JOHNS HOPKINS UNIVERSITY

2007–2008

FIRST TERM

SCHEDULE

OF

ARTS AND

SCIENCES

AND

ENGINEERING

COURSES

Office of the Registrar March 2007
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, 1998: 982
% of freshman returning as sophomores: 95%
% graduating within 4 years: 84%
% graduating within 5 years: 90%
% graduating within 6 years: 91%

Questions about this data should be addressed to: The Director of Institutional Research, 205 Garland Hall (410) 516-8094
SCHEDULE INFORMATION

This schedule includes all Arts & Sciences and Engineering courses expected to be offered in the fall term and is based upon information received from the departments through March 2007. Updated information can be found at [http://www.jhu.edu/registrar/schedule.html](http://www.jhu.edu/registrar/schedule.html)

1. The course number includes both a departmental and 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>Course Number</th>
<th>Department / Course Name</th>
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</thead>
<tbody>
<tr>
<td>362</td>
<td>Africana Studies</td>
</tr>
<tr>
<td>070</td>
<td>Anthropology</td>
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<tr>
<td>371</td>
<td>Art</td>
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<tr>
<td>290</td>
<td>Behavioral Biology</td>
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<tr>
<td>020</td>
<td>Biology</td>
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<tr>
<td>250</td>
<td>Biophysics</td>
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<tr>
<td>030</td>
<td>Chemistry</td>
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<tr>
<td>040</td>
<td>Classics</td>
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<tr>
<td>050</td>
<td>Cognitive Science</td>
</tr>
<tr>
<td>270</td>
<td>Earth &amp; Planetary Science</td>
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<tr>
<td>180</td>
<td>Economics</td>
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<tr>
<td>060</td>
<td>English</td>
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<tr>
<td>061</td>
<td>Film and Media Studies</td>
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<tr>
<td>210</td>
<td>German and Romance</td>
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<tr>
<td>215</td>
<td>Languages and Literatures</td>
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<tr>
<td>100</td>
<td>History</td>
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<tr>
<td>010</td>
<td>History of Art</td>
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<td>140</td>
<td>History of Science</td>
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<tr>
<td>300</td>
<td>and Technology</td>
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<td>360</td>
<td>Humanities</td>
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<td>375</td>
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<td>373</td>
<td>Language Teaching Center:</td>
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<tr>
<td>378</td>
<td>Arabic</td>
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<tr>
<td>381</td>
<td>Chinese</td>
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<td>376</td>
<td>Hindi</td>
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<td>370</td>
<td>Japanese</td>
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<tr>
<td>379</td>
<td>African Languages</td>
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<td>380</td>
<td>Korean</td>
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<td>382</td>
<td>Persian</td>
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<td>383</td>
<td>Sanskrit</td>
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<td>361</td>
<td>Latin American Studies</td>
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<tr>
<td>362</td>
<td>Mathematics</td>
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<tr>
<td>374</td>
<td>Military Science</td>
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<tr>
<td>389</td>
<td>Museum &amp; Society Programs</td>
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<tr>
<td>376</td>
<td>Music</td>
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<tr>
<td>130</td>
<td>Near Eastern Studies</td>
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<tr>
<td>080</td>
<td>Neuroscience</td>
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<td>150</td>
<td>Philosophy</td>
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<td>171</td>
<td>Physics &amp; Astronomy</td>
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<td>190</td>
<td>Political Science</td>
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<tr>
<td>200</td>
<td>Psychological &amp; Brain Sciences</td>
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<tr>
<td>280</td>
<td>Public Health Studies</td>
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<tr>
<td>195</td>
<td>Public Policy</td>
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<td>230</td>
<td>Sociology</td>
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<tr>
<td>225</td>
<td>Theatre Arts and Studies</td>
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<tr>
<td>220</td>
<td>Writing Seminars</td>
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</table>

### GWC WHITING SCHOOL OF ENGINEERING

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Department / Course Name</th>
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</thead>
<tbody>
<tr>
<td>550</td>
<td>Applied Math &amp; Statistics</td>
</tr>
<tr>
<td>580</td>
<td>Biomedical Engineering</td>
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<tr>
<td>540</td>
<td>Chemical &amp; Biomolecular Engr.</td>
</tr>
<tr>
<td>560</td>
<td>Civil Engineering</td>
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<tr>
<td>600</td>
<td>Computer Science</td>
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<tr>
<td>520</td>
<td>Electrical &amp; Computer Engr.</td>
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<tr>
<td>640</td>
<td>Entrepreneurship &amp; Mgmt</td>
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<tr>
<td>500</td>
<td>General Engineering</td>
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<tr>
<td>570</td>
<td>Geography &amp; Environ. Engr.</td>
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<tr>
<td>650</td>
<td>Information Security Institute</td>
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<tr>
<td>510</td>
<td>Materials Science &amp; Engr.</td>
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<tr>
<td>530</td>
<td>Mechanical Engineering</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  
500-599 Independent study, Internships 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 100-499-course number identifies the broad area of study for the fulfillment of undergraduate distribution requirements.

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

3. The number in parentheses after each 100-499-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 courses ending in 600-849.

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 just 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.
### FALL TERM EXAMINATION SCHEDULE
for Arts & Science and Engineering Courses Numbered 100-499
Thursday, December 13 through Thursday, December 20

#### A. COMMON EXAMINATIONS FOR MATH AND LANGUAGE COURSES
Math 105, 106, 107, 308, 109, 201, 202 & 302 — 9-12 noon, Thursday, December 13
Elementary and Intermediate Language courses —— 2-5 pm, Monday, December 17

Room assignments for the final examinations in these courses will be announced in class in November.

#### 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 full week of Fall term classes (Monday, September 10 - Friday, September 14). In the case of lecture style courses, the first lecture meeting will govern, not the section meeting.

<table>
<thead>
<tr>
<th>Time</th>
<th>Examination Time</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>M(TW) 8</td>
<td>2-5 pm</td>
<td>Thursday, December 20 (except as noted in A above)</td>
</tr>
<tr>
<td>M(TW) 9</td>
<td>9-12 noon</td>
<td>Tuesday, December 18 (except as noted in A above)</td>
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<tr>
<td>M(TW) 10</td>
<td>9-12 noon</td>
<td>Friday, December 14 (except as noted in A above)</td>
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<tr>
<td>M(TW) 11</td>
<td>9-12 noon</td>
<td>Monday, December 17 (except as noted in A above)</td>
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<tr>
<td>M(TW) 12</td>
<td>2-5 pm</td>
<td>Tuesday, December 18 (except as noted in A above)</td>
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<tr>
<td>M(TW) 1</td>
<td>2-5 pm</td>
<td>Friday, December 14 (except as noted in A above)</td>
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<tr>
<td>M(TW) 2</td>
<td>9-12 noon</td>
<td>Wednesday, December 19 (except as noted in A above)</td>
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<tr>
<td>M(TW) 3</td>
<td>9-12 noon</td>
<td>Saturday, December 15 (except as noted in A above)</td>
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<tr>
<td>M(TW) 4</td>
<td>2-5 pm</td>
<td>Saturday, December 15 (except as noted in A above)</td>
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<tr>
<td>Th(F) 9</td>
<td>9-12 noon</td>
<td>Thursday, December 20 (except as noted in A above)</td>
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<tr>
<td>Th(F) 10:30</td>
<td>2-5 pm</td>
<td>Thursday, December 13 (except as noted in A above)</td>
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<tr>
<td>Th(F) 12</td>
<td>2-5 pm</td>
<td>Wednesday, December 19 (except as noted in A above)</td>
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<tr>
<td>Th(F) 1</td>
<td>2-5 pm</td>
<td>Thursday, December 20 (except as noted in A above)</td>
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<tr>
<td>Th(F) 2</td>
<td>2-5 pm</td>
<td>Saturday, December 15 (except as noted in A above)</td>
</tr>
<tr>
<td>Th(F) 3</td>
<td>2-5 pm</td>
<td>Sunday, December 16 (except as noted in A above)</td>
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</tbody>
</table>

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.

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

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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 the Office of Equal Opportunity and Affirmative Action, 130 Garfield Hall, (410) 516-4075.
ZANVYL KRIEGER SCHOOL OF ARTS AND SCIENCES COURSES

AFRICANA STUDIES

362.111 (S)  INTRODUCTION TO AFRICAN AMERICAN STUDIES (3) Staff  Limit 15  This course is an introduction to the origins and emergence of Black Studies as an academic discipline in the American academy. The course is centered on the social realities of people of African descent living in the United States  Cross-listed with Sociology  
Sec. 01  ThF 12:15-1:30

362.175 (H)  FRESHMAN SEMINAR: REMEMBERING THE BLACK POWER MOVEMENT (3) Hayes  Limit 25  How should we remember the Black Power Movement of the late 1960s and 1970s? What lessons can we learn from this complex social movement that redefined black identity and confronted white supremacy and economic exploitation in America? This course examines the historical and social conditions that led to the rise and decline of the Black Power Movement, introducing students to the leadership, organizations, and ideologies representative of the movement.  Cross-listed with Sociology  
Sec. 01  TTh 10:30-12

362.200 (H)  AFRICAN AMERICAN POETRY AND POETICS (3) Robbins  Limit 25  This course will explore the category, history, and development of African American poetry from Phillis Wheatley to the present. We will focus on poetry and poetics specifically but will consider the general movement of literature produced by African American writers over the course of three centuries. We will read works by the key contributors to this particular American literary tradition with the goal of understanding the aesthetic, cultural, and critical legacy of African-American poetry to the American literary and musical sensibility of the 21st century. From 18th century odes to 19th century shouts and spirituals to the jazz poets of the Harlem Renaissance to Black Arts poetry to the blues, hip hop, and rap tradition, we will examine the role that race, cultural identity, legal status, and the impersonal structures (or shackles) of poetic forms have played in shaping and reshaping African American verse.  Cross-listed with Sociology  
Sec. 01  MW 10:30-12

362.220 (H, S)  DISCOURSES IN THE AFRICAN DIASPORA (3) Vinson  Limit 25  The African Diaspora has emerged as one of the "hot" topics of discussion in contemporary global race relations. The purpose of this course is to engage in a semester-long study into the meaning of the "African Diaspora." Beginning with a brief reflection on some of the theoretical overlays on the topic, the course moves quickly into the heart of the subject matter. The course posts that beyond theoretical discussions, there is much to be learned from a close examination of the narrative accounts of individuals who have lived transnationally -- who have themselves been actors and agents of the Diaspora.  Cross-listed with History and Political Science.  
Sec. 01  T 2-4

362.375 (H, S)  BEBOP, MODERNISM AND CHANGE (3) Hayes  Limit 25  The seminar explores the social & political content, meanings & intent of bebop music from the 1940s to the 1960s and its impact on the social transformation of America. Taught at Peabody.  Cross-listed with History, Political Science, and Sociology  
Sec. 01  MW 12:30-2

060.391 (H)  INTRODUCTION TO 20TH CENTURY AFRICAN-AMERICAN LITERATURE (3) Conn  Limit 18  Cross-listed with English  
Sec. 01  MW 3:30-5

070.222 (H, S)  AFRICA IN THE 21ST CENTURY (3) Guyer  Limit 50  Cross-listed with Anthropology  
Sec. 01  M 1-4

070.393 (H, S)  LAW AND DEVELOPMENT: POSTCOLONIAL PERSPECTIVES (3) Obarrio  Limit 50  Registration Requirements: Upper level undergrads only and open to  
Sec. 01  T 1-4
AFRICANA STUDIES

graduate students
Cross-listed with Anthropology and Program for Latin American Studies

100.223 (H,S) (W)
CIVIL WAR TO KATRINA: RECONSTRUCTING NEW ORLEANS (3)
Young Limit 20
Cross-listed with History
Dean Teaching Fellowship Course

180.252 (S)
ECONOMICS OF DISCRIMINATION (3)
Morgan Limit 50
Cross-listed with Public Health Studies, Women, Gender, and Sexuality Studies, and Economics

190.214 (S)
INTRODUCTION TO RACIAL AND ETHNIC POLITICS (3) Hanchard Limit 20
Cross-listed with Political Science

190.302 (S)
POLITICS OF BLACK CULTURAL PRODUCTION (3) Spence Limit 15
Cross-listed with Political Science

190.384 (S)
URBAN POLITICS (AP) (3) Spence Limit 20
Cross-listed with Political Science

230.112 (S)
FRESHMAN SEMINAR ON RACE AND EDUCATION IN THE U.S. (3) Bennett Limit 15
Cross-listed with Sociology

ANTHROPOLOGY

070.216 (H,S) (W)
THE LOGIC OF ANTHROPOLOGICAL INQUIRY (3) Das Limit 30
A close look at ethnography as a mode of inquiry and as a genre of writing. This will count as a required course for Anthropology majors but open to all undergraduates.

070.222 (H,S) (W)
AFRICA IN THE 21ST CENTURY (3) Guyer Limit 50
The present and future of Africa are often projected in apocalyptic terms. We attempt here to understand the ordinary realities of life, family, making a living, community, congregation, governance and inequality, with special attention to works by African scholars, public figures, writers and artists.
Cross-listed with Africana Studies

070.327 (H,S) (W)
POVERTY’S LIFE: ANTHROPOLOGIES OF HEALTH AND ECONOMY (3) DeLucia Limit 25
Cross-listed with Sociology

070.351 (H,S) (W)
POLITICAL LIFE OF GENDER (3) Cervone Limit 25
This course explores the role of gender in the production and contestation of socio-economic inequality and political domination. Examples will be drawn from Latin America and other colonial and post-colonial societies. Open to graduate students.
Cross-listed with Program for Latin American Studies and Women, Gender, and Sexuality Studies

070.365 (H,S) (W)
ANTHROPOLOGY OF CHRISTIANITY (3) Cannell Limit 50
Ethnography and historical readings on a wide variety of Christianities from diverse parts of the world; theoretical investigations of the unexpected ways Christianity has shaped thinking in the social sciences and beyond. Open to graduate students.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Sec.</th>
<th>Days</th>
<th>Time</th>
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<tr>
<td>070.393</td>
<td>LAW AND DEVELOPMENT: POSTCOLONIAL PERSPECTIVES (3)</td>
<td>Obarrio</td>
<td>3</td>
<td>01</td>
<td>T</td>
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<tr>
<td>070.397</td>
<td>INTRODUCTION TO SOUTH ASIA (3)</td>
<td>Pandian</td>
<td>3</td>
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<tr>
<td>570.147</td>
<td>ADAM SMITH AND KARL MARX (3)</td>
<td>Schoenberger</td>
<td>3</td>
<td>01</td>
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<tr>
<td>300.337</td>
<td>THINKING FILMS (3)</td>
<td>Marsati</td>
<td>3</td>
<td>01</td>
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<td>362.375</td>
<td>BEBOP, MODERNISM AND CHANGE (3)</td>
<td>Hayes</td>
<td>3</td>
<td>01</td>
<td>MW</td>
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<td>570.427</td>
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<td>070.503</td>
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<td>070.507</td>
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<td>070.551</td>
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<td>070.561</td>
<td>ADVANCED TOPICS IN MEDICAL ANTHROPOLOGY (3)</td>
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<td>070.616</td>
<td>PROSEMINAR ON ANTHROPOLOGICAL THEORY (3)</td>
<td>Poole</td>
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<td>070.617</td>
<td>ANTHROPOLOGICAL RESEARCH METHODS (3)</td>
<td>Reynolds</td>
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<td>070.649</td>
<td>READINGS IN ANTHROPOLOGICAL THEORY AND METHOD (3)</td>
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<tr>
<td>070.661</td>
<td>ANTHROPOLOGY OF CULTURES AND RELATEDNESS (3)</td>
<td>Cannell</td>
<td>3</td>
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<td>1-3</td>
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</table>
ANTHROPOLOGY
A critical exploration of the concept of kinship (relatedness) and what delimits it, with a focus on Euro-American materials, but also drawing on a wide range of ethnographic text. Cross-listed with Women, Gender, and Sexuality Studies.

300.637 HISTORY AND EVENT Marrati
Cross-listed with Philosophy, the Humanities Center, German and Romance Languages, Political Science, and History.

300.670 THE SECULAR LIVES OF GRACE de Vries
Cross-listed with the Humanities Center, Philosophy, German and Romance Languages, and Political Science.

070.801 DISSERTATION RESEARCH Staff
070.867 DIRECTED READING AND RESEARCH Han
070.869 DIRECTED READING AND RESEARCH Pandian
070.871 DIRECTED READING AND RESEARCH Das
070.879 DIRECTED READING AND RESEARCH Guyer
070.883 DIRECTED READING AND RESEARCH Reynolds
070.885 DIRECTED READING AND RESEARCH Poole
070.893 DIRECTED READING AND RESEARCH Obarsing
070.895 DIRECTED READING AND RESEARCH Schoenberger
070.897 DIRECTED READING AND RESEARCH Berry

ART
371.131 STUDIO DRAWING I (2) Hankin
Limit 15 per section
ATTENDANCE AT 1ST 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.

371.133 PAINTING WORKSHOP I (2) Hankin
Limit 12. 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.

371.134 PAINTING WORKSHOP II (2) Gruber
Limit 12. Prereq: 371.133 or equivalent. Students who have mastered basic painting skills undertake sustained projects, including portrait and plein air landscape work. Slide lectures and handouts deepen students' appreciation of representational traditions. Advanced techniques, materials, and compositional issues are also investigated.

371.146 (H) BASIC BLACK & WHITE PHOTOGRAPHY (3) Berger
Limit 7 per section
ATTENDANCE AT 1ST CLASS IS MANDATORY. An introduction to the technical and creative process of producing black & 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. **Students must have a 35mm camera with manual aperture and shutter speed.** Cross-listed with the Humanities Center.
In art, "Realism" is a simulation of visual reality. But art can also simulate alternative realities, those realities or truths which exist only in daydreams or nightmares. In this class, we will learn to explore and create representations of these additional moments of existence. This will require thinking creatively or "outside the box," a useful skill in any field. Using a variety of media, students are asked to solve problems to which there is not one correct answer.

Cross-listed with the Humanities Center

In this course, students use Photoshop software as a tool to produce images from a fine art perspective, working on projects that demand creative thinking while gaining technical expertise. It is run as a companion to traditional photography classes. Students will make archival prints, have regular critiques, and attend lectures on the history of the manipulated image and its place in culture. Students will look at art movements which inspire digital artists, including 19th century collage, dada, surrealism, and the zeitgeist of Hollywood films. They will meet with artists who work in this medium as well as visit the BMA to see its growing collection of digital images. Students must have a digital camera. Prior knowledge of Photoshop is not required.

Cross-listed with the Humanities Center

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.

Students must have a digital camera with manual aperture and shutter speed.

Cross-listed with the Humanities Center

Through a structured approach of demonstration and experimentation, and also by examining master artists, students will explore a wide range of approaches to watercolor. Technical aspects include painting techniques, properties of transparent and opaque media, color mixing, and types of paper. Students will also learn how to observe interactions of color in nature and to use these color relationships in figurative and abstract works. Painting indoors and out, students will explore subjects of still life, landscape, and portrait in increasing degrees of complexity as the semester progresses. Students will keep a sketchbook journal to record their visual thoughts and to collect and catalogue their newly acquired vocabulary of techniques and skills.

Cross-listed with the Humanities Center

Note: The Friday workshop is a required part of this course. The first workshop meets on Friday September 9.
### BEHAVIORAL BIOLOGY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Days and Times</th>
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<tbody>
<tr>
<td>020.153</td>
<td>GENERAL BIOLOGY LAB I (1)</td>
<td>Pearlman</td>
<td>1</td>
<td>Lec. Th 1</td>
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<td>Sec. 01 M 1-4</td>
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<tr>
<td>080.330</td>
<td>BRAIN INJURY &amp; RECOVERY OF FUNCTION (CM)(ST) (3)</td>
<td>3</td>
<td>M 6:30-9</td>
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<td>200.141</td>
<td>INTRODUCTION TO PHYSIOLOGICAL PSYCHOLOGY (3)</td>
<td>German</td>
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<td>200.328</td>
<td>THEORY &amp; METHODS IN CLINICAL PSYCHOLOGY (3)</td>
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<tr>
<td>200.339</td>
<td>ISSUES IN COUNSELING AND MENTAL HEALTH CARE (3)</td>
<td>McComb</td>
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<tbody>
<tr>
<td>200.344</td>
<td>BEHAVIORAL ENDOCRINOLOGY</td>
<td>Ball</td>
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<tr>
<td>220.420</td>
<td>ORIGINS OF HUMAN SEXUAL ORIENTATION AND VARIATION (3)</td>
<td>Kraft</td>
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### BIOLOGY

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<tr>
<td>020.101</td>
<td>FRESHMEN SEMINAR: VITAMINS, TRACE ELEMENTS, AND LIFE (1)</td>
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<tr>
<td>020.104</td>
<td>FRESHMEN SEMINAR: FROM GENES TO DNA TO BACK (1.5)</td>
<td>Moudrianakis</td>
<td>1.5</td>
<td>Sec. 01 M 2-4</td>
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<tr>
<td>020.106</td>
<td>FRESHMEN SEMINAR: TUBERCULOSIS (1)</td>
<td>Horner</td>
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<tr>
<td>020.107</td>
<td>BREAKTHROUGHS IN SCIENCE (1)</td>
<td>Bessman</td>
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<tbody>
<tr>
<td>020.110</td>
<td>FRESHMEN SEMINAR: THE BIOLOGY OF PLASTIDS (1)</td>
<td>McCary</td>
<td>1</td>
<td>Sec. 01 Th 1</td>
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</table>

Mycobacterium tuberculosis is an extremely successful intracellular bacterial pathogen able to manipulate phagocytic cells and its own metabolism to survive within a host. The molecular mechanisms of this survival and resistance to antibiotics will be studied.
Note: The Friday workshop is a required part of this course.

This course begins with an overview of the biosphere, followed by analysis of ecosystem and exploration of animal behavior in the context of ecosystems and evolution. Next, the cellular and molecular basis of life and the energetics of organisms are presented as unifying themes. The biochemistry of organic molecules, factors controlling gene expression, cellular metabolism, and advances in biotechnology represent topics of concentration. Mechanisms of inheritance and evolution are introduced. This course will also include a series of workshops that will explore current trends in research, experimental design and analysis, and molecular modeling.

Cross-listed with Behavioral Biology

020.151 (N) GENERAL BIOLOGY I (4)
McCarty/Pearlman/Shingles  Limit 280

Sec. 01 MTW 11  Wksp.  F 11

020.153 (N) GENERAL BIOLOGY LAB I (1)
Pearlman

Sec. 01 MTW 11

Coreq: 020.151

Limit 40 for Sec. 01 and Limit 60 for Sec. 02-04

This course reinforces the topics covered in 020.151. Laboratory exercises explore subjects ranging from forest ecology to molecular biology to animal behavior. Students participate in a semester-long project, identifying bacteria using DNA sequencing.

Cross-listed with Behavioral Biology

020.161 (N) BIOLOGY WORKSHOP I (1) Pearlman

020.161 or 020.161, but not both

Limit 60  Prereq: Score of 4 or 5 on AP Biology exam

The workshop covers applications and current trends in Biology through guest lectures from researchers and hands-on computer programs.

Credit will be awarded for EITHER 020.151 or 020.161, but not both

020.207 (N,S) INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY (3) Teaford
Limit 75

The biology and evolution of humans and their closest living relatives.

020.304 (N) CELLULAR AND MOLECULAR NEUROSCIENCE (3) Hattar/Zhao
Limit 50  Prereq: 020.305, or Perm. Req'd

This course covers all aspects of cellular neurophysiology, with particular attention to the biophysical and molecular bases of membrane physiology. Topics include the molecular bases of membrane permeability, action potentials, synaptic transmission and neuronal modulation. Readings include a text and original research articles, and computer simulations will be utilized to demonstrate key concepts.

Taught with 080.304 and 020.604

020.315 (N) BIOCHEMISTRY LAB (2) Horner Limit 280

60 per section  Coreq: 020.305

This course will reinforce the topics presented in Biochemistry 020.305 through laboratory exercises which use quantitative measurement to study cellular components and processes. Topics include pH, proteins, carbohydrates, lipids, nucleic acids, and enzymes.

020.317 (N) SIGNALING IN DEVELOPMENT AND DISEASE (3) Kuruvilla

Limit 30

Biology and Neuroscience Majors only

020.330 (N) GENETICS (3) Hoye/Cunningham

Limit 325

Coreq: 020.305

Sec. 01 MTW 10
BIOLOGY

Presentation of the principles of heredity and variation, and their application to evolution and development; physico-chemical nature of the gene; problems of recombination; gene action.

Cross-listed with Neuroscience

020.340 (N) GENETICS LAB (2) Norris
Limit 40 per section Coreq 020.330
This laboratory explores the genetics of living organisms, and students in each section will therefore be required to return to lab on succeeding days to observe and record the results of their experiments.

020.350 (N) TOPICS IN MODERN MEDICINE (1) Salmon
Limit 25 Perm. Req'd. Post-Bac Students Only
This laboratory explores the genetics of living organisms, and students in each section will therefore be required to return to lab on succeeding days to observe and record the results of their experiments.

020.375 (N) HUMAN ANATOMY (3) Teaford
Prereq 020.305-306 Limit 100 Juniors and Seniors only
This course is meant to be an introduction to human gross anatomy. It will seek to give students enough background in anatomical knowledge and vocabulary to help them in their initial training in medical school, however, it will not be a substitute for anatomy courses in medical school. It will focus on normal adult anatomy, and it will cover each of the main regions of the body – i.e., thorax, abdomen and pelvis, back and limbs, and head-&-neck. Lectures will cover descriptive and functional anatomy, ultimately leaving students with a better understanding of anatomical terminology and 3D relationships of structures within the human body, and better problem-solving skills as they begin to relate symptoms to causes, again at the gross anatomical level.

020.379 (N) EVOLUTION (3) Norris
Prereq 020.306, 020.330 or Perm. Req’d Limit 25 This course will explore the principles of natural selection and examine the origins of species from both the geologic record (paleontology) and the genetic record. One goal of the course is to explore the role of DNA as the driving force for evolution.

020.401 (N) ADVANCED SEMINAR IN MOLECULAR AND CELLULAR BIOLOGY (3) Staff
Limit 30 BA/MS candidates only. This is a weekly seminar designed for graduate students enrolled in the B.A., M.S. and Ph.D. programs. The seminar involves student presentations of research and discussion of topics of current interest in the field.

020.441 (N) MENTORING IN BIOLOGY (1) Pearlman/Shingles
Limit 25 Perm. Req’d S/U only PreReq: Successful completion of 020.151/152. To become a mentor, students must have successfully completed 020.151/152, must apply using the form on the Biology Dept. Website, and must be accepted by the instructors. The deadline to apply is April 6. This course provides students who have taken General Biology I & II the opportunity to mentor new students in General Biology I & II. Mentors collaborate with faculty on how to lead effective sessions, help student teams complete team assignments, and generally help students understand difficult concepts and principles in biology. Mentors must have a firm command of the topics covered in biology and must meet with both faculty and students throughout the course of the semester.

250.345 (N) CELLULAR AND MOLECULAR PHYSIOLOGY (3) Cone
Limit 60 Coreq 020.305 Cross-listed with Biophysics and Neuroscience

250.351 (N) REPRODUCTIVE PHYSIOLOGY (2) Zirkia Coco
Limit 120 Coreq 020.305 Cross-listed with Biophysics

020.501 INTRODUCTION TO INDEPENDENT STUDY Perm. Req’d. Freshmen and Sophomores only
BIOLOGY

020.503  INTRODUCTION TO RESEARCH  Perm. Req’d.
Freshmen and Sophomores only

020.505  INTERNSHIP  Perm. Req’d.

020.511  INDEPENDENT STUDY  Perm. Req’d.

020.513  RESEARCH PROBLEMS

020.551  MENTORED RESEARCH PROGRAM IN MOLECULAR AND CELLULAR BIOLOGY  Horner  BA/MS candidates only

NOTE: ALL 600 LEVEL COURSES ARE OPEN TO UNDERGRADUATES WITH PERMISSION.

020.601  CURRENT BIOLOGY RESEARCH  Staff  Limit 30  First year Biology Graduate students only

020.604  CELLULAR AND MOLECULAR NEUROSCIENCE  Hattar/ Zhao  Limit 20  Taught with 020.304 and 080.304

020.614  SIGNALLING IN DEVELOPMENT AND DISEASE  Kuruvilla  Limit 20  Perm. Req’d.

020.646  BIOLOGICAL SPECTROSCOPY  Brand  Limit 50  Open to advanced Undergrads, with permission of instructor
This course provides a theoretical background for fluorescence spectroscopy and demonstrates how fluorescence can be used to advantage to address important problems in biochemistry, biophysics, molecular biology, and cell biology.

020.668  ADVANCED MOLECULAR BIOLOGY  Schleif  Limit 75  Prereq: 020.665
An advanced course in organization and function of eukaryotic and prokaryotic genes, including discussion of techniques to analyze gene structure and transcription.

020.686  ADVANCED CELL BIOLOGY  Edelstein  Limit 50  All aspects of cell biology are reviewed and updated in this intensive course through critical evaluation and discussion of the current scientific literature. Topics include protein trafficking, membrane dynamics, cytoskeleton, signal transduction, cell cycle control, extracellular matrix, and the integration of these processes in cells of the immune system. Open to graduate students and advanced undergraduates by permission of the instructor.

020.687  METHODS AND LOGIC IN CELL BIOLOGY  Wendland/ Kurvilla  Limit 35  Biology Graduate students only

020.801  RESEARCH ON BIOLOGY PROBLEMS  Staff

020.823  INTRO TO BIOLOGY RESEARCH  Staff  First year Biology Graduate students only

020.824  INTRO TO BIOLOGY RESEARCH  Staff  First year Biology Graduate students only

BIOPHYSICS

250.131 (N)  TOPICS IN BIOPHYSICS RESEARCH  (1) Flaherty, K.  Limit 50  Freshmen and Sophomores only  Discussion emphasized. Biophysics faculty present seminars on their current work or contemporary biophysics research.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Section</th>
<th>Credits</th>
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<tr>
<td>250.345</td>
<td>CELLULAR AND MOLECULAR PHYSIOLOGY (3)</td>
<td>Cone</td>
<td>Sec. 1 MTW 11</td>
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<tr>
<td></td>
<td>How cells and molecules function as part of whole organisms. Topics include life cycles of molecules, cells and organisms, cellular and organismic circulatory systems, gas transport, sensory mechanisms, muscle and molecular motors, and virus host interactions. Cross-listed with Biology and Neuroscience.</td>
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<tr>
<td>250.351</td>
<td>REPRODUCTIVE PHYSIOLOGY (2)</td>
<td>Zirkin/Cone</td>
<td>Sec. 1 W 4-5:45pm</td>
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<td>Focuses on reproductive physiology and biochemical and molecular regulation of the female and male reproductive tracts. Topics include the hypothalamus and pituitary, peptide and steroid hormone action, epididymis and male accessory sex organs, female reproductive tract, menstrual cycle, ovulation and gamete transport, fertilization and fertility enhancement, sexually transmitted diseases, and male and female contraceptive methods. Introductory lectures on each topic followed by research-oriented lectures and readings from current literature. Cross-listed with Biology.</td>
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<tr>
<td>250.353</td>
<td>COMPUTATIONAL BIOLOGY (3)</td>
<td>Fleming, P.</td>
<td>Sec. 1 ThF 1-2:30</td>
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<tr>
<td></td>
<td>Biochemistry 020.305 and Organic Chemistry 030.205-206 This course introduces several computational approaches to the study of biological macromolecules. Students will learn to use computational tools to analyze protein structure and to develop a basic understanding of computer programming. The focus is biological rather than mathematical, and no programming experience is required.</td>
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<tr>
<td>250.391</td>
<td>INTRODUCTION TO UNIX/ PYTHON &amp; PROTEINS AND NUCLEIC ACIDS (3) Woodson/Bowman/Rose</td>
<td>Limit 35</td>
<td>Sec. 1 TTh 10:30-12</td>
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<tr>
<td></td>
<td>Basic computing for biological applications. The structure of proteins, DNA, and RNA and their functions in living systems. Experimental and theoretical approaches to macromolecules, including modeling, simulating and visualizing three-dimensional structures.</td>
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<td>250.521</td>
<td>RESEARCH PROBLEMS</td>
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<tr>
<td>250.531</td>
<td>LABORATORY IN BIOPHYSICS</td>
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<tr>
<td></td>
<td>Permission from Faculty Sponsor Introduction to Independent research in biophysics emphasizing basic laboratory techniques. Individual study arranged with faculty mentor.</td>
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<tr>
<td>250.601</td>
<td>BIOPHYSICS SEMINAR</td>
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<td>Perm. Req’d. Graduate students only Students and invited speakers present current biophysics topics.</td>
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<td>250.631</td>
<td>LABORATORY RESEARCH IN BIOPHYSICS</td>
<td>Staff</td>
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<td></td>
<td>Staff Limit 20 Biophysics research training.</td>
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<td>250.673</td>
<td>SEMI-ANNUAL THESIS</td>
<td>Fleming, K.</td>
<td>Sec. 1 TBA</td>
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<td>Biophysics Graduate students only Once each term, advanced graduate students give a 10-minute presentation of their thesis work to the departmental faculty followed by a 30 minute discussion.</td>
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<tr>
<td>250.683</td>
<td>INTRODUCTION TO UNIX PYTHON</td>
<td>Rose</td>
<td>Sec. 1 TTh 10:30-12</td>
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<td>Basic computing for biological applications. The structure of proteins, DNA, and RNA and their functions in living systems. Experimental and theoretical approaches to macromolecules, including modeling, simulating and visualizing three-dimensional structures.</td>
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<tr>
<td>250.685</td>
<td>PROTEINS AND NUCLEIC ACIDS</td>
<td>Rose</td>
<td>Sec. 1 TTh 10:30-12</td>
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<td>Required for 250.685 Proteins and Nucleic Acids Basic computing for biological applications. The structure of proteins, DNA, and RNA and their functions in living systems. Experimental and theoretical approaches to macromolecules, including modeling, simulating and visualizing three-dimensional structures.</td>
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PHYSICAL CHEMISTRY OF BIOLOGICAL MACROMOLECULES
Garcia-Moreno  Limit 55 Introduction to the principles of thermodynamics and kinetics as applied to the study of the relationship between structure, energy dynamics, and biological function of proteins and nucleic acids. Topics include classical, chemical, and statistical thermodynamics, kinetics, theory of ligand binding, and conformational equilibrium.

DISSERTATION RESEARCH

INTRODUCTORY CHEMISTRY I (3)
Staff  Limit 290 per section

INTRODUCTORY CHEMISTRY LABORATORY (1) Paternack
Coreq: 030.101  Limit 90 per section

INTRODUCTORY CHEMISTRY I (4)
Staff  Limit 300 per section
Prereq: 030.101-104, 030.105-106

ORGANIC CHEMISTRY I (4)
Staff  Limit 300 per section
Prereq: 030.101-102, 030.105

INTRODUCTORY ORGANIC CHEMISTRY LABORATORY (3)
Greco
Coreq: 030.101-104, 030.205
Prereq: 030.101-102, 030.105

INSTRUMENTATION LAB I (3)
Fairbrother
Coreq: 030.301

PHYSICAL CHEMISTRY I (3)
Draper

PHYSICAL CHEMISTRY INSTRUMENTATION LAB I (3)
Fairbrother
Coreq: 030.301

PHYSICAL CHEMISTRY LABORATORY III (3)
Trapane
Chemical Engineering majors only

ADVANCED INORGANIC CHEMISTRY LAB (3) Roth

SPECTROSCOPY (3)
Dagdigian

MATERIALS AND SURFACE CHARACTERIZATION (3)
Fairbrother

INTERMEDIATE QUANTUM CHEMISTRY (3) Silverstone

INDEPENDENT RESEARCH IN PHYSICAL CHEMISTRY I

INDEPENDENT RESEARCH IN ORGANIC CHEMISTRY I

INDEPENDENT RESEARCH IN BIOCHEMISTRY

INDEPENDENT RESEARCH IN BIOCHEMISTRY II

INDEPENDENT RESEARCH IN ORGANIC CHEMISTRY II
### CHEMISTRY

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<td>030.527</td>
<td>INDEPENDENT STUDY</td>
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<tr>
<td>030.610</td>
<td>CHEMICAL KINETICS</td>
<td>Bowen</td>
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<tr>
<td>030.613</td>
<td>CHEMICAL BIOLOGY INTERFACE</td>
<td>Greenberg</td>
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<tr>
<td>030.615</td>
<td>SPECIAL TOPICS IN BIOINORGANIC CHEMISTRY</td>
<td>Goldberg</td>
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<td>TBA</td>
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<td>030.619</td>
<td>CHEMICAL BIOLOGY I</td>
<td>Townsend</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>030.621</td>
<td>LITERATURE OF ORGANIC CHEMISTRY</td>
<td>Staff</td>
<td>Sec. 01</td>
<td>W 4-6pm</td>
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<td>030.625</td>
<td>ADVANCED MECHANISTIC ORGANIC CHEMISTRY I</td>
<td>Tovar</td>
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<tr>
<td>030.635</td>
<td>METHODS IN NUCLEAR MAGNETIC RESONANCE</td>
<td>Tolman</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>030.666</td>
<td>ORGANIC SYNTHESIS RESEARCH</td>
<td>Posner</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>030.677</td>
<td>ADVANCED ORGANIC SYNTHESIS I</td>
<td>Posner</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>030.801</td>
<td>INDEPENDENT STUDY</td>
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### CLASSICS

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Section</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>040.105</td>
<td>ELEMENTARY ANCIENT GREEK (4)</td>
<td>Staff</td>
<td>Sec. 01</td>
<td>MTW 11, plus 1 hour-TBA</td>
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<tr>
<td>040.107</td>
<td>ELEMENTARY LATIN (3.5)</td>
<td>Staff</td>
<td>Sec. 01</td>
<td>MTW 9, MTW 10</td>
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<tr>
<td>040.112</td>
<td>ROMAN CIVILIZATION (3)</td>
<td>Staff</td>
<td>Sec. 01</td>
<td>F 10:30-12, Th 10:30-12</td>
</tr>
<tr>
<td>040.205</td>
<td>INTERMEDIATE ANCIENT GREEK (3)</td>
<td>Staff</td>
<td>Sec. 01</td>
<td>MTW 11</td>
</tr>
<tr>
<td>040.207</td>
<td>INTERMEDIATE LATIN (3)</td>
<td>Staff</td>
<td>Sec. 01</td>
<td>MTW 10</td>
</tr>
<tr>
<td>040.305</td>
<td>ADVANCED ANCIENT GREEK (3)</td>
<td>Yatsurumchalaki</td>
<td>Sec. 01</td>
<td>TW 11-12:30</td>
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</tbody>
</table>

This course provides a comprehensive, intensive introduction to the study of ancient Greek. During the first semester, the focus will be on morphology and vocabulary. Credit is given only upon completion of a year’s work.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor</th>
<th>Location</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>040.308</td>
<td>ADVANCED LATIN POETRY</td>
<td>(3)</td>
<td>Staff</td>
<td>MT 4:30-6pm</td>
<td>Prereq: 040.207-208 or equivalent (Same as 040.710). The aim of this course is to increase proficiency and improve comprehension of the Latin language. Intensive reading of Latin texts, with the usual attention to matters of grammar, idiom, translation, etc. Specific offerings vary from year to year.</td>
</tr>
<tr>
<td>040.349</td>
<td>THE MORALITY OF WEALTH: ANCIENT TEXTS AND MODERN QUESTIONS</td>
<td>(3)</td>
<td>Thompson</td>
<td>W 2-5pm</td>
<td>Prereq: Knowledge of Latin or Greek useful but not required. What is the moral purpose of wealth? What values should drive economic decisions? Explore such questions by examining ancient Greek, Roman, and Early Christian sources in light of modern ethics.</td>
</tr>
<tr>
<td>010.300</td>
<td>ART IN THE AGE OF AUGUSTUS</td>
<td>(3)</td>
<td>Koortbojian</td>
<td>MWF 11</td>
<td>Gilman Course in the Humanities Cross-listed with History of Art</td>
</tr>
<tr>
<td>010.390</td>
<td>ART MUSEUM POLICY AND PRACTICE</td>
<td>(3)</td>
<td>Maguire, E</td>
<td>Th 2-5</td>
<td>Hands-on seminar looks behind the scenes at displays and exhibitions, museum operations and programs, as signs of current thinking about what art, past and present, may be. Cross-listed with History of Art, Museum Studies, and Near Eastern Studies</td>
</tr>
<tr>
<td>360.133</td>
<td>GREAT BOOKS: WESTERN TRADE OR THE HUMANITIES: A TRADITION OF CLASSICS</td>
<td>(3)</td>
<td>Egginton, Patton, Tallone, Valladares</td>
<td>ThF 10:30-12</td>
<td>Limit 20 per section Open to all Undergraduates Cross-listed with Interdepartmental, German and Romance Languages, Music, and the Humanities Center</td>
</tr>
<tr>
<td>040.501</td>
<td>INDEPENDENT STUDY</td>
<td></td>
<td>Staff</td>
<td>TBA</td>
<td>Cross-listed with History of Art</td>
</tr>
<tr>
<td>040.519</td>
<td>HONORS RESEARCH</td>
<td></td>
<td>Staff</td>
<td>TBA</td>
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<tr>
<td>040.579</td>
<td>MASTER'S RESEARCH</td>
<td></td>
<td>Staff</td>
<td>TBA</td>
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</tr>
<tr>
<td>040.611</td>
<td>CLASSICAL AND HELLENISTIC SCULPTURE IN THE WALTERS ART MUSEUM</td>
<td>(1.5)</td>
<td>Shapiro</td>
<td>T 2-4</td>
<td>This seminar will explore the functions, genres, and iconography of sculpture in the 5th to 1st centuries BCE on the basis of Greek originals in the Walters collections. Cross-listed with History of Art</td>
</tr>
<tr>
<td>040.615</td>
<td>OVID'S METAMORPHOSES</td>
<td></td>
<td>Valladares</td>
<td>W 3:30pm</td>
<td>Limit 15 In this seminar, we will study Ovid’s Metamorphoses, paying special attention to the text’s generic playfulness and the author’s poetica of illusion. We will also survey recent critical trends in Ovidian studies.</td>
</tr>
<tr>
<td>040.687</td>
<td>PROSEMINAR IN CLASSICAL PHILOLOGY</td>
<td>(1.5)</td>
<td>Yatromanolakis</td>
<td>Th 2-4</td>
<td>An overview of research areas in Classics, including epigraphy, textual transmission, papyrology, critical theory and reception.</td>
</tr>
<tr>
<td>040.704</td>
<td>READING ANCIENT GREEK</td>
<td></td>
<td>Yatromanolakis</td>
<td>TW 11-12</td>
<td>Limit 20 Prerequisite: Greek (Same as 040.305) This reading seminar is intended to train graduate students in direct and critical work on primary sources.</td>
</tr>
<tr>
<td>040.710</td>
<td>READING LATIN POETRY</td>
<td></td>
<td>Staff</td>
<td>TBA</td>
<td>Limit 20 Prerequisite: Latin (Same as 040.500) This reading seminar is intended to train graduate students in direct and critical work on primary sources.</td>
</tr>
<tr>
<td>010.621</td>
<td>ROME'S HISTORICAL TOPOGRAPHY: THE CITY AS SYMBOL</td>
<td></td>
<td>Celenza</td>
<td>M 4-6pm</td>
<td>Limit 15 Cross-listed with History of Art</td>
</tr>
<tr>
<td>214.693</td>
<td>PLATONISM IN THE ITALIAN RENAISSANCE</td>
<td>3</td>
<td>Celenza</td>
<td>Th 3-5pm</td>
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</table>
CLASSICS
Cross-listed with German and Romance Languages, History, the Humanities Center, and Philosophy

040.801  INDEPENDENT STUDY  Staff
040.814  DISSERTATION RESEARCH  Staff

COGNITIVE SCIENCE

050.102 (N,S)  LANGUAGE AND MIND  (3) Radecker
Limit 200  Introductory course dealing with theory, methods, and current research topics in the study of language as a component of the mind. What it is to "know" a language: components of linguistic knowledge (phonetics, phonology, morphology, syntax, semantics) and the course of language acquisition.

