish to manage a development team for robot soccer. Students will create and manage software projects related to robot soccer.

Sec. 01 T 4-5:45

INDEPENDENT STUDY - FRESHMEN & SOPHOMORES When registering please use faculty section numbers listed under 600.492

Sec. 01-30

INDEPENDENT STUDY – JUNIORS & SENIORS When registering please use faculty section numbers listed under 600.492

Sec. 01-30

UNDERGRADUATE RESEARCH When registering please use faculty section numbers listed under 600.492

Sec. 01-30

COMPUTER SCIENCE INTERNSHIP
When registering please use faculty section numbers listed under 600.492

Sec. 01-30

SENIOR HONORS THESIS
For computer science majors only, a continuation of 600.519.

Sec. 01-30

SENIOR THESIS IN COMPUTER INTEGRATED SURGERY (0-4) Taylor
Prereq: 600.445 or Perm. Req.

Sec. 01

COMPUTER SCIENCE SEMINAR Staff
Limit 200  Required for all CS grad students

Sec. 01 ThF 10:30-12

COMPUTER AND NETWORK FORENSICS Monrose  Limit 25
Prereq: Operating Systems and Systems Programming. This course exposes students to a myriad of fundamental concepts and techniques for recovering and inferring information in computer systems and networks. Topics include (but are not limited to) file system forensics, kernel-level rootkits and associated challenges, reconstructing malware evolution and dynamics, analysis of anonymization and privacy-preserving techniques, advanced network traceback, traffic classification,
COMPUTER SCIENCE

biometrics and digital evidence, data integrity and audit trail, secure remote logging, and system call introspection. A semester-long course project is required. Students will also be responsible for presenting and discussing selected research papers on topics pertinent to the course. Some familiarity with low-level system programming is assumed. [Applications] Cross-listed with JHU/IS.

600.641 SPECIAL TOPICS IN THEORETICAL CRYPTOGRAPHY Hohenberger
Limit 20 Prereq: prior course in crypto or security In this seminar, we will explore the foundations of modern cryptography. We will study how to formalize the security guarantee of a protocol and cover techniques for proving that a protocol meets a claimed guarantee. Some included topics will be zero-knowledge proofs, multiparty computation, program obfuscation, and anonymous authentication. An emphasis will be placed on major past results, recent progress and current open problems. The workload will not be heavy, but it will include a final research project. [Analysis] Cross-listed with JHU/IS.

600.642 ADVANCED CRYPTOGRAPHY PROTOCOLS Ateniese
Limit 20 Prereq: 600.442 or 600.443 This course will focus on advanced cryptographic protocols with an emphasis on open problems. [Applications] Cross-listed with JHU/IS.

600.646 COMPUTER INTEGRATED SURGERY II Taylor
Limit 20 Prereq: 600.445 or Perm. Req’d Students may receive credit for 600.446 or 600.646, but not both. Advanced version of 600.446. [Applications] Cross-listed with JHU/IS.

600.647 ADVANCED TOPICS IN WIRELESS NETWORKS Awerbuch
Limit 30 Prereq: 600.344/444, 600.363/463 or Perm. Req’d A survey of current research in wireless communication networks. These types of networks have been growing exponentially in the past several years and include a host of different network types: ad hoc, cell phone, access point, sensor, etc. The class will build understanding of all layers of wireless networking and the interactions between them (including: physical, data link, medium access control, routing, transport, and application). Topics discussed: security, energy efficiency, mobility, scalability, and their unique characteristics in wireless networks. [Systems or Analysis] Cross-listed as 520.666.

600.649 INFORMATION EXTRACTION FROM SPEECH AND TEXT Khudanpur
Limit 30 Prereq: 600.363 or 600.463 Students may receive credit for 600.464 or 600.649, but not both. Graduate level version of 600.464. [Analysis] Cross-listed as 520.666.
### COMPUTER SCIENCE

This course is focused on the state of the art in distributed systems research, networks, and the Internet. The course is managed as a discussion group where the professor and students present recent research topics, as well as design and implement useful semester-long projects.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Limit</th>
<th>Notes</th>
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<tbody>
<tr>
<td>600.671</td>
<td>SPECIAL TOPICS ON BIO-NANO COMPUTING</td>
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<td>Course covers nanotechnology, bio-nanotechnology, introductory structural biology, molecular bioengineering, DNA computing, molecular electronics, and related fields with a focus on the design, fabrication, use, and development of systems with molecular-scale components. Previous knowledge of chemistry or macromolecular structure is not required. Course is appropriate for graduate and advanced undergraduate students in engineering, computer science, chemistry, and information technology-related fields.</td>
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<td>[Applications]</td>
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<td>600.726</td>
<td>SEMINAR IN PROGRAMMING LANGUAGES</td>
<td>Smith</td>
<td>Perm. Req’d</td>
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<td>(Smith) Perm. Req’d</td>
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<td>This seminar course covers recent developments in the foundations of programming language design and implementation. Topics covered include type theory, process algebra, higher-order program analysis, and constraint systems. Students will be expected to present papers orally.</td>
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<td>600.745</td>
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<td>This weekly seminar will focus on research issues in computer integrated surgery, including subjects such as medical image analysis, statistical modeling, visualization, vision/sensing, surgical planning, medical robotics, and clinical application. The purpose of the course is to widen the knowledge and awareness of the participants in current research in these areas, as well as to promote greater awareness and interaction between multiple research groups within the University and beyond. The format of the course is informal presentation by a pre-eminent invited speaker, followed by free discussion.</td>
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<td>600.746</td>
<td>SEMINAR ON MEDICAL IMAGE ANALYSIS</td>
<td>Prince/Taylor</td>
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<td>(Prince/Taylor)</td>
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<td>A weekly seminar focusing on research issues in medical image analysis, including image segmentation, registration, statistical modeling, and applications. Also includes selected topics relating to medical image acquisition, especially where they relate to analysis. Course will provide the participants with a thorough background in current research in these areas, and promote greater awareness and interaction between multiple research groups within the University. Course format is informal. Students will read selected papers. Individual students will be assigned on a rotating basis to lead the discussion on particular papers or sections of papers. Co-listed with 520.746.</td>
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<td>600.757</td>
<td>SEMINAR IN COMPUTER GRAPHICS</td>
<td>Kazhdan</td>
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<td>A review of current research in computer graphics. Course meets for an hour once a week and one of the participants will lead the discussion for the week.</td>
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<td>600.765</td>
<td>SEMINAR IN NATURAL LANGUAGE PROCESSING</td>
<td>Eisner</td>
<td>Perm. Req’d</td>
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<td>(Eisner) Perm. Req’d</td>
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<td>A reading group exploring important current research in the field and potentially relevant material from related fields. Enrolled students are expected to present papers and lead discussion.</td>
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<td>600.802</td>
<td>DISSERTATION RESEARCH</td>
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<td>When registering please use faculty section numbers listed under 600.804.</td>
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COMPUTER SCIENCE
600.804 GRADUATE RESEARCH Perm. Req’d. When registering please use the following faculty section numbers:
Sec.  01    Masson
02    Kosaraju
03    Awerbuch
04    Taylor
05    Smith
06    Houlihan
07    Lehmann
08    Sheppard
09    Hager
10    Chirikjian
11    Khudhampur
12    Amir
13    Yarovksy
14    Cowan
15    Burns
16    Eisinger
17    Shapiro
18    Scheideler
19    Stanton
20    Ateniese
21    Babuin
22    Monrose
23    TERRIS
24    Scheinerman
25    Winslow
26    Kazhdan
27    Jelinek
28    Froehlich
29    Szalay
30    Kazanzides

600.810 INDEPENDENT STUDY
When registering please use faculty section numbers listed under 600.804 Perm. Req’d.

ELECTRICAL & COMPUTER ENGINEERING
520.142 (E,Q) DIGITAL SYSTEMS FUNDAMENTALS I
(3) Meyer  Limit 100  Number systems and computer codes, switching functions, minimization of switching functions, Quine - McCluskey method, sequential logic, state tables, memory devices, analysis, and synthesis of synchronous sequential devices.
Sec.  01    MTW 11

520.214 (E,Q) SIGNALS AND SYSTEMS I (4) Cooper
Prereq: 520.213  Coreq: 110.202  Limit 28 per section  An introduction to discrete-time and continuous-time signals and systems covers representation of signals and linear time-invariant systems and Fourier analysis.
Lec.  Sec.  01    MTW 2
02    Th 9
03    Th 10:30
F 9

520.216 (E) INTRODUCTION TO VLSI (3) Pouliquen
Prereq: 520.142 and 520.213  Limit 60  Prereq: 520.214  This course teaches the basics of switch-level digital CMOS VLSI design. This includes creating digital gates using MOS transistors as switches, laying out a design using CAD tools, and checking the design for conformance to the Scalable CMOS design rules.
Sec.  01    MTW 3

520.220 (E,N) FIELDS, MATTER AND WAVES (3) Joseph  Limit 50  Prereq: 520.214, 520.219-220 or equivalent  Magnetostatic fields in vacuum and material media. Maxwell’s equations and time-dependent electric and magnetic fields. Electromagnetic waves and radiation. Transmission lines, wave guides, applications.
Sec. 01    MTW 3

520.410 (E) FIBER OPTICS AND DEVICES (3) Staff  Limit 25  Prereq: 520.214, 520.219-220 or equivalent  This course covers light propagation in fiber optic light guides, integrated optic wave guides, photodetectors, and the photon nature of light. Topics include light propagation in step-index and graded-index optical fibers, dielectric slab waveguides, photodetectors, photon shot noise, and photodetector signal-to-noise ratios.
Sec.  01    MTW 9
520.415 (E) IMAGE PROCESSING & ANALYSIS II (3)  
Goutsias  Limit 25  Prereq: 520.414  
This course is a continuation of 520.415. It covers fundamental methods for the processing and analysis of images and describes standard and modern techniques for the understanding of images by morphological image processing and analysis, image representation and description, image recognition and interpretation. Laboratory exercises demonstrate key aspects of the course.

