2015 STUDENT ORIENTATION STAFF

Cody Civiletto, a fifth-year student participating in the Kauffman Entrepreneurial Year (KEY Program), is originally from Jamestown, New York. When he isn’t working on his KEY project, he is working toward his BS in neuroscience with a minor in psychology. On campus Cody serves as the general manager for one of the University’s all-male a cappella groups, the Midnight Ramblers. He has a strong passion for music coupled with an equal passion for scientific discovery. Throughout his time at the Rochester, Cody has performed research in three different departments in addition to studying abroad twice (Italy, Summer 2012 and New Zealand, Fall 2013). During Orientation week if you’re ever looking to chat about Hobbit culture, Cody’s your man. He’s excited and proud to serve as a leader for the Class of 2019 orientation and looks forward to your arrival!

Gaella Kabeya is a sophomore from Lusaka, Zambia. She is working on a double major in brain and cognitive sciences and business. She is passionate about entrepreneurship and learning. She joined the orientation team in order to share her passion for the University of Rochester. Her favorite time on campus is during finals week because everybody is studying so hard it’s contagious. You cannot afford to slack! She enjoys the outdoors and a good pair of sunglasses.

Jackie Meyer is a sophomore from Simsbury, Connecticut, double-majoring in mathematics and French. She loves to play viola, and she is a member of the UR Chamber Orchestra and several small ensembles on campus. During the snowy Rochester winter, you can find her skating at the Genesee Valley Park ice rink or skiing with the Recreational Ski and Snowboard Club. When the weather starts to get warmer, she will often be up in the bell tower of Rush Rhees Library playing the carillon. During her free time (when she’s not doing math homework), Jackie enjoys watching French movies, drawing, and heading over to Eastman for some great hot cocoa at Java. She is excited to welcome our new class of Yellowjackets to campus!

Tate Richards is a junior from Southaven, Mississippi, double-majoring in business and statistics. Tate is a Student Alumni Ambassador, a member of University of Rochester Freshman Orientation Outing Treks (UR FOOT), and the vice president of his fraternity, Sigma Phi Epsilon. When Tate isn’t running from meeting to meeting, he is either hanging out with his friends, watching college football, or binge watching a TV series. He is very excited to welcome the Class of 2019 and incoming transfer students to the University of Rochester!

Becca Walters is a senior in the GRADE program from South Brunswick, New Jersey. She is majoring in psychology and minoring in brain and cognitive sciences and American Sign Language. She has recently returned from a lovely semester abroad in Bath, England. A Peer Career Advisor at the Career Center, she often can be found revising résumés and cover letters. She also works as a teacher and youth group advisor at Temple B’rith Kodesh. When she happens to have a rare free moment, she can be found cooking, watching obscure documentaries, or chatting with her friends. She is excited to welcome the transfer students and Class of 2019 to the University of Rochester throughout the fun-filled week of Orientation!
The Rochester Curriculum

Three features central to faculty learning are the hallmarks of the Rochester Curriculum: curiosity, competence, and community. With abundant and committed guidance, students plan for broad and free experimentation with ideas and subjects, discover or sharpen their interests, and come to understand their intellectual strengths and weaknesses. Students learn through sustained and integrated study in two academic areas outside the area of the major. The following list of undergraduate degree programs (majors) offered by the College is divided into these three academic divisions:

**NATURAL SCIENCES AND ENGINEERING**
- Applied Mathematics
- Audio and Music Engineering
- Biological Sciences
- Biochemistry
- Cell and Developmental Biology
- Computational Biology
- Ecology and Evolutionary Biology
- Microbiology
- Molecular Genetics
- Neuroscience Biology
- Biomedical Engineering*
- Brain and Cognitive Sciences
- Chemical Engineering*
- Chemistry
- Computer Science
- Earth and Environmental Sciences
- Environmental Science
- Environmental Studies
- Geological Sciences
- Electrical and Computer Engineering*
- Engineering Science
- Engineering and Applied Sciences
- Environmental Health
- Geosciences
- Geomathematics
- Mathematics
- Mathematics-Statistics
- Mechanical Engineering*
- Optics Engineering*
- Physics
- Physics and Astronomy
- Statistics

**SOCIAL SCIENCES**
- Anthropology
- Business
- Economics
- Epidemiology
- Financial Economics
- Health, Behavior and Society
- Health Policy
- History
- International Relations
- Linguistics
- Political Science
- Psychology

**HUMANITIES**
- American Sign Language
- Art and Art History
- Art History
- Studio Arts
- Bioethics
- English
- Film and Media Studies
- Modern Languages and Cultures
- Comparative Literature
- French
- German
- Japanese
- Russian
- Spanish
- Music
- Philosophy
- Religion and Classics
- Classics
- Religions

**INTERDISCIPLINARY MAJORS**
- African and African-American Studies
- American Studies
- Archeology, Technology and Historical Structures
- East Asian Studies
- Digital Media Studies
- Interdisciplinary Studies
- Russian Studies
- Women’s Studies

Students need to complete a major in one of these three divisions, and unless they choose an additional major or a minor, as authorized “divisional cluster” in each of the other two areas outside the area of the major. The following list of undergraduate degree programs (majors) offered by the College is divided into these three academic divisions:

**IN SUMMARY, you will complete for your degree:**
- a major with an average grade of C or better,
- a divisional cluster in each of the two divisions outside the area of the major with an average grade of C or better (although you may substitute a second major or a minor for a cluster in either or both of these two divisions)
- the primary writing requirement (normally WRT 105, WRT 105E, or WRT 105A and WRT 105B) with a grade of C or better,
- the upper-level writing requirement (integrated into the requirements for your major)
- eight semesters of approved course work (32 four-credit courses or 128 credit hours) with an average grade of C or better

Clusters are officially authorized sets of related courses comprising at least twelve credit hours (normally equivalent to three courses). Most students find that their interests coincide with some of the more than 250 clusters that appear in the Cluster Search Engine on the Web at www.rochester.edu/college/cas/clusters. Students may request unique modifications of these authorized clusters through the sponsoring department and may even propose individualized interdepartmental clusters. Each of the clusters in the Search Engine includes a brief description and the requirements for completion. The database is searchable by course (e.g., BCS 110), by division or department (e.g., music), and by concept (e.g., cognition). You can learn more of what you need to know by clicking “Cluster Policies.”

**Primary Writing Requirement:** In addition to completing a major, minor, or cluster in each of the three divisions, students are required to fulfill the Primary Writing Requirement. The Primary Writing Requirement is the College’s first step in drawing students into our community of researchers and writers. Typically, the Primary Writing Requirement is satisfied by passing Reasoning and Writing in the College (WRT 105, WRT 105E, or the combined WRT 105A and WRT 105B) with a grade of “C” or better. To be prepared for the upper-level writing requirement in the majors, students should satisfy the Primary Writing Requirement by the end of the first year of study.

The Writing, Speaking, and Argument Program offers three versions of Reasoning and Writing in the College, WRT 105 (4 credits). The extended version of this same course, WRT 105E (4 credits), and the two-semester version, WRT 105A (2 credits) and WRT 105B (2 credits) have been developed for students needing more support and/or more time to meet the demands of college-level writing. All versions of WRT 105 grow out of a single course description, but individual sections have unique discipline-specific content and themes designed by each instructor with students’ interests in mind. Students will find a wide range of topics from a variety of disciplines, such as “Truth, Justice, and the American Way!” Comic Books and the Rhetoric of Nationalism,” “Being Homo Sapiens Sapiens: The Brain, The Mind, The Heart, and Full Catastrophe Living,” and “Wide World: The Ethics of Virtual Connection.” Section themes are indicated through subtitles and descriptions, which, along with CRN numbers and section times, are available on the Writing, Speaking, and Argument Program’s web page: http://writing.rochester.edu/.

The Writing, Speaking, and Argument Program encourages students to choose sections that interest them, whether this interest grows out of a desire to learn more about a favorite subject or to try something new.

International students are encouraged to register for U.S. Life: Customs and Practices (CAS 170) during the fall or spring semester of the first year. The class is limited in size to create an interactive and personalized experience. The innovative curriculum is designed to assist students in their transition to college through the study of American culture and values and successful study practices. Readings and short assignments are supplemented by on- and off-campus field trips, guest speakers, group activities, and discussion of current issues. The course carries two credits and may be combined with four additional full-credit courses.

**Learning across the Divisions**

A great deal of the College’s innovative teaching and research takes place outside the confines of traditional departments, divisions, or even schools. As the list of interdisciplinary majors on page 4 shows, students can study new fields that have developed at the crossroads of existing disciplines (see also the list of approved minors on page 108). Cutting-edge work in public health–area studies, digital media studies, business, and other domains requires students to have in-depth knowledge in a blend of science, humanities, and social sciences fields. Sometimes students will take courses from multiple departments in the construction of their major; other times, the work they do in individual courses will represent a cross-disciplinary approach.

Many of the college’s newest majors are interdisciplinary. In the business major, for example, students take courses in economics, marketing, statistics, and accounting. In digital media studies, they pursue work in computer science, art, optics, and film and media studies. Majors in American studies take courses in the humanities and social sciences in departments such as art history, English, history, and political science. East Asian studies majors work in language, anthropology, literature, and history, whereas audio music engineering requires students to study electrical and computer engineering, math and physics, music theory, and computer science.

In addition, many individual courses take advantage of an interdisciplinary format. In some, students learn how to program computers while studying media history and theory; in others, they study music and the art and science of sound recording.

NOTE: A LIST OF APPROVED MINORS APPEARS ON PAGE 99.

Students in these programs may complete somewhat modified clusters.
CHOOSING YOUR COURSES

The Rochester Curriculum is uniquely designed to allow you to own your education. We do not tell you which subjects to study—that choice is fully yours. Here you may safely explore courses of interest and not worry about having enough time to complete your academic program. This is true whether you select a major with 10 required courses or 20. To see how true this is, consider what might be possible if you decide on one of the most time-consuming programs, a BS major in the biological sciences: you’ll complete “Reasoning and Writing in the College” and, as required by the major, a maximum of 11 biology courses, two semesters of calculus, four semesters of chemistry, two semesters of physics, and one course in a field related to biology, for a total of 21 courses. This leaves 11 courses for exploration, some of which will lead to fulfilling clusters. Many of you will choose majors with fewer requirements, leaving plenty of time for a cluster of particular interest to grow into a minor or second major.

Beginning on page 12 of this handbook, you’ll find advice from each department that will help you select courses that match your interests and skill levels. Your choices will depend on several factors, including your initial ideas about possible majors, your comfort with exploring unknown subjects (give it a try!), departmental placement recommendations, and course availability (although this is not typically a problem). Here are some opportunities to consider as you read through this handbook and jot down courses you might take:

- Small, interactive courses, which allow you to work closely with faculty and meet other students with similar interests. We strongly recommend taking at least one small course your first semester. WRT 105 and language courses are examples of small courses, though there are many others as well.

- Interesting courses outside potential major(s), which offer a gateway to new interests. Read through the course descriptions in this handbook and choose three that you find especially interesting. We challenge you to take at least one your first semester. (You have plenty of time!)

- Courses for potential major(s), which allow you to delve into your area(s) of interest. Be sure to read “Departmental Advice for Freshmen” included in this handbook to identify the courses you will need to take during your first year, along with those that might be postponed.

- Courses that coincide with your academic strengths, which provide a boost of confidence while allowing you to delve deeper into an area of study. Most importantly, your choices should grow out of your interests, your curiosity, and your goals.

When selecting your courses, keep in mind that some are offered only once each academic year. While MTH 141 and 161 are offered each semester, courses such as CHM 131 and BIO 110 and most introductory (101) language courses are offered only in the fall semester.

Academic Advising: The University of Rochester believes that academic advising is critical to student success. While it is up to you to select your courses, we also provide you with as much help as you need during the registration process and throughout your years of undergraduate study. Your premajor advisor, the class deans, the advisors in the College Center for Advising Services, faculty in every department and program, and many others are here to help you. During Orientation, you’ll meet with your premajor advisor to talk about your interests and complete the selection of your courses for registration. You will also have the opportunity to meet with faculty from across the College. After registration, some of you may choose to meet just a few times with your premajor advisor to talk about how your first semester is going, and others may decide to arrange five or six more meetings with your advisor. Ideally, you will schedule at least one appointment each semester with an academic advisor to discuss your academic goals.