Sec. 01  MTW 10

050.316 (N,S)  MORPHO-PHONOLOGY  (3) Bucio
Limit 40  Examination of the interaction between Phonology and Morphology. Discussion of the hypothesis that Morphology too consists of a set of relations that apply in parallel, like the constraints of the Phonology.

Sec. 01  ThF 12-1:30

050.320 (N,S)  SYNTAX I  (3) Legendre
Limit 40  Introduces the basic methods and means of analysis used in contemporary syntax investigations, practicing with data from different languages.

Sec. 01  ThF 1:30-3

050.321 (N,S)  SYNTAX II  (3) Frank
Limit 40  This course addresses and compares conceptions of syntactic theory including TAG, LFG, HPSG, and Categorial Grammar. Discussion focuses on both the substantive and formal properties of the fundamental principles of syntactic theory, as well as the cross-linguistic evidence that has motivated them.

Sec. 01  MW 12-1:30

050.372 (N,S)  FORMAL METHODS  (3) Smolensky
Limit 40  Introduction to continuous mathematics for cognitive science, with applications to biological and cognitive network models: real and complex numbers, differential and integral multi-variant calculus, linear algebra, dynamical systems, numerical optimization.

Sec. 01  MW 1:30-3

050.501  READINGS IN COGNITIVE SCIENCE - FRESHMEN
050.503  RESEARCH IN COGNITIVE SCIENCE - FRESHMEN
050.505  READINGS IN COGNITIVE SCIENCE - SOPHOMORES
050.507  RESEARCH IN COGNITIVE SCIENCE - SOPHOMORES
050.509  COGNITIVE SCIENCE INTERNSHIP
050.511  READINGS IN COGNITIVE SCIENCE - JUNIORS
050.513  RESEARCH IN COGNITIVE SCIENCE - JUNIORS
050.515  READINGS IN COGNITIVE SCIENCE - SENIORS
050.517  RESEARCH IN COGNITIVE SCIENCE - SENIORS
050.616  MORPHO-PHONOLOGY  (3) Bucio
Limit 20  Examination of the interaction between Phonology and Morphology. Discussion of the hypothesis that Morphology too consists of a set of relations that apply in parallel, like the constraints of the Phonology.

Sec. 01  ThF 12-1:30

050.620  SYNTAX I  (3) Legendre
Limit 20  Introduces the basic methods and means of analysis used in contemporary syntax investigations, practicing with data from different languages.

Sec. 01  ThF 1:30-3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Limit</th>
<th>Section</th>
<th>Time</th>
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<tr>
<td>050.621</td>
<td>SYNTAX II</td>
<td>Frank</td>
<td>Limit 20</td>
<td>Sec. 01</td>
<td>MW 12:1-30</td>
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<td></td>
<td>This course addresses and compares conceptions of syntactic theory including TAG, LFG, HPSG, and Categorial Grammar. Discussion focuses on both the substantive and formal properties of the fundamental principles of syntactic theory, as well as the cross-linguistic evidence that has motivated them.</td>
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<tr>
<td>050.672</td>
<td>FORMAL METHODS</td>
<td>Smolensky</td>
<td>Limit 20</td>
<td>Sec. 01</td>
<td>MW 1:30-3</td>
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<td></td>
<td>Introduction to continuous mathematics for cognitive science, with applications to biological and cognitive network models: real and complex numbers, differential and integral multi-variant calculus, linear algebra, dynamical systems, numerical optimization.</td>
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<td>050.800</td>
<td>DIRECTED READINGS</td>
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<td></td>
<td>Limit 40 per section Guided independent readings in special fields of cognitive science.</td>
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<td></td>
<td>Sec. 02 Badecker</td>
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<td>Sec. 03 Burzio</td>
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<td>Sec. 04 Frank</td>
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<td>Sec. 05 Landau</td>
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<td>Sec. 06 Legendre</td>
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<td>Sec. 09 Smolensky</td>
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<tr>
<td>050.811</td>
<td>RESEARCH SEMINAR IN LANGUAGE AND COGNITION</td>
<td>Landau</td>
<td>Limit 20</td>
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<td>TBA</td>
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<td></td>
<td>A specialized research seminar for individuals 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>050.824</td>
<td>RESEARCH SEMINAR IN LEXICAL REPRESENTATION-MORPHOLOGY</td>
<td>Burzio/Badecker</td>
<td></td>
<td>Sec. 01</td>
<td>TBA</td>
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<td></td>
<td>Smolensky Limit 20</td>
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<td></td>
<td>This seminar will read selected chapters from the book, Smolensky &amp; Legendre (2006), The Harmonic Mind: From Neural Computation to Optimality Theoretic Grammar.</td>
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<td>050.825</td>
<td>SEMINAR IN OPTIMALITY THEORY</td>
<td>Smolensky</td>
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<td></td>
<td>Smolensky Limit 20</td>
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<td></td>
<td>This seminar will read selected chapters from the book, Smolensky &amp; Legendre (2006), The Harmonic Mind: From Neural Computation to Optimality Theoretic Grammar.</td>
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<td>050.826</td>
<td>RESEARCH SEMINAR IN FORMAL APPROACHES TO COGNITIVE SCIENCE</td>
<td>Smolensky</td>
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<td>Sec. 01</td>
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<td>Smolensky Limit 20</td>
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<td></td>
<td>Topics range from mathematical analysis of neural networks to computational studies of linguistic structure. Focuses on on-going research of participants and on current literature.</td>
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<td>050.827</td>
<td>RESEARCH SEMINAR IN LANGUAGE ACQUISITION</td>
<td>Legendre</td>
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<td>Legendre Limit 20</td>
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<td></td>
<td>Focuses on current research in acquisition of syntax.</td>
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<td>050.839</td>
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<td>Staff Limit 15</td>
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<td>This seminar will read selected chapters from the book, Smolensky &amp; Legendre (2006), The Harmonic Mind: From Neural Computation to Optimality Theoretic Grammar.</td>
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<tr>
<td>050.849</td>
<td>TEACHING PRACTICUM</td>
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<td>Required course for Teaching Assistants</td>
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DEAN'S TEACHING FELLOWSHIP COURSES

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Limit</th>
<th>Section</th>
<th>Time</th>
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<tbody>
<tr>
<td>100.216</td>
<td>HISTORY DIGGING UP: ARCHAEOLOGICAL PAST AND CONTEMPORARY ISSUES IN 20TH CENTURY ASIA (3) Feng</td>
<td>Limit 15</td>
<td>T 2-5</td>
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<td></td>
<td>This course uses archaeological discoveries as a window to explore the connection between the past and present in 20th century East Asia. No Asian language or history background required.</td>
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<tr>
<td>100.223</td>
<td>CIVIL WAR TO KATRINA: RECONSTRUCTING NEW ORLEANS (3) Young</td>
<td>Limit 20</td>
<td>MW 2-3:30</td>
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<td>Hurricane Katrina exposed how Mardi Gras existed alongside poverty and inequality to produce a national tragedy. This course examines the city’s past of riots, corruption, and racial politics to today.</td>
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</table>
WOMEN, POLITICS, AND THE FRENCH REVOLUTION (3) Caradonna Limit 15 This seminar will investigate the roles and representations of women in the political culture of the French Revolution. Recommended: one previous course in European history.

HISTORY OF ART
FROM VIRGIN TO VENUS: VENETIAN PAINTING AND THE INVENTION OF ART (3) Nygren Limit 25 This course will introduce students to a variety of methods for interpreting Venetian Renaissance art. Traditional art historical approaches will be supplemented by speculative readings in philosophy, politics, gender theory and other disciplines.

HISTORY OF SCIENCE
THE HISTORY OF MEDICINE IN INDIA (3) Salguero Limit 25 A social and cultural history of medicine in India, from the earliest archaeological evidence, to Buddhist and Ayurvedic traditions, to the modern Yoga movement.

HUMANITIES CENTER
SCIENCE FICTION AND THE AVANT-GARDE (3) Khatib/Duda Limit 25 A broad introduction to the genre of science fiction in film, with a special focus on avant-garde tendencies in the representation of time, disaster, and dystopia.

PHILOSOPHY
EXISTENTIALISM AND THE PROJECT OF CREATING ONESELF (3) Ievers Limit 15 This course will be an examination of possibility and significance of self-definition in the context of existentialism via a consideration of works by Kierkegaard, Nietzsche, Sartre, and Camus.

SOCIOLOGY
SOCIOLOGY OF DISABILITY (3) Villenas Limit 25 This course introduces students to themes within the sociology of disability by critiquing traditional notions of disability, and exploring how societal institutions influence the classification, significance, and experiences of disability.

EARTH & PLANETARY SCIENCES
CONVERSATION WITH THE EARTH (3) Marsh Limit 55 per section Freshmen only 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.

OUR CHANGING PLANET (3) Olson/Szlavecz Limit 110 A broad survey of the Earth as a planet, with emphasis on the processes that control global changes. Topics include: the structure, formation, and evolution of the Earth, the atmosphere, oceans, continents, and biosphere. Special attention is given to present-day issues, such as global climate change, natural hazards, air pollution, resource depletion, human population growth, habitat destruction, and loss of biodiversity. Open to all undergraduates; no pre-requisites.

HISTORY OF THE EARTH AND ITS BIOTA (3) Hiscox Limit 110 The history of the earth and life as understood through the geologic record. The evolution and extinction of major life forms will be examined from the perspective of interactions among the solid earth, ocean, atmosphere, and biosphere.

THE DYNAMIC EARTH: AN INTRODUCTION TO GEOLOGY (3) Perry/Ferber Limit 50 Prereq: 030.101 or 171.101-102 or equivalent Coreq (for EPS Majors): 270.221; optional for others.
EARTH & PLANETARY SCIENCES
Basic concepts in geology, including plate tectonics; Earth’s internal structure; geologic time; minerals; formation of igneous, sedimentary, and metamorphic rocks; development of faults, folds and earthquakes; geomagnetism.

270.221 (N)  THE DYNAMIC EARTH LABORATORY (1) Olsen  Limit 12  
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.

270.311 (N)  GEOBIOLOGY (3) Jahnov  Limit 50  
Study of the interface between the biological and geological earth.

270.332 (N)  SOIL ECOLOGY (3) Szlavecz  Limit 10  
Prerequisites: Population and Community Ecology, Geobiology or Instructor’s permission. This course introduces basic aspects of cycles and flows in the soil ecosystem, and provides students with an overview of the higher groups of soil organisms, focusing on their identification characteristics and ecological roles. The course is intended for upper level undergraduates or graduate students who are interested in soils and soil ecology. The course provides basic laboratory and field surveying skills in the discipline. Laboratory and field surveying methods are also covered.

270.369 (N)  GEOCHEMISTRY OF THE EARTH & ENVIRONMENT (3) Sverjensky  Limit 30  
Prereqs: 270.103, 270.114, 270.220, or 270.222  
The chemical principles needed to understand and predict how the elements migrate through the Earth and the sub-surface environment. Applications to metallic resources and nuclear waste migration.

270.375 (E,N)  GROUNDWATER (3) Garven  Limit 20  
Cross listed with Geography and Environmental Engineering.

270.425 (N)  EARTH AND PLANETARY FLUIDS (3) Waugh/Olson  Limit 20  
Prereqs: Basic Physics, Calculus, and familiarity with ordinary differential equations. An introductory course on the properties, flow, and transport characteristics of fluids throughout the Earth and planets. Topics covered include: constitutive relationships, fluid rheology, hydrostatics, dimensional analysis, low Reynolds number flow, porous media, waves, stratified and rotating fluids, plus heat, mass, and tracer transport. Illustrative examples and problems are drawn from the atmosphere, ocean, crust, mantle, and core of the Earth and other Planets. Open to graduate and advanced undergraduate students.

270.495 (N)  SENIOR THESIS Staff  Limit 15  
Preparation of a substantial thesis based upon independent student research, supervised by at least one faculty member in Earth and Planetary Sciences. Open to Sr. departmental majors only. Required for department honors.

270.501  INDEPENDENT STUDY
270.503  INDEPENDENT RESEARCH
270.507  INTERNSHIP
270.602  SEMINAR IN ENVIRONMENTAL & HEALTH GEO SCIENCES Jahnov  Limit 20  
Perm. Req’d.  
An introduction to topics of current interest in the environmental and health geosciences.

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

JOURNAL CLUB Conrad
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>270.605</td>
<td>Limit 50 Review and discussion of new geologic literature and current research. All geology students participate and deliver at least one paper a year.</td>
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<tr>
<td>270.607</td>
<td>SOIL ECOLOGY Szlavecz Limit 10 Prerequisites: Population and Community Ecology, Geobiology or Instructor's permission. (See 270.332 for description)</td>
<td>Sec. 01</td>
<td>F 1-3</td>
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<tr>
<td>270.608</td>
<td>SEMINAR IN ATMOSPHERIC SCIENCES Waugh Limit 20 Discussion of current research topics in atmospheric science.</td>
<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>270.611</td>
<td>GEOBIOLOGY Johnson Limit 30 Study of the interface between the biological and geological earth.</td>
<td>Sec. 01</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>270.612</td>
<td>THE NATURE OF SCIENCE AND THE CONDUCT OF SCIENTIFIC RESEARCH Wright Limit 20</td>
<td>Sec. 01</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>270.616</td>
<td>PLATE TECTONICS &amp; MANTLE CONVECTION Conrad Limit 20 An examination of the interaction between Earth's tectonic plates and mantle convection. Topics include plate-driving forces, plate deformation, the role of continents, requirements for plate tectonics, and plate-tectonic history.</td>
<td>Sec. 01</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>270.652</td>
<td>PHYSICS OF MAGMA Marsh Limit 10 The principles of viscous fluid flow, heat conduction and convection are treated in reference to all aspects of the mechanics of magma. Emphasis is placed on understanding petrologic processes as observed in rocks and rock sequences.</td>
<td>Sec. 01</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>270.661</td>
<td>PLANETARY FLUID DYNAMICS Strobel Limit 20 Prereqs: 270.646 or equivalent highly desirable. This is a self-contained one-semester course in the applications of basic fluid dynamics concepts to the study of planetary atmospheres. Topics include equations of motion on a rotating planet, the Boussinesq approximation, conservation properties, hydrodynamic instability, convection, turbulence and planetary boundary layers, quasi-geostrophic theory, baroclinic instability, general circulation, and linear wave propagation.</td>
<td>Sec. 01</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>270.662</td>
<td>SEMINAR IN PLANETARY SCIENCE Strobel Limit 15 Major problems of current interest in planetary science are critically discussed in depth.</td>
<td>Sec. 01</td>
<td>TBA</td>
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</tr>
<tr>
<td>500.602</td>
<td>SEMINAR: ENVIRONMENT AND APPLIED FLUID MECHANICS Meneveau Cross-listed with Geography and Environmental Engineering, Interdepartmental, and Mechanical Engineering</td>
<td>Sec. 01</td>
<td>F 10:30-12:30</td>
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<tr>
<td>270.807</td>
<td>RESEARCH</td>
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### ECONOMICS

<table>
<thead>
<tr>
<th>Course Code (S)</th>
<th>Course Name</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>180.101 (S)</td>
<td>ELEMENTS OF MACROECONOMICS</td>
<td>Maccini</td>
<td>3</td>
<td>Limit 18 per section</td>
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<tr>
<td>180.228 (S)</td>
<td>ECONOMIC DEVELOPMENT (3)</td>
<td>Gersovitz</td>
<td>3</td>
<td>Limit 25 per section</td>
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<tr>
<td>180.241 (S)</td>
<td>INTERNATIONAL TRADE (3)</td>
<td>Weiss</td>
<td>3</td>
<td>Limit 150</td>
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<tr>
<td>180.252 (S)</td>
<td>ECONOMICS OF DISCRIMINATION</td>
<td>Morgan</td>
<td>3</td>
<td>Limit 50</td>
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<tr>
<td>180.261 (S)</td>
<td>MONETARY ANALYSIS (3)</td>
<td>Ball</td>
<td>3</td>
<td>Limit 40</td>
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<tr>
<td>180.266 (S)</td>
<td>FINANCIAL MARKETS AND INSTITUTIONS (3)</td>
<td>Foklin</td>
<td>3</td>
<td>Limit 50</td>
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<tr>
<td>180.289 (S)</td>
<td>ECONOMICS OF HEALTH (3)</td>
<td>Bishai</td>
<td>3</td>
<td>Limit 50</td>
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<tr>
<td>180.301 (S)</td>
<td>MICROECONOMIC THEORY (4.5)</td>
<td>Staff</td>
<td>4.5</td>
<td>Limit 45</td>
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<tr>
<td>180.310 (S)</td>
<td>ECONOMICS OF ANTITRUST (3)</td>
<td>Hamilton</td>
<td>3</td>
<td>Limit 20</td>
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<tr>
<td>180.314 (S,Q)</td>
<td>MATHEMATICAL ECONOMICS (3)</td>
<td>Khan</td>
<td>3</td>
<td>Limit 40</td>
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<tr>
<td>180.365 (S)</td>
<td>PUBLIC FINANCE (3)</td>
<td>Carroll</td>
<td>3</td>
<td>Limit 50</td>
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<tr>
<td>180.371 (S)</td>
<td>INDUSTRIAL ORGANIZATION (3)</td>
<td>Shaw</td>
<td>3</td>
<td>Limit 20</td>
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<tr>
<td>570.470 (S)</td>
<td>APPLIED ECONOMICS AND FINANCE (3)</td>
<td>Hanke</td>
<td>3</td>
<td>Limit 10</td>
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<tr>
<td>570.487 (S)</td>
<td>FUTURES MARKET RESEARCH (3)</td>
<td>Hanke</td>
<td>3</td>
<td>Limit 10</td>
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<tr>
<td>360.528</td>
<td>APPLIED ECONOMICS INTERNSHIP</td>
<td>Hanke</td>
<td>3</td>
<td>Limit 10</td>
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**Satisfactory/Unsatisfactory only**

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<tr>
<th>Course Code (S)</th>
<th>Course Name</th>
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<th>Credits</th>
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<tr>
<td>180.501</td>
<td>INDEPENDENT STUDY</td>
<td>Staff</td>
<td>2</td>
<td>Limit 10</td>
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<tr>
<td>180.521 (S)</td>
<td>RESEARCH IN ECONOMICS (2)</td>
<td>Foklin</td>
<td>2</td>
<td>Limit 10</td>
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**Prerequisites:**
- 180.101-102
- 110.106
- 180.101-102 and 110.106
- 180.101-102 and 110.106
- 180.101-102
- 180.101-102
- 180.101-102
- 180.101-102
- 180.101-102
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- 180.101-102
- 180.101-102
ECONOMICS

Economics majors. Perm. Req'd Note: This course can not be counted as one of the five elective economics courses required for the Economics major. The assignment in this course is to complete the initial stages of research for the Senior Honors Thesis in Economics. Students will work independently under the supervision of a research/thesis advisor. The contact (in spring of junior year) should be the course instructor listed for this course. He/she will coordinate registration and grade-reporting, and will also be available to discuss research ideas and to help put students in touch with possible thesis advisors.

180.601 MICROECONOMIC THEORY Staff Limit 30 Prereq: 180.301-302, 110.106 or Perm. Req'd. Sec. 01 TBA

180.603 MACROECONOMIC THEORY Macinni Limit 30 Prereq: 180.301-302 or Perm. Req'd. Sec. 01 W 11-1 TTh 9-11

180.605 ADVANCED MACROECONOMICS Ball Limit 20 Prereq: 180.603-604 Sec. 01 TBA

180.607 MACROECONOMETRICS I Faust Limit 20 Prereq: 180.633-634 Sec. 01 TBA

180.611 ECONOMICS OF UNCERTAINTY Karni Limit 20 Prereq: 180.601 and 180.605 or Perm. Req’d. Sec. 01 TBA

180.614 MATHEMATICAL ECONOMICS Khan Limit 20 Prereq: 180.601-602 or Perm. Req’d. Sec. 01 TBA

180.615 MATHEMATICAL METHODS IN ECONOMICS Karni Limit 50 Prereq: 180.301-302 or Perm. Req’d. Sec. 01 TBA

180.619 EVOLUTIONARY ECONOMICS Young Limit 20 Prereq: Graduate level knowledge of game theory and math methods Sec. 01 TBA

180.628 ECONOMIC DEVELOPMENT Gerwitz Limit 20 Coreqs: 180.601, 180.603 Sec. 01 M 3-5

180.636 STATISTICAL INFERENCE Shum Limit 30 Prereq: Differential Calculus and Linear Algebra. Limited to graduate students in Economics except by permission of the chair Sec. 01 TBA

180.637 MICROECONOMETRICS I Woutersen Limit 20 Prereq: 180.633-634 or equivalent Sec. 01 TBA

180.641 INTERNATIONAL TRADE Krishna Limit 20 Coreqs: 180.601, 180.603 Sec. 01 TBA

180.651 LABOR ECONOMICS I Moffit Limit 20 Coreqs: 180.601 Sec. 01 T 8:30-11:30

180.671 INDUSTRIAL ORGANIZATION Harrington Limit 20 Prereq: 180.601 Sec. 01 TBA

180.694 APPLIED MICROECONOMICS WORKSHOP Staff Limit 20 Graduate Students only Sec. 01 W 3:30-5

180.695 MICROECONOMIC THEORY WORKSHOP Staff Limit 20 Graduate Students only Sec. 01 M 3:30-5

180.696 MACROECONOMICS WORKSHOP Staff Graduate students only Limit 20 Sec. 01 T 3:30-5

180.698 RESEARCH/TEACHING PRACTICUMS Staff Limit 10 Economic majors/Graduate students only Sec. 01 TBA

180.899 INDEPENDENT STUDY
### ENGLISH

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Section</th>
<th>Days</th>
<th>Time</th>
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<tbody>
<tr>
<td>060.100 (W)</td>
<td>INTRODUCTION TO EXPOSITORY WRITING (3)</td>
<td>Evans / Kain / Staff</td>
<td>01</td>
<td>M-T-W</td>
<td>12</td>
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<tr>
<td></td>
<td>Freshmen Only Limit 10 per section</td>
<td></td>
<td>02</td>
<td>M-T-W</td>
<td>1</td>
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<td></td>
<td>Offered only in the fall, this course is designed</td>
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<td>03</td>
<td>M-T-W</td>
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<td>to help less experienced writers succeed with the</td>
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<td>demands of college writing. Students learn how to</td>
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<td>read and summarize texts, how to analyze texts,</td>
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<td>and how to organize their thinking in clearly</td>
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<td>written essays. Emphasis is on analysis and the</td>
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<td>skills that analysis depends upon.</td>
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<tr>
<td>060.107 (W)</td>
<td>INTRODUCTION TO LITERARY STUDY (3)</td>
<td>Halpern</td>
<td>01</td>
<td>T-H-F</td>
<td>1:30-3</td>
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<td></td>
<td>Required course for English majors</td>
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<td></td>
<td>Introduction to the analysis of poetry and prose</td>
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<td>fiction. Prose works by the Brothers Grimm, Poe,</td>
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<td></td>
<td>Hawthorne, James and Nabokov; poems by Shakespeare,</td>
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<td>Donne, Keats, Dickinson, Stevens and many others.</td>
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<tr>
<td>060.113 (W)</td>
<td>EXPOSITORY WRITING (3)</td>
<td>Kain / Staff</td>
<td>01</td>
<td>M-T-W</td>
<td>10</td>
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<td>Limit 15 per section. No Seniors</td>
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<td>02</td>
<td>M-T-W</td>
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<td></td>
<td>This course teaches students the concepts and</td>
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<td>strategies of academic argument. Students learn</td>
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<td>04</td>
<td>M-T-W</td>
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<td>to analyze and evaluate sources, to develop their</td>
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<td>05</td>
<td>M-T-W</td>
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<td>thinking with evidence, and to use analysis to</td>
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<td>06</td>
<td>M-T-W</td>
<td>11</td>
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<tr>
<td></td>
<td>write clear and persuasive arguments. Each section</td>
<td></td>
<td>07</td>
<td>M-T-W</td>
<td>11</td>
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<td>focuses on its own intellectually stimulating</td>
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<td>08</td>
<td>M-T-W</td>
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<td></td>
<td>topic or theme, but the central subject of all</td>
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<td>09</td>
<td>M-T-W</td>
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<td>sections is using analysis to create arguments.</td>
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<td>M-T-W</td>
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<td></td>
<td>Please note: Each course has a different topic.</td>
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<td>11</td>
<td>M-T-W</td>
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<td></td>
<td>To check individual course descriptions, go to the</td>
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<td>12</td>
<td>T-H-F</td>
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<td>EWP web site: <a href="http://web.jhu.edu/ewp">http://web.jhu.edu/ewp</a></td>
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<td>13</td>
<td>T-H-F</td>
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<td>15</td>
<td>T-H-F</td>
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<td>16</td>
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<tr>
<td>060.151 (H)</td>
<td>SHAKESPEARE (THEN AND NOW) (3)</td>
<td>Halpern</td>
<td>01</td>
<td>Th-F</td>
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<td>Limit 20 per section.</td>
<td></td>
<td>02</td>
<td>W</td>
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<td></td>
<td>Shakespeare’s plays remain vital in part because</td>
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<td>03</td>
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<td>of their engagement with perennially provocative</td>
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<td>04</td>
<td>W</td>
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<td>topics: sexuality, politics, social intolerance,</td>
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<td>often vexed relations between men and women,</td>
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<td>parents and children. In this survey of some of the</td>
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<td>major comedies, histories and tragedies, we will</td>
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<td>both place Shakespeare’s plays in their historical</td>
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<td>context and consider their significance for present-</td>
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<td>day readers and audiences.</td>
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<td>060.206 (H)</td>
<td>MAJOR AMERICAN AUTHORS (3)</td>
<td>Cameron</td>
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<td>T-H-F</td>
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<td>Limit 20 per section.</td>
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<td>02</td>
<td>W</td>
<td>12</td>
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<td></td>
<td>Reading from Emerson, Poe, Whitman, Hawthorne,</td>
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<td>03</td>
<td>W</td>
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<tr>
<td></td>
<td>Melville, Dickinson, Henry James, Frost, Wallace</td>
<td></td>
<td>04</td>
<td>W</td>
<td>12</td>
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<td></td>
<td>Stevens, and Flannery O’Connor.</td>
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<tr>
<td>060.302 (W)</td>
<td>FORMS OF EARLY MODERN DRAMA (OR, HOW TO DO WITHOUT</td>
<td>Daniel</td>
<td>01</td>
<td>W 2-4</td>
<td>30</td>
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<tr>
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<td>SHAKESPEARE) (3)</td>
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<td>Limits: For Juniors and Seniors who have</td>
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<td>taken at least one English course. This seminar</td>
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<td>will chart the development of early modern English</td>
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<td>drama, and provide an “exploded view” of its</td>
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<td>widely diverse forms. Starting with a preparatory</td>
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<td>examination of medieval pageants and miracle plays,</td>
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<td>we will read Renaissance revenge tragedies, city</td>
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<td>comedies, closet dramas, court entertainments and</td>
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<td>masques, as well as Puritan anti-dramatic writings.</td>
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<td></td>
<td>Authors will include: Kyd, Marlowe, Webster, Ford,</td>
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<td></td>
<td>Middleton, Jonson, Pyne, and Milton.</td>
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<tr>
<td>060.307 (W)</td>
<td>TRAINING, WRITING, CONSULTING (1)</td>
<td>McCray-Worrall</td>
<td>01</td>
<td>T 5-7</td>
<td>30</td>
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<td>Limits: For Majors.</td>
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<td>Course Code</td>
<td>Course Name</td>
<td>Instructor</td>
<td>Prereq</td>
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<tr>
<td>060.323</td>
<td>BRITISH LITERATURE AND THE FRENCH REVOLUTION</td>
<td></td>
<td></td>
<td>01</td>
<td>T 2-4:30</td>
</tr>
<tr>
<td>060.327</td>
<td>CHAOS AND ORDER IN THE 18TH CENTURY</td>
<td></td>
<td>Limit 18</td>
<td>01</td>
<td>M 2-4:30</td>
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<tr>
<td>060.347</td>
<td>SLAVES, PIRATES, AND (OTHER) PERSONS OF PROPERTY: THE CHARACTER OF INEQUALITY IN BRITISH LITERATURE, 1750-1850</td>
<td></td>
<td></td>
<td>01</td>
<td>ThF 9-10:30</td>
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<tr>
<td>060.354</td>
<td>MARRIAGE AND LITERATURE</td>
<td></td>
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<td>01</td>
<td>MW 2-3:30</td>
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<tr>
<td>060.356</td>
<td>REALISM AND SOCIAL CHANGE IN 19TH CENTURY ENGLAND</td>
<td></td>
<td></td>
<td>01</td>
<td>ThF 12-1:30</td>
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<tr>
<td>060.361</td>
<td>NATURE AND IDENTITY IN AMERICAN LITERATURE, 1804-1913</td>
<td></td>
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<td>01</td>
<td>ThF 1:30-3</td>
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<tr>
<td>060.368</td>
<td>THE BLOOMSBURY GROUP</td>
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<td>TW 2-3:30</td>
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<tr>
<td>060.391</td>
<td>INTRODUCTION TO 20TH CENTURY AFRICAN-AMERICAN LITERATURE</td>
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<td>01</td>
<td>MW 3:30-5</td>
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<td>060.501</td>
<td>INDEPENDENT STUDY</td>
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<tr>
<td>060.505</td>
<td>INTERNSHIP - ENGLISH</td>
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<tr>
<td>060.629</td>
<td>LITERATURE, RELIGION, AND BRITISH MODERNITY</td>
<td></td>
<td></td>
<td>01</td>
<td>Th 1-4</td>
</tr>
</tbody>
</table>
ENGLISH

060.651 (W) 19TH CENTURY REALISM: THEORY AND PRACTICE Anderson Limit 8
This course will use three major novels of the nineteenth-century (Bleak House, Middlemarch, and The Way We Live Now) as the occasion to explore key debates on realism.

060.665 WHITMAN AND DICKINSON Cameron Limit 8 A study of two major nineteenth-century American poets.

060.691 MODERNISM AND THE PLACE OF UTOPIA Mao Limit 8 An examination of modernist representations of two kinds of places, houses and utopias. Authors may include Forster, Huxley, Joyce, Waugh, Wells, Woolf, Yeats. Some theoretical readings as well.

060.893 INDIVIDUAL WORK

060.895 JOURNAL CLUB TBA

FILM AND MEDIA STUDIES

061.140 (H) INTRODUCTION TO THE STUDY OF FILMS (3) DeLibero Lab Fee: $40
Limit 60 An overview of the history of film, from the first motion pictures to the present. Students learn the critical vocabulary of film and study key films in weekly screenings.

061.240 (H) INTRODUCTION TO FILM PRODUCTION (3) Mann Limit 9 Lab Fee: $100 and Perm. Req’d.
Introduction to Film Production presents the basic elements of 16mm film production. Working in groups students shoot weekly exercises and complete a short 16mm film for a final project.

061.246 (H) READING FILM: SPECIAL TOPICS IN FILM (3) Bucknell Limit 15 Lab Fee: $40 and one core course or Perm. Req’d
The critical analysis of film with particular attention to the writing of analytical essays.

061.335 (H) MONSTER FILMS (3) Bucknell Limit 15 Lab Fee: $40 and one core course or Perm. Req’d
Monsters and misfits in the Hollywood film including King Kong, Hannibal Lecter, and the Great White Shark. Cross-listed with Women, Gender, and Sexuality Studies

061.345 (H) PRIMITIVE FILM (3) Mann Limit 9 Lab Fee: $100 and Intro. To Film Production Explores the films and writings of early filmmakers. Production exercises include the design and construction of a zoetrope and short 16mm films shot with a hand-crank motor.

061.346 (H) DRAWING ANIMATION (3) Vaninsky Limit 9 Lab Fee: $40 A hands-on drawing animation course. Work shot digitally and scanned. No specific drawing skills necessary but a strong interest in hand drawn animation and substantial time commitment to drawing are required.

061.413 (H) LOST AND FOUND FILM (3) Mann Limit 9 Lab Fee: $40 Students produce weekly short films from "found footage" via archival resources. Explores the notion of "filmic" and "photogenic" through final project and readings from Epstein, Benjamin, and Barthes.

061.440 (H) SENIOR PROJECT IN FILM PRODUCTION (3) Mann Limit 15 Perm. Req’d.

220.341 (H) INTRODUCTION TO DRAMATIC WRITING: FILM (3) Lapadula Limit 15 Perm. Req’d.
(Formerly 228.336)
## FILM AND MEDIA STUDIES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Cross-listed with</th>
<th>Meetings</th>
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<tbody>
<tr>
<td>300.319 (H)</td>
<td>PHILOSOPHICAL AND THEOLOGICAL PARADOXES IN FRENCH LITERATURE AND FILM (1930-1970) (3)</td>
<td>Geroulanos</td>
<td>3</td>
<td>Humanities Center and German and Romance Languages</td>
<td>Lec. T 7-10pm, Scr. W 5-8pm</td>
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<tr>
<td>300.335 (H)</td>
<td>SCIENCE FICTION AND THE AVANT-GARDE (3)</td>
<td>Khatib/Duda</td>
<td>3</td>
<td>Humanities Center and Women, Gender, and Sexuality Studies</td>
<td>Lec. Th 2-4, Scr. T 6-8pm</td>
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<tr>
<td>300.337 (H)</td>
<td>THINKING FILMS (3)</td>
<td>Marrati</td>
<td>3</td>
<td>Humanities Center</td>
<td>Sec. 01 T 4-6pm</td>
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<tr>
<th>Course Code</th>
<th>Title</th>
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<th>Cross-listed with</th>
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<tr>
<td>061.502</td>
<td>INDEPENDENT STUDY IN FILM AND MEDIA</td>
<td>Staff</td>
<td>3</td>
<td>Humanities Center</td>
<td>Lab Fee: $100 (if production related)</td>
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<tr>
<td>061.504</td>
<td>INDEPENDENT STUDY IN FILM PRODUCTION</td>
<td>Mann</td>
<td>3</td>
<td>Humanities Center</td>
<td>Lab Fee: $100</td>
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<td>061.506</td>
<td>INTERNSHIP IN FILM AND MEDIA</td>
<td>DeLibero</td>
<td>3</td>
<td>Humanities Center</td>
<td>S/U only</td>
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</table>

## GERMAN AND ROMANCE LANGUAGES AND LITERATURES

### FRENCH

**PLEASE NOTE:** Placement in all French language courses is determined either by Webcape (computerized exam to be taken online or during Orientation at the Language Lab) or by completion of a previous class at Hopkins. Contact Claude Guillemard (claude@jhu.edu) for any placement questions.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prereq</th>
<th>Limit</th>
<th>Meetings</th>
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<tbody>
<tr>
<td>210.101</td>
<td>FRENCH ELEMENTS (4.5)</td>
<td>Beauvois</td>
<td>4.5</td>
<td>No previous knowledge of French or Webcape score of 0-250</td>
<td>15 per section</td>
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<td></td>
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<td></td>
<td>Lab Req.</td>
<td>F 12</td>
<td>MTW 9, F 12</td>
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<td>02 MTW 10, F 12</td>
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<td>03 MTW 11, F 12</td>
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<th>Credits</th>
<th>Prereq</th>
<th>Limit</th>
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<tr>
<td>210.103</td>
<td>LEARNER MANAGED SECTION OF FRENCH ELEMENTS (4.5)</td>
<td>Beauvois</td>
<td>4.5</td>
<td>No previous knowledge of French or Webcape score of 0-250</td>
<td>12 per section</td>
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<tr>
<td></td>
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<td></td>
<td>Lab Req.</td>
<td>F 12</td>
<td>Year course; must complete both semesters successfully in order to receive credit</td>
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<td>01 MW 6-7.15pm</td>
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<th>Prereq</th>
<th>Limit</th>
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<tr>
<td>210.201 (H)</td>
<td>INTERMEDIATE FRENCH (3.5)</td>
<td></td>
<td>3.5</td>
<td></td>
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<td>MTW 10</td>
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</tbody>
</table>
**GERMAN AND ROMANCE LANGUAGES AND LITERATURES**

**Guillemard** Limit 15 per section

Prereq: 210.102, 210.104 or Webcape 280-380 Lab Req’d. Taught in French, this course develops the four communication skills through multimedia material. Movies and readings from French-speaking destinations and extensive study of *Maison des Sources*. WebCT-based.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Instructor</th>
<th>Section</th>
<th>Days</th>
<th>Time</th>
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<tbody>
<tr>
<td>210.203</td>
<td>3.5</td>
<td>Rouss</td>
<td>Sec. 01</td>
<td>MTW</td>
<td>11</td>
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<tr>
<td>210.301</td>
<td>3.5</td>
<td>Winter</td>
<td>Sec. 01</td>
<td>MTW</td>
<td>9-12</td>
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<tr>
<td>210.305</td>
<td>3</td>
<td>Rouss</td>
<td>Sec. 01</td>
<td>MTW</td>
<td>10</td>
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<tr>
<td>210.501</td>
<td>3</td>
<td>Rouss</td>
<td>Sec. 01</td>
<td>Th</td>
<td>1-3:30</td>
</tr>
</tbody>
</table>

**210.203 (H)**

**ADVANCED INTERMEDIATE FRENCH (3.5)**

Limit 15 per section Prereq: "A" in 210.102 or 210.104 or between 380 and 450 or Webcape Lab Req’d. Credit will not be given if you have previously taken 210.201-202. Conducted entirely in French. A two-semester intermediate course offering a systematic review of language structures, conducted exclusively in French. Prereq: grade of A in 210.101-102, or appropriate score on Webcape exam. Credit will not be given if previously enrolled in 210.201-202 or the equivalent. 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.

**210.301 (H)**

**CONVERSATION ET COMPOSITION FRANÇAISE (3.5)**

Limit 15 per section Prereq: 210.202 or 210.204 or 210.302 and 210.304 or greater or Webcape Lab Req’d. Taught with 210.306.

This three-credit language course is 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 student’s written work. Students will be presented with a diversity of texts from current newspaper articles covering key national and international issues to a diversity of literary texts. Conducted in French.

**210.305 (H)**

**ADVANCED SCIENTIFIC FRENCH (3)**

Prereq: 210.302 or Perm. Req’d. This course prepares students for the exam and the certificate offered by the Chambre de Commerce et d’Industrie de Paris. The course is conducted in French; both oral and written participation is required. Taught with 210.306.

**210.501**

**FRENCH INDEPENDENT STUDY - LANGUAGE**

Perm. Req’d

**211.340 (H)**

**TOPICS IN FRENCH CINEMA: REGARDS SUR L’ENFANCE (3)**

Prereq: Limit 15. This course will explore different topics in French cinema. This semester the course will focus on childhood as depicted in French film. The emphasis of the course will be discussion and analyses of film sequences in class. Additional homework assignments will involve vocabulary and grammar study and an independent project. Requirements for this course include completion of Conversation and
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

Composition, or equivalent score on the Webcape placement test.