520.424 (E,Q) FPGA SYNTHESIS LABORATORY (3)  
Jenkins  Limit 14  Prereq: 520.142, 520.345, 520.349 or 520.372, 600.333-334 or equivalent advanced competence in computer systems  
An advanced laboratory course in the application of FPGA technology to information processing, using VHDL synthesis methods for hardware development. The student will use commercial CAD software for VHDL simulation and synthesis, and implement their systems in programmable XILINX 20,000 gate FPGA devices. The lab will consist of a series of digital projects demonstrating VHDL design and synthesis methodology, building up to final projects at least the size of an 8-bit RISC computer. Projects will encompass such things as system-clocking, flip-flop registers, state-machine control, and arithmetic. The students will learn VHDL methods as they proceed through the lab projects, and prior experience with VHDL is not a pre-requisite.

520.425 (E) FPGA PROJECTS LABORATORY (3)  
Jenkins  Limit 25  Prereq: 520.424 and senior status, no exceptions.  
Laboratory course for FPGA based senior projects. Students will work in teams to complete a design project that makes use of embedded FPGAs. The projects will make use of the Spartan2 XSA boards and other resources from the FPGA Synthesis lab course. Possible projects include: A 16 or 32 bit RISC processor with student designed ISA architecture, assembler, and mini operating system; or a Spartan2 emulation of an existing microprocessor such as an 8051, an optical communication system to transmit stereo music using various modulation schemes for comparison (This would include FM or AM and at least one digital scheme such as FSK); or a digital receiver for commercial AM or FM radio. Students are expected to complete a demonstration and produce a poster session final report.

520.429 (E) PRINCIPLES OF PARALLEL PROGRAMMING (3)  
Podrazik  Limit 10  Prereq: Proficiency in programming in the C language  
Programming models and languages for current computing platforms. Computational models include shared and distributed memory multiprocessors. Essential techniques of message-passing parallel programming will be based upon MPI (Message Passing Interface); shared memory programming will use the OpenMP standard. Other parallel language extensions will be studied, including Split-C and UPC (unified parallel C). Programming projects will be given for the IBM SP parallel computer and other available departmental multicomputers.

520.432 (E) MEDICAL IMAGING SYSTEMS (3)  
Prince  Limit 50  Prereq: 520.214  
An introduction to the physics, instrumentation, and signal processing methods used in projection radiography, X-ray computed tomography, ultrasound imaging, magnetic resonance imaging, and nuclear medicine. The primary focus is on the methods required to reconstitute images within each modality, with attention also given to the resulting resolution, contrast, and signal-to-noise ratio of images.  
Co-listed as 580.472
520.443 (E) DIGITAL MULTIMEDIA CODING AND PROCESSING (3) Tran  Limit 25
Prereq: 520.435, C/C++ programming and Matlab are required. An introduction to the coding and processing of digital multimedia. The course covers current popular techniques for processing, storage, and delivery of media such as speech, audio, images and video. The emphasis will be on the theoretical basis as well as efficient implementations. Topics include transform and subband coding, motion estimation and compensation, international compression standards (AC3, JPEG, MPEG, H.265, HDTV), and emerging techniques.

520.448 ELECTRONICS DESIGN LAB (3) Etienne-Cummings  Limit 30 per section
Prereq: 520.216, 520.345 or equivalent. Recommended: 600.333, 600.334, 520.349, 520.372, 520.490 or 520.491. An advanced laboratory course in which teams of students design, build, test and document application specific information processing microsystems. Semester long projects range from sensors/actuators, mixed signal electronics, embedded microcomputers, algorithms and robotics systems design. Demonstration and documentation of projects are important aspects of the evaluation process.

520.450 ADVANCED MICROPROCESSOR LAB (3) Glaser  Limit 20 per section
Prereq: 520.349. This course covers the usage of common microcontroller peripherals. Interrupt handling, timer operations, serial communication, digital to analog and analog to digital conversions, and flash ROM programming is done on the 68HC08, 8051, and eZ8 microcontrollers. Upon completion, students can use these flash-based chips as elements in other project courses.

520.454 (E,N) CONTROL SYSTEMS DESIGN (3) Iglesias  Limit 24
Prereq: 520.353, 110.201. Classical and modern control systems design methods. Topics include formulation of design specifications, classical design of compensators, state variable and observer based feedback. Computers are used extensively for design, and laboratory experiments are included.

520.465 (E,Q) DIGITAL COMMUNICATIONS I (3) Cooper  Limit 20
Prereq: 520.401. This course introduces the basic tools and topics of modern digital communication beginning with the mathematical representation and spectral properties of random signals and a basic introduction to the detection of real and complex signals in the presence of noise. Memoryless modulation and demodulation schemes are thoroughly studied for the Gaussian channel, and measures of performance are developed. Topics in wireless communication will be introduced.

520.482 (E,N) INTRODUCTION TO LASERS (3) Khurgin  Limit 20
Prereq: 520.119-220. This course covers the basic principles of laser oscillation. Specific topics include propagation of rays and Gaussian beams in lenslike media, optical resonators, spontaneous and stimulated emission, interaction of optical radiation and atomic systems; conditions for laser oscillation, homogeneous and inhomogeneous broadening, gas lasers, solid state lasers, Q-switching and mode locking of lasers.
ELECTRICAL & COMPUTER ENGINEERING

520.485 (E,N) ADVANCED SEMICONDUCTOR DEVICES (3) Khurgin Limit 20 This course is designed to develop and enhance the understanding of the operating principles and performance characteristics of the modern semiconductor devices used in high speed optical communications, optical storage and information display. The emphasis is on device physics and fabrication technology. The devices include heterojunction bipolar transistors, high mobility FET's, semiconductor lasers, laser amplifiers, light-emitting diodes, detectors, solar cells and others.

520.492 (E) MIXED-SIGNAL VLSI SYSTEMS (3) Andreou Limit 20 Prereq: 520.491 or equivalent Silicon models of information and signal processing functions, with implementation in mixed analog and digital CMOS integrated circuits. Aspects of structured design, scalability, parallelism, low-power consumption, and robustness to process variations. Topics include digital-to-analog and analog-to-digital conversion, delta-sigma modulation, bioinstrumentation, and adaptive neural computation. The course includes a VLSI design project.

520.493 (E) ANALOG INTEGRATED CIRCUITS (3) Sotiriadis Limit 20 Prereq: 520.214 and 520.216 The course will cover the basics of the theory and the design of wireless telecommunication circuits. Circuit blocks such as Oscillators, Phase Locked Loops, Mixers, Filters, R.F. and broadband Amplifiers, Modulators and Demodulators as well as bias and support circuits such as Band-gap voltage references will also be discussed. The emphasis will be on bipolar transistor circuit design. The course will have weekly lectures, design and simulation assignments using CAD tools and a small number of laboratory assignments.

520.499 SENIOR DESIGN PROJECT (3) Staff Capstone design project, in which a team of students engineer a system and evaluate its performance in meeting design criteria and specifications. Example application areas are microelectronic information processing, image processing, speech recognition, control, communications and biomedical instrumentation. The design needs to demonstrate creative thinking and experimental skills, and needs to draw upon knowledge in basic sciences, mathematics and engineering sciences. Interdisciplinary participation, such as by biomedical engineering, mechanical engineering and computer science majors, is strongly encouraged.

520.502 INDEPENDENT STUDY - FRESHMEN/ SOPHOMORES Staff Individual, guided study under the direction of a faculty member in the department. The program of study or research, including the credit to be assigned, must be worked out in advance between the student and the faculty member involved.

520.504 INDEPENDENT STUDY - JUNIORS/ SENIORS Staff Individual study, including participation in research, under the guidance of a faculty member in the department. The program of study or research, time required, and credit assigned must be worked out in advance between the student and the faculty member involved.