Courses I am interested in:

<table>
<thead>
<tr>
<th>AP or IB Exam</th>
<th>Score</th>
<th>Rochester Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Advanced Placement and International Baccalaureate Exams: AP and IB award criteria, as you may have noticed, appear with the departmental information. Students are notified of credit by the College Center for Advising Services. Those wishing to discuss either AP or IB credit should contact that office. If you have taken any AP or IB courses, please list the subject and grade that you received on each exam (if known). Then, look up and record the placement information below.

(Note: The records of students with AP credit that is contingent upon the completion of a Rochester course are reviewed each summer so that credit may be awarded appropriately.)
Students should have an official transcript sent to the College Center for Advising Services, 312 Lattimore Hall, University of Rochester, P.O. Box 270402, Rochester, NY 14627-0402. Please indicate below any anticipated college-level transfer credit.

Credit for courses taken at the University of Rochester: Students who have taken credit-bearing courses here while in high school, through the Test of College preparatory, or otherwise, should be aware of the following. Grades for these courses will be factored into the cumulative grade point average, and credit will count toward undergraduate degree requirements. Students have the option of requesting that these courses be treated as if they were transfer courses, in which case the grade will be removed from the average, and credit will be counted toward degree requirements as long as the grade was a "C" or better. Petitions should be submitted to the College Center for Advising Services.

Credit for courses taken at the University of Rochester: Students who have taken credit-bearing courses here while in high school, through the Test of College preparatory, or otherwise, should be aware of the following. Grades for these courses will be factored into the cumulative grade point average, and credit will count toward undergraduate degree requirements. Students have the option of requesting that these courses be treated as if they were transfer courses, in which case the grade will be removed from the average, and credit will be counted toward degree requirements as long as the grade was a "C" or better. Petitions should be submitted to the College Center for Advising Services.

Credit for courses taken at the University of Rochester: Students who have taken credit-bearing courses here while in high school, through the Test of College preparatory, or otherwise, should be aware of the following. Grades for these courses will be factored into the cumulative grade point average, and credit will count toward undergraduate degree requirements. Students have the option of requesting that these courses be treated as if they were transfer courses, in which case the grade will be removed from the average, and credit will be counted toward degree requirements as long as the grade was a "C" or better. Petitions should be submitted to the College Center for Advising Services.
WHAT WILL YOU HAVE TIME FOR?

Once in college, you may at first feel that you have an extraordinary amount of time on a day-to-day basis. In fact, you do have a great deal of unscheduled time. The challenge is filling that schedule in a balanced and productive way. Just what will you have time for?

A. Class time: Please consider the amount of time that your course-work will require.
You will be in class an average of 12–18 hours per week. For every one hour in class, expect to spend two to three hours reading, reviewing lecture notes, doing library or lab-based research, writing essays or lab reports, working on problems, etc. That equals a time commitment of 36 to 72 hours per week—more than a full-time job!

B. Co- and extracurricular activities: Involvement in activities such as the arts, athletics, clubs, and cultural activities is an important part of a college experience. Look at the Student Activities Survey available online at my.rochester.edu and list some activities that interest you. You should also plan to attend the Student Activities Fair offered during the first week of classes.

Please take a few minutes now to complete and submit the online Student Activities Survey.

C. Additional time commitments: How many hours a week do you think you will spend in the following areas during your first semester?

- paid employment ________________________
- volunteering __________________________
- socializing ____________________________
- commuting ____________________________
- family obligations ______________________
- sleeping ______________________________
- eating ________________________________
- other ________________________________

There are 168 hours in a week. How many have you accounted for?

A. Study and class ______________________
B. Co- and extracurricular __________________
C. Additional __________________________

Total Time Commitments ____________________________

(If you think you might be overwhelmed, we are here to help you. Assistance is available from your premajor advisor and, among other campus resources, the people in the College Center for Advising Services and the Center for Excellence in Teaching and Learning.)

Your Orientation Materials
Now you’re ready to complete and submit your orientation materials. All forms are available online at my.rochester.edu. If you are having difficulties accessing the forms online, please contact the Orientation office at (585) 275-4414 or email orientation@rochester.edu.

Have Any Questions?
All of us who work with the orientation program are glad that you chose the University of Rochester. We look forward to working with you. Please use this space to write down questions you would like answered during orientation.

Putting It All Together
Review what you’ve done so far and make a list here of the courses you want to consider this fall. Then, using the online Fall 2014 Course Schedule available at http://www.rochester.edu/register/ together with the Course Planning Form, begin building a few possible schedules that appeal to you, both in content and in structure. We recommend that you use a pencil, so you can easily change your mind and your schedule. Then, when you are ready, complete the online Course Planning Form and submit it with your other Orientation forms. (Remember, there will be many opportunities to discuss, clarify, and change courses at Orientation, but if you want help sooner, give us a call.) Most students register for four full-credit courses during their first semester, typically totaling 16–19 credits. In addition, first-semester students may choose to register for up to three additional credits of coursework.

Fall 2015
Preferred courses:

1. ______________________________________
2. ______________________________________
3. ______________________________________
4. ______________________________________

Other courses that interest you:

1. ______________________________________
2. ______________________________________
3. ______________________________________
4. ______________________________________
5. ______________________________________
6. ______________________________________

If you have any questions at all, please feel free to contact the College Center for Advising Services at (585) 275-2354, Monday through Friday, 9 a.m. to 5 p.m. or email us at cascas@rochester.edu. An advisor will be happy to answer any questions you may have. Please refer to our website at www.rochester.edu/college/ccas.
UNDERGRADUATE PROGRAMS

AFRICAN AND AFRICAN-AMERICAN STUDIES

Clusters

African-American Politics (S1AAS002)
This cluster is designed to deepen the knowledge of students concerning the African and African-American aspects of political science.

Aspects of History (S1AAS001)
This cluster is designed to help deepen the knowledge of students concerning African and African-American aspects of the discipline of history.

Economics and the African Diaspora (S1AAS003)
This cluster has been constructed to help deepen the knowledge of students concerning theoretical and empirical issues of development over time in economics, with special reference to African and African-American economic development.

Global and African Diasporic Studies (S1AAS005)
An exploration of topics and issues that are relevant to the knowledge of Africa and the African Diaspora (defined as peoples who can claim Africa as an important reference in their genealogy). This cluster emphasizes approaches that bridge existing gaps among different cultures, communities, and countries that make up the African Diaspora.

Race and Social Issues (S1AAS004)
This cluster looks at issues from a double racial and social approach, emphasizing the need to consider race and class status as fundamental reading parameters in exploring texts, films, and cultures.

Representation and Leadership (S1AAS006)
This cluster explores emblematic figures who inspire social and political movements in the United States, Africa, and the African Diaspora.

Visual and Literary Arts of the Diaspora (H1AAS001)
This cluster seeks to educate students about the significance of visual arts and literature in the lived experience of the African Diaspora.

Note: Unless otherwise noted, all clusters require at least 12 credits.

Courses

Definite course listings are published before each semester. Courses listed here carry 4 credit hours unless otherwise noted. The following are some of the recent or planned offerings.

AAS 106 Colonial and Contemporary Africa.
This course takes a broad view of African history from the late 19th century to the present. Themes covered include the nature of European colonial domination, African resistance, the neocolonial state, and the World Bank's agenda for the continent before and after the end of the Cold War. Through movies and novels, students also explore such developments as transformations in gender, peasants and the cash-crop revolution, and the emergence of a new working class. Same as ANT 248 and HIS 106. (Fall)

AAS 110 Introduction to African-American Studies. Drawing on the disciplines of history, anthropology, and psychology, this course introduces students to the interdisciplinary approach to the examination of the black experience in America. Same as HIS 110. (Spring)

AAS 122 History of Jazz. This study of jazz as an American musical art form is structured around the lives and music of jazz musicians across a range of instrumental, vocal, and ensemble genres. Less a conventional approach, this course focuses on four jazz titans, those individuals and musical groups distinguished by their seminal and permanent influences, either with long careers such as Louis Armstrong, Miles Davis, or Coleman Hawkins or with shorter but intense careers, such as Charlie Parker. Integrated with the jazz titans is consideration of the music of other important jazz musicians whose contributions are essential to helping shape and inform the vast jazz landscape of the 20th century. Blues, ragtime, swing, bebop, cool, progressive, and free jazz are landmark terms that help define that landscape. The influence of jazz on composers in European “classical” traditions also is considered. And, finally, study of the musical history is enhanced by considerations from sociological, linguistic, and philosophical perspectives. This course is designed for students with little or no musical training; simple, technical musical vocabulary and concepts are provided. Prerequisites: none. Same as HIS 179 and MUR 122. (Fall)

AAS 141 African-American History I. This course considers the cultural and political development of Africans in America from the 17th century to the end of the 19th century. Same as HIS 165. (Fall)

AAS 151 The Blues. This course is about the history and influence of the music known as “the Blues.” The course covers development of the blues from the earliest practitioners to recent developments. Same as REL 151. (Spring)

AAS 157 Introduction to African Religions of the Diaspora. This course introduces students to the development of African religions in the Americas, Caribbean, and Canada. Religious traditions such as African-derived Christianity, Santeria, Candomblé, Vodou, and Spiritual Baptists are explored. The course not only provides students with a historical overview of each tradition, but it also explores theoretical frameworks, doctrinal principles, and ritual activities related to each tradition. Class format includes lectures, discussion, and films. Same as REL 156.

AAS 158 Gospel Choir. One rehearsal per week. Two concerts per semester. In addition, there may be off-campus performances in local churches, and other venues in the greater Rochester community. The Gospel Choir performs a varied repertoire of sacred music—spirits, hymns, traditional and contemporary Gospel, and music of the praise-and-worship genre. Students may register for credit or simply sing as choir participants. (1 credit) Same as MUR 158. (Fall and Spring)

AAS 168 West African Drumming Advanced. At least one semester of previous enrollment in the Introduction to West African Percussion Ensemble. In this course, students work on expanding their repertoire of rhythms from Guinea, West Africa, and on improving their playing technique on the djembe, dunun, sanhang, and kenkeni. In particular, we concentrate on learning extended solo sequences for the djembe and more advanced arrangements played on the dunun, sanhang, and kenkeni. Students also work on developing skills specific to performance, adding choreographed stage movement to complement their drumming. Prerequisites: at least one semester of previous enrollment in the Introduction to West African Percussion Ensemble. Same as MUR 168. (Fall)

AAS 170 Religion and Hip Hop Culture. This course considers an often overlooked element in the study of hip hop culture—religion. Specifically, the course offers students the opportunity to examine the variety of ways that religion finds expression in the dynamic cultural medium of hip hop. Class format includes lectures, discussions, films, and video/music presentations. Same as REL 170. (Fall)

AAS 175 Environment and Food Security in Africa. This course introduces key issues in the relationship between the environment and food security in Africa. Topics include population pressure, land degradation, cash-crop agriculture, new markers, and their impact on the ability of African farmers to manage their ecosystems. Same as HIS 175. (Spring)

AAS 185 African-American Religious History. Historical survey of religions as practiced by people of African descent living in North America. Christianity, Islam, and African-derived religions are examined. Through its canvassing of doctrinal and ritual frameworks, students are afforded an opportunity to view the diverse and complex terrain of African-American religion. Class format includes lectures, discussions, and film/music.

AAS 202 The Third World. The concept of a Third World. The origins of colonialism and “underdevelopment” in the rise of European capitalism. The struggles of the colonial and postcolonial peoples for political independence, cultural autonomy, and economic development. Same as HIS 201. (Spring)

AAS 210 American Culture. At the heart of this course is the question: What are some of the critical debates that dominate American culture? This course focuses on major debates that occupy American public life in areas such as politics, religion, health, and the media. Using anthropology's cross-cultural perspective, we explore some core cultural principles that underlie current debates in various spheres of public life. Same as ANT 245. (Spring)

AAS 216 Topics in African and African-American Life and Culture. The primary goal of this course is to provide an introduction to the interdisciplinary approach to the study of issues in African and African-American life and culture. Students attend talks given by visiting speakers, meet, discuss, and respond to issues raised. (Spring)

AAS 221 Birth and Death I: Vital Events in Our Personal Lives. How do human beings experience, make sense of, cope with, and shape birth and death in their own lives and in the lives of those who are close to them? Historical and contemporary examples from North America, Latin America, East Africa, Middle East, Africa, and Asia. Same as ANT 218, WST 217, PM 407. Permission of instructor required for freshmen. (Fall)
AMERICAN SIGN LANGUAGE

“Without diversity of culture, language, and different ways of seeing the world, we would never have learned what we now know about the different ways that humans live. The linguistic and social lives of deaf people have provided us with unique and valuable ways of exploring the vast potential for human language and culture.”