211.401 (H) LA FRANCE CONTEMPORAINE I
Prep: 210.301-302 or 210.301 and instructor’s consent. 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.

Sec. 01 MTW 12

212.201 (H) INTRODUCTION À LA LITTÉRATURE FRANÇAISE I (3)
Roos/Neefs
Limit 20 per section
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 pre-requisite to all further literature courses. Students may co-register with an upper-level course during their second semester. Prerequisites: 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. Note: 210.301-302 are prerequisites for all undergraduate courses with higher numbers.

Sec. 01 02 ThF 10:30-12

212.316 (H) THE 18TH CENTURY THEATER (3)
Anderson
Limit 15
The development of the drama bourgeois and the theater criticism of the French Enlightenment. Authors to be studied include Racine, Le Sage, Marivaux, Voltaire, Diderot, and Beaumarchais.

Sec. 01 M 3-5

212.402 (H) LE ROI ARTUR, LE SAINT GRAAL ET LES CHEVALIERS (3)
Nichols
Limit 20
Qui est le roi Artur et pourquoi la légende du saint graal s’est-elle évoluée autour de sa cour ? D’où vient l’idée d’une chevalerie consacrée à la quête du saint graal ? Pourquoi la France au 12e siècle est-elle devenue le berceau de ce mythe perpétuel ? En lisant de romans de Chrétien de Troyes et d’autres auteurs médiévaux, ce cours tâchera de répondre à de telles questions. On examinera, pour terminer, quelques traitements cinématographiques contemporains de thème.

Sec. 01 T 1-3

212.408 (H) LOVE, POETRY, EROTICISM (3)
Jeanneret
Limit 20
The course will develop two approaches to the theme of love, one historical, one theoretical. The historical approach will enable us to understand significant changes in social behaviour and ethics. Using the theoretical approach, we will explore the limits of what is tolerated in the expression of erotic desire. Texts studied will be borrowed from a variety of French poets, from the Renaissance to Romanticism. Course conducted in French. Cross-listed with Women, Gender, and Sexuality Studies

Sec. 01 W 3-5pm

212.501 FRENCH INDEPENDENT STUDY - LITERATURE

GERMAN

210.161 GERMAN ELEMENTS I (4.5)
Staff
Limit 15 per section
An introduction to the German language and a development of speaking, writing, reading & listening skills. Culture of the German-language countries is also incorporated into the curriculum. Lab req’d. Both semesters must be completed with passing grades to receive credit. Cannot be taken Satisfactory/unsatisfactory
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

Students should choose their section based on the MTW schedule. Conflicts arising from the Th/Fr hour will be resolved w/instructor.

210.163  ELEMENTARY YIDDISH I (4.5)
Caplan  Limit 17 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.

210.261 (H)  INTERMEDIATE GERMAN I (3.5)
Wheeler  Limit 16 per section
Prereq: 210.161-162 or placement exam
A review and expansion of all aspects of the German language. Course focuses on all four skills with a special emphasis on reading texts, writing and editing, and speaking conversationally as well as more formally in presentations. Taught in German.

210.263 (H)  INTERMEDIATE YIDDISH I (3)
Caplan  Limit 15 Prereq: 210.164 or equivalent; or 2 years of German and Perm. Req’d This course will focus on understanding the Yiddish language as a key to understanding the culture of Yiddish-speaking Jews. Emphasis will be placed on reading literary texts and historical documents. These primary sources will be used as a springboard for work on the other language skills: writing, listening, and speaking.

210.361 (H) (W)  ADVANCED GERMAN CONVERSATION AND COMPOSITION (3)
Mifflin  Limit 15 per section
Prereq: 210.262 and Perm. Req’d This is a writing intensive course aimed at the refinement of grammatical use and modes of expression. The topic of the semester is Germany after World War II up until the eve of reunification in 1990 to include reconstruction after the war, Wirtschaftswunder, 68 Generation and everyday life in the former East Germany. Several films of the period and one full-length novel are incorporated into the curriculum. Special emphasis is on the development of self-editing skills in writing. Taught in German.

210.363 (H)  BUSINESS AND COMMERCIAL GERMAN (3) Wheeler  Limit 15
Prereq: 210.361-362 Course is designed to familiarize students with the vocabulary and standards for doing business in Germany. Taking a cultural approach, students read texts and engage in discussion that elucidate the works of business, commerce & industry in Germany, the world’s third largest economy. Emphasis is placed on vocabulary expansion and writing as it relates to business. Taught in German.

210.462 (H)  INTRODUCTION TO GERMAN LITERATURE AND CULTURE (3)
Domenghino  Limit 10
Prereq: 210.361-362 This course is designed to introduce students to the analysis literary and cultural topics. A variety of 20th century texts and visual media will form the basis for discussion of literature and cultural phenomena specific to the time period. This semester will focus on the European capitals of Zurich, Vienna, and Berlin, thereby offering a “European” perspective on literary, cultural, and political events after 1900. Continuities between and differences amongst the three German speaking countries will be investigated.
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

Attention is given to improving student writing. Readings, discussion, and written assignments in German.

210.561 INDEPENDENT STUDY-LANGUAGE Mifflin

213.252 (H) FRESHMAN SEMINAR: WHAT IS A UNIVERSITY? (3) Tobias Limit 20
Freshman Only Although the first European universities date back to the ninth century, the idea of a modern research institution is of fairly recent provenance. In this course we will some of the most important works from the 18th and 19th centuries that provided the theoretical framework for institutions like Johns Hopkins and the U of Chicago. A consistent concern of the course will be the relation of the university to the state and education to moral edification and civic duty.

210.561 INDEPENDENT STUDY-LANGUAGE Mifflin

213.333 (H) TRANSFORMATION IN MODERN JEWISH LITERATURE (3) Caplan Limit 15 This course will be an advanced-undergraduate, writing-intensive examination of the theme of transformation as a defining metaphor for the Jewish encounter with modernity, from Reb Nachman of Breslov at the beginning of the 19th century to Tony Kushner at the end of the 20th. Among the topics we will consider are the means by which Jewish authors adapt modern literary forms such as the novel, the short story, and the drama to the needs of Jews at a recurring moment of historical and political transition; we will also consider the negation of meaning to fantasy and realism as means of representing the interaction of local tradition with global modernity. An additional consideration of the question of language informs our discussion of works written in Yiddish, Hebrew, German, Russian, and English. These issues will be juxtaposed against historical developments such as the gradual industrialization of Eastern Europe, political anti-Semitism, immigration, Zionism and other nationalist movements, warfare, the Holocaust, and changing notions of gender and family roles. All readings and discussions conducted in English.

213.315 (H) TECHNOLOGY AND SEXUALITY IN BERLIN (3) Kolarov Limit 15 This class will focus on the transition from the literary and artistic concern with transience and finitude to the uncanny presence of eternity NOW that defined the development of techno-sexuality in the modern media. The city of Berlin is the playground on which this transformation takes place and will make a regular appearance in the materials we will engage. Cross-listed with Women, Gender, and Sexuality Studies.

Lec. Sec. 01 M 1-3

213.337 (H) MERMAIDS AND WATER SPRITES (3) Pahl Prereq: 091.301-302 or 210.361-362 or Perm. Req'd Many stories have been told about different kinds of water people. What kind of fascination does life in the water hold? What is so interesting about these hybrid creatures with webs between their fingers, women with fishtails? What is lost when these amphibians settle on land for good? We will read literary texts from different periods to pursue these questions. Readings and discussion in German. Cross-listed with Women, Gender, and Sexuality Studies.

Sec. 01 Th 3-5pm Plus one additional TA hour TBA

213.501 INDEPENDENT STUDY-LITERATURE Campe/Pahl

213.509 GERMAN HONORS PROGRAM Staff
Final placement in all Italian language courses will be determined by an Italian Placement exam, or by the previous completion of an Italian class at Hopkins. See the Italian Language Coordinator to arrange for the taking of the exam.

### 210.151 ITALIAN ELEMENTS (4) Zannirato
- **Sec. 01**: MTW 9
- **Sec. 02**: MTW 10
- **Sec. 03**: MTW 11
- **Sec. 04**: MTW 12
- **Sec. 05**: MTW 12

*Limit 15 per section*

Year course; must complete both semesters for credit. The aim of the course is to provide the student with the basic skills in reading, writing, and speaking the language through the use of grammatical texts, elementary readings, videos, and electronic didactic materials. All classes are conducted in Italian; oral participation is encouraged from the beginning.

### 210.251 (H) INTERMEDIATE ITALIAN (3.5)
- **Sec. 01**: MTW 10
- **Sec. 02**: MTW 11
- **Sec. 03**: MTW 12
- **Sec. 04**: MTW 12

*Limit 15 per section*

Prereq: 210.151-152 or placement exam Lab Req'd. Intensive review of grammatical and syntactical structures; improvement of reading and composition skills through the use of contemporary texts, reinforcement of the student's knowledge of the language through oral and written presentations on predetermined subjects. All classes are conducted in Italian. Class participation is essential. No Satisfactory/Unsatisfactory.

### 210.351 (H) ADVANCED ITALIAN COMPOSITION AND CONVERSATION (3.5)
- **Sec. 01**: MTW 11
- **Sec. 02**: MTW 12
- **Sec. 03**: MTW 10

*Limit 12 per section*

Prereq: 210.251-252 or placement exam This third-year level course presents a systematic introduction to a variety of contemporary cultural topics, emphasizing role-playing, vocabulary building, and style and clarity in writing. Texts drawn from different media (newspapers, magazines, and literary work), and ample use of audio-visual and electronic materials will stress everyday spoken Italian. No Satisfactory/Unsatisfactory.

### 211.221 (H) ITALIAN MATTERS ITALIAN MANNERS (3)
- **Sec. 01**: M 1-3

*Limit 20*

This is an introductory course to Italian culture relying on a tradition of books of conduct including the Middle Ages, the Renaissance, and today.

### 214.390 (H) MACHIAVELLI IN CONTEXT (3)
- **Sec. 01**: T 2-5pm

*Limit 20*

This seminar course will offer students the chance to read most of Machiavelli’s major works in English translation. In addition, Machiavelli will be examined both in the context out of which he emerged - the Latinate Italian humanism of the fifteenth century – and in the context in which he carried out his daily activities – the bustling day to day world of Florentine politics. A separate section will be offered for students with adequate reading knowledge of Italian, in which we will read Machiavelli’s *Prince* in Italian, in a new, definitive critical edition. Cross-listed with History, the Humanities Center, and Philosophy

### 214.479 (H) THE DIVINE COMEDY: AN INTENSIVE READING (3)
- **Sec. 01**: ThF 10:30-12

*Limit 20*

A reading and discussion of Dante’s masterpiece, in its entirety, in English translation. Concentration on its structure and relation to the most pressing issues of Dante’s time, and its ongoing relevance to our own concerns. Italian majors and minors will read and discuss selected passages in Italian, and write their papers in Italian.

### 214.561 ITALIANINDEPENDENT STUDY
- **Staff**
**German and Romance Languages and Literatures**

**Portuguese**

Final placement in all Portuguese language courses will be determined by a Portuguese Placement exam to be taken during orientation week and in the Department office at other times, or by the previous completion of a Portuguese class at Hopkins. See the Portuguese Language Coordinator to arrange for the taking of the exam.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
<th>Limit</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>210.177</td>
<td>Portuguese Elements (3.5)</td>
<td>3.5</td>
<td>Bensabat-Ott</td>
<td>Limit 20</td>
<td>Sec. 01 MWF 11</td>
</tr>
<tr>
<td></td>
<td>This course introduces students to the basic skills in reading, writing, and speaking the Portuguese language. Basic texts, music, and folklore are used to acquaint students with Portugal and Brazil, as well as the cultural influences of Africa on Brazilian society. Students are encouraged to speak from the very beginning of the course, and class participation is a must. All classes are conducted in Portuguese. Language lab is required. Both semesters must be completed with passing grades to receive credit.</td>
<td>No Satisfactory/Unsatisfactory</td>
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<tr>
<td>210.277 (H)</td>
<td>Intermediate/Advanced Portuguese (3.5)</td>
<td>3.5</td>
<td>Bensabat-Ott</td>
<td>Limit 20</td>
<td>Sec. 01 MWF 10</td>
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<td>More advanced training in the skills of the language through short stories, poetry, and miscellaneous readings from Brazil, Portugal, and Portuguese-speaking Africa that reflect the mix of cultures at work in contemporary Lusophone world. Throughout the course emphasis is placed on vocabulary building, ease, and fluency in the language. All classes are conducted in Portuguese. Language lab is required. Both semesters must be completed with passing grades to receive credit.</td>
<td>No Satisfactory/Unsatisfactory</td>
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<tr>
<td>210.391 (H)</td>
<td>Portuguese Language &amp; Literature (3.5)</td>
<td>3.5</td>
<td>Bensabat-Ott</td>
<td>Limit 20</td>
<td>Sec. 01 MWF 12</td>
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<td>This third year Advanced 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.</td>
<td>No Satisfactory/Unsatisfactory</td>
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**Spanish**

Final placement in all Spanish language courses will be determined by a Spanish Placement exam to be taken during orientation week and in the Department office at other times, or by the previous completion of a Spanish class at Hopkins. See the Spanish Language Coordinator to arrange for the taking of the exam.

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
<th>Limit</th>
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<tr>
<td>210.111</td>
<td>Spanish Elements I (4)</td>
<td>4</td>
<td>Weingarten</td>
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<td>Sec. 01 Online</td>
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<td></td>
<td>Year course Must complete both semesters successfully in order to receive credit Lab Req’d.</td>
<td>02 MTW 9</td>
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<td>Limit 24 (Sec. 01), Limit 17 per section (Secs. 02-06) 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 (Fall semesters) is offered totally online. In order to receive credit for Spanish 111, Spanish 112 must also be completed with a passing grade.</td>
<td>03 MTW 10</td>
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<td>04 MTW 11</td>
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<td>05 MTW 12</td>
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<td>06 MTW 1</td>
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<td>210.112</td>
<td>Spanish Elements II (4)</td>
<td>4</td>
<td>Weingarten</td>
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<td>Sec. 01 MTW 9</td>
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<td>Placement exam Prereq: 210.111 or placement exam Lab Req’d.</td>
<td>02 MTW 10</td>
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<td>Limit 17 per section Continuation of Spanish Elements I. 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.</td>
<td>03 MTW 11</td>
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<td>04 MTW 12</td>
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<td>Course Title</td>
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<td>Miranda-Aldaco</td>
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<td>I. Gonzalez</td>
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<td>210.213 (H)</td>
<td>ADVANCED INTERMEDIATE SPANISH (3.5)</td>
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<td>210.311 (H)</td>
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<td>Sanchez</td>
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<td>210.313 (H)</td>
<td>MEDICAL SPANISH (3)</td>
<td>Sanchez</td>
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<td>210.314 (H)</td>
<td>BUSINESS SPANISH (3)</td>
<td>Sanchez</td>
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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.

No Satisfactory/ Unsatisfactory
GERMAN AND ROMANCE LANGUAGES
AND LITERATURES

210.316 (H) CONVERSATIONAL SPANISH (3) 
Sanchez  Limit 15 
Prereq: 210.311 or Webcape score above 650 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.
No Satisfactory/ Unsatisfactory
Sec. 01 MTW 10

210.411 (H) SPANISH TRANSLATION FOR THE PROFESSIONS (3) Sanchez/ Gonzalez  Limit 15 
Prereq: 210.313, 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. 
No Satisfactory/ Unsatisfactory
Sec. 01 MTW 12

210.412 (W) SPANISH LANGUAGE INTERNSHIP (3) Sanchez 
Limit 12 
Prereq: 210.411 The Spanish Language Internship involves a 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.
No Satisfactory/ Unsatisfactory
Sec. 01 MW 1

215.231 (H) INTRODUCTION TO SPANISH LITERATURE (3) Garcia  Limit 15 
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.
No Satisfactory/ Unsatisfactory
Sec. 01 MTW 10

215.347 (H) 20th CENTURY LATIN AMERICAN LITERATURE (3) Castro-Klaren  Limit 30 
A survey of the major prose writing in Latin America in the 20th Century.
Sec. 01 T 1-3

215.456 (H) GAUCHOS, NEGROS, GITANOS (3) Gonzalez  Limit 30 
Prereq: Advanced Spanish or permission of instructor Study of the music and literature inspired by three groups of great liminal influence in the cultural and political affairs of their respective nations. Gauchos (Argentina), Afro Hispanics (Cuba, Puerto Rico, Santo Domingo), Gitanos (Spain). Attention given to popular and learned myths and stereotypes and the history of efforts to establish self-identity. Conducted in Spanish.
Sec. 01 M 3-5pm

215.525 (H) SPANISH- INDEPENDENT STUDY Staff
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

UNDERGRADUATE CROSS-LISTINGS

300.319 (H) PHILosophical AND THEoLOGICAL PARADOXES IN FRENCH LITERATURE AND FILM (1930-1970) (3) Geroulanos. Limit 35. Cross-listed with Film and Media Studies and the Humanities Center

Sec. 01 Loc. T 7-10pm Scrn. W 5-8pm

300.337 (H) THINKING FILMS (3) Marrati. Limit 25. This course examines how films deal with and renew philosophical ways of thinking about reality, perception, ethical choices, identity, personal and historical memory. Cross-listed with Philosophy, Anthropology, the Humanities Center, Political Science, and Film and Media Studies

Sec. 01 Loc. T 4-6pm

360.133 (H) GREAT BOOKS: WESTERN TRADITION OR THE HUMANITIES: A TRADITION OF CLASSICS (3) Egginton/Patton/Talle/Valladares. Limit 20 per section. Open to all Undergraduates. Cross-listed with Music, Classics, the Humanities Center and Interdepartmental

Sec. 01 Sec. 02 Sec. 03 Sec. 04 Loc. ThF 10:30-12 ThF 10:30-12 ThF 10:30-12 ThF 10:30-12

GRADUATE COURSES

FRENCH

210.610 METHODS OF FOREIGN LANGUAGE TEACHING (3) Beauvois. Limit 30. Required for all in-coming teaching assistants in the Dept. of RL&L, this course will focus on an overview of the tenets of second language acquisition (SLA) and the research which informs current teaching practice. Students will study the state of the L2L profession past and present, and will look at different methods and techniques for effective second language teaching and learning. The basis of the course is a balance between the practical and the theoretical.

Sec. 01 Loc. Th 11-1

212.638 LITERATURE AND POLITICS I: EQUALITY (3) Anderson. Limit 12. Writing about equality during the French Revolution: In this seminar we will be looking at three categories of readings: those dealing with theoretical questions, those dealing with places and events, and those which explicitly address the literary and aesthetic issues of writing about the Revolution.

Sec. 01 Loc. M 1-3

212.690 WHAT ABOUT AESTHETICS? (3) Cohn. Limit 12. During the 20th century, artists, historians of art and philosophers tried to deny the meaning and even the relevance of aesthetics. Modernity developed in counteraction with aesthetics. How and why did this happen? Today we are witnessing a new rise of interest in aesthetics for ethical and social reasons. Pleasure, disgust, compassion, surprise, the whole aesthetic system could become the basis of an ethical new deal. Emotions, feelings, empathy are studied by neutrino- and cognitive sciences and are given a second conceptual life. Reading books, watching movies, hearing music, looking at paintings etc. could help us to live together, deepen our experience and contribute to educate us as human beings. What is aesthetics, what does an aesthetic point of view mean? Do we need aesthetics to understand and/or analyze works of art? Can works of art contribute to our self-improvement? To explore these issues, we shall study in this seminar two decisive periods, crossing the French and the German development of aesthetics:

1) the birth of aesthetics in the 18th century
2) its key point at the end of the 19th century

Sec. 01 Loc. Th 3-5pm

212.706 POLITICAL THEOLOGY AND LITERATURE IN FRANCE, 1150-
Origins, identity and language recur obsessively as themes of philosophical and religious commentary in early medieval thought. This is hardly surprising given the close link between theology and philosophy during the High Middle Ages (and beyond). Less obvious, however, is the influence and role of theo-political matters in the invention of vernacular historiography, epic, romance and lesser-known genres of allegorical literature. The seminar will examine the emergence of political theology in selected Latin and vernacular texts by Petrus Helyan, Grosseteste, Wace, Robert de Boron, Villehardouin, Rutebeuf, Jean de Meus, Jean d’Arras, Christine de Pizan and François Villon.

Depuis 1945 les relations entre littérature et philosophie ont pris un tour nouveau, l’après-guerre modifiant leurs répartitions discursives et politiques. L’écriture de Sartre a dû lors bouleverser les rapports entre concept et métaphore, entre vérité et fiction, entre spéculation et imagination. Le séminaire suivra ces articulations et leur contestation à travers les écrits de philosophes sur la littérature jusqu’à nos jours. Il abordera la question des genres (poésie et philosophie, philosophies du théâtre), les raisons du choix des écrivains commentés, la concurrence entre théorie littéraire et philosophie de la littérature, histoire des conflits disciplinaires. Il analysera la modification des régimes de discours (les polémiques liées à la "littératurisation" de la philosophie ou à la conceptualisation anhistorique de la littérature) et tentera d’évaluer les effets de ces débats aujourd’hui, dans la reformulation d’une poétique de la littérature.

Literature belongs to History. But does Literature tell something about History and how? The seminar will examine the main theories dealing with the relationship between Literature and History since the 19th Century. The seminar will give a close reading of a few highly significant works by Balzac, Flaubert, Hugo, Claude Simon, Georges Perec.

The responses of French writers and scholars to the progressive discovery of America through the XVIth century reveal a great deal about the Renaissance worldview and the period’s epistemology. How is radical novelty handled? What sets of values are applied to Indians? What theological, moral and anthropological issues are at stake? Authors studied will include Ronsard and Montaigne as well as travellers such as Jacques Cartier, André Thevet and Jean de Léry. Course conducted in French.

GERMAN AND ROMANCE LANGUAGES AND LITERATURES

PHILOSOPHER EN LITTERATURE

LITERATURE AND HISTORY 19TH AND 20TH CENTURY

REPRESENTATIONS OF AMERICA IN 16TH CENTURY FRANCE

FRENCH INDEPENDENT STUDY

FRENCH DISSERTATION RESEARCH
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

GERMAN

210.661 READING AND TRANSLATING GERMAN FOR ACADEMIC PURPOSES I Clark Graduate students only Limit 15 This course is designed for graduate students in other departments who wish to gain a reading knowledge of the German language. This semester assumes no knowledge of German and covers the grammatical principles of the language.

213.648 THE MULTILINGUAL CULTURE OF WEIMAR-ERA BERLIN Caplan, A. Limit 12 This course will be a graduate-level seminar examining Berlin in the interwar era as a multilingual metropolis and center of global modernism. Juxtaposing German-language authors such as Walter Benjamin, Bertolt Brecht, Alfred Döblin, and Joseph Roth with expatriate figures such as Christopher Isherwood, Vladimir Nabokov, David Bergelson, and Sh. Y. Agnon, we will consider the significance of urban space in the conceptualization of literary modernism; the role of the refugee in defining urban literary culture; the applicability of German aesthetic movements such as Expressionism or Neue Sachlichkeit to other "national" literatures active in Berlin; and the notion of Berlin as a meeting point for several trends within European modernism. To what extent can one consider Weimar-Era Berlin to be "the capital of the 20th century"? All readings and discussions conducted in English.

213.657 FRIEDRICH HOLDERLIN Pahl Reading some of Hölderlin’s major works (Hyperion, Empedokles, poems, theoretical texts) we will discuss their complex relation to German Idealism as well as their increased reception in the 20th century. Reading knowledge of German required.

213.671 THE BILDUNGSROMAN AND ITS CRITIQUE Tobias Limit 12 Departing from Wilhelm Meisters Lehrjahre and Wieland’s Geschichte des Agathon, this course will consider how the Bildungsroman was both conceived and critique in the 18th and 19th centuries in texts by Blankenburg, Morgenstern, Schlegel, Hegel and Dilthey.

213.800 INDEPENDENT STUDY Sect 01 – Campe Sect 02 – Tobias Sect 03 – Pahl Sect 04 – Caplan

213.812 DIRECTED DISSERTATION RESEARCH Sect 01 – Campe Sect 02 – Tobias Sect 03 – Pahl Sect 04 – Caplan

ITALIAN

210.652 CORSO INTENSIVO DI PERFEZIONAMENTO Zamaniuta Limit 8 Prereq: Undergrads 210.352 or equivalent and interview with program director/Grads GTA language diagnostic score This course is designed to help students attain very high levels in reading, writing, speaking, and listening. Intensive use will be made of sight translation, written translation, paraphrasing, active reading, memory training and text analysis techniques. The course seeks to acquaint the students with a wider range of idiomatic
GERMAN AND ROMANCE LANGUAGES
AND LITERATURES

expression and usages than they have previously managed, and to help them convey finer shades of meaning while consistently maintain grammatical control of complex language.

214.665  LETTURA ITALIANA III Forni  Sec. 01  T 1-3
Limit 12  This is a basic course presenting the Italian literature of the 18th, 19th and 20th centuries.

214.677  UMBERTO ECO’S POST-MODERN MIDDLE AGES Stephens  Sec. 01  W 1-3
Limit 12  Since the 1960’s, Umberto Eco has been at the forefront of European critical theory, and since 1980, one of the best-known European novelists. “The Name” of the Rose and “Foucault's Pendulum” revitalized “theory-rich” historical fiction in Europe and North America. Course will explore the relation of Eco’s fiction to his most characteristic contributions in literary and cultural theory.

214.693  PLATONISM IN THE ITALIAN RENAISSANCE Celenza  Sec. 01  Th 3-5pm
Limit 15  This course will offer students a foundation for understanding the Platonic revival in fifteenth-century Italy. Transmission of sources, translation, cultural mediation, and pre-modern styles of philosophizing will all come under discussion. We will read a mixture of primary and secondary sources. Cross-listed with History, the Humanities Center, Classics, and Philosophy

214.721  18TH CENTURY ITALIAN AUTOBIOGRAPHY Zatti  Sec. 01  F 1-5pm
Limit 12  Class will only meet for 4 weeks. Notions of autobiography since Jean-Jacques Rousseau as a perspective onto eighteenth- and early nineteenth-century autobiographies (Vittorio Alfieri, Carlo Goldoni, Giambattista Vico and selections from Giacomo Leopardi’s Zibaldone). Readings and discussion will be in Italian.

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

215.631  CALDERÓN DE LA BARCA: GOLDEN AGE DRAMA Kupper  Sec.01  T 3-5
Limit 20  In this course we will discuss two dramas by Calderón, the auto sacramental “El divino Orfeo” (second version, 1663) and the comedia “El médico de su honra” (1635). Classes will focus on a close reading of these texts. In addition we will consider such general problems related to Golden Age literature as the relation to humanism, the function of the references to theology and dogma, the status of allegory, and the prominence of quasi-archaic patriarchal structures. This course will be open to graduate students and to advanced undergraduates with prior approval from the instructor.

215.715  ROMANTICISM Egginton  Sec.01  Th 1-3
Limit 12  In this course we will examine the literary and cultural discourse of the early nineteenth century in Europe and specifically Spain, focusing on the literary aesthetic movement known as Romanticism. As Romanticism was an international and intercultural movement, our approach will necessarily involve a comparative analysis of romantic writing.
GERMAN AND ROMANCE LANGUAGES AND LITERATURES

Although mostly centered on the romantic form of expression, the course will delve into other media of romantic expression, specifically other literary forms like drama and the essay, as well as musical forms such as opera. In particular, the influence of Spanish romantic works of literature on the Italian opera will be discussed.

215.747 BORGES IN THEORY Castro-Klaren
Limit 12 An in-depth reading of Borges major work & its relation to critical theory.
Sec.01 Th 3-5pm

215.750 MEDIEVAL AND CONTEMPORARY LITERATURES AND CULTURES FACE-OFF González/Altschul
Limit 12 Course will be open to undergraduates with instructor consent
Taking into account comparative studies in medieval and modern literatures and theory, this seminar examines ways in which these temporally distant and apparently incommensurable cultural productions reflect on and dialogue with one another. Classes will discuss modern works and selections from medieval texts including Tirante el Blanco and Amadís de Gaula face-to-face with Alejé Carpenter’s Los pasos perdidos; Cárcel de amor and El collar de la paloma with Gabriel García Márquez’s El amor en los tiempos del colera, and Siene infantes de Lára and Poesía del Cal with Crónica de una muerte anunciada. Additional texts include El amor y otros demonios (García Márquez), El beso de la mujer araña (Manuel Puig), Eric y Enide (Manuel Vázquez Montalbán), and El señor de los últimos días (Homero Aridjis). Theory includes psychoanalysis, the location of medievalism in the development of contemporary critical theory, and studies on spatialization and temporality.
Sec.01 T 1-3

215.760 AUTHORITY AND NOBILITY IN 15TH CENTURY CASTILE Sieber/Altschul
Limit 12 This seminar will begin with a discussion of the 1400s and the changing of European political and literary history. Classes will consider authorship, print history, nobility in a converso society and, in particular, we will examine differing perspectives on the beginnings of the ‘sense of history’ and the marker of European modernity. Along these lines, this seminar will explore writings of aristocratic and court poets as well as historiographical works that traverse the 15th century and include, among others, Juan de Mena, Gómez Manrique, Marqués de Santillana, Fernán Pérez de Guzmán, and Fernando del Pulgar.
Sec.01 W 3-5pm

215.826 SPANISH INDEPENDENT STUDY
Sect 01 – E. González
Sect 02 – Castro-Klaren
Sect 03 – Sieber
Sect 04 – Egginton

215.827 SPANISH DISSERTATION RESEARCH
Sect 01 – E. González
Sect 02 – Castro-Klaren
Sect 03 – Sieber
Sect 04 – Egginton

215.828 SPANISH PROPOSAL PREPARATION

GRADUATE CROSS-LISTINGS

300.637 HISTORY AND EVENT Marrati
Cross-listed with Philosophy, Anthropology, the Humanities Center, Political Science, and History
Sec. 01 M 5-8pm

300.670 THE SECULAR LIVES OF GRACE de Vries
Cross-listed with Philosophy, the Humanities Center, Anthropology, and Political Science
Sec. 01 Th 1-4pm
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<td>Gardner</td>
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<tr>
<td>100.112 (H,S)</td>
<td>MAKING AMERICA: MASTERY AND FREEDOM IN BRITISH MAINLAND AMERICA, 1607-1789 (3)</td>
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<td>100.131 (H,S)</td>
<td>HISTORY OF EAST ASIA (3)</td>
<td>Rowe</td>
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<td>100.193 (H,S)</td>
<td>UNDERGRADUATE SEMINAR IN HISTORY (3)</td>
<td>Moss</td>
<td>40</td>
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<td>100.216 (H,S)</td>
<td>ARCHAEOLOGICAL PAST AND CONTEMPORARY ISSUES IN 20TH CENTURY ASIA (3)</td>
<td>Feng</td>
<td>15</td>
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<tr>
<td>100.219 (H,S)</td>
<td>THE CHINESE CULTURAL REVOLUTION (3)</td>
<td>Meyer-Fong</td>
<td>25</td>
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<td>100.223 (H,S)</td>
<td>CIVIL WAR TO KATRINA: RECONSTRUCTING NEW ORLEANS (3)</td>
<td>Young</td>
<td>20</td>
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<td>MW 2-3:30</td>
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<td>100.234 (H,S)</td>
<td>WOMEN, POLITICS, AND THE FRENCH REVOLUTION (3)</td>
<td>Caradonna</td>
<td>15</td>
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<td>100.321 (H,S)</td>
<td>VISIONS OF THE SELF (3)</td>
<td>Kagan</td>
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<td>100.333 (H,S)</td>
<td>GLOBAL PUBLIC HEALTH SINCE WORLD WAR II (3)</td>
<td>Galambos/Morgan</td>
<td>15</td>
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HISTORY
100.338 (H,S) CONTEMPORARY AFRICAN POLITICAL ECONOMIES IN HISTORICAL PERSPECTIVES (3) Berry Limit 40
Examines contemporary economic and political issues and changes against the background of colonial rule and postcolonial history.
Sec. 01 ThF 10:30-12

100.356 (H,S) THE BUDDHIST EXPERIENCE (3) Laveno Limit 30
Introduction to Buddhist theory and practice - from India to East Asia.
Sec. 01 ThF 10:30-12

100.396 (H,S) HISTORIES: MALE AND FEMALE (W) Ryan Limit 20
The seminar will examine autobiographical writings in order to understand how meanings of manhood and womanhood have changed over the course of US history.
Sec. 01 W 10-12

100.405 (H,S) EUROPEAN SOCIALIST THOUGHT, 1840-1940 (3) Jelavich Limit 20
Sec. 01 W 2-5

100.439 (H,S) THE CUBAN REVOLUTION AND THE CONTEMPORARY CARIBBEAN (3) Knight Limit 30
Sec. 01 ThF 10:30-12

100.466 (H,S) HISTORY AND HISTORIANS IN THE EIGHTEENTH CENTURY (3) Pocock Limit 35
This course will investigate the writings of history in the western cultures, during a period both neo-classical and Enlightened. Histories then ranged from classical narrative to philosophical schemes of the progress of society. The historians studied will be drawn mainly from the French and British cultures – Voltaire, Robertson, Gibbons, Roy – but students will be encouraged to pursue their own interests and readings. Open to undergraduate and graduate students.
Sec. 01 MW 11

100.468 (H,S) BRITAIN FROM THE ENGLISH REVOLUTION TO THE INDUSTRIAL REVOLUTION (3) Marshall Limit 25
Sec. 01 MT 10

191.340 (S) EDUCATION POLITICS IN URBAN AMERICA (3) Hayes Limit 15
This course analyzes the politics of urban public schooling, concentrating on community political dynamics and the struggle for equal educational opportunity and quality education. The course emphasizes the impact of urban transformation, socioeconomic class inequality, and racial and ethnic politics on the changing character of public school reform since the 1954 Supreme Court decision of Brown v. Board of Education. Cross-listed with Anthropology, Political Science, and Sociology, and Africana Studies.
Sec. 01 Th 2-4

070.397 (H,S) INTRODUCTION TO SOUTH ASIA (3) Pandian Limit 50
Cross-listed with Anthropology and Women, Gender, and Sexuality Studies
Sec. 01 TW 2-3:30

214.390 (H) MACHIAVELLI IN CONTEXT (3) Celenza Limit 20
Cross-listed with German and Romance Languages, the Humanities Center, and Philosophy
Sec. 01 T 2-5pm

362.375 (H,S) BEBOP, MODERNISM AND CHANGE (3) Hayes Limit 25
Taught at Peabody. Cross-listed with Africana Studies, Political Science, and Sociology
Sec. 01 MW 12:30-2

100.501 INTERNSHIP
Staff

100.507 (W) SENIOR THESIS
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.
Sec. 01 TBA

100.535 INDEPENDENT STUDY
HISTORY

100.649 THE AMERICAN SOUTH Johnson
Limit 25
Sec. 01 TBA

100.669 READING SEMINAR: CULTURAL HISTORY OF COLONIAL AMERICA AND THE EARLY UNITED STATES Ditz
Sec. 01 TBA

100.695 PROBLEMS IN AMERICAN SOCIAL AND CULTURAL HISTORY Walters
Sec. 01 TBA

100.705 NATIONALISM AND NATIONHOOD: THEORY, HISTORY, SOCIOLOGY Moss
Limit 15 Interdisciplinary introduction to the topic. Major synthetic accounts of nationalism; historical case studies; recent theory emphasizing systemic and relational emergence, institutionality, and practice over origins, spread, and ideology; nationalism in relation to ethnicity, religion, class, and gender; in relation to different types of states, state-systems, empires; in relation to language and cultural identity. Readings include Gellner, Smith, Hobsbawm, Anderson, Calhoun, Salihins, Bell, Braubaker, Bourdieu, Porter, Chaterrjee, Rafael, Verdery, Moore.
Sec. 01 F 10-12

100.709 MODERN LATIN AMERICA Knight
Reading knowledge of Spanish. Graduate Students only
Sec. 01 W 2-4

100.721 TOPICS IN AFRICAN HISTORY Berry
Limit 25 Topics and debates in historical writings on Africa and interdisciplinary approaches to African history. Will emphasize environmental themes and political economy in fall 2006.
Sec. 01 Th 2-4

100.733 READING QING DOCUMENTS Meyer-Fong
Sec. 01 T 1-3

100.735 EARLY MODERN BRITAIN Marshall
Limit 25
Sec. 01 TBA

100.737 MODERN CHINESE HISTORY Rowe
Sec. 01 TBA

100.749 SOCIAL THEORY FOR HISTORIANS Jelavich
Sec. 01 T 12-2

100.763 SEMINAR: COMPARATIVE WORLD HISTORY Staff Limit 25
Cross-listed with German and Romance Languages, Classics, the Humanities Center, and Philosophy
Sec. 01 T 4-6pm

100.765 PROBLEMS IN WOMEN'S HISTORY Wahlwein
Exploration of recent work in European and US women's history, focusing on some of the following: sexuality, cultural production, politics, family formation, work, religion, differences, and civic orders.
Cross-listed with Women, Gender, and Sexuality Studies
Sec. 01 W 12-2:30

100.775 19TH CENTURY AMERICA Ryan
Readings on 19th century US history from a spatial perspective, particularly attentive to gender, politics, and the city.
Sec. 01 T 2-4

214.693 PLATONISM IN THE ITALIAN RENAISSANCE Celenza
Cross-listed with German and Romance Languages, Classics, the Humanities Center, and Philosophy
Sec. 01 Th 3-5pm

300.637 HISTORY AND EVENT Marrati
This seminar analyzes different conceptions of historicity and temporality. Readings include: Husserl, Derrida, Foucault, Derrideuze, Badiou, and others.
Cross-listed with Philosophy, Anthropology, German and Romance Languages, Political Science, and the Humanities Center
Sec. 01 M 5-8pm

The following seminars are for Graduate students only

100.781 THE SEMINAR Staff
Sec. 01 M 4-6pm

100.783 SEMINAR: MEDIEVAL EUROPE
Sec. 01 Th 4-6pm

100.785 SEMINAR: EARLY MODERN EUROPE
Sec. 01 Th 4-6pm

100.787 SEMINAR: MODERN EUROPE
Sec. 01 Th 4-6pm
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<th>Course Code</th>
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<th>Credits</th>
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<td>100.789</td>
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<td>100.791</td>
<td>SEMINAR: LATIN AMERICAN</td>
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<td>100.793</td>
<td>SEMINAR: AFRICAN</td>
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<td>100.801</td>
<td>DISSERTATION RESEARCH</td>
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<td>100.803</td>
<td>INDEPENDENT STUDY</td>
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### History of Art

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<th>Description</th>
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<tbody>
<tr>
<td>010.101</td>
<td>INTRODUCTION TO THE HISTORY OF EUROPEAN ART- PART I</td>
<td>Kessler</td>
<td>3</td>
<td>A survey of painting, sculpture, and architecture from the Renaissance to the present.</td>
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<tr>
<td>010.105</td>
<td>ART OF THE ANCIENT AMERICAS</td>
<td>DeLeonardis</td>
<td>3</td>
<td>Surveys the art of Olmec, West Mexico, Teotihuacan, Maya, and Aztec.</td>
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<tr>
<td>010.170</td>
<td>AMERICAN ART, 1607 - 1860</td>
<td>Maynard</td>
<td>3</td>
<td>American painting and sculpture have undergone many transformations from the time of settlement to the present. Reference will be made to outstanding holdings at area museums plus Homewood and Evergreen.</td>
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<tr>
<td>010.300</td>
<td>ART IN THE AGE OF AUGUSTUS</td>
<td>Koortbojian</td>
<td>3</td>
<td>This course will survey the transformation of the Rome and the Roman world that was produced by the new works of art and architecture that celebrated the rise to power of the first emperor and the advent of the Imperial era.</td>
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<tr>
<td>010.344</td>
<td>FROM VIRGIN TO VENUS: VENETIAN PAINTING AND THE INVENTION OF ART</td>
<td>Nygren</td>
<td>3</td>
<td>This course will introduce students to a variety of methods for interpreting Venetian Renaissance art. Traditional art historical approaches will be supplemented by speculative readings in philosophy, politics, gender theory and other disciplines.</td>
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<tr>
<td>010.367</td>
<td>CEZANNE, MATISSE, PICASSO</td>
<td>Tuma</td>
<td>3</td>
<td>Addresses the development of modernist painting in France between 1890 and 1918 through an examination of the work of these three essential figures.</td>
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<tr>
<td>010.385</td>
<td>BYZANTINE ART</td>
<td>Maguire</td>
<td>3</td>
<td>This course will cover the arts of Byzantium in the medieval period, from the seventh to the fifteenth centuries.</td>
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<tr>
<td>010.521</td>
<td>HONORS THESIS</td>
<td>Staff</td>
<td>3</td>
<td>Open to students by arrangement with a Dean's Teaching Fellowship Course.</td>
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HISTORY OF ART

faculty advisor in the History of Art
Department. Interested students should review the program description available in the department office.