520.550 ECE INTERNSHIP

520.596 INDEPENDENT RESEARCH

520.604 COMPUTATIONAL ELECTROMAGNETICS Joseph/Thomas Limit 20 Various approximate techniques for solving Maxwell's equations are of vital importance to microwave and optical engineers. The three main computational approaches in use today (Moment Method, Geometrical Theory of Diffraction and Finite

Sec. 01  TTh 2-3:20

Sec. 01  ThF 10:30-12

Sec. 01  MT 4:30-6pm

TBA

Sec. 01  W 11-1:30
### 520.610 Computational Functional Genomics

**Goutsias**  
Limit 5  
Prereq: working knowledge of elementary probability and statistics. This class provides an introduction to mathematical and computational techniques for Functional Genomics, a growing area of research in cell biology and genetics whose objective is to understand the biological function of genes and their interactions. Computational functional genomics focuses on the problems of collecting, processing and analyzing data related to genome-wide patterns of gene expression with the objective to discover mechanisms by which a cell's gene expression is coordinated. This has become feasible with the development of DNA microarray technology, which allows the simultaneous measurement of gene expression levels of thousand of genes. Topics covered: an introduction to cell biology (cells, genome, DNA, transcription, translation, control of gene expression, DNA and RNA manipulation), DNA microarray technology and experimental design, processing and analysis of microarray data (data reduction and filtering, clustering), and computational models for genetic regulatory networks (Boolean networks, Bayesian networks, ODE-based networks).  
Co-listed with 580.610  
Sec. 01 MW 1

### 520.646 Wavelets & Filter Banks

**Tran**  
Limit 20  
Prereq: 520.435 DSP, C/C++ & Matlab programming experience, Undergraduate Linear Algebra (110.201). This course serves as an introduction to wavelets, filter banks, multirate signal processing, and time-frequency analysis. Topics include wavelet signal decompositions, bases and frames, QMF filter banks, design methods, fast implementations, and applications.  
Sec. 01 ThF 10:30-12

### 520.652 Filtering and Smoothing

**Weinert**  
Limit 20  
Prereq: 520.651  
A course on least-squares estimation of random processes generated by linear systems. Topics include projections, square-root algorithms, initial and boundary value models.  
Sec. 01 TW12

### 520.666 Information Extraction from Speech and Text

**Khudanpur**  
Limit 30  
Prereq: 556.310 and 668.120 or equivalent, expertise in C or C++ programming, Introduction to statistical methods of speech recognition (automatic transcription of speech) and understanding. The course is a natural continuation of 600.465 but is independent of it. Topics include elementary information theory, hidden Markov models, the Baum and Viterbi algorithms, efficient hypothesis search methods, statistical decision trees, the estimation-maximization (EM) algorithm, maximum entropy estimation and estimation of discrete probabilities from sparse data for acoustic and language modeling.  
Co-listed as 600.666  
Sec. 01 ThF 9-10:15

### 520.678 Automatic Speech Processing and Recognition

**Staff**  
Limit 20  
Prereq: 520.651 Introduction to core modeling techniques for automatic speech recognition (ASR). The course will examine a range of algorithms, including pattern recognition, search techniques, acoustic modeling, and language modeling techniques. In addition, it will also delve into normalization of features and speaker adaptations. Students will build and test algorithms using public domain speech recognition software.  
TBA
This course is the graduate expansion of the 520.448 Electronic Design Lab, which is an advanced laboratory course in which teams of students design, test, and document application specific information processing microsystems. Semester long projects range from sensors/actuators, mixed signal electronics, embedded microcomputers, algorithms and robotics systems design. Demonstration and documentation of projects is important aspects of the evaluation process. For this graduate expansion, all projects will be based on recently published research from IEEE Transactions. The students will be required to fully research, analyze, implement and demonstrate their chosen topic. The emphasis will be on VLSI microsystems, although other topics will also be considered.

This weekly seminar will focus on research issues in medical image analysis, including image segmentation, registration, statistical modeling, and applications. It will also include selected topics relating to medical image acquisition, especially where they relate to analysis. The purpose of the course is to provide the participants with a background in current research in these areas, as well as to promote greater awareness and interaction between multiple research groups within the University. Co-listed as 600.746

A seminar devoted to advanced research topics on optical communications systems and devices.

Research Seminar on current research in the area of interaction of light with matter.

High-intensity field effects in optics and electrodynamics and their applications with the emphasis on most recent developments in the field. Strong participation by students in the form of review presentations.

A seminar on new and emerging developments in error control coding will meet weekly to review and discuss those developments in seminar format. Participants will select topics from a suggested list or from areas of their own specific interest for presentation. An introductory knowledge of error control coding, such as is found in any major textbook, will be needed for satisfactory participation.

Individual, guided study under the direction of a faculty member in the department. May be taken either term by graduate students.

Individual study in an area of mutual interest to a student and a faculty member in the department.

Wondering how to make your money work while you’re out working for your money? This interactive course introduces students to the real-world personal financial decisions they will face throughout life. Working together,
students will evaluate various solutions and determine the best way to meet their own financial goals. Topics include prioritizing spending, purchasing a car and home, credit, developing and implementing an investment strategy, insurance options, deciphering taxes, and retirement planning.

660.105 (S) INTRDUCITION TO BUSINESS (4) Lec. Sec. 01 MTW 1
(W) Acornite Limit 35 per section Sec. 02 Th 11
Acornite Sec. 03 Th 1
Sec. 04 Th 2
This course provides a survey and overview of the various functions of business in a global market economy. After completing this course, students will have a general understanding of the nature of business and the importance of profit motive, financial concepts, business ownership, management, marketing, and labor relations.

660.203 (Q,S) FINANCIAL ACCOUNTING (3) Sec. 01 MTW 12
(Sec. 02 MTW 2
Sec. 03 Powell Limit 35 per section M 6:15-9:30pm
This course focuses on production of the financial statements required by the Generally Accepted Accounting Principles (GAAP) for “for-profit” business entities. Students also use a problem solving approach to study account maintenance and financial statement production.

660.204 (Q,S) MANAGERIAL ACCOUNTING (3) Sec. 01 T 6:45pm
Kingsley Prereq: Financial Accounting Limit 35 Students enrolled in this course study managerial accounting applications pertinent to users of financial information. Material is presented in an objective format appropriate for anyone contemplating their own business or a position in operations/industrial management.

660.205 (S) BUSINESS LAW I (3) Sec. 01 M 6:15-9:30pm
Limit 35 per section Sec. 02 T 6:15-9pm
Sec. 03 Sandhaus Sec. 04 W 6:15-9:30pm
Sec. 05 Franceschini Sec. 06 Morton
Sec. 07 Fisher
Sec. 08 Morton
This course is designed for students who are interested in law as it relates to modern business or a survey of many business-related aspects of law. The course employs cases, courtroom observations, and class discussions to provide an in-depth study of critical issues.

660.206 (S) BUSINESS LAW II (3) Sec. 01 M 6:15-9:30pm
Fisher Limit 35 per section Sec. 02 T 6:15-9pm
Prereq: Business Law I
This course builds upon the material and concepts covered in Business Law I. The course includes an examination of the legal environment in which businesses operate, as well as basic business law concepts involved in personal property. Topics include: bankruptcy, entrepreneurship options, and government regulations of business.

660.220 (S) PRINCIPLES OF MANAGEMENT (3) Sec. 01 MTW 11
Sec. 02 & 03 Petrovici Limit 35 per section W 3:30-5:45
Sec. 04 W 6:15-9:30pm
Acornite Sec. 05
Sec. 06 Petrovici
This course examines the role of the manager from both traditional and contemporary perspectives. Students apply decision-making and critical thinking skills to address key management issues and to highlight the challenges of leading others in the workplace.

660.231 (HLS) CASE STUDIES IN BUSINESS ETHICS (3) Sec. 01 M 6:15-9pm
Ethics Sec. 02 Franceschini Limit 35 per section W 6:15-9pm
Sec. 03 Smylie
Sec. 04 Franceschini
This course introduces students to the ethical concepts relevant in resolving
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Section</th>
<th>Days</th>
<th>Time</th>
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<tr>
<td>660.241</td>
<td>INFORMATION TECHNOLOGY MANAGEMENT (3)</td>
<td>Reiter</td>
<td>Sec. 01</td>
<td>Th 12-2:45</td>
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<td>660.250</td>
<td>PRINCIPLES OF MARKETING (3)</td>
<td>Kendrick</td>
<td>Sec. 01</td>
<td>Th 12-2:45</td>
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<td>660.302</td>
<td>CORPORATE FINANCE (3)</td>
<td>Powell</td>
<td>Sec. 01</td>
<td>W 6:15-9</td>
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<td>660.305</td>
<td>INTELLECTUAL PROPERTY LAW (3)</td>
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<td>Sec. 01</td>
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<td>660.306</td>
<td>LAW &amp; THE INTERNET (3)</td>
<td>Sandhaus</td>
<td>Sec. 01</td>
<td>M 6:15-9pm</td>
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<td>660.330</td>
<td>LEADERSHIP DYNAMICS (3)</td>
<td>Friesen</td>
<td>Sec. 01</td>
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<td>660.335</td>
<td>NEGOTIATION &amp; CONFLICT MANAGEMENT (3)</td>
<td>Rice</td>
<td>Sec. 01</td>
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<tr>
<td>660.350</td>
<td>MARKETING STRATEGY (3)</td>
<td>Kendrick</td>
<td>Sec. 01</td>
<td>F 12-2:45</td>
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</table>
This course will introduce students to key concepts in business-to-business selling, and build upon key skills developed in Principles of Marketing. Using a blend of didactic and interactive class sessions, students will learn how to identify ethical and legal issues in selling, what the buying process is, and how to adapt the selling process in order to build relationships. Students will be exposed to core management concepts, including managing a sales force. In addition to analyzing cases individually, each student will be part of a team that sells a product or service during the latter half of the semester, by developing a sales presentation and executing to the class.