—Padden and Humphries Inside Deaf Culture (2009)

Information about the Department

American Sign Language (ASL) is the native language of many Deaf Americans. It is a natural language that is at the core of a cultural and literary tradition. As a distinctive language, the state raises many important scientific questions about the true nature of all human languages.

AAS 280 Madness and Post-Colonial Literature. This course explores inscriptions of madness in post-colonial African and Caribbean texts. Beyond the obvious and visible signs of what is generally termed “madness” (from the pathological to the political or cultural), we ask ourselves if the postcolonial arena cannot be interpreted as a pervasive manifestation of madness, that is to say, of something fundamentally “alien,” foreign to the Known, to the imperial destructuring order, and to the disarticulated colonial and post-independent communities. By bringing together texts from different and diverse cultural and intellectual areas such as France, Guadeloupe, and Africa, we seek to confront the various “scriptures” involved in each other’s disintegration of Judeaux, the Antillean women in West Africa, from Foucault’s normative panopticism to Fanon’s discussion of the black experience, the postcolonial situation, articulated or silenced, will be the focus of this course. Taught in English. Same as FRT 472. (Spring)

For More Information
Please visit the African and African-American studies program website at www.rochester.edu/college/ or contact the Frederick Douglass Institute at (585) 276-5744 or email fdi@mail.rochester.edu

AAS 232 Post-conflict Justice. This course explores critically how societies use a variety of legal mechanisms to achieve justice in the wake of political and legal approaches to explore critically the ideology behind these “transitional justice” mechanisms and their diverse impacts in specific contexts around the world, focusing particularly in Africa. What is the relationship among rule of law, political stability, and peace? How do legal solutions balance local realities, cultural norms, and customary law with universal standards of law and human rights? How do legal solutions define peace and reconciliation, and what are the tensions between them? Whose voices are valorized or silenced in these debates?

AAS 239 Spiritualism in America. The primary aim of this course is to explore the historical development and structural make-up of modern American Spiritualism. This course offers students a historical narrative that ranges from the early development of modern Spiritualism in upstate New York to current forms, such as African-American Spiritual churches of New Orleans. In addition to this historical survey, the course examines major principles making up the framework of modern Spiritualism in America. Class format includes lectures, discussions, films, and field trips. Same as REL 239. (Fall)

AAS 244 Multiliterate Bodies, Multiliterate Discourse. “Transnational sisterhood” or cultural imperialism? Legitimate ritualized beliefs and different political actions. Other topics include the inter- action between race and ethnicity and employment, health policy, access to criminal justice, and educational inequalities. Readings draw upon political science, law, economics, sociology, and public health.

AAS 253 Economic and Social Conditions of African Americans in the 20th Century. Study of selected topics concerning the conditions of African Americans in the United States during the 20th century. Topics include education, incomes, housing, family patterns, etc. Same as ECO 253W, HIS 255. (Fall)

AAS 254 West African Dance Forms I. The objective of the course is to give students an experience in West African dance. We both dance and research the historical development of performing and cultural arts in post-colonial Ghana and Guinea. These cultural practices stem from a rich history pertaining to environment, identity, and cross-cultural perspectives. Aesthetic qualities of African dance are explored through video, readings, and performance. This course culminates in a final departmental showing that is choreographed during class. Same as DAN 181. (Fall)

AAS 257 Lincoln, Douglass, and Black Freedom. In what was probably the world’s greatest century, marked by several national and international conflicts for human freedom, two men stood head and shoulders above the many great men and women who participated in a civil war for American freedom: Abraham Lincoln and Frederick Douglass. At first glance, these two men had little in common; one born free in the American frontier, the other a slave in the heartland of slavery. Yet they had much in common; both largely self-educated, they both attained a mastery for words and the ability to communicate simply and directly with their fellow man. As if born to fight in one major battle for human freedom, these two men traveled diverse roads to meet on a momentous battlefield: black freedom and the future of America. Utilizing a wide range of materials in opposing tactics, they shaped the ideological and cultural understanding of what it meant to be free and a citizen. Same as HIS 247. (Fall)

Placement for Students with Existing ASL Skills
Students entering the program who have previously studied ASL should take an ASL skills evaluation. Students with existing ASL skills should contact the ASL Program Office (273-5165 or asl@rochester.edu) to set up an ASL skills evaluation. This is an informal meeting with one of our senior lecturers, who will assess your language skills and recommend the class that will best fit your needs.

Clusters
The ASL program’s most popular cluster is Humanities Cluster H1ASL001, Basic Proﬁciency in American Sign Language, which includes courses ASL 101, 102, 105, Basic ASL; ASL 106, Intermediate ASL; and ASL 105, Intermediate ASL I.

The ASL program offers two other clusters that require advanced ASL skills.

Courses
ASL 105 Intermediate American Sign Language I. The third in a sequence of courses, this course focuses on further development of conversational skills in ASL. Students acquire and expand different conversational strategies and increase ASL vocabulary. Grammatical principles and sentence structure are practiced. Appropriate cultural behaviors and conversational regulators in ASL continue to be an important part of class. Information on Deaf Culture/history is expanded. Experience with the local Deaf community is required. Prerequisite: ASL 102 in the immediate preceding semester or permission of the instructor. (Fall, Spring)

ASL 106 Intermediate American Sign Language II. The fourth in a sequence of courses, this course focuses on further development of conversational and narrative skills in ASL. Students learn and expand different conversational strategies and increase ASL vocabulary. An introduction to analysis of grammatical principles and
functions is included. Appropriate cultural behaviors and conversational regulators in ASL continue to be an important part of class.

Information about the Program
The American studies program offers students the opportunity to examine American history, culture, and social life within an interdisciplinary framework. This approach, drawing on faculty members in departments such as English, art and art history, political science, religion and classics, music, anthropology, philosophy, history, and film and media studies, allows for especially rich explorations of such topics as the arts in American society, race, class, gender, ethnicity, and religion as aspects of American identity; and ideas and institutions that have shaped American culture. This course major enables students to range freely across disciplinary boundaries while developing an area of focus. Students also consider the role of the American nation in a global context. Students may also minor in American studies.

Program Advice for Freshmen
Freshmen should be aware that American studies is a very flexible major, allowing students to count toward its requirements virtually all of the courses in the College that deal with the United States. The courses fit into three tracks: the Arts in American Culture, Identity and the American Nation, and American Thought and Institutions. In many of the participating disciplines, freshmen need not be limited to 100-level courses; students should check with departmental advisors and individual instructors or consult the program director to find out if a particular 200-level course is appropriate for them. The courses listed below do not exhaust the list of possibilities for freshmen. All American studies students receive close advising from the program director and the Multidisciplinary Studies Center to ensure a personalized course of study.

Courses

INTRODUCTORY COURSES
ENG 115 American Literature. In this course we read a variety of works from the expanse of Anglo-American literature. We consider issues of aesthetic power and formal innovation, community and conflict, gender and power, ethnicity and national identity that have been of central concern in the development of American literary culture and in the construction of American identities. These identities have historically involved crucial disjunctions and conflicts as well as significant milieux. We attempt to trace both in the works we read. Authors include Emerson, Douglass, Dickinson, Whitman, James, Faulkner, Stevens, Ellison, and Pynchon. Applicable English cluster: American and African-American Studies. By the end of the course, each student can expect to be familiar with major periods, developments, and authors in the traditions of American literature. (Fall)

REQUIRED SEMINAR
AMS 200 Idea of America. What is America? A country? A continent? A political idea? A cultural phenomenon? This course explores the development of ideas about America, from its historical beginnings to our own time, from European fantasies about the New World and its possibilities to the experiences of settlers and citizens facing its realities. We explore the competing and even contending narratives of America in a wide variety of cultural documents, from orations, sermons, and political tracts to novels, poems, photographs, and films. The course is open to all interested students and required for all American studies majors. (Fall)

SPECIALIZATION TRACKS
The Arts in American Culture
MUR 123 Music of Black Americans. Study of Black American music through musical genres, including forms of worship, early mu-
sical practices, the Spiritual, evolution of Gospel. An examination of antebellum musical activities follows, including secular song types, character of the folk music with respect to poetic and musical form, language, and themes. Attention is given to significant literary and aesthetic developments, especially during the Harlem Renaissance, and the poetry of several writers of that era is surveyed. The course treats Blues, its origins and evolution through the 1940s. Surveys of classical music forms from the 18th to mid-20th century; music of the theater from minstrelsy to Broadway; precursors of jazz, the syn-
c/opated dance orchestra and brass bands; early jazz to bebop round about the course offerings. (Fall)
MUR 145 High Voltage: Heavy Metal Music and Its History. Behind the screaming guitars, thundering pulse, and swirling vocals of heavy metal music lies an impressive history of censorship, rebellion, and redemption. Emphasis on musical structure and the fascinating social/cultural history of hard rock and metal. Over 40 years of hard rock and metal trends are discussed—Sabbath to Styx to Slipknot—and several guest musicians and lecturers complement the course materials with personal experiences and anecdotes. Students demonstrate their knowledge through listening quizzes, three full-length exams, writing assignments, and a comprehensive final project. Prerequisites: none. (Fall)
REL 170/AAS 170 Religion and Hip Hop Culture. This course considers an often-overlooked element in the study of hip hop culture: religion. Specifically, the course offers students the opportunity to examine the variety of ways that religion finds expression in the dynamic cultural medium of hip hop. Class format includes lectures, discussions, films, and video/music presentations. (Fall)

American Thought and Institutions
HIS 160 United States History to 1865. A survey of the history of the North American continent from its peopling and colonial rivalry to the founding of the United States, its development, and eventual Civil War. Topics include international competition, eco-
nomic growth, the role of slavery and political conflict. (Fall)
HIS 166 Liberal America, 1929–73. This course examines the development of American politics, society, and culture between the onset of the Great Depression and the presidency of Richard Nixon. It focuses on the creation, consolidation, and eclipse of the "New Deal order"—a liberal political order centered on a constrained corporate capitalism, a modest welfare state, and a national security apparatus designed to wage the Cold War and extend American power abroad. (Fall)
REL 174 American Military History. American history has been largely shaped by wars. This course surveys the history of American wars; the military, naval, and civil institutions that have created it to serve the changing needs of national defense; and the citizen-
soldiers who have protected the liberty of the Republic. (Fall)
PSC 105/HIS 168 Introduction to American Politics. When did states turn blue—or red—in presidential elec-
tions? What are the origins of the modern Congress, including the filibuster-prone Senate and a House run by its majority party? Why did politicians begin to campaign for the presidency rather than waiting on their front porches for voters to appear? How did voting rights —and other rights of citizenship—expand, then narrow, then expand again, over time? Drawing broadly on historical as well as contemporary evidence, this course introduces students to the political institutions of American government. We examine political institutions as well as the linkages that connect institutions, political leaders, and ordinary citizens. This course is appropriate for political science majors and non-majors with an interest in understanding how and why the American political system works as it does. (Fall)
REL 175/HIS 175 Religion in America. Leaning heavily on primary sources, this course surveys the history and ethnography of religion in the United States. Special attention is given to personal experiences of the divine, political strife and social reform, tensions between sectarianism and pluralism, and the extraordinary religious history of western New York. (Fall)
REL 170/AAS 170 Religion and Hip Hop Culture. This course considers an often-overlooked element in the study of hip hop culture: religion. Specifically, the course offers students the opportunity to examine the variety of ways that religion finds expression in the dynamic cultural medium of hip hop. Class format includes lectures, discussions, films, and video/music presentations. (Fall)
between sectarianism and pluralism, and the extraordinary religious history of western New York. (Fall)

Many departments that contribute to the interdisciplinary American studies major offer courses that are appropriate for first-year students. Students should check with departments if they are interested in 200-level courses not listed here.

Spring Semester

For information on spring course offerings, please visit the American studies web page.

For More Information

Please visit the American studies program website at www.rochester.edu/college/ant/.