010.611 FLORENCE 1490-1530 Campbell
Limit 25 Art, politics, and society during a period of political and religious turmoil, culminating in the Last Republic.
Sec. 01 W 4-6

010.612 MEDIEVAL IMAGE THEORY Kessler
Limit 25 French and German. From a careful reading of significant works of art, contemporary texts bearing on images, and modern theoretic writings, the seminar investigates the function of narratives, icons, physical matter, and accompanying texts in the production of meaning.
Sec. 01 Th 2-4

010.621 ROMEO'S HISTORICAL TOPOGRAPHY: THE CITY AS SYMBOL Koortbojian
Limit 25 The seminar will be devoted to those artistic and architectural monuments that commemorated significant events, that came to mark and to define the city's fabric as permanent memorials those past events, and that insinuated those memories in the present, in the daily lives of Rome's inhabitants.
Cross-listed with Classics
Sec. 01 M 4-6pm

010.636 CEZANNE AND INTERPRETATION Tuma
Limit 25 Examines the career of Paul Cézanne, with special focus on the various interpretive strategies that have been brought to bear on his art.
Sec. 01 M 2-4

010.639 WRITING ART HISTORY Olster-Shahid
Limit 15 This course will consider various modes of writing art history from the origins of the discipline in 19th-century Germany and Austria (Wöflin, Riegl, etc.) Through approaches that continue to be practiced in the present, such as psychoanalytic feminism, and semiotics (Kris and Kurz, Nochlin, Bal, etc.).
Sec. 01 F 2-5pm

010.682 MEDIEVAL ART AND ARCHITECTURE OF VENICE Maguire
Limit 25 This course will study the art and architecture of Venice and its colonies from the ninth to the fifteenth centuries, including architecture, sculpture, wall and floor mosaics, painting, ivories and metalwork.
Sec. 01 W 2-4

040.611 CLASSICAL AND HELLENISTIC SCULPTURE IN THE WALTERS ART MUSEUM Shapiro
Limit 15 Course provides an overview of the medical traditions of six ancient cultures, the development of Greek and Islamic traditions in Europe; and the reform and displacement of the Classical traditions during the Scientific Revolution.
Cross-listed with History of Art
Sec. 01 T 2-4:30

133.750 SEMINAR: EGYPTIAN ART Bryan
Limit 15 Cross-listed with History of Art
Sec. 01 W 10-1

010.801 SPECIAL RESEARCH AND PROBLEMS

010.803 INDIVIDUAL WORK

HISTORY OF SCIENCE AND TECHNOLOGY

140.105 (HLS) HISTORY OF MEDICINE: ANTIQUITY TO SCIENTIFIC REVOLUTION (3) Pomato
Limit 20 per section Course provides an overview of the medical traditions of six ancient cultures, the development of Greek and Islamic traditions in Europe; and the reform and displacement of the Classical traditions during the Scientific Revolution. Cross-listed with Public Health Studies
Sec. 01 MT 10

140.111 (HLS) FRESHMEN SEMINAR: ON THE ROAD (3) Leslie
Freshmen only A study of classic, and some not so classic, accounts of America in the rear view mirror, including novels, films, travel literature, and photography. Start packing for your spring break road trip. Caution: Heavy Reading Area Ahead
Sec. 01 W 3-5:30pm
### HISTORY OF SCIENCE AND TECHNOLOGY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Instructor(s)</th>
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<th>Limit</th>
<th>Section(s)</th>
<th>Time(s)</th>
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<tr>
<td>140.215 (H,S)</td>
<td>MONUMENTS AND MEMORY (3)</td>
<td>Leslie</td>
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<td>Why do some places, whether manmade or</td>
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<td>natural, capture and hold our imaginations? Why, and how, do we commemorate particular sites? This course will explore the construction or discovery, and the enduring significance, of selected monuments in the West, beginning with the Great Pyramid and ending with the World Trade Center. We will consider national memorials (the United States Marine Corps Memorial and the Jefferson National Expansion Memorial), national parks (Yosemite and Yellowstone), and other milestones (the Parthenon, St. Peter's, the Eiffel Tower, the Golden Gate Bridge) by which the West has measured itself. We will study how they were made, interpreted and represented in art, literature, popular culture, and tourism.</td>
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<td>140.313 (H,S)</td>
<td>LIVES IN SCIENCE (3)</td>
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<td>The lives and scientific work of leading</td>
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<td>scientists from Galileo and Einstein, also</td>
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<td>including Newton, Lavoisier, Darwin,</td>
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<td>Pasteur, and Pavlov.</td>
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<td>140.321 (H,S)</td>
<td>SCIENTIFIC REVOLUTION (3)</td>
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<td>Course concerns developments in early</td>
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<td>modern Europe known as the Scientific</td>
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<td>Revolution. Topics include cosmology,</td>
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<td>astronomy, mechanics, natural history,</td>
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<td>and chemistry and issues involving magic,</td>
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<td>content of early modern science.</td>
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<td>140.327 (H,S)</td>
<td>SCIENCE AND UTOPIA (3)</td>
<td>Kargon</td>
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<td>How science and technology were</td>
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<td>Bellamy’s Looking Backward, Wells’</td>
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<td>Modern Utopia, Huxley’s Brave New World,</td>
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<td>Orwell’s 1984, etc.</td>
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<td>140.351 (H,S)</td>
<td>SEMINAR IN THE HISTORY OF LIFE SCIENCES</td>
<td>Kingsland</td>
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<td>(3) Historical perspectives on current</td>
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<td>research paper.</td>
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<td>140.356 (H,S)</td>
<td>THE HISTORY OF MEDICINE IN INDIA (3)</td>
<td>Salguero</td>
<td>2</td>
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<td>(W) A social and cultural history of</td>
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<td>medicine in India, from the earliest</td>
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<td>Ayurvedic traditions, to the modern Yoga</td>
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<td>movement. Cross-listed with Public Health</td>
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<td>Studies Dean’s Teaching Fellowship Course</td>
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<td>SENIOR RESEARCH SEMINAR (2)</td>
<td>Leslie</td>
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<td>280.156 (H,S)</td>
<td>THE INVENTION OF TROPICAL DISEASE (3)</td>
<td>Goodyear</td>
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<td>140.601</td>
<td>HISTORY OF SCIENCE, MEDICINE, AND</td>
<td>Kingsland</td>
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<td>TECHNOLOGY: METHODS, APPROACHES,</td>
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<td>PERSPECTIVES  Fissell/Hanson</td>
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<td>140.635</td>
<td>THE POSTWAR RECONSTRUCTION OF SCIENCE</td>
<td>Kargon</td>
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<td>do a research project.</td>
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</table>
HISTORY OF SCIENCE AND TECHNOLOGY

140.641 DEPARTMENTAL COLLOQUIUM
Kingsland  Limit 20  Reports by faculty, students, and invited speakers.
Sec. 01  Th 3-5

140.710 SCIENTIFIC REVOLUTION
Principe  Lecture meets with 140.321
Sec. 01  MT 11  T 2-4

140.801 DIRECTED READING AND DISSERTATION
Kargon
TBA

140.811 DIRECTED READING AND DISSERTATION
Kingsland
TBA

140.831 DIRECTED READING AND DISSERTATION
Leslie
TBA

140.835 DIRECTED READING AND DISSERTATION
Principe
TBA

140.837 DIRECTED READING AND DISSERTATION
Low
TBA

140.853 DIRECTED READING AND DISSERTATION
Packard
TBA

140.871 DIRECTED READING AND DISSERTATION
Marks
TBA

140.873 DIRECTED READING AND DISSERTATION
Comfort
TBA

140.875 DIRECTED READING AND DISSERTATION
Hanson
TBA

140.891 DIRECTED READING AND DISSERTATION
Todes
TBA

140.893 DIRECTED READING AND DISSERTATION
Pitcell
TBA

140.895 DIRECTED READING AND DISSERTATION
Mooney
TBA

HUMANITIES CENTER

300.307 (H) DOSTOEVSKY AND CRITICAL THEORY (3)
Moss  Limit 20
Sec. 01  Th 2-5pm
Examines novels by Dostoevsky, including The Idiot and The Brothers Karamazov, and works of literary theory and philosophy which grapple with his poetics and thought (Bakhtin, Girard, Shesov, Ginzburg, Nietzsche, Levinas).

300.335 (H) SCIENCE FICTION AND THE AVANT-GARDE (3)
Khatib/Duda  Limit 25
Sec. 01  T 2-4  T 6-8pm
A broad introduction to the genre of science fiction in film, with a special focus on avant-garde tendencies in the representation of time, disaster, and dystopia. Cross-listed with Film & Media Studies and Women, Gender, and Sexuality Studies.

300.352 (H) PHILOSOPHICAL AND THEOLOGICAL PARADOXES IN FRENCH LITERATURE AND FILM (1930-1970) (3)
Geroulanos  Limit 35
Sec. 01  T 7-10pm  W 5-8pm
Focusing on issues such as sovereignty, violence and murder, living death, and the experience of suffering. We will examine certain works of 1950s-1960s French literature (Bataille, Blanchot, Duras, Klosowski, Leiris, Malraux, Sarrie) and film (Bresson, Cocteau, Resnais, Franju, Cleuziot, Godard, and Truffaut). Cross-listed with Film and Media Studies and German and Romance Languages.

300.369 (H) LUSH LIFE: EPISODES IN THE HISTORY OF ROMANTICISM (3)
Mackey  Limit 15
Sec. 01  F 2-4
A comparative tour of European, English, and American Romantic prose and poetry. The German and French texts will be available in translation.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<th>Credits</th>
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<td>214.390</td>
<td>HUMANITIES CENTER</td>
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<td>3</td>
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<td>Sec. 01</td>
<td>T 2-5pm</td>
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<tr>
<td>360.133</td>
<td>GREAT BOOKS: WESTERN TRADITION OR THE HUMANITIES: A TRADITION OF CLASSICS</td>
<td>Celenza</td>
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<td>THF 10:30-12</td>
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<td>371.146</td>
<td>VISUAL REALITY (3)</td>
<td>Bakker</td>
<td>3</td>
<td>12</td>
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<td>F 1-4</td>
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<td>371.151</td>
<td>PHOTOSHOP AND THE DIGITAL DARKROOM (3)</td>
<td>Berger</td>
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<td>Sec. 01</td>
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<td>371.152</td>
<td>INTRODUCTION TO DIGITAL PHOTOGRAPHY (3)</td>
<td>Berger/Staff</td>
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<td>300.503</td>
<td>INDIVIDUAL HONORS WORK –</td>
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<td>Open only to Juniors admitted to the Honors Program</td>
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<td>300.505</td>
<td>INDIVIDUAL HONORS WORK –</td>
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<td>300.507</td>
<td>HONORS SEMINAR: METHODS IN HUMANISTIC STUDIES (2)</td>
<td>Macksey</td>
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<td>A workshop on Honors projects in progress and their relation to methods in</td>
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<td>humanistic studies. Open only to students in Humanistic Studies</td>
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<td>Taught at Faculty’s home</td>
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<td>300.525</td>
<td>EDITORIAL INTERNSHIP</td>
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<td>Satisfactory/ Unsatisfactory only</td>
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<td>300.605</td>
<td>IN SEARCH OF THE NOVEL: DOING THINGS WITH PROUST</td>
<td>Macksey</td>
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<td>Sec. 01</td>
<td>T 8-10:30pm</td>
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<td>Our time will primarily be spent in reading a la recherche du temps perdu (</td>
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<td>either in French or in the Kilmartin translation) and attending to the</td>
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<td>critical questions that this reading generates</td>
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<td>300.637</td>
<td>HISTORY AND EVENT</td>
<td>Marrati</td>
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<td>Sec. 01</td>
<td>M 5-8pm</td>
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<td>This seminar analyzes different conceptions of historicity and temporality.</td>
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<td>Readings include: Husserl, Derrida, Foucault, Deleuze, Badiou, and others.</td>
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<td>Cross-listed with Philosophy, Anthropology, German and Romance Languages,</td>
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<td>Political Science, and History</td>
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<td>300.646</td>
<td>FIGURES OF JEWISH MODERNITY</td>
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<td>(ROSENZWEIG, BENJAMIN, SCHOLEM, LEVINAS)</td>
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<td>Meets for six weeks (September)</td>
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<td>Cross-listed with Jewish Studies</td>
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<td>300.670</td>
<td>THE SECULAR LIVES OF GRACE</td>
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HUMANITIES CENTER

300.681 COMPLEXITY AND SELF-ORGANIZATION: SPINOZA, A PHILOSOPHY FOR TODAY
Atlan
Sec. 01 TBA
Meet for six weeks (November-December)
Cross-listed with Jewish Studies

214.693 PLATONISM IN THE ITALIAN RENAISSANCE
Celenza
Sec. 01 Th 3-5pm
Cross-listed with German and Romance Languages, History, Classics, and Philosophy

300.800 INDEPENDENT STUDY

300.801 INDEPENDENT STUDY-FIELD EXAMS
Staff

300.803 DISSERTATION RESEARCH
Staff

300.805 LITERARY PEDAGOGY
Staff

INTERDEPARTMENTAL

360.133 (H) GREAT BOOKS: WESTERN TRADITION OR THE HUMANITIES: A TRADITION OF CLASSICS (3)
Egginton/Patton/Valladares
Limit 20 per section
Open to all Undergraduates
Cross-listed with Music, Classics, the Humanities Center, and German and Romance Languages
Sec. 01 ThF 10:30-12
Sec. 02 ThF 10:30-12
Sec. 03 ThF 10:30-12
Sec. 04 ThF 10:30-12

360.233 (H) FEMINIST AND QUEER THEORY (3)
Staff
Limit 25
This course is an introduction to theories of Feminism, gender, and sexuality. It examines classic and recent texts and considers problems and cases from a variety of cultures and historical periods in local, national and global contexts.
Cross-listed with Studies of Women, Gender, and Sexuality
Sec. 01 MTW 10

360.376 (S) THE BODY OF ISLAM (3)
Staff
Limit 15
“The Body of Islam” seeks to understand how, through the interplay between bodies, behavior and belief, notions of proper human living, gender and sexuality are constituted in the Muslim World.
Cross-listed with Studies of Women, Gender, and Sexuality
Sec. 01 MTW 11

360.528 APPLIED ECONOMICS INTERNSHIP
Hanke
Prereq: 180.101-102
Perm. Req’d.
Course given in conjunction with private business and financial institutions, governmental entities and 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.
Satisfactory/ Unsatisfactory only
Cross-listed with Economics and Geography and Environmental Engineering
Sec. 01 TBA

360.533 DIRECTED READINGS - WGS
Cross-listed with Studies of Women, Gender, and Sexuality

JEWISH STUDIES

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

HUMANITIES CENTER

300.646 FIGURES OF JEWISH MODERNITY (ROSENZWEIG, BENJAMIN, SCHOLEM, LEVINAS)
Moses

300.681 COMPLEXITY AND SELF-ORGANIZATION: SPINOZA, A PHILOSOPHY FOR TODAY
Atlan
JEWISH STUDIES
Please refer to the departmental listings for complete information regarding these courses.

NEAR EASTERN STUDIES

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<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>130.350</td>
<td>SEX AND THE GARDEN</td>
<td>Robbins</td>
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<td>130.372</td>
<td>PROPHETIC LITERATURE OF THE HEBREW BIBLE/OLD TESTAMENT</td>
<td>Lewis</td>
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<tr>
<td>130.442</td>
<td>READING OF HEBREW PROSE</td>
<td>Kang</td>
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<tr>
<td>130.450</td>
<td>ELEMENTARY MODERN HEBREW</td>
<td>Braun</td>
</tr>
<tr>
<td>130.452</td>
<td>INTERMEDIATE MODERN HEBREW</td>
<td>Braun</td>
</tr>
<tr>
<td>130.454</td>
<td>ADVANCED MODERN HEBREW</td>
<td>Braun</td>
</tr>
<tr>
<td>134.610</td>
<td>HISTORICAL HEBREW GRAMMAR</td>
<td>McCarter</td>
</tr>
</tbody>
</table>

LANGUAGE TEACHING CENTER

ARABIC

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>375.115</td>
<td>BEGINNING ARABIC (4.5)</td>
<td>Tahrawi/Staff</td>
<td>MTWThF 9 02 MTWThF 10 03 MTWThF 11</td>
</tr>
<tr>
<td></td>
<td>Introductory course in speaking, listening, reading, and writing Modern Standard Arabic. Presents basic grammatical structure 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. No Satisfactory/ Unsatisfactory.</td>
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<tr>
<td></td>
<td>Limit 18 per section</td>
<td></td>
<td>MTWThF 9 02 MTWThF 10 03 MTWThF 11</td>
</tr>
<tr>
<td>375.215</td>
<td>INTERMEDIATE ARABIC (4)</td>
<td>Staff</td>
<td>MTWTh 1 02 MTWTh 12</td>
</tr>
<tr>
<td></td>
<td>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.</td>
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<tr>
<td></td>
<td>Limit 15 Prereq: 375.216 or equivalent Perm. Req’d</td>
<td>MTWTh 1 02 MTWTh 12</td>
<td></td>
</tr>
<tr>
<td>375.301</td>
<td>ADVANCED ARABIC (3)</td>
<td>Tahrawi</td>
<td>MTW 1</td>
</tr>
<tr>
<td></td>
<td>Designed to enhance students’ ability to read, discuss, and write about various topics covered in traditional and contemporary Arabic texts.</td>
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<tr>
<td></td>
<td>Limit 15 Prereq: 375.216 or equivalent Perm. Req’d</td>
<td>MTW 1</td>
<td></td>
</tr>
<tr>
<td>375.401</td>
<td>UPPER ADVANCED ARABIC (3)</td>
<td>Tahrawi</td>
<td>MTW 12</td>
</tr>
<tr>
<td></td>
<td>Designed to enhance students’ ability to read, discuss, and write about various topics covered in traditional and contemporary Arabic texts.</td>
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</tr>
</tbody>
</table>

CHINESE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>373.111</td>
<td>ACCELERATED BEGINNING CHINESE (2.5) (4.5)</td>
<td>Lievens</td>
<td>MWF 12</td>
</tr>
<tr>
<td></td>
<td>Enroll Limit 17 per section</td>
<td></td>
<td>MWF 12</td>
</tr>
<tr>
<td></td>
<td>Prereq: Existing demonstrable skills in spoken Chinese. Lab Req’d for students who have</td>
<td></td>
<td>MWF 12</td>
</tr>
<tr>
<td></td>
<td>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. No Satisfactory/ Unsatisfactory.</td>
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<td></td>
<td>Sec. 01</td>
<td></td>
<td>MWF 12</td>
</tr>
<tr>
<td>373.115</td>
<td>BEGINNING CHINESE (4.5)</td>
<td>Lievens</td>
<td>MTWThF 10 02 MTWThF 11 03 MTWThF 12</td>
</tr>
<tr>
<td></td>
<td>This course is designed primarily for students who have no prior exposure to Chinese. The objective of the course is to help students build a solid foundation of the four basic skills—listening, speaking, reading, and writing in an interactive and communicative learning environment. The emphasis is on correct pronunciation, accurate tones and mastery of basic grammatical structures. Note: Students with existing demonstrable skills in spoken Chinese should take 373.111-112. No Satisfactory/ Unsatisfactory.</td>
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</tr>
</tbody>
</table>
ACCELERATED INTERMEDIATE CHINESE (3.5)  Staff  Limit 17
Lab Req’d.  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.

INTERMEDIATE CHINESE (4.5)  Feng
Limit 17 per section  Consolidation of the foundation that students have laid in their first year of study and continued drill and practice in the spoken language, with continued expansion of reading and writing vocabulary and sentence patterns. Students will work with both simplified and traditional characters. Note: Students who have native-like abilities in comprehension and speaking should take 373.211-212.

CHINESE CALLIGRAPHY (3)  Hsieh
Limit 25  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

CHINESE LITERATURE: PASSIONS OF ANCIENT CHINA (3)  Staff  Limit 50
Course focuses on love, war, and rectitude in the classic literary era. Taught in English

UPPER INTERMEDIATE CHINESE (3.5)  Hsieh/Staff  Limit 15  Prereq: 373.216 or equivalent
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 insofar as feasible and written assignments will be given.

ADVANCED CHINESE (3)  Feng
Prereq: 373.315  Limit 15  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.

ENGLISH AS A SECOND LANGUAGE

ORAL SKILLS FOR INTERNATIONAL TEACHING ASSISTANTS  Shiffman
Limit 15 per section  Perm. Req’d.
No Auditors Open to Graduate students only
Through a variety of communicative activities, prospective international teaching assistants work to improve fluency, accuracy, and intelligibility in speaking and increase listening comprehension for the classroom.

COMMUNICATION STRATEGIES IN THE AMERICAN CLASSROOM  Shiffman
Limit 10  Perm. Req’d.  No Auditors Open to Arts and Science and Engineering Graduate students only
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 for practice teaching.

BEGINNING HINDI (3)  Saini
Limit 15 per section  Lab Req’d.
Course focuses on acquisition of additional vocabulary and grammatical structures in culturally authentic contexts, listening, speaking, reading, and writing comprehension. No Satisfactory/ Unsatisfactory
INTERMEDIATE HINDI (3) Rana
Limit 18   Prereq: 381.101-102
Drawing upon Indian epics, history, fables, and folk tales the course places language training in its socio-cultural ethos while imparting instruction for speaking, writing and comprehending Hindi. At the completion of the course, students will be well equipped to initiate, sustain, and close an every day conversation, write letters and short compositions; read, with full understanding, simple texts dealing with personal and social needs; grasp the main ideas and information from commonly used audio-visual materials.

ADVANCED HINDI (3) Staff
Limit 18   Prereq: 381.201-202
Promotes the active use of Hindi in culturally authentic contexts. Development of fluency in oral and written communication is emphasized.

HINDI/URDU CONVERSATION (3) Rana
Limit 15  Prereq: 381.202 or equivalent
This intensive course is designed especially for students interested in a refinement of their conversation skills on a wide range of current topics without learning advanced writing in Devanagri script. A native or acquired knowledge of Hindi, Urdu, Punjabi, Bengali, Gujarati, or Marathi at the intermediate level is required for this substance rich conversation course. Teaching strategies include web-based exercises for vocabulary enhancement in medicine, public health, law and international affairs, reviews of popular radio and TV shows, interpretations of classic and modern literature, and role playing as interviewers and media anchor. Students completing this course are expected to speak Hindi-Urdu fluently with correct pronunciation and diction as well as understand its wide idiomatic and accentual variations.

SLOW-PACED BEGINNING JAPANESE I (3) Katagiri
Limit 15   Part one 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.

BEGINNING JAPANESE (4.5) Nakao/Katagiri
Limit 17 per section  
(Those who have conflict on Thurs. or Fri. due to lab work may attend a different section) 
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. No Satisfactory/ Unsatisfactory

INTERMEDIATE JAPANESE (4.5) Zon
Limit 17 per section  Prereq: 378.216 or equivalent   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.

JAPANESE CONVERSATION (2.5) Zon
Prereq: 378.216 or equivalent   Advanced training in spoken Japanese, available to those with equivalent proficiency. Students will develop more interactive skills, using authentic audio/video materials. No reading/writing instructions.

UPPER INTERMEDIATE JAPANESE (3.5) Katagiri
Prereq: 378.215-216  Lab Req'd
Limit 17  Emphasis shifts toward reading, while development of oral-aural skills also continues apace. The course presents graded readings in expository prose and requires students to expand their knowledge of Kanji, grammar, and both spoken and written vocabulary.
ADVANCED JAPANESE (3.5)  
Nakao  
Prereq: 378.316 or equivalent  
Lab Req’d.  
Limit 17 per section  
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.

AFRICAN LANGUAGES

KISWAHILI

BEGINNING KISWAHILI I (3)  
Magambi  
Limit 15  
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).

INTERMEDIATE KISWAHILI I (3)  
Magambi  
Limit 15  
Prereq: 379.151-152  
This course places emphasis on conversational skills as well as reading, writing and 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.

KOREAN

ELEMENTS OF KOREAN I (3)  
Kang  
Limit 18  
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.  
No Satisfactory/ Unsatisfactory

INTERMEDIATE KOREAN READING AND WRITING (3)  
Kang  
Prereq: Existing demonstrable skills in spoken Korean  
Limit 18  
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.

ADVANCED KOREAN I (3)  
Kang  
Limit 15  
Emphasizes reading literacy in classic and modern Korean prose. By reading Korean newspapers and professional articles in one’s major, it enables one to be well versed and truly literate.

RUSSIAN

ELEMENTS OF RUSSIAN I (4)  
Samilenko/ Czeczulin  
Limit 18 per section  
Designed to give student a firm foundation in the language, with special emphasis on the development of vocabulary, basic reading, and conversational skills. (Section 02 taught at Goucher College)

INTENSIVE INTERMEDIATE RUSSIAN (4)  
Czeczulin  
Prereq: 377.132  
Intensive oral work; continued emphasis on grammar and reading comprehension. (Section 01 taught at Goucher College)

INTRODUCTION TO RUSSIAN LITERATURE I (3)  
Samilenko  
Prereq: 377.135  
Limit 18  
A survey of the important periods of Russian literature from the advent of Christianity to the Russian Revolution. Genre include skazki, byliny, short prose works of the 18th century the poetry of Pushkin, Lermontov, Gogol, Turgenev. All readings are adapted to the intermediate level.

THE RUSSIAN FAIRY TALE (3)  
Czeczulin  
Limit 18  
A survey course of Russian oral and subsequent written tradition using
LANGUAGE TEACHING CENTER
multimedia and presented against the background of the Indo-European tradition.
Taught in English at Goucher College

SEMINAR I: FOLKLORE IN RUSSIAN LITERATURE (3) Semionenko
Limit 18
Rotating topics in 20th century prose, poetry, drama, or film. This course focuses on
the various aspects of Russian folk, Christianity, and double faith in a variety of literary genres
and authors.

INDEPENDENT STUDY-RUSSIAN
Semionenko

SANSKRIT

BEGINNING SANSKRIT (3) Saini
Limit 18
This course has been designed for students with no knowledge of the Sanskrit language. Emphasis
will be placed on the basic listening, reading, and writing of the language. The reading and
writing system will be introduced in a very systematic manner, thereby, students will not have to
learn all the vowels and the consonants at once before getting to read the words. Basic sentences
will be drawn from the Sanskrit Literature. Simple Vedas, Mantras from the Vedas and
Upanishad, verses from the Bhagavad Gita and the sutras from the Yoga Sookas will be read.

PROGRAM IN LATIN AMERICAN STUDIES

INTRODUCTION TO LATIN AMERICAN STUDIES I (3) Castro-Klaren
Limit 50
The objective is to introduce students to Latin America using 6 major themes including
Amerindian civilizations as well as Colonial legal, social and cultural legacies. Class is
conducted in English.

ART OF THE ANCIENT AMERICAS (3) DeLeonardis
Limit 25
Surveys the art of Olmec, West Mexico, Teotihuacan, Maya, and Aztec. Cross-listed with History of

POLITICAL LIFE OF GENDER (3) Cervone
Limit 25
This course explores the role of gender in the production and contestation of socio-economic inequality
and political domination. Examples will be drawn from Latin America and other colonial
and post-colonial societies. Open to graduate students. Cross-listed with Anthropology and Women,
Gender, and Sexuality Studies

LAW AND DEVELOPMENT: POSTCOLONIAL PERSPECTIVES (3) Obarrio
Limit 30
Registration Requirements: Upper level undergrads only and open to graduate students
Cross-listed with Anthropology and Africana Studies

THE INVENTION OF TROPICAL DISEASE (3) Goodyear
Limit 17
Freshmen only
Cross-listed with History of Science and Technology and Public Health Studies

MATHEMATICS

INTRODUCTION TO CALCULUS (4) Staff
Limit 30
This course starts from scratch and provides students with all the background necessary for the study of
calculus. It includes a review of algebra, trigonometry, exponential and logarithmic functions, coordinates and
graphs. Each of these tools will be introduced in its cultural and historical context. The concept of the rate of
change of a function will be
110.106 (Q) **CALCULUS I (For Biological and Social Science)** (4)  
Lec.: I - Ha  
Sec.: 01  
MTW 10  
Th 9  
Lec.: II - Staff  
Sec.: 03  
F 9  
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, applications for systems of linear differential equations, probability distributions. **Many applications to the biological and social sciences will be discussed.**

110.107 (Q) **CALCULUS II (For Biological and Social Science)** (4)  
Lec.: I  
Sec.: 01  
MTW 10  
Th 9  
Limit 30 per section  
Prereq: C- or better in Calculus I  
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.

110.108 (Q) **CALCULUS I (For Physical Sciences and Engineering)** (4)  
Lec.: I  
Sec.: 01  
MTW 10  
F 9  
Limit 28 per section  
Differential and integral calculus.  
Includes analytic geometry, functions, limits, integrals and derivatives, polar coordinates, parametric equations, Taylor's theorem and applications, infinite sequences and series.

110.109 (Q) **CALCULUS II (For Physical Sciences and Engineering)** (4)  
Lec.: I  
Sec.: 01  
MTW 10  
F 9  
Limit 28 per section  
Prereq: Calculus I  
Differential and integral calculus.  
Includes analytic geometry, functions, limits, integrals and derivatives, polar coordinates, parametric equations, Taylor's theorem and applications, infinite sequences and series. Some applications to the physical sciences and engineering will be discussed, and the courses are designed to meet the needs of students in these disciplines.

110.113 (Q) **HONORS ONE VARIABLE CALCULUS** (4)  
Lec.:  
Sec.: 01  
MTW 10  
F 12  
Limit 35  
Spruck

110.201 (Q) **LINEAR ALGEBRA** (4)  
Lec.:  
Sec.: 01  
MTW 3  
F 12  
Limit 25 per section  
Prereq: Calculus I  

110.202 (Q) **CALCULUS III** (4)  
Lec.:  
Sec.: 01  
MTW 11  
F 12  
Limit 28 per section  
Prereq: 110.107, 110.109 or 110.112.  
Calculus of functions of more than one variable: partial derivatives, and applications; multiple integrals, line and surface integrals; Green's, Theorem, Stokes' Theorem, and Gaus's Divergence Theorem.

110.211 (Q) **HONORS MULTIVARIABLE CALCULUS** (4)  
Lec.:  
Sec.: 01  
MTW 12  
F 12  
Limit 35 per section  
Zhang

110.212 (Q) **HONORS LINEAR ALGEBRA** (4)  
Lec.:  
Sec.: 01  
MTW 12  
F 12  
Zucker  
Limit 30  
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. 211-212
MATHEMATICS

used to be an integrated yearlong course, but now the two are independent courses and can be taken in either order. This course satisfies a requirement for the math major that its non-honors sibling does not.

110.302 (E,Q) DIFFERENTIAL EQUATIONS WITH APPLICATIONS (4) Zelditch

Limit 35 per section.
Prereq: Calculus II 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. The specific subjects to be covered include first order differential equations, second order linear differential equations, applications to electric circuits, oscillation of solutions, power series solutions, systems of linear differential equations, autonomous systems, Laplace transforms and linear differential equations, mathematical models (e.g., in the sciences or economics).

110.304 (Q) ELEMENTARY NUMBER THEORY (4) Ono

Limit 25

110.311 (Q) METHODS OF COMPLEX ANALYSIS (4.5) Kong

Limit 35

This course is an introduction to the theory of functions of one complex variable. Its emphasis is on techniques and applications, and it serves as a basis for more advanced courses. Functions of a complex variable and their derivatives, power series and Laurent expansions, Cauchy integral theorem and formula, calculus of residues and contour integrals, harmonic functions.

110.401 (Q) ADVANCED ALGEBRA I (4.5) Ching

Limit 40 Prereq: Linear Algebra An introduction to the basic notions of modern algebra. Elements of group theory: groups, subgroups, normal subgroups, quotient groups, homomorphisms. Generators and relations, free groups, products, commutative (Abelian) groups, finite groups. Groups acting on sets, the Sylow theorems. Definition and examples of rings and ideals. Introduction to field theory. Linear algebra over a field. Field extensions, constructible polygons, non-trisectability.

110.405 (Q) ANALYSIS I (4.5) Goldberg

Limit 35 Prereq: Calculus III and Linear Algebra. This course is designed to give a firm grounding in the basic tools of analysis. It is recommended as preparation (but may not be a prerequisite) for other advanced analysis courses. Real and complex number systems, topology of metric spaces, limits, continuity, infinite sequences and series, differentiation, Riemann-Stieltjes integration.

110.415 (Q) HONORS ANALYSIS I (4.5) Sogge

Limit 25 Prereq: B+ or higher in Calculus III and Linear Algebra. This highly theoretical sequence in analysis is reserved for the most able students. The sequence covers the real number system, metric spaces, basic functional analysis, the Lebesgue integral, and topological vector spaces.

110.427 (Q) INTRODUCTION TO THE CALCULUS OF VARIATIONS (4) Khosrov

Limit 25 Prereq: Calculus I, II and III. The calculus of variations is concerned with finding optimal solutions (shapes, functions, etc.) where optimality is measured by minimizing a functional (usually an integral involving the
MATHEMATICS

unknown functions) possibly with
constraints. This introductory (self-
contained) course will cover one
dimensional problems (often
geometric): brachistochrone,
geodesics, minimum surface area of
revolution, isoperimetric problem,
curvature flows. Additional material
as required (some differential
geometry of curves and surfaces)
holding prerequisites to a minimum.

110.439 (Q)
INTRODUCTION TO
DIFFERENTIAL GEOMETRY
(4.5) Wilkin  - Limit 35
Prereq: Calculus III, Linear Algebra
Theory of curves and surfaces in
Euclidean space: Frenet equations,
fundamental forms, curvatures of a
surface, theorems of Gauss and
Mainardi-Codazzi, curves on a surface;
introduction to tensor analysis and
Riemannian geometry, theorema
egregium; elementary global theorems.

110.443 (E,Q)
FOURIER ANALYSIS (4.5) Zhang
Limit 25  - Prereq: Calculus III, Linear Algebra.
Recommended: 110.405. An
introduction to the Fourier transform
and the construction of fundamental
solutions of linear partial differential
equations. Homogeneous distributions
on the real line: the Dirac delta
function, the Heaviside step function.
Operations with distributions:
convolution, differentiation, Fourier
transforms. Construction of
fundamental solutions of the wave,
heat, Laplace and Schrödinger
equations. Singularities of fundamental
solutions and their physical
interpretations (e.g., wave fronts).
Fourier analysis of singularities,
oscillatory integrals, method of
stationary phase.

110.462 (Q)
PRIME NUMBERS AND
RIEMANN'S ZETA FUNCTION (4)
Hu  - Limit 25

110.601
ALGEBRA Shokurov  - Limit 25

110.605
REAL VARIABLES Sogge  - Limit 25  - Prereq: 110.405, 110.413 or
equivalent.

110.611
COMPLEX GEOMETRY Shiffman  - Limit 25

110.615
ALGEBRAIC TOPOLOGY Boardman  - Limit 25
Prereq: 110.401, 110.413

110.617
NUMBER THEORY Consani  - Limit 25

110.619
LIE GROUPS & LIE ALGEBRAS Shokurov  - Limit 25

110.631
PARTIAL DIFFERENTIAL
EQUATIONS Spruck  - Limit 25  - Prereq: 110.605-606

110.645
RIEMANNIAN GEOMETRY
Minicozzi  - Limit 25

110.665
REPRESENTATION THEORY Boardman  - Limit 25

110.723
TOPICS IN AUTOMORPHIC
FUNCTIONS (MODULAR
FORMS) Faber  - Limit 25

110.726
TOPICS IN SEVERAL COMPLEX
VARIABLES Staff  - Limit 25

110.733
TOPICS IN ALGEBRAIC
NUMBER THEORY Zhao  - Limit 25

110.737
TOPICS IN ALGEBRAIC
Geometric Log
ADJUNCTION) Shokurov  - Limit 25

110.799
THESIS RESEARCH

110.800
INDEPENDENT STUDY -
GRADUATES
### MEDICINE TUTORIALS

These School of Medicine courses are open only to selected junior and senior pre-medical students with the approval of their faculty advisor and Preprofessional Advising, Garland 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. 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.

**Note:** Medicine tutorials are not assigned an area, carry two credits and are graded Satisfactory/Unsatisfactory.

### MILITARY SCIENCE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Opt.</th>
<th>Coreq.</th>
<th>Restriction</th>
<th>Days</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>374.100</td>
<td>LEADERSHIP LAB (1) Butera</td>
<td>Limit 100</td>
<td>1</td>
<td>ROTC</td>
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<td>sec 01</td>
<td>Th</td>
<td>4-6pm</td>
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<tr>
<td>374.101</td>
<td>LEADERSHIP AND MANAGEMENT I (2) Butera</td>
<td>Limit 20</td>
<td>2</td>
<td>Freshmen only</td>
<td>ROTC</td>
<td>are not required</td>
<td>sec 01</td>
<td>Th</td>
</tr>
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<td>syllabus: Leadership skills in a variety of settings to build a better understanding of leadership strengths and weaknesses and to provide a forum for discussion of leader development.</td>
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<tr>
<td>374.201</td>
<td>LEADERSHIP AND TEAMWORK I (2) Levy</td>
<td>Limit 20</td>
<td>2</td>
<td>Sophomores only</td>
<td>ROTC</td>
<td>are not required</td>
<td>sec 01</td>
<td>Th</td>
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<td></td>
<td>syllabus: 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.</td>
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<tr>
<td>374.301</td>
<td>ADAPTIVE TEAM LEADERSHIP (2) Butera</td>
<td>Limit 25</td>
<td>2</td>
<td>ROTC</td>
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<td>syllabus: 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.</td>
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<td>374.401</td>
<td>DEVELOPING ADAPTIVE LEADERS (2) Romaine</td>
<td>Limit 20</td>
<td>2</td>
<td>ROTC</td>
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<td>syllabus: 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.</td>
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<td>374.501</td>
<td>INDEPENDENT STUDY IN LEADERSHIP Romaine</td>
<td>Limit 10</td>
<td>2</td>
<td>ROTC</td>
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<td>syllabus: Students select topics 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.</td>
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<tr>
<td>374.511</td>
<td>MILITARY SCIENCE INTERNSHIP Romaine</td>
<td>Limit 10</td>
<td>2</td>
<td>Perm. Req'd</td>
<td>ROTC</td>
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<td>syllabus: Students will apply leadership principles learned in actual situations in the Military Science Department or in other settings in the Baltimore / Washington, DC area and will record observations in a professional journal.</td>
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PROGRAMS IN MUSEUMS AND SOCIETY
Please refer to the departmental listings for complete information regarding these courses.

389.201 (H) INTRODUCTION TO THE MUSEUM: PAST AND PRESENT (3) Rodini
Limit 25 This course surveys museums, from their origins to their most contemporary forms, in the context of broader historical, intellectual, and cultural trends. Anthropology, art, history, and science museums are considered.
Cross-listed with Anthropology, History, and History of Art
Sec. 01 MT 2-3:30pm

389.361 (H) INTRODUCTION TO MATERIAL CULTURE: PREGNANCY, CHILDBIRTH, AND FAMILY IN EARLY AMERICA (3) Arthur
Limit 10 Students work with Homewood curator to explore early American life. Directed primary research, object study culminates in student curated exhibition opening in January. Optional intersession installation earns M&S practicum credit.
Sec. 01 W 1-4

389.362 (H) BEHIND THE SCENES AT THE WALTERS ART MUSEUM (3) Rodini
Limit 10 Work with Walters and STSci staff to learn about the workings of a professional art museum while developing an exhibition of images from the Hubble Space Telescope. M&S practicum course.
Cross-listed with History of Art
Sec. 01 Th 2-5

010.390 (H) ART MUSEUM POLICY AND PRACTICE (3) Maguire, E.
Limit 12 Hands-on seminar looks behind the scenes at displays and exhibitions, museum operations and programs, as signs of current thinking about what art, past and present, may be.
Cross-listed with Classics, History of Art, and Near Eastern Studies
Sec. 01 Th 2-5

MUSIC

376.111 RUDIMENTS OF MUSIC THEORY AND MUSICIANSHIP I (3) Staff
Limit 15 This course introduces written and aural music fundamentals including notation, scales, intervals, chords, rhythm, meter and sight-singing. Students will compose melodies and short pieces and complete listening projects.
Sec. 01 MTW 11
Sec. 02 MTW 12

376.211 MUSIC THEORY AND MUSICIANSHIP I (3) Staff
Prereq: Qualifying examination or 376.111
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.
Sec. 01 MTW 11

376.212 MUSIC THEORY AND MUSICIANSHIP II (3) Staff
Prereq: 376.211
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.
Sec. 01 MTW 12

376.213 MUSIC THEORY AND MUSICIANSHIP III (3) Staff
Prereq: 376.212
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.
Sec. 01 MTW 10

376.231 (H) INTRODUCTION TO WESTERN CLASSICAL MUSIC (3) Tallie
Limit 20 This course introduces written and aural music fundamentals including notation, scales, intervals, chords, rhythm, meter and sight-singing. Students will compose melodies and short pieces and complete listening projects.
Sec. 01 MT 3
Sec. 02 W 3
Sec. 03 Th 3
Sec. 04 Th 4
Schoenberg, and Stravinsky.

THE HISTORY OF MUSICAL INSTRUMENTS (3) Weiss
Limit 15
The history, technology, and performance of Western European musical instruments, their precursors, and their non-western counterparts, addressed by experts and explored on visits to historic collections.

GREAT BOOKS: WESTERN TRADITION OR THE HUMANITIES: A TRADITION OF CLASSICS (3) Eggston/Patton/Talle/Valládares
Limit 20 per section
Open to all Undergraduates
Cross-listed with Classics, German and Romance Languages, the Humanities Center, and Interdepartmental

NEAR EASTERN STUDIES

ANCIENT EGYPTIAN CIVILIZATION (3) Bryan
Limit 100
Introduction to the monuments and culture of Egypt from 3500 B.C. to 100 A.D. From the pyramids at Giza to Hellenistic Alexandria, this course surveys in slide illustrated lectures the remains of one of the world’s greatest early cultures.

SEX AND THE GARDEN (3) Robbins
Limit 10
The history of the interpretation of Genesis 2-3.