This course provides the tools needed to successfully launch and manage a small business in a competitive, global environment. Students examine the challenges of entrepreneurs, team how to create a business plan, and review common strategies for hiring and managing employees.

This course surveys the flow of funds through capital markets and financial institutions. Students will examine the role of money in capital markets and in investments. The class will also study how the Federal Reserve uses financial information to determine interest rates.

In this course, students will form advertising agency teams to create and implement a marketing program on the JHU campus using funds provided by a sponsor company. In doing so, they will practice key marketing communications strategies and tactics.

Lectures, case analyses, and team projects provide a strategic framework for determining the commercial value of new technologies and the best path for realizing that value.

Students who would like sponsorship for an internship must submit an application by the deadline specified on the Center’s website (http://web.jhu.edu/leadership). Completed applications must be submitted to Polly Stevens in 104 Whitehead Hall.

Students enrolled in this course will work on existing business plans under close supervision of an Entrepreneurship & Management faculty member. Students are expected to meet regularly with the faculty member and complete assigned readings and projects. Completed applications for this course must be submitted to Polly Stevens in 104 Whitehead Hall.
### GENERAL ENGINEERING

**560.141 (E,N,Q)**

**Perspectives on the Evolution of Structures (3)**
- Lec: Sec. 01 MTW 3
- Sec. 02 W 3

*Schafer*

Limit 33 per section.

Why do buildings and bridges look the way they do today? Students will be provided the tools to answer this question for themselves through a study of the history of the design of buildings and bridges throughout the world from both engineering and architectural/aesthetic perspectives. Simple math required (no calculus). Note: Sections meet together for lecture (MT) and separately for discussion (W). Cross-listed with Civil Engineering.

### GEOGRAPHY AND ENVIRONMENTAL ENGINEERING

**570.210 (E,Q)**

**Introduction to Computation and Mathematical Modeling (3)**
- Lec: Sec. 01 MTW 1

*Morse*

Limit 25.

Prereq: 110.108 or equivalent.

An introduction to the use of computers in developing mathematical models. A structured approach to problem definition, solution, and presentation using spreadsheets and mathematical software. Modeling topics include elementary data analysis and model fitting, numerical modeling, dimensional analysis, optimization, simulation, temporal and spatial models.

**570.302 (E,N)**

**Water & Wastewater Treatment (3)**
- Lec: Sec. 01 MTW 9

*Ball*

Limit 20.

Prereq: 570.301 or Perm. Req'd. Theory and design of water and wastewater treatment processes including coagulation, sedimentation, filtration, adsorption, gas transfer, aerobic and anaerobic biological treatment processes, disinfection, and hydraulic profiles through treatment units.

**570.304 (E,N)**

**Environmental Engineering Lab (2)**
- Lec: Sec. 01 MTW 10

*Stone*

Limit 20.

Prereq: 570.301-302.

Introduction to laboratory measurements relevant to water supply and wastewater discharge, including pH and alkalinity, inorganic and organic contaminants in water, reactor analysis, bench testing for water treatment, and measurement and control of disinfection by-products.

**570.309 (N)**

**Microbiology (3)**
- Lec: Sec. 01 MTW 11

*Ward*

Limit 35.

Prereq: Biochemistry.

Introduction to microbiology, with an emphasis on prokaryotic microorganisms and their roles in environmentally and medically important issues. Aspects of microbial growth and nutrition, diversity, ecology, genetics and genomics will be covered.

**570.355 (S)**

**Hydrology (3)**
- Lec: Sec. 01 MTW 10

*Hilpert*

Limit 20.

Prereq: Differential equations, fluid mechanics. The occurrence, distribution, movement, and properties of the waters of the earth. Topics include precipitation, infiltration, evaporation, transpiration, groundwater, and streamflow. Analyzes
GEOGRAPHY AND ENVIRONMENTAL ENGINEERING

include the frequency of floods and droughts, time-series analysis, flood routing, and hydrologic synthesis and simulation.

570.418 (E) MULTIOBJECT PROGRAMMING
Williams/Hubbis Limit 20
Prereq: 570.695 or Perm req’d.
Public sector problems are typically characterized by a multiplicity of objectives and decision makers. This course presents a relatively new area of systems analysis which is useful for such problems: multiobjective programming or vector optimization theory. The fundamental concepts are developed and various methods are presented, including multiattribute value and utility theory.
Undergraduate level of 570.618
Sec. 01 M 3:30-5pm

570.421 (E) ENVIRONMENTAL ENGINEERING DESIGN II (3)
Wilcock
Limit 20
Prereq: 570.302, 570.352, and 570.419.
Engineering design process from problem definition to final design. Team projects include written/oral presentations. Students will form small teams that work with local companies or government agencies in executing the project.
Sec. 01 M 3-5:30pm

570.423 (N) PRINCIPLES OF GEOMORPHOLOGY
Wolman Limit 20
Prereq: 270.220 The Dynamic Earth or perm. req’d.
Analysis of the factors responsible for the form of the landscape. The concept of the cycle of erosion is discussed primarily in terms of the principles that govern the processes of erosion, climate, conditions of soil formation, and the distribution of vegetation are considered as they relate to the development of landforms.
Sec. 01 MTW 10 Field Trip F 1-5

570.432 (E,N) SEDIMENT TRANSPORT AND RIVER MECHANICS (3)
Wilcox
Prereq: Fluid mechanics Limit 30 Sediment entrainment, transport, and deposition; the interaction of flow and transport in shaping river channels. Review of boundary layer flow; physical properties of sediment, incipient, bed-load, and suspended-load motion; bed forms; hydraulic roughness; velocity and stress fields in open channels; scour and deposition of bed material; bank erosion; size, shape, planform, and migration of river channels. Techniques of laboratory, theoretical, and numerical modeling are developed and applied to problems of channel design, restoration, and maintenance.
Sec. 01 M 6-9pm

570.444 (E,N) COLLOID CHEMISTRY (3)
Shchukin Limit 20
Prereq: General Chemistry and physics Dispersed, i.e. microheterogeneous, state of matter and predominant influences of various surface phenomena in disperse systems are regarded as universal in nature and technology; these are rocks and soils, materials, suspensions, emulsions, foams and aerosols, and living tissues. This course considers formation and general colloid and chemical properties of such systems, the principal role of high diversity, problems of stability, and ways to control them in industry and environment.
Sec. 01 MW 2-3:30