ANTHROPOLOGY

Departmental Advice for Freshmen

The department offers introductory courses intended primarily for freshmen and sophomores interested in a broad liberal education. Cultural Anthropology (ANT 101) is the suggested starting point for students interested in anthropology. Freshmen who are interested in anthropology as a major should take ANT 101 in the fall or spring semester. The department also offers many electives that are open to freshmen at both the 100 and 200 levels. ANT 201 is offered each spring, and it is recommended for students who have completed ANT 101 and are considering a concentration in anthropology.

Anthropology provides opportunities to learn the concepts and methods that anthropologists use to understand contemporary social issues and cross-cultural variations in human experience. Students address questions of race, class, and gender in the United States and engage current thinking about the future of cultural diversity in a globalizing world.

Anthropology as a Discipline

This comparative study of humanity. At its broadest, it seeks to understand the origin and variety of human adaptations to the natural and social environment. Physical anthropologists study the evolution of human anatomy, and archaeologists study the artifacts left behind by human manipulation of the natural world. But the most complex and diverse products of human activity are the languages, social relations, and cultural meanings that humans have developed. It is these invisible artifacts that cultural anthropologists study. The Department of Anthropology at the University of Rochester specializes in cultural anthropology: the comparative study of contemporary human cultures and societies.

Cultural anthropology provides students with the basic skills they will need to pursue a wide variety of careers in the present global economy. In addition to graduate training in anthropology, many anthropology majors go on to medical school or law school. Common careers for majors include nonprofit and NGO work, advertising, market research, and consulting. It is commonly said that every individual entering the job market today can expect to pursue seven different careers during their lifetime. Anthropology’s focus on treating everyday life as the subject of continuing empirical research is an ideal preparation for an unpredictable future.

International Baccalaureate (IB)

Social Anthropology—Students who receive a higher-level exam score of 6 or higher are awarded credit for ANT 101 after completion of any other course with a grade of C or better. No credit is granted for subsidiary level exams.

Clusters

The department offers various clusters: Interpretation of Culture, Social Analysis, Anthropology of Globalization, and Medical Anthropology.

Department courses are usually offered once every academic year.

Courses

Introductory Courses

ANT 101 Cultural Anthropology. This course introduces students to the distinctive ways in which cultural anthropologists do field research and write about it. Students are asked to think critically and comparatively about matters such as kinship, politics, and religion, and to consider the fate and value of cultural diversity in a world connected by global movements of people, money, and technology. This class is required for the anthropology concentration. (Fall and Spring)

ANT 102 Introduction to Medical Anthropology. This course explores anthropological interpretation, research, and writing by studying the different ways in which people understand and deal with issues of illness and disease. (Fall)

ANT 104 Contemporary Issues and Anthropology. This course explores the complex interrelation of race, class, and gender in contemporary America, both in people’s subjective identities and in their objective life chances. The materials assigned include first-person narratives of particular life experiences; quantitative analyses of general statistical patterns; and long-term historical explanations of these experiences and patterns. (Irregularly)

Core Courses

Primarily for anthropology majors and minors in the social sciences and humanities.

ANT 201 Theory and Method in Anthropology. A survey of major debates in anthropological thought. This class explores the relationship between sociocultural theory and the methodologies used by anthropologists to conduct field research—such as participant observation (fieldwork); interviewing, and various writing strategies. This class is required for the anthropology concentration. It is recommended for students who have completed ANT 101 and are thinking about a concentration in anthropology. (Spring only)

ANT 202 Modern Social Theory: Key Texts and Issues. A close textual analysis of three foundational texts of modern social theory—Max, Durkheim, and Weber—and of the use made of their works by contemporary social scientists. (Fall)

ANT 203 Ritual, Myth, and Cosmology. A survey of the major anthropological approaches to the study of life-cycle rituals, origin myths, witchcraft accusations, animism, and altered states of consciousness, such as spirit possession and shamanism. The course culminates with a critical examination of the recent “ontological turn” in anthropology. (Fall)

ANT 204 Ethnographic Themes. This course is a critical study of the role ethnographic texts play in posing and answering questions about human culture and society. This study may take the form of intensive readings on a particular society or area, or an extensive survey of ethnographic “classics” and their critics. (Spring)

ANT 205 Theories and Debates in Anthropology. This course is an examination of contemporary and historical debates that have shaped theory and method in cultural anthropology. (Fall)

For More Information

Please visit the anthropology program website at www.rochester.edu/college/ant/.

ARCHAEOLOGY, TECHNOLOGY AND HISTORICAL STRUCTURES (MULTIDISCIPLINARY STUDIES CENTER)

Information about the Program

This innovative multidisciplinary program studies the establishment and evolution of technological, architectural, and engineering practices and their relationship to the ancient and preindustrial societies and cultures, which technology and engineering helped create and sustain. Assuming a global perspective, the program integrates material from several disciplines in engineering and the natural sciences, the humanities, and the social sciences. Students learn to apply engineering, archaeological, architectural, and historiographical methodologies to explore the creation of artifacts, buildings, and infrastructural systems within and across societies and cultures from the first millennium BC to the 18th century. A prominent feature of the program is optional undergraduate research under the aegis of both the University of Rochester and prestigious foreign academic institutions to address issues of interpretation, conservation, and restoration of the world’s cultural heritage.

Program Advice for Freshmen

This program is designed for undergraduate students interested in the humanities (archaeology, architecture, art history, classics, history) with a desire for critical insights into the material culture and technology of preindustrial societies; in mathematics or natural sciences with a desire to study the impact of technology on ancient and preindustrial cultures; or in an interdisciplinary engineering field emphasizing technology, design, materials, structures, and architecture in the context of historical monuments. Students may pursue Track A, a course-based path requiring 11 courses, or Track B, a...
research-based path comprising nine courses plus an 8-credit senior project (subject to faculty approval). The major offers pathways in (1) engineering, (2) archaeology and architecture, (3) history, and (4) science, technology, and society. Foundation courses provide basic competencies in engineering structural analysis, archaeology, and architectural history common to all pathways. Depending on course selection, the major may be designed to satisfy any of the three divisions of the College: Humanities, Social Sciences, or Natural Sciences. Foundation courses are designed to prepare students for graduate study in archaeology, architecture, civil or mechanical engineering, art history, classics, or history. This is not a professional program in engineering or in architecture and does not prepare graduates for licensure in either of those professions. 

Courses

Fall Semester

Foundation courses

ME 104/EAS 104 The Engineering of Bridges. An introduction to the art of bridge building based on the study of the engineer-

ning and technological problems involved in the design, construc-

tion, and collapse of Bridges from ancient times to the present time. Examples: law of the lever (Aristotle and Archimedes); center of gravity (Archimedes and Galileo); gears, metalworking, and the Antikythera mechanism; Hellenistic science; medieval mechanics and optics; mechanical de-

vices (Leonardo da Vinci); development of glass making, eyeglasses, the telescope (Galileo, Kepler, Newton); lens grinding and polishing; dynamics and strength of materials (Galileo); the emergence of mechanics (Newton), and optics (Kepler). The course includes basic mechanics and optics, study of texts (in English translation), and study of artifacts and archaeological and historical discoveries. Open to all undergraduates. Prerequisite: none.

Spring Semester

Foundation courses

ME 106 Engineering in Antiquity. Application of engineer-

ning principles and technology to the design and performance of

engineering structures from antiquity to the pre-industrial world. Engineering principles (transfer of forces, momentum, and energy), study of primary texts (in translation), and examination of existing structures/monuments. Primary texts include selections from Ar-

istotle's Mechanical Problems, Vitruvius' Ten Books on Architecture, Leonardo's Notebooks, and Galileo's Dialogue on Two New Sciences. Emphasis on engineering design of engineered structures from the Bronze Age to the 18th century. Topics: Evolution of engineered materials (metals, wood, stone, marble, concrete, composites) and limitations; Bronze Age fortifications; structural design of Greek temples; Roman aqueducts, siphons, and vaults; force, power, and energy sources and transmission; failure of materials; lifting devices; construction engineering; columns, beams, vaults, trusses, frames; instruments of warfare. Open to all undergraduates. Prerequisite: none.

CLA 214 The Ancient City. Urbanism in the ancient Mediter-
nanean world. Survey of the rise of cities in the Near East and Egypt and a detailed study of the city states of ancient Greece and the Roman Empire, using the evidence of archaeological remains. ME 107 Mechanics and Optics in Antiquities. The basic principles of mechanics and optics as they developed in ancient Greece, Rome, China, and Europe and the emergence of mechanics and optics prior to the industrial revolution. Examples: law of the lever (Aristotle and Archimedes); center of gravity (Archimedes and Galileo); gears, metalworking, and the Antikythera mechanism; Hellenistic science; medieval mechanics and optics; mechanical de-

vices (Leonardo da Vinci); development of glass making, eyeglasses, the telescope (Galileo, Kepler, Newton); lens grinding and polishing; dynamics and strength of materials (Galileo); the emergence of mechanics (Newton), and optics (Kepler). The course includes basic mechanics and optics, study of texts (in English translation), and study of artifacts and archaeological and historical discoveries. Open to all undergraduates. Prerequisite: none.

CLA 220 Classical Archaeology: Greek Art and Archaeol-

ogy. This course examines the physical remains of ancient Greek civiliza-

tion with an emphasis on architecture, sculpture, painting, and

other visual arts in order to understand Greek culture and soci-

ey. Covered is a span of time from roughly the third Millennium BC through the first century BC, we first look at the eastern Mediter-

ranian area in the Bronze Age; we then trace the development over time of art and architecture in the Greek world, including mainland Greece and the Greek Islands, Asia Minor, and Sicily and southern

Italy, through study of some of the most important artworks and monuments of western civilization, such as Greek red- and black-fig-

ture vases, the Parthenon in Athens, and the sculptures of Polykleitos, Praxiteles, and Lyssippos.

For More Information

Please visit the archaeology, technology and historical structures pro-

gram website at www.rochester.edu/college/ATHS/index.html.

ART AND ART HISTORY

Department Overview

The Department of Art and Art History offers a wide variety of courses and programs in art history, studio art, and visual studies. As a BA student in a department teaching both theory and practice, interdisciplinary historical and conceptual frameworks are explored through a wide range of interpretative techniques and media. Studio students may take courses in a variety of media, including painting, printmaking, sculpture, photography, and video. Art history and visual studies students pursue courses in history and theory in all of the visual media. Undergraduate majors, minors, and concentrat-

ions in art history, visual studies, and studio are offered. Students may undertake internships in Rochester’s diverse and rich cultural institutions. The department also offers the unique Art New York residential program in New York City.

The Department of Art and Art History is dedicated to liberal education in the creation and historical study of the visual arts. Through our undergraduate degree program in studio arts, students explore form, space, and function using traditional media and new technologies. In art history, students study the history of painting, sculpture, architecture, and other art forms from antiquity to the present covering a wide range of traditions and geographical regions across the world. The department offers undergraduate majors, minors, and concentrations in art history, studio art, and visual studies.

Studio Arts Program

The studio arts program of the Department of Art and Art History focuses on the production aspects of visual studies. At Sage Art Center, art is produced, analyzed, and exhibited; it provides access to all the materials, supportive resources, faculty, and staff necessary for a rich studio experience. Our program is focused on contempo-

rary approaches to art production and strives to produce technically adept students with an understanding of art’s place in culture. Our program is open to ideas, accommodates, and engages individuals with little or no previous art experience. At the same time that our program administers to those with marginal interests, it also pro-

vides a rich environment for thoroughly intensive study. In the Department of Art and Art History at the University of Rochester, the studio arts program focuses on the production aspects of visual studies. Our program is focused on contemporary approaches to art production, it strives to produce technically adept students with an understanding of art’s place in culture. The program is housed in Sage Art Center, a place where art is produced, analyzed, and exhibited; it provides access to all the materials, sup-

portive resources, faculty, and staff necessary for a rich studio experi-

ence.

Program Highlights

We recognize the range of experience and interests that liberal arts students maintain. We invite, accommodate, and engage experi-

enced artists as well as individuals with little or no previous art experience; at the same time, we provide a rich environment for thoroughly intensive study. Studio art majors are vital participants in the activities of the department and the art community in general. Majors are expected to establish a presence at Sage Art Center that promotes an environment conducive to rich, creative art production. By the senior year our majors should be seen as valuable resources for the students in all introductory level courses.

Any material or approach is possible. While our introductory-

level courses provide a foundation built on more prevalent art media—such as photography, painting, sculpture, video, col-

lage, and drawing—the advanced-level courses make available the experimental and interdisciplinary approaches often used in contemporary art production.