ISSUES IN NEAR EASTERN ARCHAEOLOGY (3) Schwartz
Limit 20

PROPHETIC LITERATURE OF THE HEBREW BIBLE/OLD TESTAMENT (3) Lewis
Limit 40
Cross-listed with Jewish Studies

INTRODUCTION TO MIDDLE EGYPTIAN (Hieroglyphs) (3) Jasnow
Limit 15
Introduction to the grammar and writing system of the classical language of the Egyptian Middle Kingdom (ca. 2055-1650 B.C.). In the second semester, literary texts and royal inscriptions will be read.

READING OF HEBREW PROSE (3) Kang
Limit 10
Cross-listed with Jewish Studies

ELEMENTARY MODERN HEBREW (3) Braun
Limit 15
Credit given only on completion of both semesters. May not be taken on a Satisfactory/Unsatisfactory basis.

INTERMEDIATE MODERN HEBREW (3) Braun
Limit 10
Cross-listed with Jewish Studies

ADVANCED MODERN HEBREW (3) Braun
Limit 10
Reading of nonliterary and technical texts. Expositional writing.

ART MUSEUM POLICY AND PRACTICE (3) Maguire, E.
Limit 12
Cross-listed with History of Art, Museum Studies, and Classics

READINGS AND RESEARCH (3) Staff

INDEPENDENT STUDY

SEMINAR: NEAR EASTERN HISTORY Staff
Limit 15

SEMINAR IN NEAR EASTERN ARCHAEOLOGY Schwartz
Limit 20
Topic varies but can include the archaeology of Mesopotamia, Syria, or Palestine, or thematic discussions (e.g., on ideology, state collapse, etc.).

READINGS AND RESEARCH
Sec.07 - Staff
Sec.06 - Lewis
Sec.03 - Schwartz
Sec.02 - McCarter
Sec.01 - Bryan
Sec.08 - Bryan
Sec.05 - Bryan
Sec.04 - Bryan
Sec.09 - Bryan
 Sec. 01 - TBA
NEAR EASTERN STUDIES
Sec.04 - Westbrook

131.848 DISSERTATION RESEARCH
Sec. 01 - Bryan
Sec. 04 - Cooper
Sec. 02 - Schwartz
Sec. 05 - Westbrook
Sec. 03 - McCarter
Sec. 06 - Lewis
Sec. 07 - Jasnow

132.600 ELEMENTARY AKKADIAN Staff
Limit 10

132.620 LEGAL AND ADMINISTRATIVE TEXTS Westbrook Limit 15
Sec. 01 T 4-6pm

132.650 PERIPHERAL AKKADIAN Westbrook Limit 15
Sec. 01 Th 4-6pm

132.710 ADVANCED SUMERIAN Staff
Limit 20 We will read Letter Collection B and related materials in the original cuneiform.

132.800 MESOPOTAMIAN SEMINAR Schwartz/Westbrook
Limit 15
Note: TBA

133.600 INTRODUCTION TO MIDDLE EGYPTIAN (HIEROGLYPHICS) Jasnow Limit 15 Taught with 130.400
Introduction to the grammar and writing system of the classical language of the Egyptian Middle Kingdom (ca. 2135-2000 B.C.). In the second semester, literary texts and royal inscriptions will be read.

133.610 MIDDLE EGYPTIAN TEXTS Bryan/Jasnow Limit 15
Sec. 01 Th 9-12

133.750 SEMINAR: EGYPTIAN ART Bryan Limit 15 Cross-listed with History of Art
Sec. 01 W 10-1

134.610 HISTORICAL HEBREW GRAMMAR McCarter Limit 15 Cross-listed with Jewish Studies
Sec. 01 W 2-4

134.621 TEXTUAL CRITICISM OF THE HEBREW BIBLE McCarter Limit 15
Sec. 01 Th 2-4

134.650 SEMINAR IN HEBREW Lewis Limit 15
Sec. 01 F 2-4

NEUROSCIENCE

080.250 (N,S) NEUROSCIENCE LAB: A PRACTICAL APPROACH (CM) (ST) (CG) (3) Gorman/Fortune
Limit 20 per section Prereq: 080.205 This course will give students the "hands-on" experience of the inter-disciplinary nature of neuroscience. Students will use anatomical and neuro-physiological techniques to understand the basic underlying principles of neuroscience.
Sec. 01 T 9-12
Sec. 02 T 1-4
Sec. 03 W 1-4

080.304 (N) CELLULAR AND MOLECULAR NEUROSCIENCE (3) Hattar/Zhao
Limit 50 Prereqs: 020.151-154, or 020.305-306 and 020.315-316 This course is a survey of the mechanisms through which the nervous system receives sensory signals, transmits signals from neuron to neuron, and drives the activity of target tissues such as glands and muscles. Topics include the molecular basis of the action potential, effect of cell shape and myelination on conduction of action potentials, mechanisms regulating neurotransmitter release, structure and function of neurotransmitter receptors, modulation of neuronal functions, sensory transduction, and muscle contraction. The molecular basis of genetic disorders involving nerve and muscle function will also be studied. Taught with 020.304 and 020.664
Sec. 01 MW 3:30-5

080.305 (N) THE NERVOUS SYSTEM (3) Hendry
Limit 200 The nervous system is a fully integrated, two-semester course that surveys the cellular and molecular biology of neurons as well as the structure and function of the nervous system.
Sec. 01 TTh 2-3:30
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Instructor</th>
<th>Prerequisites</th>
<th>Limit</th>
<th>Cross-listed</th>
<th>Section</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>080.330 (N)</td>
<td>Brain Injury and Recovery of Function (CM) (ST) (3)</td>
<td>Gorman</td>
<td>080.203, 080.205 &amp; 080.304 or Perm. Req' d</td>
<td></td>
<td>Cross-listed with Psychological and Brain Sciences and Behavioral Biology</td>
<td>Sec. 01</td>
<td>ThF 1-2:30</td>
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<tr>
<td>080.335 (N)</td>
<td>Neuroscience of Pain (ST) (3)</td>
<td>Haythorn</td>
<td>080.205 or 200.141</td>
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<td>Cross-listed with Psychological and Brain Sciences</td>
<td>Sec. 01</td>
<td>M 2-5</td>
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<tr>
<td>080.352 (N)</td>
<td>Primate Brain Functions (J)</td>
<td>Hendry</td>
<td>080.205</td>
<td>100</td>
<td>Cross-listed with Psychological and Brain Sciences</td>
<td>Sec. 01</td>
<td>MW 2-3:30</td>
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<tr>
<td>080.411 (N)</td>
<td>Advanced Seminar in Neuroscience I (J) (3)</td>
<td>Yoshioka</td>
<td>For students in 4th year of the BA/MS Program</td>
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<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>080.412 (N)</td>
<td>Advanced Seminar in Neuroscience II (J) (3)</td>
<td>Yoshioka</td>
<td>For students in 4th year of the BA/MS Program</td>
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<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>080.413 (N)</td>
<td>Readings in Neuroscience I (J)</td>
<td>Yoshioka</td>
<td>For students in 4th year of the BA/MS Program</td>
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<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>080.414 (N)</td>
<td>Advanced Seminar in Neuroscience IV (J) (3)</td>
<td>Yoshioka</td>
<td>For students in 4th year of the BA/MS Program</td>
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<td>Sec. 01</td>
<td>TBA</td>
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<tr>
<td>080.419 (N)</td>
<td>Advanced Seminar in Neuroscience V (J) (1)</td>
<td>Yoshioka</td>
<td>For students in 4th year of the BA/MS Program</td>
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<td>Sec. 01</td>
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<td>080.511</td>
<td>Independent Study</td>
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<td>080.531</td>
<td>Research in Neuroscience B Freshmen</td>
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<td>080.541</td>
<td>Research in Neuroscience B Sophomores</td>
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<tr>
<td>080.551</td>
<td>Research in Neuroscience B Juniors</td>
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<tr>
<td>080.561</td>
<td>Research in Neuroscience B Seniors</td>
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<tr>
<td>020.330 (N)</td>
<td>Genetics (CM) (3) Hoyt/ Cunningham</td>
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<td>020.305</td>
<td>325</td>
<td>Cross-listed with Biology</td>
<td>Sec. 01</td>
<td>MTW 10</td>
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<td>200.344 (N,S)</td>
<td>Behavioral Endocrinology (CM)(ST) (3)</td>
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<td>020.141, 080.205 or Perm. Req' d</td>
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<td>Cross-listed with Behavioral Biology and Psychological &amp; Brain Sciences</td>
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<td>ThF 10:30-12</td>
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**NEUROSCIENCE**

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<tr>
<th>Course Code</th>
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<th>Instructor(s)</th>
<th>Section(s)</th>
<th>Days and Times</th>
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<tr>
<td>250.345 (N)</td>
<td>CONE</td>
<td>Prereg: 020.305, Cross-listed with Biology and Biophysics</td>
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<tr>
<td>080.620</td>
<td>THEORETICAL NEUROSCIENCE</td>
<td>Niebur Perm. Req'd.</td>
<td>Sec. 01</td>
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<tr>
<td>080.630</td>
<td>BODIAN SEMINAR SERIES</td>
<td>Von Der Heydt</td>
<td>Sec. 01</td>
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<tr>
<td>080.650</td>
<td>MENTORED RESEARCH IN NEUROSCIENCE 1</td>
<td>Yoshioka Holland</td>
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<td>080.651</td>
<td>MENTORED RESEARCH IN NEUROSCIENCE 2</td>
<td>Yoshioka Gorman</td>
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<td>080.652</td>
<td>MENTORED RESEARCH IN NEUROSCIENCE 3</td>
<td>Yoshioka Perm. Req'd.</td>
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<td>080.654</td>
<td>MENTORED RESEARCH IN NEUROSCIENCE 4</td>
<td>Yoshioka Perm. Req'd.</td>
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<td>020.604</td>
<td>CELLULAR AND MOLECULAR NEUROSCIENCE 5</td>
<td>Hattar Zhao</td>
<td>Sec. 01</td>
<td>MW 3:30-5</td>
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<td>080.610</td>
<td>READINGS IN SYSTEMS NEUROSCIENCE 6</td>
<td>Niebur Perm. Req'd.</td>
<td>Sec. 01</td>
<td>W 5pm</td>
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**PHILOSOPHY**

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<tr>
<td>150.111 (H)</td>
<td>PHILOSOPHIC CLASSICS 7</td>
<td>Moyar</td>
<td>Sec. 01</td>
<td>MT 11</td>
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<tr>
<td>(W)</td>
<td>Limit 20 per section An historical introduction to reading and doing philosophy by way of critically examining selected classic texts in the Western philosophical tradition philosopher's to be examined include Plato, Aristotle, Hume, Kant, and Nietzsche.</td>
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<tr>
<td>150.201 (H)</td>
<td>INTRODUCTION TO GREEK PHILOSOPHY 8</td>
<td>Bett</td>
<td>Sec. 01</td>
<td>MT 11</td>
</tr>
<tr>
<td>(W)</td>
<td>Limit 20 per section A survey of the earlier phase of Greek philosophy. Socrates, Plato, and Aristotle will be discussed, as well as two groups of thinkers who preceded them, usually known as the pre-Socrates and the Sophists.</td>
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<td>Sec. 02</td>
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<tr>
<td>150.219 (H)</td>
<td>BIOETHICS 9</td>
<td>Ikai</td>
<td>Sec. 01</td>
<td>TWF 12</td>
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<tr>
<td>(H)</td>
<td>Limit 20 per section Introduction to a wide range of moral issues arising in the biomedical fields, e.g., physician-assisted suicide, human cloning, abortion, surrogacy, and human subjects research. Cross-listed with Public Health Studies.</td>
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**PHILOSOPHY OF RELIGION 10**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Section(s)</th>
<th>Days and Times</th>
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<tbody>
<tr>
<td>150.235 (H)</td>
<td>PHILOSOPHY OF RELIGION 11</td>
<td>Gross</td>
<td>Sec. 01</td>
<td>TWF 11</td>
</tr>
<tr>
<td>(H)</td>
<td>Limit 20 per section 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, Hume, and Kierkegaard) as well as important contemporary writings (for example, by Adams, Boyer, Plantinga, and Van Inwagen).</td>
<td></td>
<td>Sec. 02</td>
<td>W 9</td>
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<td>Sec. 04</td>
<td>W 10</td>
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</table>
PHILOSOPHY

150.245 (H) PHILOSOPHY OF MIND: SELF-KNOWLEDGE (3) Williams
Limit 15 per section
An introduction to the main metaphysical theories about the nature of the mind, thought, and consciousness. Related issues are also discussed such as free-will, personal identity, solipsism, and artificial intelligence.
Lec. MT 9
Sec. 01 W 9
02 W 9
03 W 9
04 W 10

150.403 (H) HELLENISTIC PHILOSOPHY (3) Bett
Limit 35
A study of later Greek philosophy, stretching roughly from the death of Aristotle to the Roman imperial period. Epicureans, Stoics, and Skeptics will be the main philosophical schools examined.
Sec. 01 MTW 1

150.408 (H) SEMINAR IN SCHELLING’S ‘SYSTEM OF TRANSCENDENTAL IDEALISM’ (3) Förster
Limit 20
Prereq: Knowledge of Kant’s ‘Critique of Pure Reason’
An in-depth research seminar that will study and attempt to discern the underlying idea of Schelling’s ‘System of Transcendental Idealism.’ Regular attendance is mandatory.
Sec. 01 Th 2-4

150.411 (H) STUDIES IN THE HISTORY OF MODERN ETHICS: NIETZSCHE (3) Jenkins
This course focuses on ethical themes in Nietzsche’s texts from The Gay Science onward, as well as selected secondary literature. Topics include the death of God, Dionysian pessimism, the revaluation of values, the origin of conscience, eternal recurrence, the overman and genealogy as a philosophical method.
Sec. 01 M 2-5pm

150.413 (H) TOPICS IN THE HISTORY OF POLITICAL PHILOSOPHY: KANT AND FICHTE (3) Möser
Limit 20
A close study of Kant’s “Doctrine of Right” in the “Metaphysics of Morals” and Fichte’s “Foundations of Natural Right.” Central topics will be the relation of morality and right, the nature of freedom, and the possibility of grounding political theory in a systematic idealism.
Sec. 01 F 1-4

150.417 (H) KANT’S ‘CRITIQUE OF PURE REASON’ (3) Förster
Limit 20
An in-depth study of Kant’s most important work, one of the great classics of modern philosophy.
Sec. 01 ThF 9-10:30

150.424 (H,Q) FOUNDATIONS OF PROBABILITY AND INDUCTIVE LOGIC (3) Achinstein
A study of classical a priori, frequency, subjective, and logical theories of probability and inductive inference; the justification of induction; the concept of evidence.
Sec. 01 ThF 10:30-12

150.449 (H) PHILOSOPHY OF LANGUAGE (3) Gross
Limit 15
This course surveys central topics in the philosophy of language. Questions discussed include: What is the relation between meaning and truth? Between meaning and intention? Are there objective facts about meaning? In what does our knowledge of language consist? In what sense, if any, is language conventional? How might questions about language matter for the rest of philosophy? In the course of addressing these questions, we also examine various specific elements of language and language use of particular philosophic interest, such as proper names, ‘context-sensitive’ terms, and metaphor.
Sec. 01 ThF 2-3:30

150.451 (H) ETHICAL THEORIES (3) Jenkins
Limit 35
This course features, first, close readings of the classic texts (by Aristotle, Kant, and Mill) behind philosophy’s dominant attempts to systematically order, explain and justify ethical life; and, second, an examination of contemporary attempts to ground theory in considerations of virtue and character.
Sec. 01 ThF 12-1:30
PHILOSOPHY

150.477 (H)  **EXISTENTIALISM AND THE PROJECT OF CREATING ONESELF (3)** Eivers
Limit 15  This course will be an examination of possibility and significance of self-definition in the context of existentialism via a consideration of works by Kierkegaard, Nietzsche, Sartre, and Camus.  
*Dean’s Teaching Fellowship Course*

214.390 (H)  **MACHIAVELLI IN CONTEXT (3)** Celenza
Limit 20  Cross-listed with German and Romance Languages, the Humanities Center, and History

300.337 (H)  **THINKING FILMS (3)** Marrati
Limit 25  Cross-listed with Anthropology, German and Romance Languages, Political Science, and Film and Media Studies.

150.511  **DIRECTED STUDY**

150.551  **HONORS PROJECT**

150.637  **SEMINAR IN THE THEORY OF KNOWLEDGE** Williams (Michael)
Limit 35  This seminar will examine problems of knowledge and justification.

150.639  **SEMINAR IN THE PHILOSOPHY OF MIND: PERCEPTION** Williams (Meredith)
In this seminar, we will study some key issues that inform contemporary debate on perception. These will include the debate over whether visual perception and perceptual illusion share a common sensory content (or not); whether perceptual states have a conceptual content; and whether action is intimately a part of perceptual states.

214.693  **PLATONISM IN THE ITALIAN RENAISSANCE** Celenza
Limit 15  Cross-listed with German and Romance Languages, History, the Humanities Center, and Classics

300.637  **HISTORY AND EVENT** Marrati
Cross-listed with Anthropology, German and Romance Languages, Political Science, History, and the Humanities Center

300.670  **THE SECULAR LIVES OF GRACE** de Vries
Cross-listed with German and Romance Languages, Anthropology, Political Science, and the Humanities Center

150.810  **INDEPENDENT STUDY**
*Sec. 01 Staff*
*Sec. 02 Förster*
*Sec. 03 Gross*
*Sec. 04 Moyar*
*Sec. 05 Rynasiewicz*
*Sec. 06 Williams (Meredith)*
*Sec. 07 Bok*
*Sec. 08 Biff*
*Sec. 09 Williams (Michael)*
*Sec. 10 Greenberg*
*Sec. 11 Achinstein*

150.811  **DIRECTED STUDY**
Please see 150.810 for section numbers to use when registering.

150.820  **METHODS AND STRATEGIES FOR ASPIRING PHILOSOPHERS** Achinstein
Preparing philosophy graduate students for the impending job market by discussions of, and practicing for, constructing and submitting dossiers, hotel and campus interviews, and giving talks both in and outside of one's particular field. Open to all philosophy graduate students, regardless of year and field. No degree credits. Offered sporadically.
PHYSICS AND ASTRONOMY

171.101 (E,N) GENERAL PHYSICS FOR PHYSICAL SCIENCE MAJORS I
(4) Ford Limit 23 per section
Coreq: 173.111-112; 110.108-109
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) Barnett Limit 24 per section
Prereq: C- or better in 171.101
Coreq: 173.112; 110.109
One-year course in general physics covering mechanics, heat, sound, electricity and magnetism, optics, and atomic physics.

171.103 (E,N) GENERAL PHYSICS I FOR BIOLOGICAL SCIENCE MAJORS
(4) Reich Limit 24 per section
Coreq: 173.111-112; 110.108-109 or 110.106-107
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.

171.105 (E,N) CLASSICAL MECHANICS I (4)
Maksimovic Limit 30
Coreq: 173.113-116 and 110.108-109
Recommended for students who plan to major or minor in Physics. Students enrolled in this course should enroll in the Classical Mechanics 1 lab only.

173.111 (N) GENERAL PHYSICS LAB I (1)
Swartz Limit 24 per section
Prereq: 173.111
Experiments are chosen from both physical and biological sciences and are designed to give students background in experimental techniques as well as to reinforce physical principles.

173.112 (N) GENERAL PHYSICS LAB II (1)
Swartz Limit 24 per section
Prereq: 173.111
Experiments are chosen from both physical and biological sciences and are designed to give students background in experimental techniques as well as to reinforce physical principles.

171.113 (N) SUBATOMIC WORLD (3)
Blumenfeld Limit 44
Introduction to concepts of physics of the subatomic world: Symmetries, relativity, quanta, neutrinos, particles, and fields. Emphasis on ideas of modern physics, not on the mathematics. Intended for nonscience majors

172.113 (N) INTRODUCTION TO FRONTIER PHYSICS (1) Henry Limit 45
Explores modern experimental methods and theoretical ideas in physics.
PHYSICS AND ASTRONOMY

173.115 (N) CLASSICAL MECHANICS LABORATORY (3) Swartz. Limit 24 Coreq: 171.105 Experiments chosen to complement the lecture course Classical Mechanics I, II 171.105-106 and introduce students to experimental techniques and statistical analysis. Sec. 01 M 6-9pm

171.201 (E,N) SPECIAL RELATIVITY AND WAVES (4) Neufeld Limit 30 per section Prereq: 171.105-106 (preferred) or 171.101-102 or 171.103-104; 110.108-109, Coreq: Calculus 110.202 or 110.211-212 Course continues introductory physics sequence (begins with 171.105-106). Special theory of relativity, mathematics of waves, harmonic oscillation, forced and damped oscillators, electromagnetic waves, diffraction, interference. Lec. Sec.01 MTW 11 02 Th 12 F 2

171.203 (N) CONTEMPORARY PHYSICS SEMINAR (1) Henry Prereq: 171.101-102, 171.103-104, or 171.105-106 This seminar exposes physics majors to a broad variety of contemporary experimental and theoretical issues in the field. Students read and discuss reviews from the current literature, and are expected to make an oral or written presentation. Sec. 01 T 2

171.207 (N) SPECIAL REALTIVITY (1) Neufeld Limit 30 per section Three-week introduction to special relativity for students who elect to take 171.209 in place of 171.201. Prereq: 171.105-106 (preferred) or 171.101-102 or 171.103-104; Calculus 110.108-109 Coreq: Calculus 110.202 or 110.211-212 Lec. Sec.01 MTW 11 02 Th 12 F 2

171.209 (N) WAVE PHENOMENA WITH BIOPHYSICAL APPLICATIONS (4) Robbins Limit 30 Prereq: 171.101-102 or 171.103-104 or 171.105-106 Introduction to wave phenomena, primarily through study of biophysical probes that depend on the interaction of electromagnetic radiation with matter. Topics include Fourier Analysis; standing waves; sound and hearing; diffraction and crystallography; geometrical and physical optics – the physics of modern light microscopy; quantum mechanics – how living things absorb light; NMR and MRI. Occasional laboratory exercises are included. Lec. Sec.01 MTW 9 Th 12

171.301 (N) ELECTROMAGNETIC THEORY II (4) Kaplan Limit 30 Prereq: 171.101-102 or 171.103-104 or 171.105-106 Static electric and magnetic fields in free space and matter; boundary value problems; electromagnetic induction; Maxwell's equations; and an introduction to electrodynamics. Lec. Sec. 01 MTW 11 Th 12

171.303 (N) QUANTUM MECHANICS I (4) Brodsky Limit 30 Prereq: 171.202, 171.204, 110.113 Fundamental aspects of quantum mechanics. Uncertainty relations, Schrodinger equation in one and three dimensions, tunneling, harmonic oscillator, angular momentum, hydrogen atom, spin, Pauli principle, perturbation theory (time-independent and time-dependent), transition probabilities and selection rules, atomic structure, scattering theory. Lec. Sec. 01 MTW 9 Th 1

171.312 (N) STATISTICAL PHYSICS AND THERMODYNAMICS (4) Markovic Limit 25 Undergraduate course that develops the laws and general theorems of thermodynamics from a statistical framework. Lec. Sec. 01 MTW 1 Th 2
INTRODUCTION TO STELLAR PHYSICS (3) Feldman Limit 10
Prereq: 110.108-109, 171.202 Survey of stellar astrophysics. Topics include stellar atmospheres, stellar interiors, nucleosynthesis, stellar evolution, supernovae, white dwarfs, neutron stars, pulsars, black holes, binary stars, accretion disks, protostars, and extrasolar planetary systems.

CONDENSED MATTER PHYSICS (3) Leheny Limit 10
Prereq: 171.304, 110.201-202 Undergraduate course covering basic concepts of condensed matter physics: crystal structure, diffraction and reciprocal lattices, electronic and optical properties, band structure, phonons, superconductivity and magnetism.

MATHEMATICAL METHODS FOR PHYSICISTS (4) Krolik Limit 25
Prereq: 110.201-202 Selection of topics in applied mathematics most frequently used by physicists. First term focuses on analytic methods: functions of complex variables, series and perturbation methods for solving differential equations, Sturm-Liouville theory and special functions, Fourier series and transforms.

INDEPENDENT RESEARCH: UNDERGRADUATES Staff
Students may register for independent research with a faculty member in the Department of Physics and Astronomy. A research plan should be sent to the Director of Undergraduate Study before the add/drop date that includes project details, the number of hours of effort each week and the number of credits. This course may not be used for one of the two electives required for a BA, but one semester of research may be used as one of four focused electives in a BS program.

SENIOR THESIS Staff
Open to Senior Dept. majors only Preparation of a substantial thesis based upon independent student research, supervised by at least one faculty member in Physics and Astronomy. This course may only be taken for credit during one semester. However, students are expected to have engaged in their research project during previous semesters through 171.501-502, summer research, etc. This course may not be used as one of the two electives required for a BA, but can be used as one of the four focused electives in a BS program.

THEORETICAL MECHANICS Chien, C.Y. Limit 15 The Lagrangian, Hamiltonian, and Hamilton-Jacobi methods of mechanics, with applications to some vibrational and rotational problems. A discussion of classical perturbation theory is included.

ELECTROMAGNETIC THEORY Norman 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 Review of wave mechanics and the Schroedinger 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.
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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>
<th>Time</th>
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<tbody>
<tr>
<td>171.611</td>
<td>STELLAR STRUCTURE AND EVOLUTION Physics</td>
<td>Wyse</td>
<td>25</td>
<td>Sec. 01</td>
<td>ThF</td>
<td>10:30-12</td>
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<td></td>
<td>Basic physics of stellar structure and evolution will be discussed with emphasis on current research.</td>
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<td>171.613</td>
<td>RADIATIVE ASTROPHYSICS / QUANTUM PHYSICS</td>
<td>Bennett</td>
<td>20</td>
<td>Sec. 01</td>
<td>MW</td>
<td>2-3:20</td>
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<td></td>
<td>A two-term sequence including equation of transfer, connection to thermodynamics, diffusion, linear EM waves: dispersion relations, polarization; special relativity; classical EM radiation; bremsstrahlung; synchrotron radiation; Compton scattering; properties of plasmas; charged particles in matter; atomic and molecular spectroscopy; time-dependent perturbation theory; calculation of quantum transition rates for both radiative and collisional processes; techniques for solution of the transfer equation, applications to stellar atmospheres and interstellar nebulae.</td>
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<td>171.621</td>
<td>CONDENSED MATTER PHYSICS</td>
<td>Leheny</td>
<td>20</td>
<td>Sec. 01</td>
<td>M,W</td>
<td>4-5:30</td>
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<td>This sequence is intended for graduate students in physics and related fields. Topics include: metals and insulators, diffraction and crystallography, phonons, electrons in a periodic potential, transport.</td>
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<td>172.631</td>
<td>PHYSICS SEMINAR</td>
<td>Brookhun</td>
<td>20</td>
<td>Sec. 01</td>
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<td><strong>FIRST YEAR GRADUATE STUDENTS ONLY</strong></td>
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<td>172.633</td>
<td>LANGUAGE OF ASTROPHYSICS</td>
<td>Krolik</td>
<td>20</td>
<td>Sec. 01</td>
<td>W</td>
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<td>Survey of the basic concepts, ideas, and areas of research in astrophysics, discussing general astrophysical topics while highlighting specialized terms often used compared to physics.</td>
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<td>171.701</td>
<td>QUANTUM FIELD THEORY</td>
<td>Sundrum</td>
<td>15</td>
<td>Sec. 01</td>
<td>M</td>
<td>3:30-5:10</td>
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<tr>
<td>172.711</td>
<td>INTERMEDIATE SEMINAR</td>
<td>Henry</td>
<td>20</td>
<td>Sec. 01</td>
<td>T</td>
<td>12</td>
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<td>Nonspecialized seminar in which second-year graduate students discuss subjects of general interest, supplementing the material of the standard courses and including recent advances in physics.</td>
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<td>172.722</td>
<td>HOT TOPICS IN ASTROPHYSICS</td>
<td>Norman</td>
<td>20</td>
<td>Sec. 01</td>
<td>M</td>
<td>4-6pm</td>
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<tr>
<td>172.731</td>
<td>CAS RESEARCH SEMINAR</td>
<td>Meuser</td>
<td>20</td>
<td>Sec. 01</td>
<td>T</td>
<td>3:30-5</td>
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<td>172.735</td>
<td>STARBURST JOURNAL CLUB SEMINAR</td>
<td>Heckman</td>
<td>20</td>
<td>Sec. 01</td>
<td>F</td>
<td>12</td>
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<td>172.751</td>
<td>ELEMENTARY PARTICLE PHYSICS SEMINAR</td>
<td>Staff</td>
<td>20</td>
<td>Sec. 01</td>
<td>W</td>
<td>12-1:30</td>
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<td>172.753</td>
<td>ADVANCED PARTICLE THEORY SEMINAR</td>
<td>Kaplan</td>
<td>20</td>
<td>Sec. 01</td>
<td>F</td>
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<tr>
<td>172.763</td>
<td>CONDENSED MATTER PHYSICS SEMINAR</td>
<td>Markovic</td>
<td>20</td>
<td>Sec. 01</td>
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<td>2-3:30</td>
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<td>171.764</td>
<td>EXPERIMENTAL CONDENSED MATTER PHYSICS SEMINAR</td>
<td>Deming</td>
<td>20</td>
<td>Sec. 01</td>
<td>TBA</td>
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<td></td>
<td>Survey of modern techniques in experimental condensed matter physics.</td>
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</table>
PHYSICS AND ASTRONOMY

171.801 INDEPENDENT RESEARCH - GRADUATES

Sec. 01 Staff
Sec. 02 Sundrum
Sec. 03 Feldman
Sec. 04 Chien, Chia-ling
Sec. 06 Reich
Sec. 07 Chien, Chih-yung
Sec. 08 Krolik
Sec. 09 Barnett
Sec. 10 Norman
Sec. 11 Blumenfeld
Sec. 12 Heckman
Sec. 13 Moos
Sec. 14 Suley
Sec. 15 Ford
Sec. 16 Bagger
Sec. 17 Wyse
Sec. 18 Henry
Sec. 19 Neufeld
Sec. 20 Tesanovic
Sec. 21 Blair
Sec. 22 Robbins
Sec. 23 Broholm
Sec. 24 Bianchi
Sec. 25 Falk
Sec. 26 Kaplan
Sec. 27 Finkenthal
Sec. 28 Leheny
Sec. 29 Markovic
Sec. 30 Tchernyshyov
Sec. 32 Bennett
Sec. 33 Vishniac
Sec. 34 Gritsan

POLITICAL SCIENCE

190.101 (S) INTRODUCTION TO AMERICAN POLITICS (AP) (3)

Lec. Sec. 01 T 3
Sec. 02 T 3
Sec. 03 W 1
Sec. 04 W 2
Sec. 05 W 3
Sec. 06 T 4
Sec. 07 Th 1
Sec. 08 Th 2
Sec. 09 Th 3
Sec. 10 Th 4
Sec. 11 F 1
Sec. 12 T 2

190.209 (S) CONTEMPORARY INTERNATIONAL POLITICS (IR) (3)

Lec. Sec. 01 W 2
Sec. 02 W 2
Sec. 03 W 3
Sec. 04 W 3
Sec. 05 W 4
Sec. 06 W 4
Sec. 07 Th 1
Sec. 08 Th 1
Sec. 09 Th 2
Sec. 10 Th 2
Sec. 11 Th 3
Sec. 12 Th 4
Sec. 13 F 10:30-11:20
Sec. 14 F 11

190.214 (S) INTRODUCTION TO RACIAL AND ETHNIC POLITICS (3)

Lec. Sec. 01 TTh 10

This course examines the ideals and operation of the American political system. It seeks to understand how our institutions and politics work, why they work as they do, and what the consequences are for representative government in the United States. Emphasis is placed on the federal government and its electoral, legislative, and executive structures and processes. As useful and appropriate, attention is also given to the federal courts and to the role of the states. The purpose of the course is to understand and confront the character and problems of modern government in the United States in a highly polarized and plebiscitary era.

An introduction to international politics. Emphasis will be on continuity and change in international politics and the causes of war and peace. The first half of the course will focus on events prior to the end of the Cold War, including the Peloponnesian War, the European balance of power, imperialism, the origins and consequences of WWI and WWII, and the Cold War. The second half will focus on international politics since 1990, including globalization, whether democracies produce peace, the impact of weapons of mass destruction, terrorism, and the prospects for peace in the 21st century.

What do scholars mean when they use concepts of race and ethnicity, and what are the political implications of these concepts in everyday life? One aim of this course is to answer this question. The second aim of this course is to help first-year college students develop familiarity with these concepts and an understanding of how ideas about racial and ethnic difference have impacted the formation of societies, governments, laws, policies and individuals, even themselves. Comparative in scope, this course will lead students through readings about racial and ethnic relations in countries like Brazil, England, Northern Ireland and China, often
POLITICAL SCIENCE
utilizing the United States as a referent.
Cross-listed with Africana Studies

190.301 (S)  GLOBAL POLITICAL ECONOMY (IR) (3) Marlin-Bennett  Limit 35
Prereq: CIP (190.309) Examines the intersection of politics and economics in global affairs. Focuses on theoretical approaches to global political economy; institutions of governance of the global political economy; flows of goods, services, capital, and information; and transborder problems.
Sec. 01  MW 11

190.302 (S)  POLITICS OF BLACK CULTURAL PRODUCTION (3) Spence  Limit 15
Cross-listed with Africana Studies
Sec. 01  Th 1-4

191.317 (S)  INTERNATIONAL INSTITUTIONS AND ORGANIZATIONS (3) Gould  Limit 35
This course will introduce the major theories informing the study of international organizations and institutions in political science, and then focus on the major international organizations, from the League of Nations to the WTO. For each organization, we will consider not only how the organization works and what it does, but also the conceptual puzzles raised by its activities.
Sec. 01  MW 10

190.320 (S)  POLITICS OF EAST ASIA (CF) (3) Chung  Limit 20 per section
Examines some of the central ideas and institutions that have transformed politics in the contemporary world through the lens of East Asia, focusing on Japan, South Korea, Taiwan, and China. Topics include state-society relations, late development, nationalism, democratization, political culture, social movements, and globalization.
Lec. Sec. 01  M 2-4
Sec. 02  T 12

190.323 (S)  INTRODUCTION TO INTERNATIONAL LAW (IR) (3) Grovogui  Limit 35 per section
A limited survey of international law, its sources, and uses in international relations. It has five basic aims: 1) to explore the place, origins and changing contexts of international law and its instrumentality in international life; 2) to examine the sources of personalities and institutions that influence its development; 3) to survey select international legal dispositions concerning the peaceful resolutions of conflict and the immunities that apply to certain legal subjects; 4) to examine the immunities that apply to certain legal subjects; 5) to examine differing views on the future of international law in light of recent events.
Lec. Sec. 01  Th 1-3
Sec. 02  W 10
Sec. 03  T 1
Sec. 04  T 2

190.333 (S)  AMERICAN CONSTITUTIONAL LAW (AP/LP) (3) Grossman  Limit 75
A two semester exploration of the Supreme Court’s interpretation of the Constitution and the Court’s role in the American political system. The first semester focuses on how the court makes its decisions: on its development and articulation of fundamental principles such as judicial review, federalism, and the separation of powers; and on the powers of Congress and the president.
Sec. 01  MW 3-4:30

191.335 (S)  ARAB-ISRAELI CONFLICT (3) Freedman  Limit 35
The course will focus on the origin and development of the Arab-Israeli conflict from its beginnings when Palestine was controlled by the Ottoman Empire, through World War I, the British Mandate over Palestine, and the first Arab-Israeli war (1947-1949). It will then examine the period of the Arab-Israeli wars of 1956, 1967, 1973, and 1982, the Palestinian Intifadas (1987-1993) and 2000-2005); and the development of the Arab-Israeli peace process from its beginnings with the Egyptian-Israeli treaty of 1979, the Oslo I and Oslo II agreements of 1993 and 1995, Israel’s peace treaty with Jordan of 1994, the Road Map of 2003, and the periodic peace talks between Israel and Syria. The conflict will be analyzed against the backdrop of great power
Sec. 01  T 4-6
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Instructor</th>
<th>Prerequisites</th>
<th>Course Information</th>
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<tbody>
<tr>
<td>190.347 (S)</td>
<td>THEORIES OF POLITICAL AUTHORITY (PT) (3) Culbert</td>
<td>Limit 20</td>
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<td>Sec. 01 MW 2</td>
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<tr>
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<td>Beginning with Plato, and using Nietzsche's</td>
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<td>history of metaphysics as a guide, this course</td>
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<td>analyses the philosophical foundations of political</td>
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<td></td>
<td>authority. In addition to works by Plato and</td>
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<td>Nietzsche, readings will include works by Aquinas,</td>
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<td>Kant, Mill, Berlin, and Butler. This class is</td>
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<tr>
<td></td>
<td>for juniors and seniors only.</td>
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<tr>
<td>190.354 (S)</td>
<td>THE POLITICS OF HEALTH POLICY (AP) (3) Sheingate</td>
<td>Limit 30</td>
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<td>Sec. 01 TW 1</td>
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<td>Traces the evolution of the American Health care</td>
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<td>system, emphasis on the political forces that</td>
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<td>shape public and private provision of health care in</td>
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<td></td>
<td>the United States.</td>
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<td>Cross-listed with Public Health Studies</td>
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<td>190.356 (S)</td>
<td>SOCIAL CONTRACT AND ITS DISCONTENT (PT) (3) Culbert</td>
<td>Limit 20</td>
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<td>MW 10</td>
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<td>This seminar will engage selected articulations and</td>
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<td>criticisms of social contract theory in Europe from</td>
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<td>the mid-17th century to the early 20th. It will</td>
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<td>attend in particular to differences between the</td>
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<td>three classic expressions of consent theory—Hobbes,</td>
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<td>Locke, and Rousseau—as well as to differences</td>
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<td>between significant challenges to these earlier</td>
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<td>notions of a social contract. The latter may</td>
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<td></td>
<td>include writings by Hume, Burke, Wilhelmsen, Marx,</td>
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<td></td>
<td>and Freud, among others.</td>
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<tr>
<td>190.372 (S)</td>
<td>POLITICAL VIOLENCE (IR) (3) David</td>
<td>Limit 20</td>
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<td>Sec. 01 Th 10:30-12:30</td>
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<td></td>
<td>An examination of the ways in which violence has</td>
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<td>been used to secure political ends. Topics include</td>
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<td>terrorism, assassination, genocide, coups,</td>
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<td>rebellions and war itself. Students examine what</td>
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<td>makes types of political violence unique and</td>
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<td>what unites them.</td>
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<td>190.384 (S)</td>
<td>URBAN POLITICS (AP) (3) Spence</td>
<td>Limit 20</td>
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<td>Sec. 01 Th 10:30-12:30</td>
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<td>Cross-listed with Africana Studies</td>
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<td>190.392 (S)</td>
<td>LATIN AMERICAN POLITICS (CP) (3) Kokk</td>
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<td>Cross-listed with Africana Studies</td>
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<td>A survey of modern Latin American politics and</td>
<td>Sec. 01 M 11</td>
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<td>political development.</td>
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<tr>
<td>190.398 (S)</td>
<td>THE POLITICS OF GOOD AND EVIL (W) Connolly</td>
<td>Limit 20</td>
<td>Prereq: Prior</td>
<td>Sec. 01 M 2-4</td>
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<td>Previous course in political theory or prior</td>
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<td>professor</td>
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<td>permission of professor. An examination of good</td>
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<td></td>
<td>and evil through readings of Job, Genesis,</td>
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<td></td>
<td>Sophocles, Nietzsche, Charles Taylor and William</td>
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<td></td>
<td>James. A comparison of tragic, theological and</td>
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<td>secular visions of good and evil. Class presentations</td>
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<td>and 2 papers.</td>
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<td>190.404 (S)</td>
<td>REALIST IR THEORY (3) Duedney</td>
<td>Limit 30</td>
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<td>Sec. 01 W 5-7:30pm</td>
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<td></td>
<td>This course undertakes a critical survey of the</td>
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<td>main concepts and theories of Realism. Readings are</td>
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<td>a mixture of classic texts and recent social where.</td>
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<td>190.405 (S)</td>
<td>FOOD POLITICS (AP/CP) (3) Sheingate</td>
<td>Limit 15</td>
<td>Juniors,</td>
<td>Sec. 01 M 4-6pm</td>
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<td>Cross-listed with Public Health Studies</td>
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<td>Seniors, and</td>
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<td>This course examines the politics of food at the</td>
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<td>local, national, and global level. Topics include</td>
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<td>the politics of agricultural subsidies, struggles</td>
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<td>over genetically modified foods, government</td>
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<td>efforts at improving food safety, and issues</td>
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<td>surrounding obesity and nutrition policy.</td>
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<td>Cross-listed with Africana Studies</td>
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<tr>
<td>190.407 (S)</td>
<td>COLLAPSE OF COMMUNISM (3) Satter</td>
<td>Limit 25</td>
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<td>Sec. 01 F 10:30-12:20</td>
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<tr>
<td>190.420 (S)</td>
<td>LIBERAL IR THEORY (AP) (3) Duedney</td>
<td>Limit 30</td>
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<td>Sec. 01 Th 5-7:30pm</td>
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<td></td>
<td>Intensive survey of major liberal and republican</td>
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<td>international theories, including constitutionalism,</td>
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<td>federal union, interdependence, democratic</td>
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<td>peace, capitalism, international organization,</td>
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<td>regimes, transnational relations, pluralistic</td>
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<td>security communities, and civic identity</td>
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POLITICAL SCIENCE

190.434 (S) (W) ADVANCED TOPICS IN CHINESE POLITICS (CP) (3) Year. Limit 15
Prereq: 190.348 for undergraduates only
This seminar is structured around key concerns in China's domestic politics, including the politics of economic reform, central-local relations, corruption, increasing inequality, the role of intellectuals, the rise of quasi-governmental organizations, various channels for political participation and protest, and other contemporary issues.
Sec. 01 W 10-12

190.471 (S) (W) SENIOR THESIS SEMINAR: INTERNATIONAL RELATIONS AND POLITICAL SCIENCE (3) Staff
Limit 50
Sec. 01 F 10:30-12:30

195.477 (S) (W) INTRODUCTION TO URBAN POLICY (3) Newman. Limit 15
Perm. Req’d. Coreq: 195-478
Cross-listed with Policy Studies, Public Health Studies, Sociology, and Geography and Environmental Engineering
Sec. 01 T 5-7pm

195.478 (W) URBAN POLICY INTERNSHIP (3) Newman. Perm. Req’d. Limit 15
Coreq: 195-477 Cross-listed with Public Policy, Sociology, Public Health Studies, and Geography and Environmental Engineering
Sec. 01 TBA

230.150 (S) ISSUES IN INTERNATIONAL DEVELOPMENT (3) Agrawala
Limit 30 Freshmen & Sophomores only
Cross-listed with Sociology and Public Health Studies
Lec. Sec. 01 T 3-5 W 3

300.337 (H) THINKING FILMS (3) Marrati
Limit 25 Cross-listed with Philosophy, Anthropology, German and Romance Languages, Political Science, and Film and Media Studies
Sec. 01 T 4-6pm

362.375 (H,S) BEBOP, MODERNISM AND CHANGE (3) Hayes Limit 25
The seminar explores the social & political content, meanings & intent of bebop music from the 1940s to the 1960s and its impact on the social transformation of America. Taught at Peabody.
Cross-listed with History, Political Science, and Sociology
Sec. 01 MW 12:30-2

190.501 POLITICAL SCIENCE INTERNSHIP
Perm. Req’d
Sec. 01 Ginsberg
Sec. 02 Chung
Sec. 03 Katz
Sec. 04 Grossman
Sec. 05 Blyth
Sec. 06 Cooper
Sec. 07 Staff

190.503 INTERNATIONAL RELATIONS INTERNSHIP Perm Req’d.
Sec. 01 Ginsberg
Sec. 02 Chung

190.535 INDEPENDENT STUDY - FRESHMAN

190.537 INDEPENDENT STUDY - SOPHOMORES

190.539 INDEPENDENT STUDY - JUNIORS

190.541 INDEPENDENT STUDY - SENIORS

190.543 INDEPENDENT RESEARCH

190.602 INTRODUCTION TO QUANTITATIVE POLITICAL SCIENCE (Q) Katz
Limit 15 Graduate Students Only
An introduction to measurement and data analysis in contemporary American political science. Measurement topics will include the formation of indices and cumulative scales. Analytic topics will include sampling variations, statistical association and causation, as manifested in contingency tables and correlation and regression. Emphasis will be on fundamental concepts and assumptions, and on comprehension and
POLITICAL SCIENCE

evaluation of the scholarly literature. No
mathematical prerequisites.