570.446 (E,N) BIOLOGICAL PROCESSES FOR WATER AND WASTEWATER TREATMENT (3)
Bouwer
Limit 25
Prereq: 570.411 Fundamentals and application of aerobic and anaerobic biological unit processes for the treatment of municipal and industrial wastewater.
Sec. 01 MTW 9
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<th>Course Code</th>
<th>Title</th>
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<tr>
<td>570.448 (E)</td>
<td><strong>PHYSICAL AND CHEMICAL PROCESSES IN ENVIRONMENTAL ENGINEERING II</strong> (3) (O'Melia)</td>
<td>Limit 20</td>
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<td>Sec. 01</td>
<td>ThF</td>
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<td>Fundamentals and applications of physical and chemical processes used in water and wastewater treatment. Emphasis on coagulation, sedimentation, filtration, membranes systems, and advanced oxidation processes.</td>
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<td>9-10:30</td>
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<td>570.452 (E,N) (W)</td>
<td><strong>EXPERIMENTAL METHODS IN ENVIRONMENTAL ENGINEERING AND CHEMISTRY</strong> (4) (Stone)</td>
<td>Limit 15</td>
<td>Perm. Req'd 570.445</td>
<td>Sec. 01</td>
<td>M 1-5</td>
<td>12-1:30</td>
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<td></td>
<td>An advanced laboratory covering principles of modern analytical techniques and their applications to problems in environmental sciences. Topics include electrochemistry, spectrometry, gas and liquid chromatography. The course is directed to graduate students and advanced undergraduates in engineering and natural sciences.</td>
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<td>570.459 (N)</td>
<td><strong>ORGANIC GEOCHEMISTRY</strong> (3) (Goldstein)</td>
<td>Limit 20</td>
<td>Perm. Req'd Inorganic and Organic Chemistry</td>
<td>Sec. 01</td>
<td>MW 11:15-12:45</td>
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<td></td>
<td>A multi-disciplinary survey course that examines the origin and fate of organic matter in sediments and sedimentary environments.</td>
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<td>570.470 (S)</td>
<td><strong>APPLIED ECONOMICS AND FINANCE</strong> (3) (Hanke)</td>
<td>Limit 20</td>
<td>Perm. Req'd</td>
<td>Sec. 01</td>
<td>TBA</td>
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<td>This course focuses on the workings of equity markets. It includes an analytical review of valuation models and their application to data contained in financial statements. Research reports are required.</td>
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<td>570.487 (S)</td>
<td><strong>FUTURES MARKET RESEARCH</strong> (3) (Hanke)</td>
<td>Limit 20</td>
<td>Perm. Req'd</td>
<td>Sec. 01</td>
<td>TBA</td>
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<td>An investigation of some futures market problems and preparation of a research report. Research is focused on developing and testing hypotheses about price behavior in futures markets.</td>
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<td>570.491 (E) (W)</td>
<td><strong>HAZARDOUS WASTE ENGINEERING AND MANAGEMENT</strong> (3) (Alavi)</td>
<td>Limit 20</td>
<td>Perm. Req'd</td>
<td>Sec. 01</td>
<td>W 6-8:40pm</td>
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<td>This course addresses traditional and innovative technologies, concepts, and principles applied to the management of hazardous waste and site remediation to protect human health and the environment.</td>
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<td>570.492</td>
<td><strong>DEPARTMENT SEMINAR</strong> (0.5) (Hilpert)</td>
<td>Limit 20</td>
<td>Perm. Req'd</td>
<td>Sec. 01</td>
<td>T 3-5</td>
<td>F 1:30-3</td>
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<tr>
<td>570.496 (E,Q)</td>
<td><strong>MATHEMATICAL MODELS FOR MANAGING URBAN SYSTEMS</strong> (3) (Hobbs)</td>
<td>Limit 30</td>
<td>Perm. Req'd Linear Programming</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
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<td>The mathematical techniques learned in &quot;Environmental Engineering Systems Design&quot; (alternate prerequisite: a course in linear programming) are applied to realistic problems in environmental management. Examples of such problems include management of water resources and water quality, natural areas management and restoration, solid waste collection, disposal, and recycling, public health, air quality management, pollution prevention in energy and transportation systems, and cost allocation in environmental infrastructure development.</td>
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<td>360.528</td>
<td><strong>APPLIED ECONOMIC INTERNSHIP</strong> (Hanke)</td>
<td>Limit 20</td>
<td>Perm. Req'd 180.101-102</td>
<td>Sec. 01</td>
<td>TBA</td>
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<td>Course given in conjunction with private business/financial institutions, governmental entities, economic research institutes in the Baltimore-Washington metropolitan area. Requirements include 120 hours of internship time and a research paper on an applied economics topic. Cross-listed with Economics and Interdepartmental</td>
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GEOGRAPHY AND ENVIRONMENTAL ENGINEERING

570.502 UNDERGRADUATE RESEARCH

570.505 INDEPENDENT STUDY

570.607 ENERGY PLANNING AND POLICY MODELING
Hobbs Limit 10
Prereq: 570.493 and 570.495 or equivalent
Methods for optimizing operation and design of energy systems and for analyzing market impacts of energy and environmental policies are reviewed, emphasizing both theory and solution of actual models. Review of linear and nonlinear programming and complementarity methods for market simulation.
Sec. 01 Th 12:15-3

570.613 SEMINAR: GEOMORPHOLOGY OF SOIL AND PLANTS
Wilcock Limit 10
Sec. 01 T 11-1

570.618 MULTIOBJECT PROGRAMMING
Williams, Hobbs Limit 20
Prereq: 570.495 or Perm req’d.
Public sector problems are typically characterized by a multiplicity of objectives and decision makers. This course presents a relatively new area of systems analysis which is useful for such problems: multiobjective programming or vector optimization theory. The fundamental concepts are developed and various methods are presented, including multiattribute value and utility theory.
Graduate level of 570.418
Sec. 01 M 3-5:30

570.641 DEPARTMENT SEMINAR
Hilpert Limit 20
Sec. 01 T 3-5
F 1:30-3

570.657 AIR POLLUTION
Ellis Limit 20
The course consists of an introduction to the fundamental concepts of air pollution. Major topics of concern are aspects of atmospheric motion near the earth’s surface; basic thermodynamics of the atmosphere; atmospheric stability and turbulence; equations of mean motion in turbulent flow, mean flow in the surface boundary layer; mean flow, turbulence in the friction layer; diffusion in the atmosphere; statistical theory of turbulence; plume rise. Emphasis is placed upon the role and utility of such topics in a systems analysis context, e.g., development of large and mesoscale air pollution abatement strategies. Comparisons of the fundamental concepts common to both air and water pollution are discussed.
Sec. 01 T 5-7:40pm

570.673 PUBLIC SYSTEMS SEMINAR
Hobbs Limit 20
Sec. 01 T 1-3

570.681 ENVIRONMENTAL ENGINEERING SEMINAR
Hobbs Limit 50
Sec. 01 F 12-1:30

570.686 MULTISCALE FLOW AND TRANSPORT IN POROUS MEDIA
Hilpert Limit 30
The scope of this course is to quantitatively describe flow and transport processes in porous media on a variety of length scales ranging from the molecular to the field scale. Phenomena investigated include single-phase and multiphase flow, solute transport, and chemotaxis. We will derive and/or motivate the governing dynamic equations and discuss mathematical and computational methods to solve these equations. This course addresses audiences from environmental and chemical engineering as well as the hydrological sciences. The course will give an introduction to the necessarily mathematical and computational details.
Sec. 01 ThF 9-10:30

500.602 SEMINAR: ENVIRONMENTAL AND APPLIED FLUID MECHANICS
Meneveau
Cross-listed with Mechanical Engineering, Earth and Planetary Sciences, and General Engineering
Sec. 01 F 11
GEOGRAPHY AND ENVIRONMENTAL ENGINEERING

570.800 INDEPENDENT STUDY
Sec. 01 – Staff Sec. 10 – Brush
Sec. 02 – Stone Sec. 11 - Hilpert
Sec. 03 – Boland Sec. 12 - Hanke
Sec. 04 – Wilcock Sec. 13 – Staff
Sec. 05 – Wolman Sec. 14 – Ball
Sec. 06 – Alavi Sec. 15 – Roberts
Sec. 07 – Bouwer Sec. 16 - Hobbs
Sec. 08 – Ellis Sec. 17 – Parlange
Sec. 09 – O’Melia Sec. 18 - Schoenberger

570.801 RESEARCH
Sec. 01 – Staff Sec. 11 – Hilpert
Sec. 02 – Stone Sec. 12 - Hanke
Sec. 03 – Boland Sec. 13 - Harvey
Sec. 04 – Wilcock Sec. 14 - Ball
Sec. 05 – Wolman Sec. 15 - Roberts
Sec. 06 – Alavi Sec. 16 - Hobbs
Sec. 07 – Bouwer Sec. 17 - Parlange
Sec. 08 – Ellis Sec. 18 - Schoenberger
Sec. 09 – O’Melia Sec. 19 – Ward
Sec. 10 – Brush

INFORMATION SECURITY INSTITUTE

650.412 (E) JAVA SECURITY (3) Llanso Limit 40
Prereq: 600.120 or 600.121 Open to MSSI students Perm Req’d. for non-MSSI students
This course examines security topics in the context of Java and the emerging area of web services. Emphasis is placed on security services such as confidentiality, integrity, availability, and non-repudiation. Core Technology course for MSSI degree
Sec. 01 M 5-7:45pm

650.418 (N,S,Q) INFORMATICS IN PUBLIC HEALTH (3) Miller
Computers and information technology has become major forces in transforming American medicine. We shall discuss some of the new entities — the computer-based patient record, clinical practice guidelines, and digital libraries — and their underlying technologies: networks, databases, controlled vocabularies, and decision analysis.
Sec. 01 TTh 9-10:30

650.471 (E,Q) CRYPTOGRAPHY AND CODING (4) Scheinerman Limit 25
Prereq: 550.171 (110.204 with permission of instructor), linear algebra, computing experience. A first course in the mathematical theory of secure and reliable electronic communication. Topics include finite field arithmetic, error ciphers, one-time pads, the enigma machine, one-way functions, discrete logarithm, primality testing, secret key exchange, public key cryptosystems, digital signatures, and key escrow. Co-listed as 550.371
Sec. 01 Lab MTWTh 9-11

600.625 COMPUTER AND NETWORK FORENSICS Monrose Limit 25
Prereq: Operating Systems and Systems Programming Cross-listed with Computer Science
Sec. 01 ThF 1-2:15

650.630 MORAL AND LEGAL FOUNDATIONS OF PRIVACY Siegel Limit 25
This course explores the ethical and legal underpinnings of privacy: Inquiries into the values that underlie the right, constitutional and common law foundations; balancing privacy against other rights and interests. Core Policy course for MSSI degree Cross-listed with Philosophy
Sec. 01 W 10-12:30

650.632 LAW AND POLICY OF INFORMATION ASSURANCE Lavine Limit 25
This course introduces information assurance as a response to changes in technology, asymmetric threats and computer crime. It traces the concepts through civilian applications as OMB and NIST standards as well as
Sec. 01 T 10-12:30
INFORMATION SECURITY INSTITUTE

private sector issues related to privacy, contingency response, and reliable infrastructures. It examines these concepts from a risk assessment and standards based approach central to government planning and the private sector.