Off-campus study opportunities are available for majors and nonmajors alike. The Art New York program provides students with the opportunity to live and learn in New York City. A semes-
ter of internships and course work in this culturally rich environ-

ment is structured for any individual who wishes to enhance his or her knowledge of the world of contemporary art and culture with firsthand experience. Study abroad is encouraged for majors and nonmajors alike during a fall or spring semester in the University’s European Arts Internship program. In Europe, there are opportunities to work in institutions such as the Victoria and Albert Museum and the Museum of London, and internships can be arranged in Paris, Brussels, Bonn, and Madrid.
Art History and Visual Studies

Art history/visual culture is a field of study in which the information and methodologies of many fields come together. The discipline of art history/visual culture involves the analysis of the work of art itself—understanding its form and why and how we make use of it. It is also the investigation of its historical context and mode of production. These inquiries can lead in many different directions involving economics, social, and gender issues; problems of patronage and taste; and questions of exchange, reception, conservation, and restoration. Art historical studies draw upon adjacent areas of study such as cultural and intellectual history, psychology, literary criticism, religion, philosophy, sociology, archaeology, and the history of science. The history of art/visual culture is an ideal field for a student who wishes to acquire a general cultural background, to develop analytical and writing skills, and to sharpen critical sensibilities.

Departmental Advice for Freshmen

At Sage Art Center, any material or approach is possible. While our 100-level courses provide a foundation for art media such as photography, painting, sculpture, video, and drawing, our 200-level courses make available the experimental and interdisciplinary approaches often utilized in contemporary art production. Advanced studio courses focus on interdisciplinarity, allowing students to expand their artistic expression to incorporate other interests and disciplines. Because studio class size is limited, first-year students should contact the department to enroll in courses.

Courses in art history are designed to give students an understanding and appreciation of works of art, individually, in relation to one another, and in their social and historical contexts. Introductory courses cover broad historical periods and serve to introduce the methods and problems of art history. They are useful to both first-year and upper-class students who wish to gain a general overview.

Sophomores, juniors, and seniors, as well as first-year students who have had a course in art history or some other relevant preparation, may begin taking art history courses at the 200 level, as well as the 100 level. The 200-level courses offer similar introductions but in much more defined areas. These are useful cognate courses for those students studying a specific period or culture in another discipline and are the building blocks for any major or minor within the department. Seminars are indicated by the 300 level and are open to advanced students from other disciplines as well as to art history majors.

International Baccalaureate (IB)

Visual Arts—Students who receive a higher-level exam score of 6 or 7 are awarded up to four credits in studio arts upon completion of a 100-level course with a “B” or better. If students receive a score of 4 or 5 on the Art History AP exam, credit is awarded after consultation with the department. Four advanced placement credit hours (with a score of 4 or 5) can be granted if a “B” or higher is earned in any 100-level studio course.

Audio and Music Engineering

The bachelor of science in AME (BS AME) is offered.

Audio and music engineering (AME) major combines studies in audio and music production. Through a series of design and project courses, students build a project portfolio throughout their studies capped by a senior design project. The bachelor of science in AME (BS AME) is offered.

ART HISTORY AND VISUAL STUDIES

Clusters

Students whose major is in the social sciences or natural sciences and engineering divisions are invited to pursue a cluster in art and art history. A brochure of our clusters is available in the departmental office. All studio and art history courses are included in at least one cluster. Be sure to check with the department directly.

Courses

Art History

For course updates, go to www.rochester.edu/college/ah/courses/ah.html.

Studio Art

(A supplies fee of $50 is charged for each course.)

For course updates, go to www.rochester.edu/college/ah/courses/ah.html.

For More Information

Please visit the art and art history program website at www.rochester.edu/college/ahm.

Information about the Major

The audio and music engineering (AME) major combines studies in engineering and applied sciences with music and audio production to give students a technically rigorous, design-based education in the field of audio, music, and sonic engineering. The curriculum is built on a foundation of basic math and science and integrates elements of music, audio content production, acoustics, fundamental engineering science, signal processing hardware and software, electronics, and software engineering. Through a series of design and project courses, integrated with their other coursework, students build a project portfolio throughout their studies capped by a senior design project. The bachelor of science in AME (BS AME) is offered.

Departmental Advice for Freshmen

The major requires completion of courses and portfolio projects in five subject areas: recording arts and sound design, acoustics, audio electronics, signal processing, and software design. The curriculum provides a broad education in the basics of audio and music engineering as well as in-depth studies and design experiences. Once completing the baccalaureate degree, our graduates are prepared to enter the field or pursue further study at the graduate level. Entering students with an interest in pursuing the AME program are assigned faculty advisors to help with academic program planning through-out their four years of studies.

Typical Freshman Year Program

Fall Semester

Spring Semester

MTH 161 or MTH 141

MTH 162

WRT 105

ECE 114

AME 140

PHY 121

MUR 111

MUR 112

MUR 109

MUR 113

Information about the Department

Through direct observation and experimentation, biologists study living systems and how organisms interact. An exciting program in the biological sciences is available to undergraduate students at the University of Rochester. This program in the College and the School of Medicine and Dentistry provides more than 64 courses for undergraduate students, including lectures, laboratories, specialty seminars, and teaching and research experiences. The BS in biological sciences, with seven tracks available in modern areas of biology, makes it possible for students to concentrate in specialized fields of study, including biochemistry, cell and developmental biology, computational biology, ecology and evolutionary biology, microbiology, molecular genetics, and neuroscience. For more information on specific major requirements, visit www.rochester.edu/College/BIO/UPBM/upbmresearch.htm. In addition, there are many opportunities for undergraduates to become directly involved in biological research with well over 200 faculty located on the River Campus and in the Medical Center. For more information on how to get involved in research, visit www.rochester.edu/College/BIO/UPBM/upbmresearch.htm.

Departmental Advice for Freshmen

The BA in biology and the seven BS curricula offered by the Undergraduate Program in Biology and Medicine require the same introductory coursework:

• BIO 110 Principles of Biology I or BIO 112 Perspectives in Biology 1

Information about the Department

For More Information

Please visit the electrical and computer engineering website at www.ece.rochester.edu/majors/minor/ame.html.

Information about the Major

The audio and music engineering (AME) major combines studies in engineering and applied sciences with music and audio production to give students a technically rigorous, design-based education in the field of audio, music, and sonic engineering. The curriculum is built on a foundation of basic math and science and integrates elements of music, audio content production, acoustics, fundamental engineering science, signal processing hardware and software, electronics, and software engineering. Through a series of design and project courses, integrated with their other coursework, students build a project portfolio throughout their studies capped by a senior design project. The bachelor of science in AME (BS AME) is offered.
COURSES

Advanced Placement (AP)

Students interested in biology who do not have AP credits should enroll in the BIO 110/111 Principles of Biology I and II introductory course series. Students with AP credit of 4 or 5 will receive general college credit. This credit may not be used to satisfy introductory course requirements for any of the UPBM majors. Students retain these general college credits regardless of the biology courses they have taken.

Students with AP credit are eligible to register for the BIO 112/113 Perspectives in Biology I and II introductory course series. This course is designed for the non-science students. It is not suitable for students interested in going to medical school or other health-related professions. BIO 110 can be used in the following natural science clusters: "Biological Principles" (N1BIO002), "Chemistry and Life Science" (N1CHM0003), and "Life on Earth" (N1NINT015).

Prerequisites: none.

BIOL 101 Genes, Germs, and Genomics: An Introduction to Modern Biology. This is the lab course that accompanies the lecture course Principles of Biology I. The main focus of the course is to encourage students to understand the process that is used in science to develop and test scientific predictions and hypotheses. Emphasis is placed on problem solving, critical thinking, and experimental design using problems ranging from plant and animal diversity, the biology of protozoa, animal behavior, bioinformatics, and physiology. While this course is designed to accompany BIO 110, students taking BIO 111 are not required to register concurrently for BIO 111P. BIO 111P is strongly recommended for current or prospective biology majors. Prerequisite: past or concurrent enrollment in BIO 110.

BIOL 113 Principles in Biology II. Second semester of a two-semester introductory sequence for students with a strong background and interest in science. Topics include evolution, organismal diversity, ecology, and functional biology. This course differs from BIO 111 in that there is greater emphasis on experimental approaches, data analysis, and quantitative methods and includes reading original papers. Note: both BIO 111 and BIO 113 are designed to prepare students who intend to major in biology. Open only to freshmen prospective majors or by permission of instructor. Concurrent enrollment in BIO 113P is not required but is strongly recommended for current or prospective biology majors and is required for biology majors. The laboratory course is also recommended for those intending to apply to medical school. Prerequisite: BIO 112 or AP Biology score of 4 or 5 on IB score of 7.

BIOL 112 Perspectives in Biology I. The first semester of a yearlong introductory course sequence. Topics include biochemistry, molecular and cellular biology, cell reproduction, fundamentals of genetics, and molecular biology. This course differs from BIO 110 in that is material is covered in greater depth, has a greater emphasis on experimental approaches, data analysis, and quantitative methods and includes additional readings of original research papers. Prerequisite: completion or concurrent enrollment in CHM 131 or equivalent. Prerequisite: completion or concurrent enrollment in BIO 110 with BIO 111 Principles of Biology I in the spring semester. (Fall and Spring)

International Baccalaureate (IB) Biology—Students who receive a higher-level exam score of 5 or better will receive four general college credits but not credit toward the biology major. Students retain these general elective credits regardless of the biology courses they take. No credit is granted for subsidiary-level exams. This credit may not be used to satisfy introductory course requirements for any of the UPBM majors. Students retain these general college credits regardless of the biology courses they have taken.

Students with IB credit who scored a 7 or higher are eligible to register for the BIO 112/113 Perspectives in Biology I and II introductory course series. It is recommended that students with IB credit take BIO 112 Principles of Biology I and II, and then take the required biology courses to ensure some affective learning, which requires students' active participation. This course is designed for the non-science students. It is not suitable for students interested in going to medical school or other health-related professions. BIO 110 can be used in the following natural science clusters: "Biological Principles" (N1BIO002), "Chemistry and Life Science" (N1CHM0003), and "Life on Earth" (N1NINT015).

Prerequisites: none.

Students with IB credit who scored a 7 or higher are eligible to register for the BIO 112/113 Perspectives in Biology I and II introductory course series. It is recommended that students with IB credit take BIO 112 Principles of Biology I and II, and then take the required biology courses to ensure some affective learning, which requires students' active participation. This course is designed for the non-science students. It is not suitable for students interested in going to medical school or other health-related professions. BIO 110 can be used in the following natural science clusters: "Biological Principles" (N1BIO002), "Chemistry and Life Science" (N1CHM0003), and "Life on Earth" (N1NINT015).

Prerequisites: none.

BIOL 110 Principles of Biology I. The first semester of a yearlong introductory course sequence. Topics include biochemistry, cell and molecular biology, cell reproduction, and animal physiology. Emphasis is on quantitative learning, especially experimental approaches and data analysis. BIO 110 is designed for biology majors and all premedical school tracks and prepares students for upper-level biology courses. Prerequisites: completion or concurrent enrollment in CHM 131 or equivalent. Intended biology majors usually follow up BIO 110 with BIO 111 Principles of Biology I in the spring semester. (Fall and Spring)

BIOL 111 Principles of Biology II. The second semester of the introductory course sequence. Topics include biochemistry, molecular and cellular biology, cell reproduction, fundamentals of genetics, and molecular biology. This course differs from BIO 110 in that material is covered in greater depth, has a greater emphasis on experimental approaches, data analysis, and quantitative methods and includes additional readings of original research papers. Prerequisite: BIO 112 is designed for freshmen with a strong biological sciences background (see prerequisite). Prerequisites: students with a score of 4 or 5 on the AP (Advanced Placement) Biology exam or a score of 7 on the IB (International Baccalaureate) exam. Completion or concurrent enrollment in CHM 131 or equivalent is required. Intended biology majors usually follow up BIO 112 with BIO 113 Perspectives in Biology II in the spring semester.

Spring Semester

BIOL 111 Principles of Biology II. The second semester of the introductory sequence designed for biology majors and nonmajors. Topics include evolution from a genetic perspective, historical development and present patterns of biodiversity, physiology, and ecology. Emphasis is placed on hypothesis testing, data analysis, and other critical approaches to biological problems. Concurrent enrollment in BIO 111P is not required but is strongly recommended for current or prospective biology majors. Prerequisite: none.