190.604 KNOWLEDGE, POWER AND THE
GLOBAL POLITICAL ECONOMY (IR) Marlin-Bennett Limit 15
Prereq: Graduate Standing or Permission of Instructor
Examines information and information
flows from the perspective of international
relations theory, drawing on insights, as
well, from comparative politics, legal
theory, and other fields. Focuses on the
relationship between information and
power. Topics to be studied include
intellectual property, governance of the
Internet, and surveillance.

Sec. 01 T 1-3

190.631 COMPARATIVE CITIZENSHIP AND
IMMIGRATION POLITICS Chung Limit 15 Graduate students Only
Examines the contemporary political
dynamics of migration, citizenship, and
race in advanced industrial democracies,
concentrating on the United States, West
Europe, and Japan. We will focus on how
citizenship and immigration policies shape
immigrant political identities, claims, and
strategies as well as how immigrants
impact public debates and policies in
receiving societies.

Sec. 01 T 1-3

190.613 POLITICS OF MATERIALISM
Bonner Limit 15 Graduate students only
Study of philosophies of matter and their
implications for politics. How do natural
forces, technological objects, biological
bodies, or “organic matter” affect public life?
Readings from Spinoza, Diderot, Marx,
Hegel, Driesch, Bakhtin and
recent writers in the “New Materialism.”
Cross-listed with Women, Gender, and
Sexuality Studies

Sec. 01 Th 1-3

190.625 THEORIES OF COMPARATIVE
POLITICS Tsai Limit 15
Graduate students only This seminar is
intended for graduate students planning to
take the comprehensive exam in
comparative politics, either as a major or
as a minor. In addition to exploring central
methodological debates and analytic
approaches, the seminar reviews the
literature on state-society relations,
political and economic development, social
movements, nationalism, revolutions,
formal and informal political institutions,
and regime durability vs. transition.

Sec. 01 M 2-4

190.631 COMPARATIVE CITIZENSHIP AND
IMMIGRATION POLITICS (CP) Chung Limit 15 Graduate students only
Examines the contemporary political
dynamics of migration, citizenship, and
race in advanced industrial democracies,
concentrating on the United States, West
Europe, and Japan. We will focus on how
citizenship and immigration policies shape
immigrant political identities, claims, and
strategies as well as how immigrants
impact public debates and policies in
receiving societies.

Sec. 01 T 1-3

190.638 CONTENTIOUS POLITICS Keck Limit 15 Social movements and revolution
in comparative and global perspective.
Exploration of the major theoretical
approaches and of what difference
globalization makes. Cross-listed with
Women, Gender, and Sexuality Studies

Sec. 01 Th 3-5

190.642 INSTITUTIONALIZING
DEMOCRACY Katz Limit 15
Graduate students only
Examines the role of political institutions
in shaping democratic government.
Focusing on parties, electoral systems,
legislators, and executives.

Sec. 01 W 2-4

190.647 BLACK POLITICAL THOUGHT Hanchard Limit 15 Graduate students only
This course will focus on black
political thought’s engagements with and
relevance to nationalism, feminism and
diasporic identification as a means of
highlighting the ways in which black
political thought has both parallelled and
distinguished itself from dominant themes,
concerns and investigations of Western
political and social theory in the 20th
century. This aspect of the course will
trace black political thought’s relation to
Marxism, Cultural Studies, Surrealism,
Liberalism and other critical
methodologies and perspectives.
Cross-listed with Women, Gender, and
### POLITICAL SCIENCE

**190.650**  
**CULTURES OF GLOBALIZATION (1945-)**  
Grovogui (Limit 15)  
This course discusses select dimensions and issues of globalization and related debates: the rise of transnational corporations in international politics, as well as growing concerns over human rights, the environment, migration and pandemic diseases. It also explores the relationships between ideology, identity, and interest in the political action and ethics of the various agents and actors of global politics.  
Sec. 01  M 2-4

**190.693**  
**SOPHOCLES AND KANT**  
Connolly (Limit 15)  
What can the Greek tragic tradition teach the Enlightenment and the Enlightenment the tragic tradition? Texts by Sophocles and Kant will provide focal points, with and responses to each provided by Knox, Nietzsche, Jaspers, B Williams and others.  
Sec. 01  T 3-5

**300.670**  
**THE SECULAR LIVES OF GRACE**  
deVries  
Cross-listed with Philosophy, German and Romance Languages, Anthropology, and Political Science  
Sec. 01  Th 1-4pm

**190.800**  
**INDEPENDENT STUDY**  
Sec. 01 Staff  
Sec. 02 Keck  
Sec. 03 Connolly  
Sec. 04 Grossman  
Sec. 05 Katz  
Sec. 06 Cooper  
Sec. 07 Zartman  
Sec. 08 Crenson  
Sec. 09 David  
Sec. 10 Deadwy  
Sec. 11 Tsai  
Sec. 12 Sheingate

**190.849**  
**DISSERTATION RESEARCH**  
Sec. 01 Staff  
Sec. 02 Keck  
Sec. 03 Connolly  
Sec. 04 Grossman  
Sec. 05 Katz  
Sec. 06 Cooper  
Sec. 07 Zartman  
Sec. 08 Crenson  
Sec. 09 David  
Sec. 10 Deadwy  
Sec. 11 Tsai  
Sec. 12 Sheingate  
Sec. 13 Bennett  
Sec. 14 Grovogui  
Sec. 15 Culbert  
Sec. 16 Blyth

### PSYCHOLOGICAL & BRAIN SCIENCES

**200.101 (N,S)**  
**INTRODUCTION TO PSYCHOLOGY (3)**  
Drigotas (Limit 225)  
This course surveys all the major areas of scientific psychology, including the physiological bases of behavior; sensation and perception; learning, memory and cognition; developmental, social, and personality psychology; and psychopathology.  
Sec. 01  MTW 11

**200.110 (N,S)**  
**INTRODUCTION TO COGNITIVE PSYCHOLOGY (3)**  
Stark (Limit 250)  
Introductory survey of current research and theory on topics in cognitive psychology. The course will cover a range of topics in perception, attention, learning, reasoning, and memory, emphasizing relationships among mind, brain, and behavior.  
Sec. 01  TTh-F 9-10:30

**200.132 (S)**  
**INTRODUCTION TO DEVELOPMENTAL PSYCHOLOGY (3)**  
Pfeifer (Limit 100)  
An introductory survey of developmental psychology from birth through adulthood. Consideration of developmental theories and methods and of research investigating biological, psychological, and social factors and their interactions within a cultural framework.  
Sec. 01  MTW 2

**200.141 (N,S)**  
**INTRODUCTION TO Physiological PSYCHOLOGY (3)**  
Gorman (Limit 100)  
A survey of neurobiology relating the organization of behavior to the integrative action of the nervous system. Cross-listed with Behavioral Biology  
Sec. 01  TTh-F 9-10:30

**200.159 (S)**  
**FRESHMAN SEMINAR: EVOLUTIONARY PSYCHOLOGY (1)**  
Egelh (Limit 13)  
Sec. 01  Th 2
PSYCHOLOGICAL & BRAIN SCIENCES

Freshmen only: In this course we discuss evolutionary psychology, which is the idea that the mind can be understood as an adaptation to our ancestral environment by means of natural selection.

200.204 (S) HUMAN SEXUALITY (3) Kraft  Limit 25 Permi Req’d. Not open to Freshmen Junior & Senior Psychology, Behavioral Biology, and WGS minors only. Perm Req’d. Registration requirements can be found at: www.psy.jhu.edu

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. Formerly taught as 200.302

200.205 (S) BEHAVIOR MODIFICATION (3) Fogel  Limit 50  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.

200.207 (Q,S) (W) LAB IN ANALYSIS OF PSYCHOLOGICAL DATA (3) Egeth  Limit 20 per section Laboratory in the fundamentals of data collection and analysis in experimental and differential psychology. Formerly 200.114

200.209 (S) INTRODUCTION TO PERSONALITY THEORY (3) Piferi  Limit 100 An overview of the major theories of personality with their empirical bases and applications.

200.212 (S) INTRODUCTION TO ABNORMAL PSYCHOLOGY (3) Voonberg  Limit 125 A survey of the major disorders of psychological disorders. Research and theory about the mechanisms, development, and diagnosis of psychopathology are emphasized.

200.214 (N,S) BRAIN MYTHS & FOLK PSYCHOLOGY (3) Shelton  Prereq: One previous course in psychology or neuroscience recommended Limit 50 This course examines popular “facts” about the brain and cognition, exploring the origins, how they are perpetuated in the media, and the empirical data that support or refute the claims. Cross-listed with Public Health Studies

200.301 (H,S) HISTORY OF PSYCHOLOGY (3) Hofer  Limit 35 Prereq: Two prior Psychology courses Juniors and Seniors only. A survey of leading figures, schools, and systems in the history of psychology. The course will emphasize the development of experimental psychology in late 19th century Germany and its establishment in America at Johns Hopkins, Harvard, Chicago, and Columbia. Special topics will include the development of clinical and applied psychology and psychological testing.

200.309 (S) EVOLUTIONARY MECHANISMS OF HUMAN BEHAVIOR (3) Piferi  Limit 25 Prereq: 200.161 Intro. to Psychology. This course examines the evolution of human adaptive behaviors. In particular, it examines evolutionary contributions to behaviors concerned with problems of survival such as mating strategies, parenting, and group living.

200.312 (N,Q) (W) IMAGING THE HUMAN MIND (3) Courtney  Limit 20 Prereq: 550.111 and 880.205 or 590.203 or equivalent Perm. Req’d, during Add/Drop only

200.314 (Q,S) ADVANCED STATISTICAL METHODS (3) Yantis  Prereq: One Bridge statistics course. Limit 15 Perm. Req’d, during Add/Drop only Topics in applied probability and statistical inference; analysis of variance; experimental design. Intended for graduate students in psychology.
200.328 (S)  THEORY & METHODS IN CLINICAL PSYCHOLOGY (3) Edwards  Limit 25
Preier  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  Sec. 01  M 6-8:30pm

200.333 (S)  ADVANCED READING IN SOCIAL PSYCHOLOGY (3) Dragotas  Limit 18
Junior & Senior Psychology majors only  The class is designed as a seminar including discussion of primary readings of social psychology articles ranging in topics from interpersonal relationship to behavior in large groups.  Sec. 01  W 2-4:30

200.339 (S)  ISSUES IN COUNSELING AND 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.  Cross-listed with Behavioral Biology  Sec. 01  Th 12-3

200.344 (N,S)  BEHAVIORAL ENDOCRINOLOGY (3) Ball  Limit 60  Preier  200.141 or 080.205 or Perm. Req'd  An examination of the effects of hormones on behavior in non-human and human animals. Topics will include the effects of hormones on sexual differentiation, reproductive behavior, parental behavior, homeostasis and biological rhythms, regulation of body weight, learning and memory.  Cross-listed with Behavioral Biology and Neuroscience  Sec. 01  ThF 10:30-12

200.355 (S)  PSYCHOLOGY OF DECISION MAKING: BEHAVIORAL FINANCE (3) Saltman  Juniors and Seniors only  Limit 40
Preier  Six credits of Psychology course work
This course will apply insights from cognitive psychology decision-making research to the stock market. The course investigates whether investors can beat the market benchmarks by exploiting marketplace investor sentiment.  Cross-listed with Behavioral Biology  Sec. 01  T 3-5:30pm

200.374 (N,S)  BEHAVIORAL MEDICINE (3) Piferi  Preier  200.114 or 200.141 or 200.146  Limit 50
This course deals with the investigation of biomedical and behavioral knowledge relevant to health promotion and medical treatment. Topics include heart disease, cancer, compliance, smoking, exercise, biofeedback, stress and pain.  Cross-listed with Behavioral Biology and Neuroscience  Sec. 01  M 4-6:30

080.330 (N)  BRAIN INJURY AND RECOVERY OF FUNCTION (CM) (ST) (3) Germann  Preier  080.205 or 080.205 & 080.304 or Perm. Req'd  Limit 30
Cross-listed with Neuroscience and Behavioral Biology  Sec. 01  ThF 1-2:30

080.335 (N)  NEUROCENCE OF PAIN (ST) (3) Haythornthwaite  Limit 25
Preier  080.205 or 200.141
Cross-listed with Neuroscience  Sec. 01  M 2-5

200.420 (S)  ORIGINS OF HUMAN SEXUAL ORIENTATION AND VARIATION (3) Kraft  Limit 25
Juniors and Seniors only  Cross-listed with Behavioral Biology  Sec. 01  T 3-6pm

080.352 (N)  PRIMATE BRAIN FUNCTIONS (3) Hendry  Limit 100  Preier  080.205
Cross-listed with Neuroscience  Sec. 01  MW 2-3:30

200.501  PSYCHOLOGY RESEARCH – FRESHMEN
S/U grading only

200.503  PSYCHOLOGY RESEARCH – SOPHOMORES  S/U grading only

200.505  PSYCHOLOGY READING - FRESHMEN

200.507  PSYCHOLOGY READINGS - SOPHOMORES

200.509  PSYCHOLOGY INTERNSHIP
S/U grading only

200.511  PSYCHOLOGY RESEARCH – JUNIORS
S/U grading only

200.513  PSYCHOLOGY RESEARCH – SENIORS
### PSYCHOLOGICAL & BRAIN SCIENCES

**S/U grading only**

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<th>Instructor(s)</th>
<th>Credits</th>
<th>Days</th>
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<td>200.517</td>
<td>PSYCHOLOGY READINGS - SENIORS</td>
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<td>200.519</td>
<td>SENIOR HONORS RESEARCH</td>
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<td>200.539</td>
<td>INDEPENDENT STUDY - JUNIORS</td>
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<td>200.540</td>
<td>INDEPENDENT STUDY - SENIORS</td>
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**THE FOLLOWING COURSES ARE FOR GRADUATE STUDENTS ONLY**

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<th>Credits</th>
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<td>200.615</td>
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### PUBLIC HEALTH STUDIES

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<td>280.156 (H,S)</td>
<td>THE INVENTION OF TROPICAL DISEASE (3)</td>
<td>Goodyear</td>
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<td>280.345 (Q,S)</td>
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<td>Johnson</td>
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**Note:** Cross-listed with History of Science and Technology and Latin American Studies.
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<td>HISTORY OF MEDICINE: ANTIQUITY TO SCIENTIFIC REVOLUTION (3) Pomata</td>
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<td>Limit 20 per section</td>
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<tr>
<td>230.150 (S)</td>
<td>ISSUES IN INTERNATIONAL DEVELOPMENT (3) Agarwala</td>
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<td>3.00</td>
<td>Limit 30 Freshmen &amp; Sophomores only</td>
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<td>180.252 (S)</td>
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<td>230.303 (S)</td>
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<td>100.333 (H,S)</td>
<td>GLOBAL PUBLIC HEALTH SINCE WORLD WAR II (3) Galambos/Morgan</td>
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<td>190.354 (S)</td>
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<td>190.405 (S)</td>
<td>FOOD POLICIES (3) Shingara</td>
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<td>3.00</td>
<td>Limit 15 Juniors, Seniors, and Graduate Students Only</td>
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<td>195.477 (S)</td>
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<td>THE ENVIRONMENT AND YOUR HEALTH (3)</td>
<td>Keesler</td>
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<td>Perm. Req’d. S/U Only Goodyear</td>
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**PUBLIC POLICY**

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<td>Perm. Req’d. 195.477 &amp; 195.478 must be taken together by undergraduates</td>
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<td>Dworsak-Fisher</td>
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SOCIOLGY

230.101 (S) INTRODUCTORY SOCIOLOGY (3) Bennett/Cherlin Limit 15 per section
Introduces students to basic sociological concepts an perspectives, and applies them to a variety of topics including family, work, and the dynamics of class, gender, and racial/ethnic inequalities in the united states and globally.

Sec. 01 MT 10
02 Th 11
03 Th 1
04 Th 2
05 F 11
06 F 12
07 F 1
08 F 2

230.112 (S) FRESHMAN SEMINAR ON RACE AND EDUCATION IN THE U.S. (3) Bennett
The goal of this course is to explore issues of race and ethnicity in american education. Through lectures, films, and discussions, students will become familiar with various sociological lenses through which the educational issues facing blacks, asians, latinos, and american indians are analyzed.

Cross-listed with Africana Studies

Sec. 01 Th 1-4

230.150 (S) ISSUES IN INTERNATIONAL DEVELOPMENT (3) Agarwala
Limit 30 Freshmen & Sophomores only
This course will provide an undergraduate level introduction to the study and practice, as well as the successes and failures, of international development. Students will be introduced to the various theoretical frameworks used to explain underdevelopment. Students will also explore the practice of development since the 1950s by examining specific strategies employed in latin america, south asia, east asia, and africa. Using a variety of country-specific case studies, students will have the opportunity to apply the theoretical and practical frameworks learned in the class to assess the successes and failures of real-life cases.

Cross-listed with Political Science and Public Health Studies

Sec. 01 T 3-5 W 3

230.203 (S) INTRODUCTION TO LATIN AMERICAN SOCIETIES (3) Haydt
Limit 25 This course is designed as an introduction to latin america's societies for beginners. The course is organized thematically, providing a survey of latin america through its historical, economic, social, political and cultural dimensions. We will analyze the pre-columbian civilizations and the legacy of colonialism to understand the origins of the multiethnic societies and then focus on the contemporary development. It will offer fundamental background information to build a solid base for further specialization in a region or a theme.

Sec. 01 ThF 9-10:30

230.205 (Q,S) INTRODUCTION TO SOCIAL STATISTICS (4) McDonald
Limit 15 students per section
This course will introduce students to the application of statistical techniques commonly used in sociological analysis. Topics include measures of central tendency and dispersion, probability theory, confidence intervals, chi-square, anova, and regression analysis. Hands-on computer experience with statistical software and analysis of data from various fields of social research.

Sec. 01 ThF 10:30-12
02 T 1

230.302 (S) CLASS, STRATIFICATION, AND PERSONALITY (3) Kohn
Juniors and Seniors only or Perm. Req’d.
An intensive examination of the research literature, much of it based on survey research carried out by the instructor and his international collaborators, on the relationships of social class and social stratification with personality. The course will examine the links between people’s positions in the class structure and the stratification hierarchy and their more proximate conditions of life, particularly their job conditions, and how these conditions, in turn, affect (and are affected by) such basic dimensions of personality as intellectual flexibility, orientations to self and society, and feelings of well-being or distress. The research has been conducted principally in the united states, japan, poland when it was socialist, poland and
### 230.303 (S) SOCIOLGY OF DISABILITY (3)

Sec. 01  Th 2-5

#### Villenas

Limit 25  This course introduces students to themes within the sociology of disability by critiquing traditional notions of disability, and exploring how societal institutions influence the classification, significance, and experiences of disability. Cross-listed with Public Health Studies, Dean’s Teaching Fellowship Course

### 230.312 (S) EDUCATION AND SOCIETY (3)

Sec. 01  TTh 3-4:30

#### Alexander

Limit 25  This course examines how educational institutions affect students’ skills, values, and social mobility across generations. Research is reviewed that compares educational institutions according to their formal and interpersonal structures.

### 230.313 (S) SPACE, PLACE, POVERTY, AND RACE: SOCIOLOGICAL PERSPECTIVES ON NEIGHBORHOODS AND PUBLIC HOUSING (3)

Sec. 01  M 2-4  W 10

#### DeLuca

Limit 25  Is a neighborhood just a grouping of individuals living in the same place, or do neighborhoods have collective meanings and impact on children and families? We will capitalize on research methodologies used to define and describe 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 into models of social causation (e.g., social capital, 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. Cross-listed with Africana Studies

### 230.321 (S) REVOLUTION, REFORM, AND SOCIAL INEQUALITY IN CHINA (3)

Sec. 01  MTW 2

#### Andreas

Limit 25  This course explores various aspects of social inequality in China during the Mao Zedong and the post-Mao reform eras. We will examine inequality within villages, the rural/urban divide, urban inequality, education and health policies, and gender and ethnic relations. Each of these issue areas will be tackled analytically, but the aim is also to understand what it was like to live in China during and after the Mao era. The course is designed for both undergraduate and graduate students. Cross-listed with Africana Studies

### 230.324 (S) GENDER AND INTERNATIONAL DEVELOPMENT (3)

Lec.  Sec. 01  W 10-12

#### Agarwala

Limit 30  This course employs a comparative perspective to examine the gendered impact of international development experiences and policies. Students will discuss the historical evolution of how the concept of gender has been constructed, conceptualized, and integrated into international development theory and practice. The course will also examine how greater attention to gender issues has challenged the assumptions behind the theoretical frameworks and the policy prescriptions guiding international development. In particular, we will examine structural theories of poverty reduction, individual theories of power and processes of stratification at the household and family level. Specific issue areas will include the globalization, class and work, political participation and social movements. Cross-listed with Public Health Studies and Women, Gender, and Sexuality Studies
<table>
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<th>Taught By</th>
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<td>362.111 (S)</td>
<td>INTRODUCTION TO AFRICAN AMERICAN STUDIES</td>
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<tr>
<td>362.375 (HS)</td>
<td>BEBOP, MODERNISM AND CHANGE</td>
<td>Hayes</td>
<td>25</td>
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<td>195.477 (S)</td>
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<td>LABOR IN THE WORLD SYSTEM</td>
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<td>McDonald</td>
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</table>
THE THEATRE ARTS & STUDIES PROGRAM

225.300 (H) CONTEMPORARY THEATRE AND FILM: AN INSIDER’S VIEW (3) Astin  Limit 50
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.

225.301 (H) ACTING AND DIRECTING WORKSHOP I 1 (3) Astin  Limit 16  Audition Req’d.
An introduction to the fundamentals of acting through exercises, improvisation and work on scenes from established plays, based on the teachings of Stanislavsky, Grotov, Michael Chekhov, Clurman and Uta Hagen. Auditions (one minute - any material of your choice held 10am-Noon at the Merrick Barn on April 6, 7, and 8, and on Aug. 31, Sept. 1, 2, 2007.

225.302 (H) ACTING AND DIRECTING WORKSHOP II 1 (3) Astin  Limit 15  Prereq 225.301 and 225.306 or  Perm. Req’d.
The Sanford Meisner repetition exercises are introduced. They form the basis of Workshop II. The Uta Hagen exercises are also pursued. As in Workshop I, the principal classroom activities will consist of scene work, exercises, lectures, and discussion. Some rehearsal will also take place during school hours. It is expected that substantial out-of-class time be spent on rehearsals and exercises.

225.307 (H) DIRECTING SEMINAR (3) Glossman  Limit 12
Fundamentals of mounting, casting and staging the play; various theories of directing; students must commit to a practical lab. It is understood that students have a working familiarity with acting fundamentals.

225.314 (H) THEATRE: TECHNICAL DIRECTION FOR THE THEATRE (3) Roche  Limit 8
An introduction to Technical Direction including pre-production and production with an overview of materials, tools, rigging and safety, together with design and its implementation.

225.320 (H) PERFORMANCE 4 (4) Astin/ Denithorne  Limit 20  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. A professional level performance is the goal.

225.345 (H) HISTORY OF MODERN THEATRE & DRAMA (3) Denithorne  Limit 25
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.
## THE THEATRE ARTS & STUDIES PROGRAM

Projects in Theatre: Astin

Perum. Req’d. Special projects created for and tailored to the individual theatre student. Enrollment limited.

### STUDIES OF WOMEN, GENDER & SEXUALITY

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

### ANTHROPOLOGY

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<tr>
<td>070.327</td>
<td>Poverty’s Life: Anthropologies of Health and Economy</td>
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<td>Political Life of Gender</td>
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<td>070.397</td>
<td>Introduction to South Asia</td>
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### ECONOMICS

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<td>Morgan</td>
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<td>180.289</td>
<td>Economics of Health</td>
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### ENGLISH

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<td>Marriage and Literature</td>
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### FILM & MEDIA STUDIES

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<td>Monster Films</td>
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### GERMAN AND ROMANCE LANGUAGES AND LITERATURES

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<td>212.408</td>
<td>Love, Poetry, Eroticism</td>
<td>Jeanneret</td>
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<tr>
<td>213.335</td>
<td>Technology and Sexuality</td>
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<td>213.337</td>
<td>Mermaids and Water Sprites</td>
<td>Pahl</td>
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<td>The Multilingual Culture of Weimar-Era</td>
<td>Caplan, A.</td>
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### HISTORY

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<td>The Chinese Cultural Revolution</td>
<td>Meyer-Fong</td>
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<td>100.765</td>
<td>Problems in Women’s History</td>
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### HISTORY OF ART

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<td>010.344</td>
<td>From Virgin to Venus: Venetian Painting and the Invention of Art</td>
<td>Nygren</td>
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### HUMANITIES CENTER

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<tr>
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<td>Science Fiction and the Avant-Garde</td>
<td>Khatib/ Duda</td>
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### INTERDEPARTMENTAL

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<td>Feminist and Queer Theory</td>
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<td>360.376</td>
<td>The Body of Islam</td>
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<td>Directed Readings - WGS</td>
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### POLITICAL SCIENCE

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<td>Politics of Materialism</td>
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<td>Contentious Politics</td>
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### SOCIOLOGY

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<td>Researching Race, Class and Gender</td>
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### Writing Seminars

**220.105 (H)**  
**Introduction to Fiction and Poetry Writing I: Telling It Straight (3)**  
Staff  
Limit 17 per section  
*Note: Sections 1, 7, 8, and 17 are limited to those intending major/minor in The Writing.

This course is a prerequisite for most upper level courses.

Required. Students wishing to register for these sections should email dbasford@jhu.edu.

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**220.106 (H)**  
**Introduction to Fiction and Poetry Writing II: Telling It Slant (3)**  
Staff  
Limit 17 per section  
Prereq: 220.105

This course is a prerequisite for most upper level courses.

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**220.200 (H)**  
**Introduction to Fiction (3)**  
Blake/Davies/Roper  
Limit 15  
Perm. Req’d.

Study in the reading and writing of short narrative with focus on basic technique: subject, narrative voice, character, sense of an ending, etc. Students will write weekly sketches, present story analyses in class, and workshop one finished story. Selected parallel readings from such models of the form as Henry James, Anton Chekov, James Joyce, John Cheever, Alice Munro, and others. IFP I and II required for admission. (Formerly 220.191)

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**220.201 (H)**  
**Introduction to Poetry (3)**  
Basford  
Limit 15  
Perm. Req’d. (Formerly 220.141)

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**220.202 (H)**  
**Introduction to Nonfiction: Matters of Fact (3)**  
Biddle  
Limit 15  
Perm. Req’d.

Study in the reading and writing of short narrative with focus on basic technique: subject, narrative voice, character, sense of an ending, etc. Students will write weekly sketches, present story analyses in class, and workshop one finished story. Selected parallel readings from such models of the form as Henry James, Anton Chekov, James Joyce, John Cheever, Alice Munro, and others. IFP I and II required for admission. (Formerly 220.145)

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**220.316 (H)**  
**Seminar: Opinion Writing (W)**  
Kane  
Limit 15  
Perm. Req’d.

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**220.319 (H)**  
**Intermediate: Non-Fiction and Non-Fact (3)**  
Biddle  
Limit 10

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**220.328 (H)**  
**Intermediate: Fiction: Narrative Voice (3)**  
McGarry  
Limit 15  
Perm. Req’d.

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**220.331 (H)**  
**Intermediate: Forms of Fiction (3)**  
Davis  
Limit 15  
Perm. Req’d.

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**220.339 (H)**  
**Seminar: Science Stories (W)**  
Kestenbaum  
Limit 12  
Perm. Req’d. Prereq: 220.146

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**220.341 (H)**  
**Introduction to Dramatic Writing: Film (1)**  
Lapadula  
Limit 15  
Perm. Req’d. (Formerly 228.336)

Cross-listed with Film and Media Studies

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**220.344 (H)**  
**Seminar: Science Writing Workshop (3)**  
Staff  
Limit 15  
(Formerly 220.146)

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**220.377 (H)**  
**Intermediate Poetry: Poetic Forms (3)**  
Williamson  
Limit 15  
Perm. Req’d.

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<td>220.401 (H)</td>
<td>ADVANCED FICTION (3)</td>
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<td>220.409 (H)</td>
<td>READINGS IN FICTION: FAULKNER, FITZGERALD, AND HEMINGWAY (3)</td>
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<td>220.410 (H)</td>
<td>READINGS IN POETRY: FOUR WOMEN POETS (3)</td>
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220.501 INDEPENDENT STUDY
220.507 HONORS THESIS
220.509 PRACTICING JOURNALISM INTERNSHIP
220.513 INTERNSHIP: TEACHING WRITING IN THE SCHOOLS (3)
220.610 READINGS IN FICTION: FAULKNER, FITZGERALD, AND HEMINGWAY (3)
220.613 WRITING ABOUT SCIENCE
220.620 TECHNIQUES OF POETRY: FORMS
220.625 POETRY WORKSHOP
220.800 INDEPENDENT STUDY
G.W.C. WHITING SCHOOL OF ENGINEERING COURSES

APPLIED MATHEMATICS & STATISTICS

550.103 (Q, S) MATHEMATICS AND POLITICS (4)
Schervish: Limit 60
Examinating interesting problems from the world of politics including apportionment, resource allocation, voting, and conflict, this course is designed for humanities and social science students who enjoy solving logic puzzles.

550.111 (E, Q) STATISTICAL ANALYSIS (4)
Torcaso
Limit 45 per section
Prereq: 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.
First semester of a general survey of statistical methodology. Topics include descriptive statistics, probability models, random variables, expectation, sampling, and the central limit theorem, classical and robust estimation of location, confidence intervals, hypothesis testing, two-sample problems, introductory analysis of variance, and introductory nonparametric methods. Three lectures and a conference weekly. Some use of computing with the Minitab statistical package, but prior computing experience not required.

550.171 (Q) DISCRETE MATHEMATICS (4)
Abrams
Limit 35 per section
Prereq: Four years of high school mathematics.
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.

550.252 (E, Q) MATHEMATICAL MODELS FOR DECISION MAKING: STOCHASTIC MODELS (4)
Castello
Limit 40
This course is an introduction to management science and the quantitative approach to decision making. Our focus will be on the formulation and analysis of stochastic models, where some problem data may be uncertain. The covered topics may include Project Scheduling, Decision Analysis, Time Series Forecasting, Inventory Models with Stationary or Nonstationary Demand, Queuing Models, Discrete Event Simulation, and Quality Management. We emphasize model development and case studies, using spreadsheets and other computer software. The applications we study occur in variety of applications.

550.291 (E, Q) LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS (4)
Torcaso
Limit 35 per section
Prereq: One year of calculus, computing experience. 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 & STATISTICS FOR THE PHYSICAL SCIENCES AND ENGINEERING (4)
Jedynak
Limit 35 per section
Prereq: One year of calculus. Recommended corequisite: multivariable calculus. Students cannot receive credit for both 550.310 and 550.311. 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.
### Applied Mathematics & Statistics

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, goodness-of-fit.

#### 550.311 (E,Q)
**Probability and Statistics for Biological Sciences and Engineering (4)**

- **Prereq:** One year of calculus; Corquisite: 110.202 recommended.
- **Corequisite:** 110.202 recommended.
- Students cannot receive credit for both 550.310 and 550.311.
- 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.
- 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.

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#### 550.331 (E,Q)
**Introduction to Mathematical Finance (4)**

- **Prereq:** Calculus I, II and III.
- The principal aim of this course is to provide the mathematical ideas leading up to the now famous Black-Scholes formula for options pricing. Topics to be covered will include: basic probability, normal random variables, Brownian motion, interest rates, the arbitrage theorem, pricing of various types of options.

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#### 550.361 (E,Q)
**Introduction to Optimization (4)**

- **Prereq:** One year of calculus, linear algebra, computing experience. Appropriate for undergraduate and graduate students without the mathematical background required for 550.661.
- 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.

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#### 550.385 (E,Q)
**Scientific Computing: Linear Algebra (4)**

- **Prereq:** Calculus III, and 550.291 or approved alternative (e.g., 110.201).
- A first course on computational linear algebra and applications. Topics include floating-point arithmetic, algorithms and convergence, Gaussian elimination for linear systems, matrix decompositions (LU, Cholesky, QR), iterative methods for systems (Jacobi, Gauss-Seidel), and approximation of eigenvalues (power method, QR-algorithm).
- Theoretical topics such as vector spaces, inner products, norms, linear operators, matrix norms, eigenvalues, and canonical forms of matrices (Jordan, Schur) are reviewed as needed. Matlab is used to solve all numerical exercises; no previous experience with computer programming is required.

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#### 550.391 (E,Q)
**Dynamical Systems (4)**

- **Prereq:** Multivariable calculus, linear algebra, computing experience.
- Mathematical concepts and methods for describing and analyzing linear and nonlinear systems that evolve over time. Topics include boundedness, stability of fixed points and attractors, feedback, optimality, Liapounov functions, bifurcation, chaos, and catastrophes.
- Examples drawn from population growth, epidemiology, and economics.

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</table>
Applied Mathematics & Statistics

economic behavior, physical and engineering systems. The main mathematical tools are linear algebra and basic differential equations.

550.400 (E,Q) Mathematical Modeling and Consulting (4) Castillo
Prereq: probability, statistics, and optimization at the 300-level or higher. Formulation, analysis, interpretation, and evaluation of mathematical models. Synthesis of ideas, techniques, and models from mathematical sciences, science, and engineering. Case studies to illustrate basic features of the modeling process. Project-oriented practice and guidance in modeling techniques, research techniques, and written and oral communication of mathematical concepts.

550.420 (Q) Introduction to Probability (4) Wierman
Prereq: one year of calculus. Recommended corequisite: multivariable calculus. Probability and its applications, at the calculus level. Emphasis on techniques of application rather than on rigorous mathematical demonstration. Probability, combinatorial probability, random variables, distribution functions, important probability distributions, independence, conditional probability, moments, covariance and correlation, limit theorems. Students initiating graduate work in probability or statistics should enroll in 550.620.

550.436 (E,Q) Data Mining (4) Jedynak
Prereq: 550.310 or equivalent. Recommended prereq: 550.413. Data mining is a relatively new term used in the academic and business world, often associated with the development and quantitative analysis of very large databases. Its definition covers a wide spectrum of analytic and information technology topics, such as machine learning, artificial intelligence, statistical modeling, and efficient database development. This course will review these broad topics, and cover specific analytic and modeling techniques such as advanced data visualization, decision trees, neural networks, nearest neighbor, clustering, logistic regression, and association rules. Although some of the mathematics underlying these techniques will be discussed, our focus will be on the application of the techniques to real data and the interpretation of results. Because use of the computer is extremely important when "mining" large amounts of data, we will make substantial use of data mining software tools to learn the techniques and analyze datasets.

550.440 (Q) Stochastic Calculus (3) Torcaso
Prereq: 550.420; stochastic processes recommended, but not required. Introduction to stochastic integration, stochastic differential equations, and the Ito calculus. Emphasis will be on underlying ideas rather than rigorous development. Stochastic processes, Brownian motion, conditional expectation, martingales, Ito and Stratonovich integrals and their calculus, stochastic differential equations, some applications to finance, stochastic flow systems, or other areas should be provided.

550.445 (E,Q) Modeling and Analysis of Securities and Financial Markets II (4) Audley
Prereq: 550.444. Advances in corporate finance, investment practice and the capital markets have been driven by the development of a mathematically rigorous theory for financial instruments and the markets in which they trade. This course builds on the concepts, techniques, instruments and markets introduced in 550.444. In addition to new topics in credit enhancement and structured securities, the focus is expanded to include applications in portfolio theory and risk management.
550.457 (E,Q) **TOPICS IN OPERATIONS RESEARCH: APPLICATIONS TO TRANSPORTATION (3)** Goldman
Limit 40  Prereq: Linear programming, general mathematical maturity.
The course will examine some of the challenging operational and planning problems presented for modeling/analysis by air transportation: flight scheduling/routing, personnel assignment, revenue management, and effective response to exceptional situations (e.g., weather).

550.471 (Q) **COMBINATORIAL ANALYSIS (4)** Abrams

550.480 (E,Q) **SHAPE AND GEOMETRY (3)** Younes
Limit 40  Prereq: Linear Algebra and Calculus III. This class will review the basic definitions and properties of curves and surfaces, and their relation to the description and characterization of 2D and 3D shapes. Intrinsic: local and semi-local descriptors, like the curvature of the second fundamental form will be introduced, with an emphasis on the invariance of these features with respect to rotations, translations, etc. Extension of this point of view to other class of linear transformations will be given, as well as other types of shape descriptors, like moments or medial axes.

550.500 **UNDERGRADUATE RESEARCH**
Reading, research, or project work for undergraduate students. Pre-arranged individually between students and faculty. Recent topics and activities: percolation models, data analysis, course development assistance, and dynamical systems.

550.501 **SENIOR THESIS**
Preparation of a substantial thesis based upon independent student research, under the pre-arranged supervision of at least one faculty member in Applied Mathematics and Statistics.

550.600 **DEPARTMENT SEMINAR** Fill
Limit 50  A variety of topics discussed by speakers from within and outside the university. Required of all resident department graduate students.

550.620 **PROBABILITY THEORY I** Fill
Limit 45  Prereq: 110.405 and 550.420 or equivalents. Probability as a mathematical discipline, including introductory measure theory. Axiomatic probability, combinatorial probability, random variables, conditional probability, independence, distribution theory, expectation, Lebesgue-Stieltjes integration, variance and moments, probability inequalities, characteristic functions, conditional expectation.
STATISTICAL THEORY
Prerequisite: 550.420 or 550.620
The fundamentals of mathematical statistics. Distribution theory for statistics of normal samples; exponential statistical models; sufficiency principle; least squares, maximum likelihood, and UMVU estimation; hypothesis testing, the Neyman-Pearson lemma, likelihood ratio procedures; the general linear model, the Gauss-Markov theorem, multiple comparisons; contingency tables, chi-square methods, goodness-of-fit, nonparametric and robust methods, decision theory, Bayes and minimax procedures.

FOUNDATIONS OF OPTIMIZATION
Prerequisite: Multivariable Calculus, Linear Algebra; Corequisite: 110.405
Study of the fundamental theory underlying linear and nonlinear optimization. Unconstrained optimization, constrained optimization, saddlepoint conditions, Kuhn-Tucker conditions, linear programming, the simplex algorithm, post-optimality, duality, convexity, quadratic programming.

COMBINATORIAL ANALYSIS
Prerequisite: One year of Calculus and Linear Algebra
An introduction to combinatorial analysis at the graduate level. Meets concurrently with 550.471. See 550.471 for course description.