600.641 SPECIAL TOPICS IN THEORETICAL CRYPTOGRAPHY
Hohenberger Limit 20
Prereq: Prior course in crypto or security, or permission of the instructor. In this seminar, we will explore the foundations of modern cryptography. We will study how to formalize the security guarantee of a protocol and cover techniques for proving that a protocol meets a claimed guarantee. Some included topics will be zero-knowledge proofs, multi-party computation, program obfuscation, and anonymous authentication. An emphasis will be placed on major past results, recent progress and current open problems. The workload will not be heavy, but it will include a final research project. [Analysis]

600.642 ADVANCED CRYPTOGRAPHY PROTOCOLS
Ateniese Limit 20
Prereq: 600.442 or 600.443 This course will focus on advanced cryptographic protocols with an emphasis on open research problems. [Applications]
Cross-listed with Computer Science

650.652 HEALTH CARE SECURITY MANAGEMENT
Lacey Limit 25
Open to MSSI students or Perm. Req'd. The course will address information security in the public health and medical fields, with special emphasis on clinical care, research and the role of the academic medical center. In many respects, the course builds on 650.651 Health Information, Privacy, Law and Policy’s treatment of privacy and how such privacy is protected in the health and medical arena, including but not limited to HIPAA

650.658 COMPUTER AND NETWORK FORENSICS
Monrose Limit 10 undergraduate and 15 graduate. Prereq: 600.424 Operating Systems or permission from instructor. The course exposes students to a myriad of fundamental concepts and techniques for recovering and inferring information in computer systems and networks. Topics include (but are not limited to) file system forensics, kernel-level rootkits and associated challenges, reconstructing malware evolution and dynamics, analysis of anonymization and privacy preserving techniques, advanced network traceback, traffic classification, biometrics and digital evidence, data integrity and audit trails, secure remote logging, and system call introspection.

650.737 INFORMATION SECURITY PROJECTS
Staff Limit 20 Open to MSSI students Perm Req'd for non-MSSI students. All MSSI programs must include a project involving a research and development oriented investigation focused on an approved topic addressing the field of information security and assurance from the perspective of relevant applications and/or theory. There must be project supervision and approval involving a JHU/ISI affiliated faculty member. A project can be conducted individually or within a team-structured environment comprised of MSSI students and an advisor. A successful project must result in an associated report suitable for on-line distribution. When appropriate, a project can also lead to the development of a so-called "deliverable" such as software or a prototype system. Projects can be sponsored by government/industry
INFORMATION SECURITY INSTITUTE

partners and affiliates of the Information Security Institute, and can also be related to faculty research programs supported by grants and contracts. A project can count for as much as 3 course credits towards the MSSSI requirements by means of enrolling in 650.736/746. Satisfactory/Unsatisfactory only Core Technology course for MSSSI degree

550.438 (E) STATISTICAL METHODS FOR COMPUTER INTRUSION DETECTION (3) Marchette Limit 40 Prereq: 550.310 or 550.311 or equivalent Cross-listed with Applied Mathematics and Statistics

600.443 (E) SECURITY & PRIVACY IN COMPUTING (3) Rubin Limit 50 Prereq: Basic course in operating systems and networks or Perm. Req'd Graduate students only Core Technology Policy course for MSSSI degree Cross-listed with Computer Science

The following course is taught through the School of Professional Studies in Business and Education and must be registered for Interdivisionally. Descriptions and times are found in the SPSBE catalogue, on the JHUISI website, and outside of Wyman 407.

774.717 IMPLEMENTING EFFECTIVE INFORMATION SECURITY PROJECTS Kociemba Limit 25 This course focuses on the personnel, legal, regulatory, and privacy issues that constitute many of the basic management areas that must be considered in developing and implementing an effective information security program. The course also emphasizes the need for reasonable policies and procedures to ensure compliance Core Management course for MSSSI degree.

MATERIALS SCIENCE AND ENGINEERING

510.104 (E,N) INTRODUCTORY LECTURES IN BIOMATERIALS (3) Horowitz/Mueller Limit 60 This course provides an introductory overview of the selection and use of materials in biological systems. The lectures are of an introductory nature suitable for the nonspecialist and are open to freshmen. Topics to be included are selected from the areas of design of special materials for use in biological systems, the use of materials in biological systems, and the study of the properties of natural biological materials.

510.201 (E,N) INTRODUCTION TO ENGINEERING MATERIALS (3) Weihs Limit 30 An introduction to the structure, properties, and processing of materials used in engineering applications. After beginning with the structure of materials on the atomic and microscopic scales, this course explores defects and their role in determining materials properties, the thermodynamics and kinetics of phase transformations, and ways in which structure and properties can be controlled through processing.

510.304 (S) ENGINEERING ETHICS (3) Rahmoeller Limit 20 The course is built around actual case studies, supplemented by materials dealing with engineering professionalism, codes of ethics, and ethics philosophy. Students will learn professional responsibility, and how to design ethical responses within an organizational structure where one must balance career needs, legal and regulatory concerns, financial demands, and ambiguous and incomplete information.

510.313 (E,N) MECHANICAL PROPERTIES OF MATERIALS (3) Hufnagel Limit 60 Prereq: 510.311 Third of the Introduction to Materials Science series, this course is devoted to a study of the mechanical properties of materials. Lecture topics include...
elasticity, anelasticity, plasticity, and fracture. The concept of dislocations and their interaction with other lattice defects is introduced.

510.314 (E,N) ELECTRONIC PROPERTIES OF MATERIALS (3) Ma Limit 30 Prereq: 510.311 Fourth of the Introduction to Materials Science series, this course is devoted to a study of the electronic, optical and magnetic properties of materials. Lecture topics include electrical and thermal conductivity, thermoelectricity, transport phenomena, dielectric effects, piezoelectricity, and magnetic phenomena.


510.400 (E,N) INTRODUCTION TO CERAMICS (3) McGuiggan Limit 25 Prereq: 510.311, 510.312 or Perm. Req’d This course will examine the fundamental structure and property relationships in ceramic materials. Areas to be studied include the chemistry and structure of ceramics and glasses, microstructure and property relationships, ceramic phase relationships, and ceramic properties. Particular emphasis will be placed on the physical chemistry of particulate systems, characterization, and the surface and colloid chemistry of ceramics.

510.401 (E,N) MATERIALS IN SERVICE (3) Green Limit 25 This course will describe the various types of environmental chemical attack (corrosion) resulting in degradation of materials, as well as the loss of mechanical stability caused by cyclic fatigue, other mechanical loading, and thermal cycling. In addition, we will discuss advanced nondestructive evaluation techniques for detecting fatigue, corrosion, and thermal damage in structures in service.

510.407 (E,N) BIOMATERIALS II (3) Mao Limit 30 Prereq: 510.316 This course focuses on the interaction of biomaterials with the biological system and applications of biomaterials. Topics include host reactions to biomaterials and their evaluation, cell-biomaterials interaction, biomaterials for tissue engineering applications, biomaterials for controlled drug and gene delivery, biomaterials for cardiovascular applications, biomaterials for orthopedic applications, and biomaterials for artificial organs. Also listed as 510.607

510.422 (E,N) MICRO AND NANO STRUCTURED MATERIALS AND DEVICES (3) Ma Limit 30 Almost every material's property changes with scale. We will examine ways to make micro- and nanostructured materials and discuss their mechanical, electrical, and chemical properties. Topics include the physics and chemistry of physical vapor deposition, thin film patterning, and microstructural characterization. Particular attention will be paid to current technologies including computer chips and memory, thin film sensors, diffusion barriers, protective coatings, and microelectromechanical (MEMS) devices. Also listed as 510.622/422
MATERIALS SCIENCE AND ENGINEERING

510.429 (E,N) MATERIALS SCIENCE LAB II (3) Katz  Limit 25  Prereq: 510.311 or Perm. Req'd  Lab Assignment is by Professor
This laboratory concentrates on the experimental investigation of electronic properties of materials using basic measurement techniques. Topics include thermal conductivity of metal alloys, electrical conductivity of metals/metal alloys and semiconductors, electronic behavior at infrared wavelengths, magnetic behavior of materials, carrier mobility in semiconductors and the Hall effect in metals and semiconductors.

510.430 (E,N) BIOMATERIALS LAB (3) Max Seniors only  Limit 8 per section Lab Fee: $100  Prereq: 510.407
This laboratory course concentrates on synthesis, processing and characterization of materials for biomedical applications, and characterization of cell-materials interaction. Topics include synthesis of biodegradable polymers and degradation, electrospinning of polymer nanofibers, preparation of polymeric microspheres and drug release, preparation of plasmid DNA, polymer-mediated gene delivery, recombinant protein synthesis and purification, self-assembly of collagen fibril, surface functionalization of biomaterials, cell culture techniques, polymer substrates for cell culture, and mechanical properties of biological materials.