BIOL 111P Introductory Biology Laboratory. This is the lab course that accompanies the lecture course Principles of Biology II. The main focus of the course is to encourage students to understand the process that is used in science to develop and test scientific predictions and hypotheses. Emphasis is placed on problem solving, critical thinking, and experimental design using problems ranging from plant and animal diversity, the biology of protozoa, animal behavior, bioinformatics, and physiology. While this course is designed to accompany BIO 111, students taking BIO 111P are not required to register concurrently for BIO 111P. BIO 111P is strongly recommended for current or prospective biology majors. Prerequisite: past or concurrent enrollment in BIO 110.

BIOL 113 Principles in Biology II. Second semester of a two-semester introductory sequence for students with a strong background and interest in science. Topics include evolution, organismal diversity, ecology, and functional biology. This course differs from BIO 111 in that there is greater emphasis on experimental approaches, data analysis, and quantitative methods and includes reading original papers. Note: both BIO 111 and BIO 113 are designed to prepare students who intend to major in biology. Open only to freshmen prospective majors or by permission of instructor. Concurrent enrollment in BIO 113P is not required but is strongly recommended for current or prospective biology majors and is required for biology majors. The laboratory course is also recommended for those intending to apply to medical school. Prerequisite: BIO 112 or AP Biology score of 4 or 5 on IB score of 7.

Similarities and Differences between Introductory Biology courses BIO 110 and 112

Similarities

• Both courses are designed for majors and minors in biology as well as all premedical tracks.
• Both courses employ problem-based, peer-led small group workshops.
• Both courses emphasize “experimental” approaches and the quantitative skills needed to understand biological research.

Differences

• BIO 110 Principles is designed for freshmen to provide a fundamental understanding of basic biological and chemical concepts in preparation for their upper-level courses in biology.
• BIO 112 Perspectives is designed for freshmen who have demonstrated knowledge of some basic biological and chemical concepts. This prior knowledge enables topics to be covered in greater depth and provides the opportunity to cover current biological topics and to read original research papers.
BRAIN AND COGNITIVE SCIENCES

For More Information
Please contact Taimi Marple in the Biomedical Engineering Undergraduate Office (208 Goergen Hall or via email to taimi.marple@rochester.edu) or visit our program website at www.bme.rochester.edu.

The BA curriculum consists of two foundation courses: three core courses built on these foundations; a statistics course; a laboratory methods course; four upper-level electives organized around a theme chosen by each student; and a senior seminar. The BS curricula includes all of the requirements for the BA degree in BCS and also incorporates foundational and advanced work in allied fields, including biology, computer science, math, music theory, and linguistics. The Honors Program consists of an independent research project leading to a senior thesis, which is presented in the Honors Seminar. For students majoring in other fields, the department offers a minor and a number of clusters (see below) that allow students to study inherently interesting questions such as: How do we recognize sounds and learn our native language? How do we read a book, recognize a face, or reach for a pencil? How do we remember what happened yesterday or during our childhood? How do these remarkable abilities develop? How does the brain become organized to perform tasks that thus far exceed the capacity of modern computers?

Clusters
Clusters are either broad—covering the basics in all parts of the discipline—or deep—focusing on a particular subpart of the domain. The department offers nine clusters: Mind and Brain; Perception and Development; Language and Cognition; Mind, Brain, and Development; Language and Cognitive Development; The Senses; Biology and Behavior; Neurobiology; and Neuropsychology.

Information about the Department
Members of the Department of Brain and Cognitive Sciences study how we see and hear; move, learn, and remember; reason, produce, and understand spoken and signed languages; and how these remarkable capabilities depend upon the workings of the brain. We also study how these abilities develop, and how the brain matures to become able to organize such complex behavior. In order to understand these complex mental functions, we study not only the behaviors themselves but also the neural and computational processes that underlie them. Brain and cognitive sciences is an inherently interdisciplinary field that applies behavioral, neuroscience, and computational methods to create new knowledge about the mind and brain. Teaching and research in our department reflect this interdisciplinary focus and span a large domain that touches on behavioral, neural, and computational sciences.

The BA and BS programs in the Department of Brain and Cognitive Sciences offer rigorous but accessible natural science concentrations for students interested in the brain and how it enables us to behave the way we do. The programs have two aims: 1) to provide sound intellectual training that will benefit students in a wide range of career paths; and 2) to provide basic disciplinary qualification for students contemplating graduate or professional training in the behavioral and neural sciences. The curricula provide excellent routes to learn the logic and methods of scientific inquiry and to learn how to reason critically; they also provide unique opportunities to engage in research that is at the frontiers of our current knowledge.

The interdisciplinary nature of biomedical engineering requires expertise in both the biological and engineering sciences. The University of Rochester offers several avenues of academic study in biomedical engineering, each of which can be structured to satisfy premedical or preprofessional requirements. The minor in biomedical engineering (24 credits) provides opportunities for students majoring in other disciplines to obtain substantive exposure to the field of biomedical engineering. The Bachelor of Science degree program in biomedical engineering emphasizes fundamental engineering and design principles and training in other disciplines to obtain substantive exposure to the field of biomedical engineering. 

Departmental Advice for Freshmen
The first two years of the program are intended to prepare students for a chosen career path in engineering. In order to ensure in-depth training, students are required to complete a sequence of four engineering courses in a focus area of biomedical engineering. These areas of concentration are biomechanics, biosignals and bio-systems, cell and tissue engineering, and medical optics. The program is capped and structured with a biomedical engineering senior design course required for all students.

All students interested in pursuing a BS in biomedical engineering are advised to complete a biomedical engineering faculty advisor.

Typical Freshman Year Program
Fall Semester
MTH 161 or MTH 141
CHM 131
EAS 105, (EAS 101/BME101 strongly recommended)
WRT 105 or elective
Spring Semester
MTH 162 or MTH 142
CHM 132
PHY 121
WRT 105 or elective

Courses
BME 101/EAS 101 Introduction to Biomedical Engineering. This course provides an introductory overview of the multidisciplinary field of biomedical engineering. Students learn about the application of elementary engineering principles to the analysis of physiological systems and are provided with a basic introduction to the use of computers as tools for solving engineering problems. Course topics include biomechanics, cell and tissue engineering, biosignals and bioinstrumentation, medical imaging, medical optics, and bioethics. This course is included in three clusters: Biomechanics, Biomedical Engineering, and General Science. (Fall) Strongly recommended for BME majors.

For More Information
Please visit the brain and cognitive sciences program website at www.bcs.rochester.edu/.

BME 151 Perception and Action. Explores how the biology of our senses shapes perceptual experiences of reality. Emphasizes sense of sight primarily and hearing secondarily. An important theme is that our sensory systems play a crucial role in the execution of coordinated movements our bodies as we navigate in and interact with the environment. Prerequisites: BCS 110 or BCS 111 or equivalent background. (Fall, a core course)

BME 152 Language and Psycholinguistics. An overview of the nature and processing of human languages, including comparisons between language and animal communication systems; the biological bases of human language; and the cognitive mechanisms used in producing, understanding, and learning language. Prerequisites: BCS 110 or BCS 111 or LIN 110. (Fall, a core course)

BME 153 Cognition. Considers human cognitive processes, including behavioral, computational, and neuroscience methods used to understand the nature of cognition. Explores how we perceive and integrate sensory information in a coherent perception of the world; how we memorize and retrieve information; and how we reason and solve problems. Prerequisites: BCS 110 required; BCS 111 recommended. (Spring, a core course)

BME 172 Development of Mind and Brain. Introduces human development, focusing on the ability to perceive objects and sounds, to think and reason, and to learn language and other behavioral tasks that thus far exceed the capacity of modern computers.

Courses
The foundation courses (BCS 110 and 111) are entries into many of the clusters offered by the department, but students can also begin clusters by taking one of the 100-level electives (BCS 172 or BCS 183). Students planning to pursue a BA degree should complete at least the following by the end of their sophomore year: BCS 110, one of the three core courses (BCS 151, BCS 152, BCS 153), plus STT 212 (statistics), if possible.

BCS 110 Neural Foundations of Behavior. Introduces the structure and organization of the brain and its role in perception, movement, thinking, and other behavior. Topics include the brain as a special kind of computer, localization of function, effects of brain damage and disorders, differences between human and animal brains, sex differences, perception and control of movement, sleep, regulation of body states and emotions, and development and aging. Prerequisites: none. (Fall and Spring, one of the two foundation courses)

BCS 111 Foundations of Cognitive Science. Introduces the organization of mental processes underlying cognition and behavior. Topics include perception, language processing, learning, and memory. Integrates knowledge of cognition generated from the fields of cognitive psychology, artificial intelligence, neuroscience, linguistics, and philosophy. Prerequisites: none. (Fall and Spring, the second foundation course)
The business major requires that students satisfactorily complete one year of calculus before declaring the major (MTH 141–143 or MTH 161–162; Calculus I, II, or III). Placement is made by the Department of Mathematics. (Fall and Spring)

MTH 161–162; Calculus IA, IA. The first semester, MTH161, covers differentiation techniques and applications; the second semester, MTH162, covers integration and applications and additional differentiation techniques. Placement is made by the Department of Mathematics. (Both offered Fall and Spring)

ECO 108 Principles of Economics. This course is an introduction to the fundamental concepts of both microeconomic theory (supply and demand, cost and production, prices in markets for individual commodities) and macroeconomic theory (national income, unemployment, and inflation) with applications of theory. It gives a student preparation for subsequent economics courses. (Fall and Spring)

ECO 207 Intermediate Microeconomics. This course develops the fundamental building blocks of economic theory, enabling the student to gain an understanding of the economic problems and policies. The focus throughout is on how economic agents make choices and how prices serve as a key mechanism in the allocation of resources. Topics include competition, monopoly, taxes, subsidies, etc. Prerequisites: ECO108 or equivalent. (Fall and Spring)

ECO 230 Economic Statistics. (For equivalent statistics course; see program advice for freshmen) This course provides an introduction to basic probability and statistical theory for estimation and hypothesis testing with emphasis on issues that arise when dealing with economic data. In the process, data analysis methods through the use of computer software are introduced. (Fall and Spring)

ACC 201 Financial Accounting. This course is an introduction to the principles and procedures used by organizations to record economic transactions that affect them and to report the net effect of these transactions to interested external parties. The course covers the judgment inherent in certain aspects of the recording and reporting process; the acceptable alternatives for recording given transactions, and the effect these judgments and alternatives have on comparisons of the financial reports for different organizations, and on the usefulness of financial reports in general. In conjunction with this, consideration is given to the failure of financial reports to fully incorporate the economic condition of an organization and the reason for this. (Fall and Spring)

Information about the Program

The College offers a major in business that builds upon the curricular and coursework found in the Department of Economics while allowing undergraduates to take advantage of the many opportunities offered at the Simon School of Business. The major is based on principles of statistics and economics and other social sciences to provide students with an understanding of business-related disciplines such as finance, accounting, marketing, operations management, and organizational theory. The major provides an analytical approach for addressing current as well as future opportunities and problems in either for profit or non-profit organizations. Students will also be well prepared to pursue graduate work to deepen their preparation in specific disciplines. The major consists of a minimum of 12 courses and satisfies the College’s social science distribution area.

The undergraduate business minor is offered by the Simon School of Business for undergraduates in the College. It is aimed at building core business skills. It contains five courses consisting of three core courses and two electives. Students may use the business minor to fulfill the social science distribution area if they complete, in addition to ECO 108 or ECO 207, two social science courses from the list of business minor electives: ECO 211; ECO 217; ECO 394/Internship; CSP/PSY 264.

Program Advice for Freshmen

The business major requires that students satisfactorily complete one year of calculus before declaring the major (MTH 141–143 or MTH 161–162 sequences are acceptable). Students planning to major in business should complete the following courses by the junior year of calculus before declaring the major (MTH 141–143 or MTH 161–162; Calculus IA, IA). Students planning to declare the business minor, students must take an additional higher-level economics course.

For More Information

Please visit the business major website at www.rochester.edu/msc/businessmajor.html or the business minor website at www.rochester.edu/msc/businessmin.html or consult the business advisor in the Multidisciplinary Studies Center in 4-2098 Dewey Hall. Questions may be emailed to msc@rochester.edu.