MATRIX ANALYSIS AND LINEAR ALGEBRA
Prerequisite: Linear Algebra, multivariable calculus. A second course in linear algebra with emphasis on topics useful in analysis, economics, statistics, control theory, and numerical analysis. Review of linear algebra, decomposition and factorization theorems, positive definite matrices, norms and convergence, eigenvalue location theorems, variational methods, positive and nonnegative matrices, generalized inverses.

TURBULENCE THEORY
Prerequisite: Previous familiarity with fluid mechanics is helpful, but not required. An advanced introduction to turbulence theory for graduate students in the physical sciences, engineering and mathematics. Both intuitive understanding and exact analysis of the fluid equations will be stressed.

MASTER'S RESEARCH
Reading, research, or project work for Master's level students. Arranged individually between students and faculty.

TOPICS IN APPLIED MATHEMATICS: NEURAL NETWORKS AND FEEDBACK CONTROL SYSTEMS
Prerequisite: Matrix theory, differential equations, and a graduate course in probability and statistics. Course is introduction to two related areas: neural networks (NNs) and feedback systems. Course considers important theory and applications for NNs and considers modern control systems, especially with stochastic effects.

DISSERTATION RESEARCH
Reading, research, or project work for advanced graduate students. Arranged individually between students and faculty.

PROBABILITY AND STATISTICS SEMINAR
Prerequisite: Following courses

BIOMEDICAL ENGINEERING

580.111 (E,N)  BME MODELING & DESIGN (2)  Lec.  Th 12  Lab 01  Th 8:30-10:30
BME freshmen only
(Formerly BME Design Group) Working in teams with upperclassmen this course
(1) introduces biomedical engineering
fresmen to an orderly method for
analyzing and modeling biological
systems and (2) introduces engineering
principles to solve design problems that
are biological, physiological, and/or
medical. freshmen are expected to use
the informational content being taught in
calculus, physics and chemistry and to
apply this knowledge to the solution of
practical problems encountered in
biomedical engineering.

580.211 (E,N)  BME DESIGN GROUP (3)  Allen
Limit 20  Sophomore-level version of
580.111 or Perm. Req’d

580.221 (E,N)  MOLECULES AND CELLS (4)  Colacri/Haase  Lec.  TTh 4-5:30pm
Sec. 01  F 9
Prereqs: 030.101, 030.104  An introduction
to molecular and cellular biology
in the context of potential biomedical
engineering applications. Topics covered:
reactions between molecules, including
receptor-ligand and antigen-antibody
specificity, protein structure, enzyme
catalysis, generic information, protein
processing and secretion, cell physiology
and cell functions. Advanced quantitative
exposure including multi-state kinetics,
Monte Carlo simulations of biochemical
reactions, and transport phenomena.

580.311 (E,N)  BME DESIGN GROUP (2)  Allen
Limit 30  Perm. Req’d
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.

580.321 (E,N)  STATISTICAL MECHANICS AND
THERMODYNAMICS (3)  Beer
Prereqs: Calculus II&II, Freshman/Sophomore Chemistry and
Physics  Basic principles of statistical
physics and thermodynamics with
application to biological systems. Topics
include fundamental principles of
thermodynamics, chemical equilibrium
and thermodynamics of reactions
in solutions, and elementary statistical
mechanics.

580.410  BME TEACHING PRACTICUM (2)  Haase  Limit 20 Senior biomedical
engineering students will assist the BME
Modeling & Design course instructor in
managing the laboratory component of the
class.

580.411 (E)  BME DESIGN GROUP (3)  Allen
Limit 30 Perm. Req’d  Senior-level
version of 580.311-312.

580.413 (E)  DESIGN TEAM - TEAM LEADER (4)  Allen  Limit 30 Perm. Req’d  A
two-semester sequence where leaders
BIOMEDICAL ENGINEERING

direct a team of undergraduate biomedical engineering students in a series of design problems. Prior design team experience and permission of course director required.

580.421 (E,N) SYSTEMS BIOENGINEERING I (4)
Tue. Prereq: 580.221 & 580.222
Limit 25 per section
A quantitative, model-oriented investigation of the cardiovascular system. Topics are organized in three segments. (1) Molecular/cellular physiology, including electrical signaling and muscle contraction. (2) Systems cardiovascular physiology, emphasizing circuit-diagram analysis of hemodynamics. (3) Cardio-vascular horizons and challenges for biomedical engineers, including heart failure and its investigation/treatment by computer simulation, by gene-array analysis, by stem-cell technology, and by mechanical devices (left-ventricular assist and total-heart replacement).

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580.423 (N) SYSTEMS BIOENGINEERING LAB I (2)
Cond: 580.421
Priority to Junior BME majors
A two-semester laboratory course in which various physiological preparations are used as examples of problems of applying technology in biological systems. The emphasis in this course is on the design of experimental measurements and on physical models of biological systems.

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580.429 (E,N) SYSTEMS BIOENGINEERING III (3)
Bader
Limit 30 per section
Prereq: 580.221 & 580.222 or Perm.
Computational and theoretical systems biology at the cellular and molecular level. Topics include organizational patterns of biological networks; analysis of metabolic networks, gene regulatory networks, and signal transduction networks; inference of pathway structure; and behavior of cellular and molecular circuits.

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580.439 (E,N) MODELS OF THE NEURON (4)
Young
Limit 40
Prereq: 110.301, 580.421-422 or equivalent
Single-neuron modeling, emphasizing use of computational models as links between the properties of neurons at several levels of detail. Topics include thermodynamics of ion flow in aqueous environments, biology and biophysics of ion channels, gating, nonlinear dynamics as a way of studying the collective properties of channels in a membrane, synaptic transmission, integration of electrical activity in multi-compartment dendritic tree models, and properties of neural networks. Students will study the properties of computational models of neurons; graduate students will develop a neuron model using data from the literature.

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580.440 (E,N) CELLULAR AND TISSUE ENGINEERING (3)
Elisseef/Yarema
Limit 40
Prereq: 580.421-422, Junior, Senior, Graduate students only
Lectures provide an overview of molecular biology fundamentals, an extensive overview on extracellular matrix and basics of receptors, followed by topics on cell-cell and cell-matrix interactions at both the theoretical and experimental levels. Subsequent lectures will cover the effects of physical (strain, stress, shear), chemical (cytokins, growth factors), and electrical stimuli on cell function, emphasizing topics on gene regulation and signal transduction processes. Material on cell-cycle, apoptosis, metabolic engineering and gene therapy will also be incorporated into the course.

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Cell and tissue engineering is a field that relies heavily on experimental techniques. This laboratory course will consist of three six experiments that will provide students with valuable hands-on experience in cell and tissue engineering. Students will learn basic cell culture procedures and specialized techniques related to faculty expertise in cell engineering, microfluidics, gene therapy, microfabrication and cell encapsulation. 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.

Co-listed with 530.451
580.571 Honors Instrumentation
Thakor
Coreq: Enrollment in 580.471
Students enrolled jointly in 580.471 and 580.571 will not be required to take exams. Instead, students will develop a term paper and patent application and carry out a hands-on individual or team project throughout the semester and the intersession. Previous projects include design of EEG amplifier, voltage clamp and patch clamp, vision aid of blind, pacemaker/defibrillator, sleep detection and alert device, glucose sensor and regulation, temperature controller, eye movement detection and device control, ultrasound ranging and tissue properties, impedance plethysmography, lie detector, blood alcohol detector, pulse oximeter, etc.

580.580 Senior Design Project
Allen
Perm. Req'd.
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 proposals must be submitted by September 15, 2006.

580.601 Horizons in Systems Bioengineering I
Yue
Limit 30

580.628 Topics in System Neuroscience
Wang
Limit 10
Prereq: Intro. to Neuroscience, 110.302, 520.214, 580.421 or equivalent
This course consists of weekly discussions of current literature in systems neuroscience. The selected readings will focus on neural mechanisms for perception, attention, motor behavior, learning, and memory, as studied using physiological, psychophysical, computational, and imaging techniques. Students are expected to give presentations and participate in discussions.

580.639 Models of the Neuron
Young
Limit 12
Prereq: 110.301-302, 580.421-422 or equivalent. See description for 580.439.

580.640 Cellular and Tissue Engineering
Yarema
Limit 10
See 580.440 for full description.

580.687 Foundations of Comp. Bio and Bioinformatics I
San

580.703 Seminar in Neuroengineering
Thakor
Limit 20
Weekly seminar in which faculty, staff, graduate students, and outside speakers discuss topics of current research interest in the area of neuroengineering.

580.771 Principles of BME Instrumentation
Thakor
Limit 16
Graduate students only

580.801 Research in Biomedical Engineering
Graduate Students only
CHEMICAL AND BIOMOLECULAR ENGINEERING TODAY (1) Betenbaugh
Freshmen Only  Limit 150 Prereq: none A series of weekly lectures to introduce students to chemical and biomolecular engineering and its role as a profession in addressing contemporary technological, social, ethical, and economic issues in today’s world. The lectures will include examples of how chemical and biomolecular engineers apply the principles of physics and chemistry to develop new products, improve process efficiencies, and alleviate the strain on the ecosystem through the design of novel environmentally conscious processes. In addition, the lectures will highlight exciting new areas now being advanced by chemical and biomolecular engineers, such as biochemical engineering, tissue engineering, nanoparticle fabrication, and processing smart polymers for applications in computer technology and as sensors.

INTRODUCTION TO CHEMICAL AND BIOLOGICAL PROCESS ANALYSIS (4) Staff
Limit 100 Prereq: 030.101, 171.101 Introduction to chemical and biomolecular engineering and the fundamental principles of chemical process analysis. Formulation and solution of material and energy balances on chemical processes. Reductionist approaches to the solution of complex, multi-unit processes will be emphasized. Introduction to the basic concepts of thermodynamics as well as chemical and biochemical reactions.

APPLIED PHYSICAL CHEMISTRY (3) Gracias Prereq: 540.203 Limit 90 Introduction of the methods used to solve thermodynamic problems faced by chemical and biomolecular engineers, including phase and chemical equilibrium problems, the thermodynamic properties of interfaces, and the thermodynamics of macromolecules. The basic thermodynamic relationships to describe phase equilibria of single-component and multicomponent systems are developed. Thermodynamic models for calculating fugacity are presented. Multi-component phase equilibrium problems addressed include liquid-vapor, liquid-liquid, liquid-liquid-vapor equilibrium. Basic thermodynamic relationships to describe chemical equilibria, the physical chemistry of liquid-liquid and liquid-solid interfaces, and the conformation of biological macro-molecules are also presented.

Students are challenged with laboratory projects that are not well-defined and learn to develop an effective framework for approaching experimental work by identifying the important operating variables, deciding how best to obtain them, and using measured or calculated values of these operating variables to predict, carryout, analyze and improve upon experiments. Each student analyzes three of the following four projects: distillation, gas absorption, liquid-liquid extraction and chemical kinetics in a tubular flow reactor and also one of the projects in 540.313. In addition to technical objectives, this course stresses oral and written communication skills and the ability to work effectively in groups.

Students are challenged with laboratory projects that are not well-defined and learn to develop an effective framework for approaching experimental work by identifying the important operating variables, deciding how best to obtain them, and using measured or calculated values of these operating variables to predict, carryout, analyze and improve upon experiments. Each student analyzes three biomolecular engineering projects and one of the projects in 540.311. In addition to technical objectives, this course stresses oral and written communication skills and the ability to work effectively in groups.

Students are challenged with laboratory projects that are not well-defined and learn to develop an effective framework for approaching experimental work by identifying the important operating variables, deciding how best to obtain them, and using measured or calculated values of these operating variables to predict, carryout, analyze and improve upon experiments. Each student analyzes three molecular and cell biology projects and one of the projects in 540.311. In addition to technical objectives, this course stresses oral and written communication skills and the ability to work effectively in groups.
CHEMICAL & BIOMOLECULAR ENGINEERING

540.602   CELL AND MOLECULAR BIOTECHNOLOGY OF MAMMALIAN SYSTEMS Betenbaugh/Konstantopoulos
          Katz
          Limit 100
          Lec.  Sec. 01  MW 4-5:30pm
          F 3

540.630   THERMODYNAMICS AND STATISTICAL MECHANICS Asthagiri
          Limit 30
          Sec. 01  MW 2-3:30

540.645   MICRO AND NANOTECHNOLOGY: A RESEARCH PERSPECTIVE Gracias
          Limit 12
          Sec. 01  F 11

540.652   FUNDAMENTAL BIOTRANSPORT PHENOMENON Konstantopoulos/Stebe
          Limit 30
          Sec. 01  TTh 4-5:30

540.801   GRADUATE RESEARCH

540.803   INDEPENDENT STUDY

CIVIL ENGINEERING

560.201 (E) STATICS AND MECHANICS OF MATERIALS (4) Graham-Brady
          Limit 10 per section
          Sec. 01  MTW 2
          F 3
          Freshmen by permission only
          Basic principles of classical mechanics applied to the equilibrium of particles and rigid bodies at rest, under the influence of various force systems. In addition, the following topics are studied: free body concept, analysis of simple structures, friction, centroids and centers of gravity, and moments of inertia. Includes laboratory experience.
          Co-listed with 530.201

560.305 (E) SOIL MECHANICS (4) Anandarajah
          Limit 30
          Sec. 01  M 4:30pm
          Th 4:30pm
          F 1:30pm
          Prereq: 560.206
          Coreq: 570.351

560.325 (E) CONCRETE STRUCTURES (3) Thomas
          Limit 25
          Sec. 01  MTW 9
          Prereq: 560.206
          Principles of behavior of reinforced concrete beams, columns, and slabs, with application to the design of elementary structures are introduced.
          The ultimate strength and the elastic methods of analysis are used.

560.349 (E) DESIGN AND SYNTHESIS I (2) Russo/Vigener
          Limit 25
          Sec. 01  Th 4-6:30pm
          Prereq: Senior status or Perm. Req’d
          A study of the Engineering design process from problem definition to the final design. There are team projects which include written and oral presentations.

560.351 (E) INTRODUCTION TO FLUID MECHANICS (3) Dalrymple
          Limit 25
          Sec. 01  MTW 10
          Th 12:1-1:30
          Prereq: Statics, Dynamics, and Differential Equations
          Introduction to the use of the principles of continuity, momentum, and energy to fluid motion. Topics include hydrostatics, ideal-fluid flow, laminar flow, turbulent flow, form and surface resistance with applications to fluid measurement, flow in conduits and channels, pumps and turbines. Selected laboratory exercises are included.
          Co-listed with 570.351

560.445 (E) ADVANCED STRUCTURAL ANALYSIS (3) Guest
          Limit 65
          Sec. 01  MW 11-12:30
          Prereq: 560.301
          Matrix methods for the analysis of statically indeterminate framed structures such as beams, plane trusses, space trusses, plane frames, grids and space frames.
          Flexibility methods.

560.491 (E) CIVIL ENGINEERING SEMINAR FOR JUNIORS (0.5) Staff
          Limit 75
          Sec. 01  T 4
CIVIL ENGINEERING

560.493 (E)  
CIVIL ENGINEERING SEMINARS FOR SENIORS (0.5)  
Staff  Limit 75

Sec. 01  T 4

560.525  
INDEPENDENT STUDY

560.535  
RESEARCH

560.691  
GRADUATE SEMINAR  Staff

Sec. 01  T 4

560.729  
STRUCTURAL MECHANICS

Graham-Brady  Basic solid mechanics for structural engineers. Stress, strain and constitutive laws. Linear elasticity and viscoelasticity. Introduction to nonlinear mechanics. Static, dynamic and thermal stresses. Specialization of theory to one- and two-dimensional cases: plane stress and plane strain, rods, and beams. Work and energy principles; variational formulations.

Sec. 01  MW 4:30-5:30

560.734  
ADVANCED PROBABILITY AND STATISTICS FOR ENGINEERS

Igusa  Limit 25  Prereq: 560.435 or introductory course in probability and statistics  Theory and applications with an emphasis on statistical learning techniques for large experimental or computer-generated data sets. Applications will include problems in solid and fluid mechanics.

Sec. 01  MTW 12

560.760  
STRUCTURAL STABILITY


Sec. 01  MW 2:30-4pm

560.781  
INTRODUCTION TO WATER WAVE MECHANICS

Dalrymple  Limit 25  The theories governing water waves are discussed. Linear waves will be explored in detail. Aspects of nonlinear waves will be presented.

Sec. 01  MW 4:30-6pm

560.784  
BRIDGE DESIGN (3)  Herman


Sec. 01  MW 5:30-7pm

560.835  
GRADUATE RESEARCH

COMPUTER SCIENCE

600.101  
COMPUTER FLUENCY (4)  Houlahan

Limit 15 per section  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 in HTML, 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.

Lec.  MTW 11

Sec. 01  W 4

02  Th 9

03  Th 3

04  F 10
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Sections</th>
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<tbody>
<tr>
<td>600.102</td>
<td>CS FOUNDATIONS (4) Froehlich</td>
<td>Froehlich</td>
<td>Limit 15 per section</td>
<td>4</td>
<td>Sec. 01 MTW 1, Sec. 02 Th 9</td>
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<td></td>
<td>This course is an introduction to computer science for majors and non-majors. Students are exposed to the discipline through vignettes of logic and algebra, computer systems and networks, algorithms, programming languages, computation theory, and selected applications. CS majors can only take this course in their first year of CS coursework.</td>
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<tr>
<td>600.105</td>
<td>M &amp; Ms: FRESHMEN EXPERIENCE (1) Houlahan</td>
<td>Houlahan</td>
<td>Limit 20</td>
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<td>Sec. 01 Th 4</td>
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<td>This course is required for all freshmen Computer Science majors. Transfers into the major and minors may enroll by permission only. Students will attend three 4-week blocks of meetings with different computer science professors, focused on a central theme. Active participation is required.</td>
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<tr>
<td>600.107</td>
<td>INTRODUCTION TO PROGRAMMING IN JAVA (3) Houlahan</td>
<td>Houlahan</td>
<td>Limit 120</td>
<td>3</td>
<td>Sec. 01 MTW 3</td>
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<td>Prereq: familiarity with computers. This course introduces the fundamental programming concepts and techniques in Java and is intended for all who plan to use computer programming in their studies and careers. Topics covered include control structures, arrays, functions, recursion, dynamic memory allocation, simple data structures, files, and structured program design. Elements of object-oriented design and programming are also introduced. Students without experience are strongly advised to also take 600.108.</td>
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<tr>
<td>600.108</td>
<td>INTRODUCTORY PROGRAMMING LAB (1) Houlahan</td>
<td>Houlahan</td>
<td>Limit 15 per section</td>
<td>1</td>
<td>Sec. 01 Sec. 02 W 6-9pm Th 4-7pm</td>
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<td>Co-req: 600.107. Must be taken in conjunction with 600.107. The purpose of this course is to give novice programmers extra hands-on practice with guided supervision. Students will work in pairs each week to develop working programs, with checkpoints for each development phase.</td>
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<tr>
<td>600.120</td>
<td>INTERMEDIATE PROGRAMMING (4) Amir</td>
<td>Amir</td>
<td>Limit 25 per section</td>
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<td>Sec. 01 Sec. 02 MTW 2 Th 12</td>
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<td>Prereq: 600.107 or AP CS. This course covers intermediate to advanced programming in both C and C++. The focus of the course is on programming techniques, class design, and the use of class libraries. Topics to be covered include: polymorphism, overloading, inheritance, pointers, dynamic memory allocation, templates, collections, exceptions, and others as time permits. Students are expected to learn syntax and low-level language features independently. Coursework involves significant programming projects in both languages.</td>
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<td>600.226</td>
<td>DATA STRUCTURES (3) Froehlich</td>
<td>Froehlich</td>
<td>Limit 40</td>
<td>3</td>
<td>Sec. 01 ThF 2:30-3:45</td>
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<td>Prereq: 600.107 or 600.109. This course covers the design and implementation of data structures including collections, sequences, trees, and graphs. Other topics include sorting, searching, and hashing. Course work involves both written homework and Java programming assignments.</td>
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<td>600.271</td>
<td>AUTOMATA &amp; COMPUTATION THEORY (3) Kamesraj</td>
<td>Kamesraj</td>
<td>Limit 60</td>
<td>3</td>
<td>Sec. 01 MTW 1</td>
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<td>This course is an introduction to the theory of computing. Topics include design of finite state automata, pushdown automata, linear bounded automata, Turing machines and phrase structure grammars; correspondance between automata and grammars; computable functions, decidable and undecidable problems, P and NP problems, NP-completeness, and randomization.</td>
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COMPUTER SCIENCE

600.315 (E) DATABASE SYSTEMS (3) Jarowsky
Limit 40  Prereq: 600.226  Students receive credit for 600.315 or 600.415, but not both. Introduction to database management systems and database design, focusing on the relational and object-oriented data models, query languages and query optimization, transaction processing, parallel and distributed databases, recovery and security issues, commercial systems and case studies, heterogeneous and multimedia databases, and data mining.

Sec. 01 ThF 2:30-3:45

600.319 (E) STORAGE SYSTEMS (3) Burns
Limit 20  Prereq: 600.226 and 600.333/433 Storage systems is one of the fastest growing and most interesting research areas in computer science. Storage systems often dominate the performance of computer systems as a whole. Also, they are responsible for the safe-keeping of an organization’s most valuable assets – information! The course will cover the design and implementation of storage systems and the architecture and characteristics of the components on which storage systems are built. Topics will range from the device level up to distributed systems concepts. This will include disk drive hardware and firmware, file system and database structures, mirroring and RAID, disk array controllers, local storage interconnects, storage area networks, capacity planning and configuration, distributed file systems and network-attached storage, backup/restore and disaster recovery, and security for storage.

Sec. 01 MTW 11

600.321 (E) OBJECT ORIENTED SOFTWARE ENGINEERING (3) Smith
Limit 30  Prereq: 600.226 and 600.120 Students receive credit for 600.321 or 600.421, but not both. This course covers object-oriented software construction methodologies and their application. The main component of the course is a large team project on a topic of your choosing. Course topics covered include object-oriented analysis and design, UML, design patterns, refactoring, program testing, code repositories, team programming, and code reviews.

Sec. 01 ThF 1-2:15

600.333 (E) COMPUTER SYSTEM FUNDAMENTALS (4) Masson
Limit 80  Prereq: 600.107 Students may receive credit for 600.333 or 600.433, but not both. CSF addresses the design and performance of the principal operational components of a reduced-instruction-set computing system (RISC) which supports the efficient execution of widely used instruction sets. Arithmetic and logic units, memory hierarchy designs, state-machine controllers, and other related hardware and firmware components are studied, and the qualities of their combined processing capabilities are assessed by means of execution times associated with a range of benchmark programs. Assembly language programming projects, homework problems, and exams are employed to assess a student’s fundamental understanding of the tradeoffs resulting from an assortment of variations in digital system design decisions that ultimately characterize the performance of the computing system architecture that is developed.

Sec. 01 MTW 10
COMPUTER SCIENCE

600.363 (E,Q) INTRODUCTION TO ALGORITHMS
3 Awerbuch
Limit 30 Prereq: 600.226
Students may receive credit for 600.363 or 600.463, but not both. This course concentrates on the design of algorithms and the rigorous analysis of their efficiency. Topics include the basic definitions of algorithmic complexity (worst case, average case); basic tools such as dynamic programming; sorting; searching; and selection; advanced data structures and their applications (such as union-find); graph algorithms and searching techniques such as minimum spanning trees, depth-first search, shortest paths, design of online algorithms and competitive analysis.

600.392 (E) SENIOR DESIGN PROJECT
3 Froehlich
Limit 30 Prereq: 600.120, 600.226, 600.321 recommended
This course will give senior CS majors an intensive capstone design project experience. Students will work in groups with real world customers to develop a working system. Project design, management and communication skills will be emphasized. Software development methodologies may also be presented.

600.415 (E) DATABASE SYSTEMS
3 Yarowsky
Limit 30 Prereq: 600.226
Students may receive credit for 600.315 or 600.415, but not both. Graduate level version of 600.315
Cross-listed with Information Security Institute

600.419 (E) STORAGE SYSTEMS
3 Burns
Limit 20 Prereq: 600.226 and 600.333/433
Students may receive credit for 600.314 or 600.419, but not both. Graduate level version of 600.319
Cross-listed with Information Security Institute

600.421 (E) OBJECT ORIENTED SOFTWARE ENGINEERING
3 Smith
Limit 30 Prereq: 600.226 and 600.120
Students may receive credit for 600.321 or 600.421, but not both. Graduate level version of 600.321
Cross-listed with Information Security Institute

600.424 (E) NETWORK SECURITY
3 Monrose
Limit 30 Prereq: 600.120, 600.349/449, 600.344/444, and 600.226
Students may receive credit for 600.324 or 600.424, but not both. This course focuses on communication security in computer systems and networks. The course is intended to provide students with an introduction to the field of network security. The course covers network security services such as authentication and access control, integrity and confidentiality of data, firewalls and related technologies, web security, anonymity, and privacy. Course work involves implementing various techniques.

600.433 (E) COMPUTER SYSTEMS
4 Masson
Limit 50
Students may receive credit for 600.333 or 600.433, but not both. Graduate version of 600.333
Cross-listed with Information Security Institute
MICROKERNEL ARCHITECTURE (3)
Shapiro
Limit 20  Prereq: C and UNIX, 600.333/433, and 600.318/418  This course examines operating system internals by using an existing, high-performance microkernel as a guide. We start from the moment the machine is powered on and look at each action that the microkernel takes as it starts up. We follow this path until we have worked our way through the first interprocess communication, and then look at how drivers and system structure is initialized. As we work our way through the microkernel’s initialization and startup, we examine what is happening at each step, what options exist for the design at that point, and why the particular choice of the actual implementation was made. We will also look at architectural tradeoffs in the design of the operating system. The end result is a very different look at operating systems than the one presented in OS textbooks. Operating system textbooks are more often driven by considerations of pedagogy than by well-motivated requirements or design principles. A microkernel gives us a unique opportunity to walk through the entire system structure as a manageable entity. [Systems]
COMPUTER SCIENCE

600.485 (E) NATURAL LANGUAGE PROCESSING  Sec. 01  MTW 2
previous exposure to probability or linguistics may be helpful. This course is an in-depth overview of techniques for processing human language. How should linguistic structure and meaning be represented? What algorithms can recover them from text? And crucially, how can we build statistical models to choose among the many legal answers? This course covers methods for trees (parsing and semantic interpretation), sequences (finite-state transduction such as morphology), and words (sense and phrase induction), with applications to practical engineering tasks such as information retrieval and extraction, text classification, part-of-speech tagging, speech recognition and machine translation. There are a number of structured but challenging programming assignments.

600.471 (E,Q) THEORY OF COMPUTATION  Sec. 01  MW 3:30-4:45pm
This is a graduate-level course studying the theoretical foundations of computer science. Topics covered will be models of computation from automata to turing machines, computability, complexity theory, randomized algorithms, inapproximability, interactive proof systems and probabilistic ally checkable proofs.

600.475 (E) MACHINE LEARNING  Sec. 01  MTW 9
This course covers current topics in machine learning research. After a brief historical review, the class focuses on a series of different learning models, including memory-based learning, genetic algorithms, and neural net learning algorithms. The class considers the design and methodology of experiments used to test and compare different machine learning systems. Although the main focus is on experimental work, the course also examines theoretical work on distribution-free learning models. Students design their own machine learning system as a final project.

600.491 (E) COMPUTER SCIENCE WORKSHOP I
An applications-oriented, computer science project done under the supervision and with the sponsorship of a faculty member in the Department of Computer Science. Perm. of faculty supervisor req'd

600.501 INDEPENDENT STUDY
Individually directed study under the direction of a faculty member in the department. The program of study, including the credit to be assigned, must be worked out in advance
COMPUTER SCIENCE

between the student and the faculty member involved. Permission required. See 600.491 for faculty section numbers

600.503  INDEPENDENT STUDY (JUNIORS, SENIORS)
Individual guided study under the direction of a faculty member in the department. The program of study, including the credit to be assigned, must be worked out in advance between the student and the faculty member involved. Permission required. See 600.491 for faculty section numbers.

600.507  INDEPENDENT RESEARCH
Individual research under the direction of a faculty member in the department. The program of research, including the credit to be assigned, must be worked out in advance between the student and the faculty member involved. Permission required. See 600.491 for faculty section numbers.

600.509  COMPUTER SCIENCE INTERNSHIP
Individual work in the field with a learning component, supervised by a faculty member in the department. The program of study and credit assigned must be worked out in advance between the student and the faculty member involved. Permission required. See 600.491 for faculty section numbers.

600.519  SENIOR HONOR THESIS (3)
Prereq: 3.5 GPA in C.S. courses at end of junior year and permission of faculty sponsor - C.S. majors only - See 600.491 for faculty section numbers

The student will undertake a substantial independent research project under the supervision of a faculty member, potentially leading to the notation "Departmental Honors with Thesis" on the final transcript. Students are expected to enroll in both semesters of this course during their senior year. Project proposals must be submitted and accepted in the preceding spring semester (junior year) before registration. Students will present their work publicly before April 1st of senior year. They will also submit a first draft of their project report (thesis document) at that time. Faculty will meet to decide if the thesis will be accepted for honors.

600.546 (E)  SENIOR THESIS IN COMPUTER INTEGRATED SURGERY
Prereq: 600.445 or Perm Req’d

600.601  COMPUTER SCIENCE SEMINAR
Eisner/Thornton Limit 150  Required for all full-time CS Graduate students

Sec. 01  ThF 10:30-12

600.643  ADVANCED TOPICS IN COMPUTER SECURITY
Rubin Limit 20

Prereq: Any 400-level course in Security Topics will vary from year to year, but will focus mainly on network perimeter protection, host-level protection, authentication technologies, intellectual property protection, formal analysis techniques, intrusion detection and similarly advanced subjects. Emphasis in this course is on understanding how security issues impact real systems, while maintaining an appreciation for grounding the work in fundamental science. Students will study and present various advanced research papers to the class. There will be homework assignments and a course project. [Systems or Applications]

Cross-listed with Information Security Institute

Sec. 01  ThF 2:30-3:45

600.658  SHAPE ANALYSIS AND RETRIEVAL
Kazhdan Limit 20  Prereq: 600.357/457 and linear algebra or Perm. Req’d

This course is motivated by the recent proliferation of 3D models on the World Wide Web and will focus on methods for designing systems that allow users to retrieve desired models from large repositories of 3D shapes. The course will review a number of existing shape representations designed to assist in the task

Sec. 01  MW 2-3:15
**COMPUTER SCIENCE**

of whole-object and partial-object retrieval. Some of the subjects discussed in this course will include, signal processing, alignment, compression, skeletonization, and shape descriptors. Students will be expected to present one or two papers throughout the course of the semester and will also need to complete a final project in the area. [Applications]

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Instructor</th>
<th>Limit</th>
<th>Meeting Time</th>
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<tr>
<td>600.726</td>
<td><strong>SEMINAR IN PROGRAMMING LANGUAGES</strong> Smith Perm.Req’d</td>
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<td><strong>This seminar course covers recent developments in the foundations of programming language design and implementation. Topics covered vary from year to year. Students will present papers orally.</strong></td>
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<td>600.735</td>
<td><strong>SEMINAR IN MACHINE LEARNING</strong> Sheppard Limit 30</td>
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<td>600.745</td>
<td><strong>SEMINAR IN COMPUTER INTEGRATED SURGERY</strong> Fichtinger Limit 20</td>
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<td><strong>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 applications. 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.</strong></td>
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<td>600.757</td>
<td><strong>SEMINAR IN COMPUTER GRAPHICS</strong> Kachalsky Limit 20</td>
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<td><strong>In this course we will review current research in computer graphics. We will meet for an hour once a week and one of the participants will lead the discussion for the week.</strong></td>
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<td>600.765</td>
<td><strong>SEMINAR IN NATURAL LANGUAGE PROCESSING</strong> Eisner Limit 20</td>
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<td><strong>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.</strong></td>
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<td>600.801</td>
<td><strong>DISSERTATION RESEARCH</strong></td>
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<td>600.803</td>
<td><strong>GRADUATE RESEARCH</strong> Permission of faculty supervisor req’d. Independent research for masters or pre-dissertation PhD students. See 600.809 for faculty section numbers</td>
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<td>600.809</td>
<td><strong>INDEPENDENT STUDY</strong> (graduate students) Permission required</td>
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<td>01 - Masson</td>
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<td>17 - Shapira</td>
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<td>18 - Hollenberger</td>
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<td>26 - Kaufman</td>
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<td>30 - Kazanzides</td>
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ELECTRICAL & COMPUTER ENGINEERING

520.137 (E,Q) INTRODUCTION TO ELECTRICAL AND COMPUTER ENGINEERING
(3) Tran Limit 40 per section Open to freshman Engineering majors & any Arts & Sciences majors. An introductory course covering the principles of electrical engineering including sinusoidal wave forms, electrical measurements, digital circuits, and applications of electrical and computer engineering. Laboratory exercises, the use of computers, and a design project are included in the course.

520.213 (E) CIRCUITS (4) Weinert
Prereq: 110.108-109 Limit 35 per section
An introductory course on electric circuits covers analysis techniques in time and frequency domains, transient and steady state response, and operational amplifiers.

520.218 (E) INTRODUCTION TO OPTICS AND PHOTONICS (4) Sova
Limit 10

520.219 (E,N) FIELDS, MATTER & WAVES (3)
Wenzgiate Limit 40
Prereq: 171.101-102, 110.108-109; Coreq: 110.202 Vector analysis, electrostatic fields in vacuum and material media, stationary currents in conducting media, 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.

520.345 (E) ECE LABORATORY (3) Kang
Limit 30 per section

520.349 (E) MICROPROCESSOR LAB I (3) Glaser
Prereq: 520.142 or equivalent
This course introduces the student to the programming of computers at the machine level. General concepts relevant to microcontrollers are presented, including memory access, numerical representations, programming models, and coding techniques.

520.353 (E,Q) CONTROL SYSTEMS (3) Staff Limit 65
Prereq: 520.214 & 110.201 or 550.291 Modeling, analysis, and an introduction to design for feedback control systems. Topics include state equation and transfer function representations, stability, performance measures, root locus methods, and frequency response methods (Nyquist, Bode).

520.372 (E) PROGRAMMABLE DEVICE LAB (3) Glaser
Limit 20 per section

520.391 (E) CAD DESIGN/ DIGITAL VLSI (3) Staff
Juniors Only Prereq: 520.142, 520.216 or equiv.; Coreq: 600.333, 600.334, 520.349 or 520.372 An introductory course in which students, manually and through computer simulations, design digital CMOS integrated circuits and systems. The design flow covers transistor, physical, and behavioral level descriptions, using SPICE, Layout, and Verilog/HDL VLSI CAD tools. After design computer verification, students can fabricate and test their semester-long class projects.

520.401 (E) BASIC COMMUNICATIONS (3) Davidson Limit 45 Prereq: 520.214 This course covers the principles of modern analog and digital communication systems. Topics include: amplitude modulation, frequency modulation, heterodyne receivers, digital representation of analog signals, sampling theorem, pulse code modulation formats (PCM, DPCM, DM, spread-spectrum),
ELECTRICAL & COMPUTER ENGINEERING

520.407 (E) INTRODUCTION TO THE PHYSICS OF ELECTRONIC DEVICES (3) Khurgin Limit 20
Sec. 01 MW 2-3:30

520.414 (E) IMAGE PROCESSING & ANALYSIS (3) Goutsias Limit 40 Prereq: 520.214
Sec. 01 MW 4-5:15

520.419 (E,Q) THEORY AND DESIGN OF ITERATIVE ALGORITHMS (3) Meyer
Prereq: 110.201-202 Limit 20
Sec. 01 MTW 9

520.424 (E,Q) FPGA SYNTHESIS LABORATORY (3) Jekšlak
Prereq: 520.142, 520.345, 600.333 or 520.389 or 520.372
Sec. 01 Lec. 01 Th 2-4
Sec. 02 T 3-5:30

520.425 (E) FPGA SENIOR PROJECTS LABORATORY (3) Jekšlak
Prereq: 520.424
Sec. 01 TBA

520.433 (E) MEDICAL IMAGE ANALYSIS (3) Prince
Limit 30
Sec. 01 ThF 10:30-12

520.435 (E) DIGITAL SIGNAL PROCESSING (4) Remory
Limit 90 Prereq: 520.214
Sec. 01 MTW 1

520.447 (E,Q) INTRODUCTION TO INFORMATION THEORY AND CODING (3) Staff
Prereq: 556.310 or equivalent Limit 25
Sec. 01 MTW 3

This course will address some basic scientific questions about systems that store or communicate information. Mathematical models will be developed for (1) the process of error-free data compression leading to the notion of entropy, (2) data (e.g. image) compression with slightly degraded reproduction leading to rate-distortion theory and (3) error-free communication of information over noisy channels leading to the notion of channel capacity.
shown how these quantitative measures of information have fundamental connections with statistical physics (thermodynamics), computer science (string complexity), economics (optimal portfolios), probability theory (large deviations) and statistics (Fisher information, hypothesis testing).

520.457 (E)
BASIC QUANTUM MECHANICS (3)
Kaplan
Limit 10
Sec. 01 TBA

520.466 (E,Q)
DIGITAL COMMUNICATIONS II (3)
Cooper
Limit 25
Prereq: 520.465
Sec. 01 MTW

Achieving reliable and efficient digital communications over noisy channels is studied. Shannon’s Noisy Channel Coding Theorem provides the basis and the goal. Bounds on code performance in noisy channels are developed. Important block and convolutional codes and codes on graphs are examined jointly with their respective decoders.

520.491 (E)
CAD DESIGN OF DIGITAL VLSI SYSTEMS I (3)
Staff
Seniors Only
Limit 10
Prereq: 520.142, 520.216 or equiv.; Coreq: 600.333, 600.334, 520.349 or 520.372
Sec. 01 TW 5:30-7pm

An introductory course in which students, manually and through computer simulations, design digital CMOS integrated circuits and systems. The design flow covers transistor, physical, and behavioral level descriptions, using SPICE, Layout, and Verilog/HDL VLSI CAD tools. After design computer verification, students can fabricate and test their semester-long class projects.

520.495 (E,N)
MICROFABRICATION LAB (4)
Andreou/Wang
Limit 4 per section
Seniors only or Perm. Req’d.
Sec. 01 Th 11
Sec. 02 Th 1-5
Sec. 03 F 8-12
Sec. 04 F 1-5pm
Sec. 05 Th 8-11

This laboratory course is an introduction to the principles of microfabrication for microelectronics, sensors, MEMS, and other synthetic microsystems that have applications in medicine and biology. Course comprises of laboratory work and accompanying lectures that cover silicon oxidation, aluminum evaporation, photore sist deposition, photolithography, plating, etching, packaging, design and analysis CAD tools, and foundry services. Co-listed as 580.495 & 530.495

520.498 (E)
SENIOR DESIGN PROJECT (3)
Staff
Sec. 01 TBA

520.501
INDEPENDENT STUDY – FRESHMAN AND SOPHOMORES
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. May be taken either term by freshmen or sophomores.

520.503
INDEPENDENT STUDY – JUNIORS AND SENIORS
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. May be taken either term by seniors or sophomores.

520.545
INDEPENDENT RESEARCH

520.619
OPTICAL COMMUNICATIONS
Davidson
Fundamentals of direct and coherent (heterodyne) detection optical communication receivers. Topics include Poisson nature of photon detection; estimation and detection for photon counting receivers; marked, filtered and doubly stochastic Poisson processes; and information theory for the photon communication channel.

520.636
FEEDBACK CONTROL IN BIOLOGICAL SIGNALING PATHWAYS
Tylegesus
Limit 20
Sec. 01 MW 3:30-4:45pm
ELECTRICAL & COMPUTER ENGINEERING

520.651 RANDOM SIGNAL ANALYSIS  Khudanpur  Limit 40  A course covering second-order properties of random processes with applications in estimation and detection. A foundation course for further work in stochastic systems, signal processing, and communications. Prerequisites: elementary courses in probability, signals, and linear systems.

520.673 MAGNETIC RESONANCE IN MEDICINE  Zimonjic  Limit 35

520.744 SEMINAR IN CISST  Cumming/Fichtinger  Limit 10

520.771 ADVANCED INTEGRATED CIRCUITS  Andreou/Etienne-Cummings

520.773 ADVANCED TOPICS IN FABRICATION AND MICROENGINEERING  Andreou  Limit 12  Perm. Req’d.  Graduate-level course on topics that relate to microsystem integration of complex functional units across different physical scales from nano to micro and macro. Topics will include emerging fabrication technologies, micro-electromechanical systems, nanolithography, nanotechnology, soft lithography, self-assembly, and soft materials. Discussion will also include biological systems as models of microsystem integration and functional complexity.

520.800 INDEPENDENT STUDY

520.801 DISSERTATION RESEARCH

520.809 SPECIAL STUDIES

ENTREPRENEURSHIP & MANAGEMENT

660.102 PERSONAL FINANCE (3)  Sec. 01  MTW 1

660.102 (S) INTRODUCTION TO BUSINESS (4)  Sec. 01

660.203 FINANCIAL ACCOUNTING (3)  Sec. 01  MTW 11

660.205 (S) BUSINESS LAW I (3)  Sec. 01  M 6:15-9pm
ENTREPRENEURSHIP & MANAGEMENT

relates to modern business or a survey of many business-related aspects of law with a view to further legal studies. This course plus Business Law II provides a complete, self-contained, well-rounded, in-depth study of Business Law and a foundation for further legal study.