510.431 (E,N) BIOCOMPATIBILITY OF MATERIALS (3) Horowitz  Limit 35  Prereq: 510.104 or 510.316; Department Majors only or permission of instructor
This course provides a detailed examination of the interaction of surgical implant materials (i.e., metals, polymers, ceramics, and composites) with the body. The effect of the physiological environment on the properties of implant materials is described as well as the cellular, tissue response to the implant. Concepts dealing with the design of materials with improved biocompatibility are explored.

510.434 (E,N) SENIOR DESIGN/RESEARCH EXPERIENCE IN MATERIALS SCIENCE & ENGINEERING II (3) Hristova  Limit 30  Prereq: 510.311-312,510.428-429,510.433
This course is the second half of a two-semester sequence required for seniors majoring or double majoring in materials science and engineering. It is intended to provide a broad exposure to many aspects of planning and conducting independent research.

360.404 (E,N) INTERFACIAL PHENOMENA IN NANOSTRUCTURED MATERIALS (3) Erlebacher/Stebe  Limit 15
All materials properties of materials change when encountered or fabricated with nanoscale structure. In this class, we will examine how the properties of nanosstructured materials differ from their macroscopic behavior, primarily due to the presence of large interfacial areas relative to the characteristic volume scale. General topics include the structure of nanosstructured materials (characterization and microscopy), thermodynamics (effects of high curvatures and surface elasticity), kinetics and phase transformations (diffusion and morphological stability), and electronic properties (quantum confinement and effects of dimensionality). Also listed as 360.644  Cross-listed with Interdepartmental and Chemical and Biomolecular Engineering
PHASE TRANSFORMATIONS
Cammarata  Limit 20
Prereq: 510.601 and 510.602
This course presents a unified treatment of the thermodynamics and kinetics of phase transformations from phenomenological and atomistic viewpoints. Phase transformations in condensed metal and nonmetal systems are discussed.

MECHANICAL PROPERTIES OF MATERIALS
Weihs  Limit 20
Prereq: 510.601
An introduction to the properties and mechanisms that control the mechanical performance of materials. Topics include mechanical testing, tensor description of stress and strain, isotropic and anisotropic elasticity, plastic behavior of crystals, dislocation theory, mechanisms of microscopic plasticity, creep, fracture, and deformation and fracture of polymers.

ELECTRONIC, OPTICAL, AND MAGNETIC PROPERTIES OF MATERIALS
Spicer  Limit 20
Prereq: 510.601
An overview of electrical, optical and magnetic properties arising from the fundamental electronic and atomic structure of materials. Continuum materials properties are developed through examination of macroscopic processes. Emphasis will be placed on both fundamental principles and applications in contemporary materials technologies.

BIOMATERIALS II
Ieda  Limit 20
Prereq: 510.316
This course focuses on the interaction of biomaterials with the biological system and applications of biomaterials. Topics include host reactions to biomaterials and their evaluation, cell-biomaterials interaction, biomaterials for tissue engineering applications, biomaterials for controlled drug and gene delivery, biomaterials for cardiovascular applications, biomaterials for orthopedic applications, and biomaterials for artificial organs.

ELECTROCHEMISTRY
Searson
Limit 30
Thermodynamics of electrochemical interfaces, including electrochemical potential, the Nernst equation, ion-solvent interactions, and double layer theory. Charge transfer kinetics for activation and diffusion controlled processes. Analysis of kinetics at various electrodes, including redox reactions, metal-ion electrodes, and semiconductor electrodes. Electroanalytical techniques are discussed, including those related to bioelectrochemistry and semiconductor electrochemistry. Selected reactions of technological importance are evaluated, including the hydrogen evolution reaction, oxygen reduction, electrodeposition, and energy generation and storage. Undergraduate prerequisite: introductory chemistry or permission of instructor.

SOLID STATE PHYSICS
Poehler  Limit 10
Prereq: 510.611
An introduction to solid state physics for advanced undergraduates and graduate students in physical science and engineering. The concepts and applications of solid state principles in modern electronic, optical, and structural materials are discussed.

BIOPOLYMERS SYNTHESIS
Yu  Limit 30
An upper-level graduate elective course covering different synthetic and discovery pathways to
MATERIALS SCIENCE AND ENGINEERING

510.622 MICRO AND NANO STRUCTURED MATERIALS AND DEVICES
Ma
Limit 20  Almost every material's property changes with scale. We will examine ways to make micro- and nano-structured materials and discuss their mechanical, electrical, and chemical properties. Topics include the physics and chemistry of physical vapor deposition, thin film patterning, and microstructural characterization. Particular attention will be paid to current technologies including computer chips and memory, thin film sensors, diffusion barriers, protective coatings, and microelectromechanical (MEMS) devices.
Also listed as 510.422
Sec. 01  MT 2-3:15

510.740 SEARSON GROUP  Searson  Limit 10
Perm. Req’d  Topics in surface chemistry and materials chemistry are discussed. The seminar covers various topics in these fields, including a review of the current literature.
Sec. 01  Th 4

360.644 INTERFACIAL PHENOMENA IN NANOSTRUCTURED MATERIALS
Erlebacher/Stebe  Limit 15
Cross-listed with Chemical and Biomolecular Engineering and Interdepartmental
Also listed as 360.404
Sec. 01  TTh 1-2:15

510.802 MATERIALS RESEARCH SEMINAR  Cammarata
Sec. 01  W 2-3:30

510.804 MATERIALS SCIENCE SEMINAR  Cammarata
Sec. 01  W 3:30-5

510.808 GRADUATE RESEARCH  Cammarata

MECHANICAL ENGINEERING

530.106 (E,Q) COMPUTING IN MECHANICAL ENGINEERING (3)
Sec. 01  MTW 9

530.215 (E) MECHANICS-BASED DESIGN (4)
Staff  Prereq: 530.201  Limit 18 per lab section (all Mechanical Engineering and Electrical Engineering majors may enroll over stated limit)  Stresses and strains in three dimensions, transformations. Combined loading of components, failure theories. Buckling of columns. Stress concentrations. Introduction to the finite element method. Design of fasteners, springs, gears, bearings, and other components.
Lec. MTW 11  Lab Sec:
01  M 4-6pm
02  Th 10-12
03  Th 12-2

530.241 (E) ELECTRONICS AND INSTRUMENTATION (4)
Cowan  Limit 23 per lab section  Introduction to basic analog electronics and instrumentation with emphasis on basic electronic devices and techniques relevant to mechanical engineering. Topics include basic circuit analysis, laboratory instruments, discrete
Lec. MTW 9  Lab Sec:
01  W 2-5
02  F 10-1
MECHANICAL ENGINEERING

components, transistors, filters, op-amps, amplifiers, differential amplifiers, power amplification, power regulators, AC and DC, power conversion, system design considerations (noise, precision, accuracy, power, efficiency), and applications to engineering instrumentation.

530.328 (E,N) MECHANICAL ENGINEERING

530.334 (E,N) FLUID MECHANICS II (3)
Meneveau
Limit 30

530.343 (E) HEAT TRANSFER (4)
Herman
Prereq: 530.231 and 530.327 Limit 40
Conduction in one, two, and three dimensions. External and internal forced convection, convection with change in phase. Performance and design of heat exchangers. Black-body radiation, Stefan-Boltzmann law. Computational modeling and experimental study of selected topics in conduction, convection, and radiation.

530.344 (W) HEAT TRANSFER (4)
Herman
Prereq: 530.231 and 530.327 Limit 40
Conduction in one, two, and three dimensions. External and internal forced convection, convection with change in phase. Performance and design of heat exchangers. Black-body radiation, Stefan-Boltzmann law. Computational modeling and experimental study of selected topics in conduction, convection, and radiation.

530.345 (E) DESIGN AND ANALYSIS OF DYNAMICAL SYSTEMS (4)
Staff
Limit 25 per section Prereq: 110.108, 110.109, 110.202 and 550.291, and 530.341
Modeling and analysis of damped and undamped, forced and free vibrations in single and multiple degree-of-freedom linear dynamical systems. Introduction to stability and control of linear dynamical systems.

530.346 (W) DESIGN AND ANALYSIS OF DYNAMICAL SYSTEMS (4)
Staff
Limit 25 per section Prereq: 110.108, 110.109, 110.202 and 550.291, and 530.341
Modeling and analysis of damped and undamped, forced and free vibrations in single and multiple degree-of-freedom linear dynamical systems. Introduction to stability and control of linear dynamical systems.

530.404 (E,Q,N) SENIOR ENGINEERING DESIGN PROJECT II (4)
Chirikjian
Limit 30 per section
This senior year "capstone design" course is intended to give some practice and experience in the art of engineering design. Students working in teams of two to four will select a small-scale, industry-suggested design problem in the area of small production equipment, light machinery products, or manufacturing systems and methods. A solution to the problem is devised and constructed by the student group within limited time and cost boundaries. Preliminary oral reports of the proposed solution are presented at the end of the first semester or sooner. A final device, product, system, or method is presented orally and in writing at the end of the second semester. Facilities of the Engineering Design Laboratory (including machine shop time) and a specified amount of money are allocated to each student design team for purchases of parts, supplies, and machine shop time where needed.