CHEMICAL ENGINEERING

For the bachelor’s degree in chemical engineering, students must complete 12 courses of 3 credits each. The courses include:

- CHE 150/EAS 102 Green Energy
- CHEM 201/EAS 102 Green Energy
- CHEM 211: Introduction to Chemical Engineering
- CHEM 212: Engineering Thermodynamics
- CHEM 213: Chemical Kinetics
- CHEM 214: Physical Chemistry
- CHEM 215: Statistical Mechanics
- CHEM 216: Organic Chemistry
- CHEM 217: Physical Chemistry II
- CHEM 218: Physical Chemistry III
- CHEM 219: Physical Chemistry IV
- CHEM 220: Physical Chemistry V

Undergraduate Research

The chemical engineering faculty actively engage in research projects through the PhD program as well as a graduate program leading to the Master of Science degree. Undergraduates enjoy the benefit of this dimension of the department through participation in a wide variety of undergraduate research and independent study projects. Some examples of recent undergraduate projects are studies of computer control processes, interfacial oxygen transport, analysis of techniques of pollution abatement, nucleation of small particles, polymer applications in electro-optics, electrochemical processes, and biomedical problems such as bone marrow cell culture. Students usually become involved in such activities after their sophomore year.

Courses

CHE 150/EAS 102 Green Energy: This course provides an introduction to basic chemical engineering concepts and focuses on renewable energy production, conversion, and utilization. Fundamental topics include energy and power metrics, material and energy balances and the fundamental laws of thermodynamics. The second half of the course focuses on industrial and alternative energy sources, energy distribution, and energy utilization. Course activities include in-class demonstrations, homework assignments,
CHEMISTRY

The most senseful and existing of sciences, chemistry... a chemical laboratory is the most fascinating place in the world to those lucky enough to possess strong curiosity. . .

—William Bolitho

*Information about the Department*

The Department of Chemistry offers both BA and BS degrees. The BS degree is intended for students who want to specialize in chemistry at the undergraduate level. The BA degree offers more flexibility in planning a program and enables a student to pursue extra work in the biological, environmental, physical, and earth sciences. This course of study is sound preparation for the study of medicine or dentistry or for a career in business, law, industry, government, etc., through careful attention in the choice of courses. The BA can also be suitable preparation for graduate and professional work in chemistry.

Departmental Advice for Freshmen

A typical first-semester BA or BS program consists of CHM 131 or CHM 171, depending on the student's interest and preparation; MTH 161, with advice from the mathematics department; a writing course as recommended by the College Writing Program; and MTH 161, with advice from the mathematics department. Students majoring in chemistry will be awarded credit for CHM 131 and are eligible to apply for admission to enroll in CHM 171. No credit is granted for subsidiary level exams. Students with an IB score of 6 or higher have the same options as described for students with an AP score of 4 or 5.

Courses

The chemistry department offers three courses for entering freshmen during the first semester: CHM 131, CHM 137, and CHM 171. CHM 131 is part of one of the two-semester sequence in general chemistry. Two sections of CHM 131 are offered in the fall, and both sections are of comparable difficulty and cover the same general topics. CHM 171 is an honors course on organic chemistry that is available to students with AP scores of 4 or 5 or IB scores of 6 or higher. CHM 131 and CHM 171 are appropriate for students majoring in chemistry or related sciences. CHM 137 is a one-semester introduction to general chemistry specifically for engineering students. Students should select the course that most closely supports their particular interest.

Both the BA and BS chemistry degrees require only two courses in physics, Physics 121–122, or 113–114. However, chemistry majors pursuing a BS degree are strongly encouraged to take the Physics 121–123 sequence and begin during the spring semester of the first year. All chemistry majors should continue with their mathematics sequence in the spring semester.

CHM 131 Chemical Concepts, Systems, and Practices I

This course serves as an introduction to the concepts of chemistry for science and health professions students and as a science course for students of the humanities and social sciences. Properties of chemical systems are discussed from a macroscopic and molecular perspective, with examples developed from a theme of energy and the environment. Topics include stoichiometry, atoms and molecules, properties of gases, thermodynamics, chemical equilibria, acids and bases, solubility equilibria, and oxidation-reduction reactions. These topics are discussed in the context of the following energy and environment-related issues: elemental resources of our planet, energy production and utilization, which makes a good fuel, and aqueous resources. There are three 50-minute (M, W, F) or two 75-minute (M, W, F; Th) lectures per week. Students will select both of their three-hour laboratory in alternate weeks, a 50-minute laboratory lecture, and a 75-minute workshop. Students register for the lecture, one of the two lab lectures, and a laboratory section prior to the start of the semester. Workshop sections are assigned in the main lecture during the first week of classes. Exams: three exams and a final. Prerequisite: CHM 131. (Spring)

CHM 132 Chemical Concepts, Systems, and Practices II

A continuation of Chemical Concepts, Systems, and Practices I, emphasizing energy and the environment. Topics include chemical kinetics, electrochemistry, thermodynamics, properties of atoms, chemical structure, and chemical bonding. These topics are discussed from the perspective of the efficiency of energy utilization; what makes processes spontaneous; the kinetics of ozone depletion; and how energy is extracted from nuclei, atoms, and molecules. There are three 50-minute (M, W, F) or two 75-minute (T, R) lectures per week. In addition, there is a three-hour laboratory each week, a 50-minute laboratory lecture, and a 50-minute workshop. Students register for the lecture, one of the two lab lectures, and a laboratory section prior to the start of the semester. Workshop sections are assigned in the main lecture during the first week of classes. Exams: three exams and a final. Prerequisite: CHM 131. (Spring)

CHM 137 Chemical Principles for Engineers

This course is a one-semester introduction to general chemistry for engineering students. The course discusses the microscopic and macroscopic basis for chemical structure and reactivity. In addition to lectures, there are weekly 75-minute workshops. A 75-minute lab lecture and three-hour laboratory are also held every other week. Students register for the lecture, one of the two lab lectures, and a laboratory section prior to the start of the semester. Workshop sections are assigned in the main lecture during the first week of classes. (Fall)

CHM 171/173 and 172/210 Freshman Organic Chemistry

These courses constitute a one-year exploration of the basic observations, concepts, and practice of organic chemistry, with a focus on the fundamental relationships among molecular structure and chemical reactivity. The experiment requires that students grapple with defining questions, evaluating evidence, weighing arguments, reflecting on epistemological issues, constructing new experiments, etc. The study of organic chemistry is carefully integrated with a review of the key concepts from general chemistry. Honors Organic Chemistry is designed for first-year students with good preparation in chemistry (e.g., two years of general chemistry and AP score of 4 or 5, or equivalent preparation). Please note: CHM 171 (Fall) and 172 (Spring) are corequisite courses that individually meet for three separate lectures and one two-hour workshop each week. CHM 173 (Fall) meets for one lab afternoon per week (1 credit). CHM 172 has a required companion lab, CHM 210 (2 credits (Spring)). This sequence will meet all the requirements for a year of organic chemistry with lab and prepares students to enter upper-level chemistry courses.

Course Placement Methods

Students interested in chemistry who do not have AP credit should select CHM 131. Students who have received a 4 or 5 on the AP exam are entitled to credit for CHM 131 and have several options available. Students may accept the credit and not take chemistry in the fall semester, with subsequent enrollment in CHM 132 in the spring semester; or they may waive this credit and enroll in CHM 131. The department expects that some students will select both of these options, depending on their preparation in chemistry and their future interests.

For More Information

Please visit the chemistry program website at www.chem.rochester.edu or contact Deb Contestabile, undergraduate program coordinator, Department of Chemistry, Hutchison Hall 404D, (585) 276-3663, or email ugradadm@chem.rochester.edu.

COMPUTER SCIENCE

"Computer science is no more about computers than astronomy is about telescopes." —Edsger Dijkstra

*Information about the Department*

The Department of Computer Science (CSC) at the University of Rochester is well known for its research production and collegial atmosphere. Degrees offered include an elite undergraduate major and an intense program leading to the doctor of philosophy. Particular emphasis is placed on computer vision and robotics, human computer interaction, natural language understanding and knowledge representation, machine learning, systems and architecture, data analytics, and theory of computation.

Departmental Advice for Freshmen

Students have the option of completing a BS, a BA, or a minor in computer science. Many students in other fields also find courses in computing both interesting and useful. Those who major in the humanities and social sciences may choose to take a cluster in CSC. Of the two bachelor's degrees, the BS requires a larger number of upper-level courses in computer science and is appropriate for students who aspire to achieve a high-level research and development position in the computer industry, those who plan to go on to earn an MS or PhD, or those who simply wish to have the broadest and deepest knowledge of the field. The BA curriculum is highly flexible and can be customized to support students interested in the intersection of computer science with other disciplines, such as computational linguistics, studio arts, computational biology, digital media, etc. The typical entry point for the BS program is CSC 171. The typical entry point for the BA is CSC 161. Freshmen planning to complete the BS should also register for MTH 180 in the fall; many BA students choose to do so as well. Several other courses available to freshmen (CSC 170 or CSC 190 series) stress creativity and problem solving with no prerequisites.

For More Information

Please visit the computer science program website at www.cs.chemistry.rochester.edu or contact Deb Contestabile, undergraduate program coordinator, Department of Computer Science, Hutchison Hall 404D, (585) 276-3663, or email ugradadm@chem.rochester.edu.
Advanced Placement (AP) Students who have passed the AP Computer Science test with a 4 or a 5 may be placed in CSC 172. Credit will be awarded for CSC 171 upon completion of CSC 172 with a grade of B- or better.

International Baccalaureate (IB) Computer Science—Students who receive a higher-level exam score of 5 or better may be placed in CSC 172. Credit will be awarded for CSC 171 upon completion of CSC 172 with a grade of B- or better.

Clusters For non-majors, there are eight natural science/computer science clusters to choose from.

Courses

CSC 108 Technical Literacy An introduction to the most important tools used in industry for describing, explaining, and persuading with technology. This course focuses on computer applications and the associated data. Topics covered include the basics of digital data and how it is used in spreadsheetss, presentations, data processing tools. Also, two-dimensional (images) and three-dimensional (geometry) data structures and the tools for data visualization. Extensions of these data sets into the time domain in the form of movies and animation are presented, including video and audio editing tools. In learning these applications, students are introduced to topics such as computer graphics, file compression, and animation. A brief introduction into the Python programming language in preparation for advanced CS classes. Not open to computer science majors. Leads into the following clusters: Business Computing, Computer Science and Art, and Foundations of Computer Science. (Fall and Spring)

CSC 160 Engineering Computing Introduction to programming and computational approaches to engineering problems and their solution. Math language illustrates principles such as data representation, mathematical operations, looping and decisions, functions and subroutines, and user interaction. Projects from several different engineering domains have subjects like linear algebra, differential equations, fitting data to models, signal processing, and the practical use of analog-digital converters in an experimental setting. Prerequisite: none. (Spring)

CSC 161 The Art of Programming Organized thinking, creative problem solving, and the precise description of solutions are valuable skills in academia and life. The formulation and solution of problems using computers is increasingly important in all artistic and scholarly fields. We introduce core concepts and techniques of programming using Python as a way to develop these skills, as basis for further CS study, and for application to other fields. Lab required. Prerequisite: none. Leads into the following clusters: Business Computing, Computational Problem Solving, Human Computer Interaction, Computer Science and Art, and Computing for the Social Sciences. (Fall and Spring)

CSC 170 Web Design and Development An introduction to Internet and web technologies. Topics include Internet transport protocols, HTML5 and CSS3, web page design, and website publishing. Emphasis is on fundamentals, design concepts, and industry standards. Additional topics include the user experience, mobile design issues, and copyright/intellectual property considerations. (Fall and Spring)

CSC 171 The Science of Programming Discovering, formulating, and exploring the structure of problems to aid in their solution by computer. An introduction to algorithmic problem solving and computer programming in Java. With advisor’s approval, AP credit or prior experience can substitute for this course. Small group problem-solving workshops are an integral part of this course. Lab required. This is the first course in the pre-major sequence for the BS. It leads into the following clusters: Algorithms, Business Computing, Computational Problem Solving, Computer Systems, Human Computer Interaction, Computing for the Social Sciences, Computer Science and Art, and Foundations of Computer Science. (Fall)

CSC 172 The Science of Data Structures Abstract data types (e.g., sets, mappings, and graphs) and their implementation as discrete data structures in Java. Analysis of the running times of programs operating on such data structures and basic techniques for program design, analysis, and proof of correctness (e.g., inductive and recursive). Small group problem-solving workshops are an integral part of this course. Lab required. Prerequisites: CSC 171 or equivalent, MTH 150. Leads into the following clusters: Foundations of Computer Science and Computer Systems. (Fall and Spring)

CSC 173 Computation and Formal Systems We investigate several formal systems integral to computer science (including Turing machines and simpler automata, the Chomsky hierarchy of formal grammars, the lambda calculus, propositional and predicate logic, logical circuits, and some practical programming languages, such as C, Scheme, Prolog, and SQL), their relations to each other (including the Church-Turing thesis), and some of their applications (in parsers, scanners, and data-base access, for example). Prerequisite: CSC 172. Leads to the following clusters: Computer Systems and Foundations of Computer Science. (Fall)

CSC 190 Issues in Computing Rotating topics in computer science that do not require prior computing experience. This course may be repeated for credit for different topics. (Fall and Spring)

Fall: CSC 199 Creative Computing Quick! How much would a tunnel under Lake Ontario cost? How many people probably touched that orange you just bought at Wegmans? Can the military’s satellites really read your license plate from orbit? Explores the creative use of computational mechanisms and information sources to obtain rough estimates and feasibility analyses for interesting questions about practical problems and looks at the technological basis of the art of measurement.