660.206 (S) BUSINESS LAW II (3) Fisher 
Prereq: Business Law I (660.205) 
Limit 35 per section
An examination of the legal environment in which a business operates as well as basic business law concepts involved in real and personal property. Topics include: bankruptcy, entrepreneurship options, and government regulations of business.

660.220 PRINCIPLES OF MANAGEMENT (3) 
Limit 35 per section
Sec. 01: Jessel
Sec. 02: Petrovici
Sec. 03: Petrovici
Examines the role of manager from both traditional and contemporary perspectives while applying decision-making and critical thinking skills to the challenges facing managers. Issues include: techniques for controlling, planning and leading the workforce.

660.231 CASE STUDIES IN BUSINESS ETHICS (3) Goldenberg 
Limit 35 per section
Introduces students to ethical concepts relevant to resolving moral issues in contemporary business and social settings both globally and locally. The course focuses on clear reasoning and effective communication concerning ethical issues in business and society.

660.250 PRINCIPLES OF MARKETING (3) Kendrick 
Limit 40
Attendance at 1st class is mandatory
Explores the role of marketing in society and within the organization. Examines the process of promoting and distributing products to consumer and business markets. Encouraged for students planning on entering the Business Plan Competition.

660.302 (S) CORPORATE FINANCE (3) Powell
Prereq: Financial Accounting (660.203) 
Required: Microeconometrics and Macroeconomics 
Limit 35
Designed as a practicum for exploring basic concepts and techniques used by today’s corporate financial professionals. Financial statement analysis, capital budgeting and the cost of capital are explored.

660.306 (S) LAW & THE INTERNET (3) Franceschini
Prereq: Business Law I (660.205) 
Limit 35 per section
Sec. 01: Franceschini
Sec. 02: Sandhaus
Examines legal issues and concerns involved with operating a business in an Internet environment. Issues include: jurisdiction, resolution of online disputes, copyright law, privacy, and antitrust cases (Microsoft, etc.).

660.330 LEADERSHIP DYNAMICS (3) Friesen
Limit 35 Required: Introduction to Business (660.105) or Principles of Management (660.220) 
Focuses on the dynamics associated with taking charge in a group or organizational setting. Topics include: visioning, delegation, power, charisma and managing change.

660.332 (S) LEADERSHIP THEORY (3) Smednick
Limit 35 Rec: Introduction to Business (660.105) or Principles of Management (660.220) 
Students will be introduced to the history of Leadership Theory from the "Great Man" theory of leaders to Transformational Leadership theory of non-positional learned leadership. Transformational Leadership theory

Sec. 01
MTW 11
Sec. 02
W 3:5-4:5
Sec. 03
W 6:15-9pm

Sec. 01
MTW 12
Sec. 02
W 6:15-9pm
ENTREPRENEURSHIP & MANAGEMENT

postulates that leadership can be learned and enhanced. The course will explore the knowledge base and skills necessary to be an effective leader in a variety of settings. Students will assess their personal leadership qualities and develop a plan to enhance their leadership potential.

660.335 NEGOTIATION AND CONFLICT MANAGEMENT (3) Rice
Attendance at 1st class is mandatory
Prereq: At least one course in the E&M program
This class focuses on the nature and practice of managing conflicts in organizational settings. The primary learning format is experiential exercises designed to build negotiating skills.

660.341 (S) BUSINESS PROCESS & QUALITY MANAGEMENT (3) Rene
Prereq: Introduction to Business (660.105) or IT Management (660.241)
This course focuses on both quantitative and qualitative analytical skills and models essential to operations process design, management, and improvement in both service and manufacturing oriented companies.

660.358 INTERNATIONAL MARKETING (3) Kendrick
Prereq: Principles of Marketing (660.250)
This course covers product, pricing, promotion, distribution, market research, organization, and implementation and control policies relating to international marketing. It also explores the economic, cultural, political, and legal aspects of international marketing.

660.360 SMALL BUSINESS MANAGEMENT (3) Reis
Prereq: Intro to Business (660.105)
Limit 35 per section
Sec. 01: Leps
Sec. 02: Petrovici
Provides the tools needed to successfully launch and manage a small business in a competitive, global environment. Examines the challenges of entrepreneurs, business plans, marketing, and financial issues, and the hiring and managing of employees.

660.460 ENTREPRENEURSHIP (3) Aronhime
Limit 30
Juniors and Seniors only
Recommended: Financial Accounting (660.203), and Principles of Marketing (660.250)
Introduction to the entrepreneurial process of creating new businesses. Course will cover the principal components of building a successful venture and will feature several guest speakers.

660.500 BUSINESS INTERNSHIP Wierman
Permission required
Completed application must be submitted to 104 Whitehead Hall.

660.501 PRACTICUM IN ENTREPRENEURSHIP Aronhime
Juniors and Seniors only
Permission required
Students 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 application must be submitted to 104 Whitehead Hall.

GENERAL ENGINEERING

500.410 SURGERY FOR ENGINEERS (3) Staff
Limit 15
Perm.Req’d
Contact Cynthia Rainey at cramey@jhu.edu, or 410-516-6841.

500.602 SEMINAR: ENVIRONMENT & APPLIED FLUID MECHANICS Meneveau
Sec. 01: F 10:30-12:30
### GENERAL ENGINEERING
Cross-listed with Geography & Environmental Engineering, Earth & Planetary Sciences, and Mechanical Engineering

500.619 PHYSICS & CHEMISTRY OF NANO PARTICLES
Searson, Stebe, Wirtz, Chia-Ling Chien

### GEOGRAPHY & ENVIRONMENTAL ENGINEERING

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Section</th>
<th>Credits</th>
<th>Instructor Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>570.108 (E)</td>
<td>INTRODUCTION TO ENVIRONMENTAL ENGINEERING (3)</td>
<td></td>
<td>Sec. 01</td>
<td>MTW 12</td>
<td>Overview of environmental engineering including water/air quality issues, water supply, wastewater treatment, hazardous/solid waste management, pollution prevention, global environmental issues, public health considerations, environmental laws, regulations and ethics. Cross-listed with Public Health Studies</td>
</tr>
<tr>
<td>570.109 (E,N)</td>
<td>ENVIRONMENT &amp; SOCIETY: TOWARDS SUSTAINABILITY (3)</td>
<td>Norman</td>
<td>Sec. 01</td>
<td>MTW 9</td>
<td>Overview of environmental engineering including water/air quality issues, water supply, wastewater treatment, hazardous/solid waste management, pollution prevention, global environmental issues, public health considerations, environmental laws, regulations and ethics. Cross-listed with Public Health Studies</td>
</tr>
<tr>
<td>570.147 (H,S)</td>
<td>ADAM SMITH AND KARL MARX (3)</td>
<td>Schoenberger</td>
<td>Sec. 01</td>
<td>F 1-4</td>
<td>Freshmen only. Cross-listed with Anthropology</td>
</tr>
<tr>
<td>570.205 (N)</td>
<td>ECOLOGY (3)</td>
<td>Brush</td>
<td>Sec. 01</td>
<td>MTW 11</td>
<td>Introduction to processes governing the organization of individual organisms into populations, communities, and ecosystems. Interactions between individual organisms, groups of organisms, and the environment, including adaptation, natural selection, competition.</td>
</tr>
<tr>
<td>570.303 (E)</td>
<td>THE ENVIRONMENT AND YOUR HEALTH (3)</td>
<td>Kensler</td>
<td>Sec. 01</td>
<td>MW 8:30-10</td>
<td>This course surveys basic environmental health sciences (toxicology, risk assessment), current public health issues (hazardous waste, radon, waterborne diseases), and emerging global health threats (global warming, ozone depletion, sustainability). Cross-listed with Public Health Studies</td>
</tr>
<tr>
<td>570.305 (E,Q)</td>
<td>ENVIRONMENTAL ENGINEERING SYSTEMS DESIGN (4)</td>
<td>Ellis/Williams</td>
<td>Sec. 01</td>
<td>ThF 10:30-12</td>
<td>Techniques from systems analysis applied to environmental engineering design and management problems: reservoir management, power plant siting, nuclear waste management, air pollution control, and transportation planning. Design projects are required.</td>
</tr>
<tr>
<td>570.334 (S)</td>
<td>ENGINEERING MICROECONOMICS (3)</td>
<td>Norman</td>
<td>Sec. 01</td>
<td>ThF 9-10:15</td>
<td>Limit 20. Prereq: Calculus III. This course uses a calculus-based approach to introduce principles of engineering economics and microeconomics (demand and production theory) and their uses in engineering decision making.</td>
</tr>
<tr>
<td>570.351 (E)</td>
<td>INTRODUCTION TO FLUID MECHANICS (3)</td>
<td></td>
<td>Sec. 01</td>
<td>MTW 10</td>
<td>Limit 20. Prereq: Statics, Dynamics and Differential Equations. Introduction to the use of the principles of continuity, momentum, and energy to fluid motion. Topics include hydrostatics, ideal fluid flow, laminar flow, turbulent flow. Co-listed with 500.351</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Instructor(s)</td>
<td>Credits</td>
<td>Prerequisites</td>
<td>Class Time</td>
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<tr>
<td>570.411</td>
<td>ENVIRONMENTAL MICROBIOLOGY (4) Bouwer/Ward</td>
<td></td>
<td>4</td>
<td>Limit 30 - Fundamental aspects of microbiology and biochemistry as related to environmental pollution and water quality control processes, biogeochemical cycles, microbiological ecology, energetics and kinetics of microbial growth, and biological fate of pollutants.</td>
<td>Lab Th 2-5 or 6-9pm</td>
</tr>
<tr>
<td>570.419</td>
<td>ENVIRONMENTAL ENGINEERING DESIGN I (2) Alavi/Ball/Bouwer</td>
<td></td>
<td>2</td>
<td>Limit 20 - Through general lectures and case study examples, this course will expose students to some of the non-technical professional issues that they will face as professional engineers and in their second-semester senior design project.</td>
<td>Sec. 01 T 4:30-6:30pm</td>
</tr>
<tr>
<td>570.427</td>
<td>NATURAL RESOURCES, SOCIETY, AND ENVIRONMENT (3) Schuenberger</td>
<td></td>
<td>3</td>
<td>Section 01 - How do we produce and consume natural resources and what are the social and environmental impacts? Technological and social determinants of resource use and their consequences will be examined. Cross-listed with Anthropology and Public Health Studies</td>
<td>Sec. 01 Th 1-4</td>
</tr>
<tr>
<td>570.442</td>
<td>ENVIRONMENTAL ORGANIC CHEMISTRY (3) Roberts</td>
<td></td>
<td>3</td>
<td>Sec. 01 - Advanced undergraduate/graduate course focusing on examination of processes that affect the behavior and fate of anthropogenic organic contaminants in aquatic environments. Students learn to predict chemical properties influencing transfers between hydrophobic organic chemicals, air, water, sediments, and biota, based on a fundamental understanding of intermolecular interactions and thermodynamic principles.</td>
<td>Sec. 01 MW 3:4-30</td>
</tr>
<tr>
<td>570.443</td>
<td>AQUATIC CHEMISTRY (3) Stone</td>
<td></td>
<td>3</td>
<td>Sec. 01 - Thermodynamics and equilibrium applied to processes in natural waters and water and wastewater treatment systems. Chemistry of electrolyte solutions, acids and bases, complex formation, precipitation and dissolution, oxidation and reduction.</td>
<td>Sec. 01 MTW 12</td>
</tr>
<tr>
<td>570.444</td>
<td>COLLOID CHEMISTRY (3) Shchukin</td>
<td></td>
<td>3</td>
<td>Sec. 01 - General Chemistry and Physics Disperse, i.e. microheterogeneous state of the matter and predominant influence of surface (interfacial) phenomena in disperse systems are regarded as universal in nature and technology: these rocks and soils, materials suspensions, emulsions, foams and aerosols, living tissues… Formation and general colloidal-chemical properties of these systems are considered; role of high dispersity, problems of stability, and ways to control them in industry and environment.</td>
<td>Sec. 01 MW 2:3-30</td>
</tr>
<tr>
<td>570.445</td>
<td>PHYSICAL AND CHEMICAL PROCESSES FOR WATER AND WASTEWATER TREATMENT (3) Ball</td>
<td></td>
<td>3</td>
<td>Sec. 01 - General Chemistry and Physics Disperse, i.e. microheterogeneous state of the matter and predominant influence of surface (interfacial) phenomena in disperse systems are regarded as universal in nature and technology: these rocks and soils, materials suspensions, emulsions, foams and aerosols, living tissues… Formation and general colloidal-chemical properties of these systems are considered; role of high dispersity, problems of stability, and ways to control them in industry and environment.</td>
<td>Sec. 01 MTW 9</td>
</tr>
<tr>
<td>570.450</td>
<td>MOLECULAR BIOLOGY FOR ENGINEERING APPLICATIONS (4) Ward</td>
<td></td>
<td>4</td>
<td>Sec. 01 - General Chemistry and Physics Disperse, i.e. microheterogeneous state of the matter and predominant influence of surface (interfacial) phenomena in disperse systems are regarded as universal in nature and technology: these rocks and soils, materials suspensions, emulsions, foams and aerosols, living tissues… Formation and general colloidal-chemical properties of these systems are considered; role of high dispersity, problems of stability, and ways to control them in industry and environment.</td>
<td>Sec. 01 M 11, T 9-12</td>
</tr>
</tbody>
</table>
An attempt to review utilization and development of water in diverse environments beginning with early irrigation systems revealed by archaeology including those in the Middle East, Asia, and Latin America. Cross-listed with Public Health Studies.

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. Cross-listed with Economics.

This course covers advanced engineering and scientific concepts and principles applied to the management of municipal solid waste (MSW) to protect human health and the environment and the conservation of limited resources through resource recovery and recycling of waste material.

This course includes an exposition of intermediate level price theory, combined with a survey of applications to the analysis of public sector decisions. Theoretical topics include demand, supply, the function and behavior of the market, and introductory welfare economics.
**APPLIED ECONOMICS INTERNSHIP** Hanke
Prereq: 100.101-102 Perm. Req’d.
Course given in conjunction with private business and financial institutions, governmental entities and 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.
Satisfactory/Unsatisfactory only
Cross-listed with Economics and Interdepartmental

<table>
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<tr>
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<tr>
<td>570.613</td>
<td>SEMINAR: GEOMORPHOLOGY</td>
<td>Wilcock</td>
<td>20</td>
<td>01</td>
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<tr>
<td>570.641</td>
<td>DEPARTMENT SEMINAR</td>
<td>Hilpert</td>
<td>50</td>
<td>01</td>
</tr>
<tr>
<td>570.644</td>
<td>DYNAMIC ENVIRONMENTAL SYSTEMS SIMULATION AND DECISION ANALYSIS</td>
<td>Hobbs</td>
<td>15</td>
<td>01</td>
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<tr>
<td>570.661</td>
<td>APPLIED MATH FOR ENGINEERING</td>
<td>Hilpert</td>
<td>65</td>
<td>01</td>
</tr>
<tr>
<td>570.673</td>
<td>PUBLIC SYSTEMS SEMINAR</td>
<td>Williams</td>
<td>20</td>
<td>01</td>
</tr>
<tr>
<td>570.681</td>
<td>ENVIRONMENTAL ENGINEERING SEMINAR</td>
<td>Browner</td>
<td>50</td>
<td>01</td>
</tr>
<tr>
<td>500.602</td>
<td>SEMINAR: ENVIRONMENT AND APPLIED FLUID MECHANICS</td>
<td>Meneveau</td>
<td>50</td>
<td>01</td>
</tr>
<tr>
<td>570.800</td>
<td>INDEPENDENT STUDY</td>
<td>Staff</td>
<td>65</td>
<td>01</td>
</tr>
<tr>
<td>570.801</td>
<td>RESEARCH</td>
<td></td>
<td>20</td>
<td>01</td>
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<tr>
<td>570.805</td>
<td>MASTERS INTERNSHIP</td>
<td>Ball</td>
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<td>01</td>
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**INFORMATION SECURITY INSTITUTE**

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<tr>
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<th>Section</th>
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</thead>
<tbody>
<tr>
<td>650.414</td>
<td>RIGHTS IN THE DIGITAL AGE</td>
<td>Jacobs</td>
<td>20</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td>(This course will be taught in Washington, DC and video-cast into Hodson Hall Rm 213.) This course will examine various legal and policy issues presented by the tremendous growth in computer technology, especially the Internet. The rights that various parties have with respect to creating, modifying, using, distributing, storing, and copying digital data will be explored. The concurrent responsibilities, and potential liabilities, of those parties will also be addressed. The course will focus on intellectual property issues, especially copyright law, and other legal and economic considerations related to the use and management of digital data. Copyright law and its role within the framework of intellectual property law will be presented in</td>
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</table>
INFORMATION SECURITY INSTITUTE

a historical context with an emphasis on its
applicability to emerging-technology issues.
Specifically, the treatment of various works,
such as music, film, and photography that
were traditionally, analog in nature will be
analyzed with respect to their treatment in
the digital domain; works that are by their
nature digital, such as computer software,
will also be analyzed. The current state of
U.S. copyright law will be presented, as will
relevant international treaties and foreign
laws. The goal of the course is to provide
those involved or interested in digital rights
management with a general awareness of
the rights and obligations associated with
maintaining and distributing digital data.

650.433 (E) EMBEDDED COMPUTER SYSTEMS
(3) Kalb Limit 20 Depart. Majors Only
Course taught On-line
This course provides an understanding of
differences in network-based computers,
program mobility, current intrusion
protection technologies and exploitation
methods along with material relating to
computer hacking and vulnerability
assessment.

650.457 (E) COMPUTER FORENSICS (3) Lavine
Limit 25 This course introduces students
to the field of computer forensics and it will
focus on the various contemporary policy
issues and applied technologies. Topics to
be covered include: legal and regulatory
issues, investigation techniques, data
analysis approaches, and incident response
procedures for Windows and UNIX
systems. Homework in this course will
relate to laboratory assignments and
research exercises. Students should also
expect that a group project will be
integrated into this course.

650.651 HEALTH INFORMATION PRIVACY
LAW AND POLICY (3) Hodge Limit 26
Core health course for MSSI
Course meets Oct. 23-December 22
This course pertains to issues relating to
protecting health information privacy in the
modern era. Theoretical and ethical
discussions underlying health information
privacy are covered. The primary focus of
the course is to provide a modern context
through which privacy protections are
debated, constructed, implemented, and
enforced. The course attempts to instruct
students on the legal, policy, and practical
issues surrounding the protection of health
information privacy. The major federal and
state privacy laws and policies and how
these laws and policies are implemented in
the public and private sectors is
considered.

NOTE: The following courses are cross-listed from the Computer Science
Department – see the Computer Science Department’s listings for descriptions.

600.415 (E) DATABASE SYSTEMS (3) Tawovsky
Limit 30 Prereq: 600.226 Students may
receive credit for 600.315 or 600.415, but
not both. Graduate level version of 600.315
Cross-listed with Computer Science

600.419 (E) STORAGE SYSTEMS (3) Burns
Limit 20 Prereq: 600.226 and 600.333/433
Students may receive credit for 600.314 or
600.419, but not both. Graduate level
version of 600.319
Cross-listed with Computer Science

600.421 (E) OBJECT ORIENTED SOFTWARE
ENGINEERING (3) Smith Limit 30
Prereq: 600.226 and 600.120 Students
may receive credit for 600.321 or 600.421,
but not both. Graduate level version of
600.321. Cross-listed with Computer
Science
INFORMATION SECURITY INSTITUTE

600.424 (E) NETWORK SECURITY Monrose
Limit 30 Prereq: 600.120, 600.249/449, 600.344/444, and 600.229 Students may receive credit for 600.324 or 600.424, not both CS and MSSI graduate students only This course focuses on communication security in computer systems and networks. The course is intended to provide students with an introduction to the field of network security. The course covers network security services such as authentication and access control, integrity and confidentiality of data, firewalls and related technologies, web security, anonymity, and privacy. Course work involves implementing various security techniques. A course project is required.
Cross-listed with Computer Science
Sec. 01 MW 2-3:15

600.433 (E) COMPUTER SYSTEMS Masson
Limit 50 Students may receive credit for 600.333 or 600.433, but not both. Graduate version is 600.333. Cross-listed with Computer Science
Sec. 01 MTW 10

600.442 (E,Q) CRYPTOGRAPHY AND NETWORK SECURITY Ateniese
Limit 40 Prereq: 600.226, 600.271, 550.171, and systems course This course focuses on algorithms and protocols for secure network communication. Topics include cryptographic algorithms (DES, Diffie-Hellman, RSA), authentication, key management, secure networking, certification, trust management, and secure electronic commerce.
Cross-listed with Computer Science
Sec. 01 ThF 1-2:15

600.463 (E) ALGORITHMS I Awerbuch
Limit 30 Prereq: 600.226 or Perm, Req'd. Students may receive credit for 600.463 or 600.363, but not both. Graduate version is 600.363. Cross-listed with Computer Science
Sec. 01 MTW 9

600.643 ADVANCED TOPICS IN COMPUTER SECURITY Rubin
Limit 20 Prereq: Any 400-level course in Security. This course focuses on advanced research topics in communications security. The course is structured as a research seminar where students present research papers to the class. Topics include protocol analysis, security in inter-domain routing, broadcast authentication protocols, covert channels and anonymous communication, key management, advanced traceback schemes, attack propagation modeling among others. A course project is required.
Cross-listed with Computer Science
Sec. 01 ThF 2:30-3:45

NOTE: The following course is taught through the School of Professional Studies in Business and Education and must be for interdivisionally. Descriptions and times are found in the SPSBE catalogue, on the JHUISI website, and outside of Wyman 407.

774.715 FINANCIAL ISSUES IN MANAGING A SECURE OPERATION Agresti
Limit 25 (This course meets for 10 weeks beginning September 5-November 4) This course addresses the risks (financial, reputation, business, and third party), costs, ROI, and other business issues concerned in planning and managing a secure operation. Topics include: disaster recovery, outsourcing issues, service level agreements, evaluating external security service providers, assessing security total cost of ownership; audit procedures; financial integrity; cost/benefit analyses; back-up and recovery provisions; insurance protection; contingency and business continuity plans; qualitative and quantitative risk analysis; monitoring the security of the enterprise; information economics; performance reporting; automated metrics reporting; responses to threats; effects of security policies and practices on business and customers; preparing a business case for information security investments; and developing cost effective solutions given constraints in money, assets, and personnel. Case studies and exercises will be used to
INFORMATION SECURITY INSTITUTE

illustrate financial planning and evaluation of security operations.

NOTE: This course is taught through the School of Professional Studies in Business and Education and must be for interdivisionally.

MATERIALS SCIENCE AND ENGINEERING

510.101 (N) INTRODUCTION TO MATERIALS CHEMISTRY (3) Katz: Lanu 60
Basic principles of chemistry and how they apply to the behavior of materials in the solid state. The relationship between electronic structure, chemical bonding, and crystal structure is developed. Attention is given to characterization of atomic and molecular arrangements in crystalline and amorphous solids: metals, ceramics, semiconductors, and polymers (including proteins). Examples are drawn from industrial practice (including the environmental impact of chemical processes), from energy generation and storage (such as batteries and fuel cells), and from emerging technologies (such as biomaterials).

510.107 (N) MODERN ALCHEMY (3) Spicer: Limit 25 Can you really turn lead into gold? Converting common substances into useful materials that play important roles in today’s technologies is the goal of many modern scientists and engineers. In this course, we will survey selected topics related to modern materials, the processes that are used to make them as well as the inspiration that led to their development. Topics will include the saga of electronic paper, the sticky stuff of gecko feet and the stretchy truth of metal rubber.

510.311 (E,N) STRUCTURE OF MATERIALS (3) Searson: Limit 50 Prereq: Calculus I, Freshmen/Sophomore Chemistry, Physics or Perm. Reg'd.
First of the Introduction to Materials Science series, this course is devoted to study of the structure of materials. Lecture topics include bonding, atomic packing, crystal structure, imperfections in crystals, noncrystalline solids, and composite materials. Among the techniques treated are X-ray diffraction, stereographic projection, and optical and electron microscopy.

510.312 (E,N) PHYSICAL CHEMISTRY OF MATERIALS I: THERMODYNAMICS (3) Mao: Limit 135 Prereq: Calculus I & II, Freshman/Sophomore Chemistry & Physics or Perm. Reg'd. Second of the Introduction to Materials Science series, this course examines the principles of thermodynamics as they apply to materials. Topics include fundamental principles of thermodynamics, equilibrium in homogeneous and heterogeneous systems, thermodynamics of multicomponent systems, phase diagrams, thermodynamics of defects, and elementary statistical thermodynamics.

510.316 (E,N) BIOMATERIALS I (3) Yu: Limit 50 Prereq: Organic Chemistry I & II and Organic Chemistry Lab I & II South of the Introduction to Materials Science series, this course offers an overview of principles and properties of biomedical materials. Topics include properties of materials used in medicine, synthesis and properties of polymeric materials, polymeric biomaterials, natural and recombinant biomaterials, biodegradable materials, hydrogels, stimuli-sensitive materials, and characterizations of biomaterials.

510.403 (N) MATERIALS CHARACTERIZATION (3) McGuiggan: Limit 25
MATERIALS SCIENCE AND ENGINEERING

This course will describe a variety of techniques used to characterize the structure and composition of engineering materials, including metals, ceramics, polymers, composites and semiconductors. The emphasis will be on microstructural characterization techniques, including optical and electron microscopy, X-ray diffraction, and acoustic microscopy. Surface analytical techniques, including Auger electron spectroscopy, secondary ion mass spectroscopy, X-ray photoelectron spectroscopy, and Rutherford backscattering spectroscopy. Real-world examples of materials characterization will be presented throughout the course, including characterization of thin films, surfaces, interfaces, and single crystals.

510.426 (E,N) BIOMOLECULAR MATERIALS (3)
Hristova  Limit 25

510.428 (E,N) MATERIALS SCIENCE LAB I (3)
Weihs  Limit 30  Prereqs: 510.311, 510.313  Lab assignment by professor
This course focuses on characterizing the microstructure and mechanical properties of structural materials that are commonly used in modern technology. A group of A1 alloys, Ti alloys, carbon and alloy steels, and composite materials that are found, for example, in actual bicycles will be selected for examination. Their microstructures will be studied using optical metallography, scanning electron microscopy, X-ray diffraction, and transmission electron microscopy. The mechanical properties of these same materials will be characterized using tension, compression, impact, and hardness tests. The critical ability to vary microstructure and therefore properties through mechanical and heat treatments will also be demonstrated and investigated in the above materials.

510.433 (E) SENIOR DESIGN RESEARCH (3)
Hristova  Limit 20  Perm. Req'd
Prereq: 510.311-312, 510.428-429  Coreq: 510.803  This course is the first 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. During this semester, students join ongoing graduate research projects for a typical 10-12 hours per week of hands-on research.

510.501 RESEARCH
Student participation in ongoing research activities. Research is conducted under the supervision of a faculty member and often in conjunction with other members of the research group.

510.503 INDEPENDENT STUDY
Individual programs of study are worked out between students and the professor supervising their independent study project. Topics selected are those not formally listed as regular courses and include a considerable design component.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Limit</th>
<th>Prerequisites</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>510.601</td>
<td>STRUCTURE OF MATERIALS</td>
<td>Hufnagel</td>
<td>30</td>
<td>Basic Chemistry, Physics and Calculus or Perm. Req.</td>
<td>An introduction to the structure of inorganic and polymeric materials. Topics include the atomic scale structure of metals, alloys, ceramics, and semiconductors, structure of polymers, crystal defects, elementary crystallography, tensor properties of crystals, and an introduction to the uses of diffraction techniques (including X-ray diffraction and electron microscopy) in studying the structure of materials.</td>
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<tr>
<td>510.602</td>
<td>THERMODYNAMICS OF MATERIALS</td>
<td>Ma</td>
<td>25</td>
<td>Basic Chemistry, Physics and Calculus or Perm. Req.</td>
<td>An introduction to classical and statistical thermodynamics of materials. Topics include the zeroth law of thermodynamics; the first law (work, internal energy, heat, entropy, heat capacity); the second law (heat engines, Carnot cycle, Clausius inequality, entropy, absolute temperature); equilibrium of single component systems (free energy, thermodynamic potentials, virtual variations, chemical potential, phase changes); equilibrium of multicomponent systems and chemical thermodynamics; basics of statistical physics (single and multiple particle partition functions, configurational entropy, third law; statistical thermodynamics of solid solutions); and equilibrium composition-temperature phase diagrams.</td>
</tr>
<tr>
<td>510.606</td>
<td>CHEMICAL AND BIOLOGICAL PROPERTIES OF MATERIALS</td>
<td>Yu</td>
<td>25</td>
<td>Basic Biology and Chemistry</td>
<td>An introduction to the chemical and biological properties of organic and inorganic materials. Topics include an introduction to polymer science, polymer synthesis, chemical synthesis, and modification of inorganic materials, biomaterialization, biosynthesis, and properties of natural materials (proteins, DNA, and polysaccharides), structure-property relationships in polymeric materials (synthetic polymers and structural proteins), and materials for biomedical applications.</td>
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<tr>
<td>510.611</td>
<td>SOLID STATE PHYSICS</td>
<td>Poehler</td>
<td>20</td>
<td>Basic Biology and Chemistry</td>
<td>An introduction to solid state physics for advanced undergraduates and graduate students in physical science and engineering. Topics include crystal structure of solids, band theory, thermal, optical, and electronic properties, transport and magnetic properties of metals, semiconductors, and insulators; and superconductivity. The concepts and applications of solid-state principles in modern electronics, optical, and structural materials are discussed.</td>
</tr>
<tr>
<td>510.626</td>
<td>BIOMOLECULAR MATERIALS</td>
<td>Hristova</td>
<td>25</td>
<td>Basic Biology and Chemistry</td>
<td>See 510.426 for description</td>
</tr>
<tr>
<td>510.665</td>
<td>ADVANCED TOPICS IN THERMODYNAMICS OF MATERIALS</td>
<td>Staff</td>
<td>25</td>
<td>510.312 or 510.612 (or similar course covering thermodynamics)</td>
<td>See 510.426 for description</td>
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<tr>
<td>510.739</td>
<td>SEARSON GROUP SEMINAR</td>
<td>Searson</td>
<td>10</td>
<td>Perm. Req.</td>
<td>Topics in surface chemistry and materials chemistry are discussed. The seminar covers various topics in these fields, including a review of the current literature.</td>
</tr>
<tr>
<td>510.801</td>
<td>MATERIALS RESEARCH SEMINAR</td>
<td>Cammarata</td>
<td>25</td>
<td></td>
<td>W 2-3:30</td>
</tr>
<tr>
<td>510.803</td>
<td>MATERIALS SCIENCE SEMINAR</td>
<td>Cammarata</td>
<td>25</td>
<td></td>
<td>W 3:30-5</td>
</tr>
</tbody>
</table>
MECHANICAL ENGINEERING

530.101 (E) DESIGN AND COMPUTING IN MECHANICAL ENGINEERING Sec. 01 MW 1
Cammarata limit 40 Mechanical Engineering, Engineering Mechanics, Undecided Engineering Majors, and others with permission of instructor
The course description for this freshman introduction course is under construction. Please check the Registrar's website for future updates.

530.103 (E) MECHANICAL ENGINEERING FRESHMAN LABORATORY I (1) Sec. 01 TBA
Okamura limit 10 per section Mechanical Engineering, Engineering Mechanics, Undecided Engineering Majors, and others with permission of instructor
The course description for this freshman introduction laboratory is under construction. Please check the Registrar's website for future updates.

530.111 (E) INTRODUCTION TO MECHANICS I (2) Sec. 01 MW 11
Okamura limit 40 Mechanical Engineering and Engineering Mechanics Majors only
The course description for this freshman introduction course is under construction. Please check the Registrar's website for future updates.

530.201 (E) STATICS AND MECHANICS OF MATERIALS (4) Sec. 01 MTW 2
Graham-Brady Limit 10 per section (Lab) Freshman by Perm. Only
Equilibrium of rigid bodies, free-body diagrams, design of trusses. One-dimensional stress and strain, Hooke's law. Properties of areas. Stress, strain, and deflection of components subjected to uniaxial tension, simple tension, and bending. Co-listed with 560.201

530.231 (E) MECHANICAL ENGINEERING THERMODYNAMICS (4) Katz Sec. 01 MTW 1

530.327 (E) INTRODUCTION TO FLUID MECHANICS (4) Sec. 01 MTW 10

530.352 (E) MATERIALS SELECTION (4) Sec. 01 MTW 11
Hemker Limit 50 Prereq: 530/560.29 or Perm. Req'd. An introduction to the properties and applications of a wide variety of materials: metals, polymers, ceramics, and composites. Considerations include availability and cost, formability, rigidity, strength, and toughness. This course is designed to facilitate sensible materials choices so as to avoid catastrophic failures leading to the loss of life and property.
MECHANICAL ENGINEERING

530.403 (E)  ENGINEERING DESIGN PROJECT  (4)  Staff
Limit 25 per section  Prereq: ME Majors: 530.215, 530.327 EM & BME Majors: 530.215 or 530.405, and 530.327  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.

530.414 (E)  COMPUTER-AIDED DESIGN  (3)  Stoianovici  Limit 21  Prereq: 530.215 or Perm. Req’d if 530.215 is not taken  This course attempts to integrate the concepts developed in 530.215 with the use of the computer as a design tool. The topics covered include the design of mechanical systems. Extensive use is made of computer-aided design software, including object modeling, system assembly, and mechanism solution procedures.

530.418 (E)  AEROSPACE STRUCTURES AND MATERIALS  (3)  Henney  Limit 50  Prereq: 530.215 and 530.352 or consent of instructor  An introduction to the design of aircraft and spacecraft structures and components. This course will build on skills learned in 530.215, Mechanics-Based Design and 530.352, Materials Selection.

530.421 (E,N)  MECHATRONICS  (3)  Chirikjian  Limit 50  Mechatronics is the synergistic integration of mechanism, electronics, and computer control to achieve a functional system. This interdisciplinary course includes lectures, lab assignments, and projects that teach the student to design and build mechatronic devices, building upon the themes of 530.420 Robot Sensors & Actuators. We expand on the topics of mechanism design, motors and sensors, interfacing and programming microprocessors, mechanical prototyping, and creativity in the design process. Course labs and projects are performed in small student groups. Each group develops a microprocessor-controlled electromechanical device, such as a mobile robot or art-making machine. Project topics vary from year to year.


530.451 (E,N)  CELLULAR AND TISSUE ENGINEERING LAB  (2)  Haase/ Wang  Limit 8  Seniors and Graduate Students only others  Perm. Req’d  This laboratory course
MECHANICAL ENGINEERING

will consist of three experiments that will provide students with valuable hands-on experience 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. Co-listed with 580.451

530.454 (E) MANUFACTURING ENGINEERING (3) Sharpe
Limit 50 Prereq: 530.215 and 530.352
An introduction to the various manufacturing processes used to produce metal and nonmetal components. Topics include casting, forming and shaping, and the various processes for material removal including computer-controlled machining. Simple joining processes and surface preparation are discussed. Economic and production aspects are considered throughout.
Co-listed with 580.451
Sec. 01 MTW 11

530.457 (E,N) INTRODUCTION TO ACOUSTICS (3) Busch-Vishniac Limit 50
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.
Sec. 01 MTW 3

530.461 (E) ENGINEERING BUSINESS AND MANAGEMENT (3) Rothman
Limit 50
An introduction to the business and management aspects of the engineering profession. The course will focus on the process of product definition and development, the structure and functioning of engineering organizations, project management, intellectual property protection, and the management of project teams.
Sec. 01 TBA

530.470 (E) SPACE VEHICLE DYNAMICS AND CONTROL (3) Guzman
Limit 50
In this course we study applied spacecraft orbital and attitude dynamics and their impact on other subsystems. In the orbital dynamics part of the course, we discuss some of the issues associated with orbital insertion, control and station keeping. Focus is on the two-body problem regime where conic solutions are valid. Orbit perturbations are also considered. For attitude dynamics, different attitude representations such as of direction cosines, quaternions, and angles are introduced. Then we look at the forces and moments acting on space vehicles. Attitude stability and control considerations are introduced.
Sec. 01 MW 4-5:30pm

530.491 SPECIAL TOPICS (1) Staff
Selected topics for third- and fourth-year students in mechanical engineering and other engineering departments. Offered by arrangement with faculty advisor and instructor in charge.
Sec. 01 TBA

530.495 (E,N) MICROFABRICATION LABORATORY (4) Andreou/Wang
Limit 4 per section Seniors only or Perm. Rep’d
This laboratory course is an introduction to the principles of microfabrication for microelectronics, sensors, MEMS, and other synthetic microsystems that have applications in medicine and biology. Course comprised of laboratory work and accompanying lectures that cover silicon oxidation, aluminum evaporation, photolithography, plating, etching, packaging, design and analysis CAD tools, and foundry services.
Co-listed with 520.495 & 580.495
Sec. 01 Lec. Th 11
02 Th 1-5
04 F 8-11
05 Th 8-11

MECHANICAL ENGINEERING

530.525 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.

530.527 INDEPENDENT STUDY

530.601 CONTINUUM MECHANICS Staff

Sec. 01 TBA


Sec. 01 MTW

530.646 INTRODUCTION TO ROBOTICS Staff
Limit 30 Graduate-level introduction to robotics with emphasis on the mathematical tools for kinematics and dynamics. Topics include forward and inverse kinematics, trajectory generation, position sensing and actuation, and manipulator control.

Sec. 01 TBA

530.687 FOUNDATIONS OF COMPUTATIONAL BIOLOGY AND BIOINFORMATICS Sun
Limit 25 This course presents the fundamental concepts in equilibrium and non-equilibrium statistical mechanics and apply them to optics in modern molecular computational biology. Monte Carlo and statistical ensembles are presented. Field theories are introduced to describe the mechanics of membranes, cytoskeleton and biofluids. Kinetic theory, master equations and Fokker-Planck equations are discussed in the context of ion channels and molecular motors.

Sec. 01 TBA

530.759 RESEARCH SEMINAR: PLASTICITY Ramesh Limit 25 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 make two presentations during the semester.

Sec. 01 F 8-10


Sec. 01 MW 3-4:20

500.602 SEMINAR: ENVIRONMENT & APPLIED FLUID MECHANICS Meneveau
Cross-listed with Geography & Environmental Engineering, Earth & Planetary Sciences, and General Engineering

Sec. 01 F 10:30-12:30

530.800 INDEPENDENT STUDY (Refer to 530.801 for registering with faculty)
MECHANICAL ENGINEERING

530.801

GRADUATE RESEARCH
Use the following section when registering with a faculty member:
Sec. 01 Hall
Sec. 02 Berres
Sec. 03 Stamatovski
Sec. 04 Cheong
Sec. 05 Hamman
Sec. 06 Ramsini
Sec. 07 Taylor
Sec. 08 Prosperetti
Sec. 09 Sharpe
Sec. 10 Knio
Sec. 11 Ramkum
Sec. 12 Chirikjian
Sec. 13 Whitcomb
Sec. 14 Okamura
Sec. 15 Oguz
Sec. 16 Molinari
Sec. 17 Staff
Sec. 18 Chao
Sec. 19 Su
Sec. 20 Wang
Sec. 21 Sun
Sec. 22 Cowan
Sec. 23 Busch-Vishniac
Sec. 24 Vital
Sec. 25 Katz
Sec. 26 Fichinger

530.803

MECHANICAL ENGINEERING SEMINAR

PROFESSIONAL COMMUNICATION PROGRAM

661.110

TECHNICAL COMMUNICATION (3)
Limit 20 per section
Sec. 01 Staff MTW 1
Sec. 02 Staff MTW 2
Sec. 03 Allocca T 3-5:45
Sec. 04 Allocca T 6-8:45pm
Sec. 05 Rice M 3-5:45
Sec. 06 Rice T 3-5:45

Students create several different kinds of professional documents, including resumes, application letters, and proposals. They are exposed to research on language and the writing process and further develop communication skills.

661.120

BUSINESS COMMUNICATION (3)
Limit 20 per section
Sec. 01 Staff MTW 11
Sec. 02 Staff MTW 12
Sec. 03 Sheff W 3-5:45pm
Sec. 04 Sheff W 6-8:45pm
Sec. 05 Porosky Th 3-5:45
Sec. 06 Porosky Th 6-8:45pm

Students focus on writing business memos, resumes and cover letters, business proposals, and formal reports. They present work orally using business and professional formats, and enhance their presentations with technology-based media.

661.150

ORAL PRESENTATIONS (3)
Limit 10 per section
Sec. 01 Kulanko M 3-5:45
Sec. 02 Dungey W 3-5:45
Sec. 03 Dungey M 6-8:45pm
Sec. 04 Kulanko Th 12-2:45
Sec. 05 Kulanko Th 3-5:45
Sec. 06 Kulanko F 12-2:45

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.

661.310

SCIENTIFIC WRITING (3)
Sec. 01 Stone M 3-5:45

Students write original work, critique articles for content and style, and present work to class. They improve written work that requires synthesis and evaluation. The goal is to weld critical thinking to compelling writing.

661.340 (H,S)

LEGAL COMMUNICATION (3)
Sec. 01 Stone W 3-5:45

This course is for students who have an interest in understanding communication in the legal profession. Emphasis is placed on legal reasoning and professional standards of communication. As the fields of science, engineering, law, and public policy increasingly interact, the need to write documents for audiences concerned with legal issues increases.

661.610

RESEARCH WRITING
Sec. 01 Stone W 3-5:45

This course provides writing and organizational support to graduate students developing journal articles, dissertations, theses, or conference papers. Those interested in writing, formatting, and content development would benefit from this course.