530.420 (E) ROBOT SENSORS AND ACTUATORS (3)
Whitcomb
Limit 20 per section Prereq: 171.101, 171.102, 110.108, 110.109, 110.202, 550.291 and 530.341 or 520.345
Introduction to modeling and use of actuators and sensors in mechatronic design. Topics include electric motors, solenoids, micro-actuators, position sensors, and proximity sensors.

530.424 (E) DYNAMICS OF ROBOTS AND SPACECRAFT (3)
Chirikjian
Limit 30 Prereq: 560.202
An introduction to Lagrangian mechanics with application to robot and spacecraft dynamics and control. Topics include rigid body kinematics, efficient formulation of equations of motion, stability theory, and Hamilton's principle.

530.425 (E, N) MECHANICS OF FLIGHT (3)
Prosperetti
Limit 30 Prereq: 530.231, 530.327, 530.328 (may be taken concurrently), or permission of the
MECHANICAL ENGINEERING


530.457 (E, N) INTRODUCTION TO ACOUSTICS
(3) Busch-Vishniac Limit 60
This course is an introduction to the science of sound and its applications to music, speech communication, science, and engineering. Topics include hearing, speech, wave propagation, microphones and loudspeakers, noise control, underwater sound, and room acoustics. Assignments will include laboratory and field measurements of acoustic phenomena.

INTRODUCTION TO MICROELECTROMECHANICAL SYSTEMS (MEMS) (3) Sharpe Limit 70
Juniors and Seniors only
This course deals with processes, systems, instruments and equipment for aerospace systems. Issues of energy conversion and thermal design are emphasized. Topics include thermodynamic concepts and heat transfer processes for aerospace systems (with emphasis on radiation), the space environment, influence of gravity on heat transfer, power generation for space systems (energy sources, solar cell arrays, energy storage), thermal control (analysis techniques, design procedures, active versus passive design, heating and refrigeration), environmental effects.

INDEPENDENT RESEARCH
Students pursue research problems individually or in pairs. Although the research is under the direct supervision of a faculty member, students are encouraged to pursue the research as independently as possible.

INDEPENDENT STUDY

MECHANICS OF SOLIDS
(3) Staff Limit 20

FLUID DYNAMICS II
(3) Katz Limit 20
MECHANICAL ENGINEERING

530.635 MIXING AND COMBUSTION  Su
Limit 30     Mixing of fluids, covering ideas from dynamical systems and mixing in turbulent flows. Combustion of gaseous and liquid fuels, chemistry, kinetics, deflagrations and detonations, premixed and non-premixed flames, effect of turbulence, spray and droplet combustion, combustion systems.
Sec. 01 MTW 1

530.656 MECHANISMS OF DEFORMATION AND FRACTURE Hemker
Limit 30     An advanced course on the microscopic mechanisms that control the mechanical behavior of materials. Methods and techniques for measuring, understanding, and modeling: plasticity, creep, shear banding, and fracture will be addressed. Subjects to be covered include dislocation theory and strengthening mechanisms, high temperature diffusion and grain boundary sliding, shear localization, void formation, ductile rupture, and brittle fracture.
Sec. 01 TTh 8:30-10

530.672 BIOSENSING & BIOMEMS Yang
Limit 20     The course discusses the principles of biosensing and introduces micro- and nano-scale devices for fluidic control and molecular/cellular manipulation, measurements of biological phenomena, and clinical applications. Co-listed as 580.672
Sec. 01 MW 11-12:30

530.710 OPTICAL MEASUREMENT TECHNIQUES Katz
Limit 30     Optic-based techniques are being utilized as measurement and data transmission tools in a growing number of applications. The objective of this course is to introduce graduate students with limited background in optics (but with background in graduate-level mathematics) to the fundamentals of optics and their implementation. Topics covered include reflection, refraction, fluorescence, phosphorescence and diffraction of light; review of geometric optics, lenses, lens systems (microscope, telescope), mirrors, prisms; aberrations, astigmatism, coma, and methods to correct them; light as an electromagnetic wave; Fourier optics; spectral analysis of optical systems; coherent and incoherent imaging, holography, interferometry, diffraction grating; lasers, polarization, light detectors; elements of non-linear optics, birefringence; optical fibers, data transmission, and networking.
Sec. 01 MW 3-4:30

530.730 FINITE ELEMENT METHODS Anandarajah
Limit 15     The basic concepts of the FEM are presented for one, two-, and three-dimensional boundary value problems (BVPs). Problems from heat conduction and solid mechanics are addressed. The key topics include relationships between strong, weak, and variational statements of BVPs, weighted residual methods with an emphasis on the Galerkin method, specialization of Galerkin approximations of weak statements and Ritz approximations of variational statements to obtain finite element formulations, specific element formulations, convergence properties, solutions of linear systems of equations, and time-dependent problems. Co-listed as 560.730
Sec. 01 ThF 1:30-3

530.759 RESEARCH SEMINAR IN PLASTICITY AND FAILURE Ramesh
Permission of instructor and advisor required    Limit 20     A weekly research seminar featuring ongoing research as well as reviews of new papers of interest in the general areas of plasticity and failure. The course will have an emphasis on dynamic phenomena, but will consider both engineering materials and biological systems. Students will be expected to attend regular research seminars.
Sec. 01 F 8-10
MECHANICAL ENGINEERING

530.762 ADVANCED MATHEMATICAL METHODS OF ENGINEERING

530.767 COMPUTATIONAL FLUID DYNAMICS

500.602 SEMINAR: ENVIRONMENTAL AND APPLIED FLUID MECHANICS
Meneveau  Cross-listed with DOGEE, Earth and Planetary Sciences and General Engineering

530.800 INDEPENDENT STUDY
Sec. 01 Staff  Sec. 14 Okamura
Sec. 02 Meneveau  Sec. 16 Molinari
Sec. 03 Open  Sec. 17 Staanovici
Sec. 04 Prosperetti  Sec. 18 open
Sec. 05 Herman  Sec. 19 Su
Sec. 06 Ramesh  Sec. 20 Wang
Sec. 07 Taylor  Sec. 21 Sun
Sec. 08 Chen  Sec. 22 Cowan
Sec. 09 Sharpe  Sec. 23 Chen
Sec. 10 Kno  Sec. 25 Katz
Sec. 11 Hemker  Sec. 26 Vidal
Sec. 12 Chirikjian  Sec. 27 Fichtinger
Sec. 13 Whitcomb

530.802 GRADUATE RESEARCH
Sec. 01 Staff  Sec. 14 Okamura
Sec. 02 Meneveau  Sec. 16 Molinari
Sec. 03 Open  Sec. 17 Staanovici
Sec. 04 Prosperetti  Sec. 18 open
Sec. 05 Herman  Sec. 19 Su
Sec. 06 Ramesh  Sec. 20 Wang
Sec. 07 Taylor  Sec. 21 Sun
Sec. 08 Chen  Sec. 22 Cowan
Sec. 09 Sharpe  Sec. 23 Chen
Sec. 10 Kno  Sec. 25 Katz
Sec. 11 Hemker  Sec. 26 Vidal
Sec. 12 Chirikjian  Sec. 27 Fichtinger
Sec. 13 Whitcomb

530.804 MECHANICAL ENGINEERING SEMINAR
Prosperetti  Limit 100

PROFESSIONAL COMMUNICATION PROGRAM

661.110 (H,S) (W) TECHNICAL COMMUNICATION
Sec. 01  M 3.6pm
Sec. 02  M 3.6pm
Sec. 03  T 3.6pm
Sec. 04  T 6.9pm
Sec. 05  W 3.6pm
Sec. 06  W 3.6pm

661.120 (H,S) (W) BUSINESS COMMUNICATION
Sec. 01  MTFW 11
Sec. 02  MTFW 12
Sec. 03  Th 6.15-9pm

In this course, students create several different kinds of professional documents including resumes, cover letters, and application essays. They are given the opportunity to learn more about effective writing techniques and to develop professional communication skills.

This course focuses on writing business memos, business proposals, resumes, cover letters and formal reports. Students present work orally and enhance their
presentations with technology-based media.

**661.150 (H,S) (W)**

**ORAL PRESENTATIONS (3)**

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<td>06</td>
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This course introduces students to the principles of developing and delivering effective oral presentations. Students practice these skills in a variety of contexts and submit written documents (speaking scripts) to accompany them. The goal of the course is to allow students to develop confidence when speaking in front of different audiences and on various topics.

**661.310 (H) (W)**

**SCIENTIFIC WRITING (3) Sheff**

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This course allows students to develop critical writing skills needed for the sciences. In addition to producing their own written work, students will critique articles for content and style. The goal of the course is to weld critical thinking to compelling writing.

**661.330 (H) (W)**

**WRITING FOR THE HEALTH PROFESSIONS (3) Stone**

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This course is specifically designed for students interested in developing their writing skills for health-related professions. Students will create a variety of papers and will also develop editing skills through peer review.

**661.610**

**RESEARCH WRITING Stone**

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This course provides writing and organizational support to graduate students developing journal articles, dissertations, theses, or conference papers. Each student is expected to do substantial writing and editing of professional documents during the semester.