Spring: CSC 199 Social Implications of Computing Computers and the Internet, perhaps more than any other technology, have transformed society over the past 50 years. In developed nations, at least, they have enabled dramatic increases in human productivity; an explosion of spin-offs in news, entertainment, and communication; and fundamental breakthroughs in almost every branch of science and engineering. At the same time, they have contributed to unprecedented threats to privacy; wholly new categories of crime and antisocial behavior; major disruptions in the job market; and the large-scale concentration of risk into systems capable of catastrophic failure. In this discussion-and writing-oriented class, we consider all of this and more, with the goal of better understanding how to shape technological change in ways that maximize the benefits and minimize the costs.

Information about the Program

The Program of Dance and Movement at the University of Rochester is a unique program that currently offers students a minor in dance, a minor in movement studies, four options for a cluster: Dance and Movement, Performance, Improvisation and Creative Process, Movement and Culture, and Mind-Body Somatics, as well as a wide variety of elective course options. These options are part of our commitment to offer experiential and theoretical study of dance and movement that honors and informs the whole student. The program emphasizes dance as an art form; creative process; critical thinking, self-awareness, contemplative practice; the nature of community, diversity, and an appreciation of diverse ways of thinking and moving. It explores the use of dance and movement as a means of creative and personal expression; as mindful, physical, and spiritual practice; and as a way of understanding culture, traditions, and philosophies from all over the world.

The program sponsors a guest artist series, which features performances, lecture-demonstrations, and workshops by internationally and nationally acclaimed dance artists and educators who share their passion for the arts with the University and the surrounding community. An annual inspiredDANCE Festival also takes place over six days in February and features more than 20 master classes and workshops including faculty instructors and guest artists in various forms of dance, a featured concert by a professional dance company, student performances, and an inspirational and inclusive interdisciplinary learning environment.

Through study in the Program of Dance and Movement, students will have the potential for participation in and an understanding of a dance-related career including but not limited to performance, teaching, arts management, choreography, dance criticism, creative arts therapies, and dance/movement science. Regardless of a student’s career path, study in our program will help foster educated audiences and participants in the field of dance and movement in culture. Our diverse courses and faculty promote a sense of community within which discussions take place about cultural identity, about gender, about dance as art, about art as a voice and mirror for not only personal expression but also for society, politics, social change, and current issues. The courses simultaneously emphasize sharing, cooperation, and self-reliance. Students are encouraged to be open minded and to engage in intellectual, emotional, artistic, intuitive, spiritual, and pragmatic practice. The program provides groundwork for students to become competent, articulate, creative, and compassionate leaders. Together, the academic and cocurricular components of the Program of Dance and Movement give a foundation for on-going learning and creative responsiveness throughout life.

The program seeks to encourage embodied knowledge of culture, dance, and movement forms. Through a combination of experiential investigation, technique, and theory: performance, lecture, and theory-based discussion; reading, writing, and physical practice that has an emphasis on mindfulness, the program aims to support the development of effective communication through the ability to listen to self and others, the ability to self-assess and reflectively think about and to express self in creative or artistic expression. Dance appreciation, movement for health, and connectedness of body and mind are at the heart of our purpose in educating students in dance and movement studies as scholars and artists.

Clusters The program offers four clusters; each provides an in-depth view of a different area:

Improvisation and Creative Process (HIDAN006)
This cluster encourages students to discover the potential of their own creativity. Through engaging, attending lecture-demonstrations and live performances discussion, and improvisation, students engage in the creative process.

Movement and Culture (HIDAN007)
In this cluster, students have the opportunity to investigate movement and dance from different cultures and communities around the world, both theoretically and experientially. By expanding...

For More Information Please visit the computer science program website at www.cs.rochester.edu or contact the undergraduate liaison at (585) 275-4505.

There’s a mystery within me, and there’s a mystery out there, and when I dance, the two converge. I dance to let the world in. I dance to put the world out. I dance to see, to feel, to hear, to taste. I use the movement of my body to express the world around me. I use my body to express my connection to the world around me. I use my body and my mind to speak a language that everyone can understand.

—Isadora Duncan

“I move in space, and I move in light. I move in rhythm, in form, and in color. I bring the instrument of my body to its rightful environment, where I listen for the inward music.”

—Isadora Duncan

In this cluster, students have the opportunity to investigate movement and dance from different cultures and communities around the world, both theoretically and experientially. By expanding...
DAN 114 Introduction to Yoga. Yoga is defined as “union,” the uniting together of ourselves in all aspects—body, mind, heart, and spirit. This class introduces the student to a hatha yoga method that integrates a dynamic and engaging approach to living through awareness and movement. The class is designed to create a deeper, more enlivened relationship to one’s self through honoring one’s abilities and limitations while growing one’s skills and sensitivity in the supportive environment of the class community. Students engage with principles of attitude, awareness, and action in a full range of hatha yoga poses, breathing techniques, readings on yoga philosophy, reflection, journaling, and discussion. This ongoing process through which students are encouraged to cultivate a more expansive and clear perception of self and others. Attendance in selected workshops and performances is required. (Fall and Spring)

DAN 115 Moving into Stillness. The aim of this course is to discover the benefits of slowing down amid the constant motion of daily life. Each class is experiential in nature. In addition to class discussions, students are guided in meditation techniques, restorative yoga, and other mindfulness practices. Regular reading and writing assignments give students the opportunity to apply ancient teachings, contemporary thought, and scientific research to gain insight into their life experiences and develop tools for personal growth. (Spring)

DAN 130 Conditioning for the Dance-Athlete. Body condition- ing is addressed and shown in class, and history, art, and culture from these countries are explored and experienced. Dance and research topics address issues of gender and body image. Improving safety and awareness for the body, the class includes meditative movement, dance technique, choreography, and improvisation. No prior dance experience is necessary. (Spring)

DAN 208 T’ai Chi: Movement Art and Culture. A study of T’aijiquan, (also known as T’ai Chi Ch’uan or T’ai Chi), a traditional Chinese martial art, and its intimate relationship to the cosmological, physiological, and philosophical conceptions found in the thought and culture from which it emerged. The course investigates both the traditional Chinese philosophy and movement aspects of T’ai Chi, in order to understand the integration of human body, mind, and spirit. The Simplified 24-Step T’aiji Quan (Ershi Shi T’aijiquan) is learned along with the foundation skills of the Eight Pieces of T’ai Chi (Ba Duan Jin), Reeling Silk (Chou Ji), Pushing Hands (Tui Shou), and Standing Pole meditation (Zhan Zhuang). T’ai Chi is not only a valuable cross-training exercise for the dancer, but it also provides training for relaxed strength, whole-body coordination, balance, centered alignment, weight shifting, and moving with fluid grace. (Fall)

DAN 209 Qi Gong: Chinese Way to Health. Qi Gong is a traditional Chinese internal art and an early forerunner of Tai Chi Ch’uan consisting of the practice (Gong) of sets of energy (Qig) exercises to build outer and inner strength. It is a self-healing modality designed to balance and harmonize the energy flow of the body, improve breathing, and relax the mind for health, fitness, and longevity. This course is a study of both the philosophical and the movement aspects of Qi Gong in order to better understand and to improve integration of body, mind, and spirit. 

DAN 250 Intermediate Contemporary Dance: Context and Practice. This course explores traditional folkloric roots of Middle Eastern dance through a series of dance techniques and choreographies that blend the challenges of full-bodied, culturally influenced dancing and become familiar with the origins and cultural significance of each dance and the songs that accompany them. (Fall and Spring)

DAN 253 West African Dance: Folkloric/Bedouin. This course explores traditional folkloric roots of Middle Eastern dance through a series of dance techniques and choreographies that blend the challenges of full-bodied, culturally influenced dancing and become familiar with the origins and cultural significance of each dance and the songs that accompany them. (Fall and Spring)

DAN 260 Dance Improvisation. This course is designed for those with some experience in dance who wish to explore mechanisms for generating movement and dance through improvisation. It works with theoretical concepts based in (but not limited to) Forysthe Improvisation Technologies, Anne Bogart’s Viewpoints, fundamentals of Laban Movement Analysis, and other cultural forms of performing arts in the pursuit to understand improvisation as practice, technique, and as an aesthetic expression. Expecting inspiration and freedom for the exploration of artistic expression and development is at the forefront of this class. (Spring)

DAN 271 Capoeira: Brazilian Art Movement. An art form of self-defense with strong aerobic and dance elements that brings to-
Students practice dances and drum songs. Required outside work includes performance attendance, video viewing, text and article analysis, research, and written work. (Spring)

DAN 278 Choreography. In this course, students experiment with improvisational structures and various methods of making dances, focusing on examining craft in the service of choreographic expression. Students are encouraged to curiously and playfully embody manipulations of movement material to better understand different points of view and to explore the elements of time, space, shape, and effort to see how they affect quality and content. Drawing from dance, visual art, theater, music, writings, and other sources, students explore diverse approaches to creativity, experimentation, and choreography. While masterpieces are not necessary at all times, from dance, visual art, theater, music, writings, and other sources, students practice dances and drum songs. Required outside work includes meditative movement, dance technique, improvisation, and rhythm identification through music and drumming. Specific dance forms, such as Egyptian, Turkish, and American Tribal are taught. Traditional costuming is addressed and shown in class. Historical perspectives, and Orientalism. No prior dance experience necessary. (Fall)

DAN 380 Repertory and Performance. DAN 380 classes are conducted in the form of professional dance rehearsals. Students perform repertory material for the University community, Rochester Fringe Festival, the American College Dance Association conference, and more during the 2015–16 academic year. Additionally, students engage in other vital behind-the-scene production elements. A lab is attached to the classes to enable sufficient rehearsal time and preparation. This year's repertory features work by the Program of Dance and Movement's faculty member Anne Harris Wilcox. Wilcox will set her phantasmagorical Halloween dance/thriller, "Upon That Mountain" in the lone glare of day, the snows descend! In the calm darkness of the moonless nights, the still and solemn power of many sights, Mont Blanc yet gleams on high—the power is there, And many sounds, and most of life and death. In the calm darkness of the moonless nights, the still and solemn power of many sights, Mont Blanc yet gleams on high—the power is there, And many sounds, and most of life and death. —Percy Bysshe Shelley

Information about the Department
The department offers courses leading to degrees in the geological and environmental sciences. In addition, minor programs and a number of clusters allow students in other fields to explore topics such as the formation of the Earth, the evolution of the solar system, the development of life, and climate science. The department is equipped with several state-of-the-art research laboratories that complement active field-based programs. Undergraduate research provides an excellent opportunity for students to work closely with faculty and graduate students.

Students interested in digital media studies are strongly urged to take DMS 102 and DMS 103 in the fall and DMS 104 in the spring. Those foundational courses prepare students for the variety of upper-level courses that make up the major.

For More Information
Please visit the digital media studies program website at www.rochester.edu/dms/.

Core Courses
DMS 101 Introduction to Digital Media Studies. This course introduces students to the theory and practice of digital media studies. We look at a range of both media and historical tendencies related to the media, including manuscript culture, print, and the rise of the newspaper, novel, and modern nation-state; photography, film, television and their respective differences as visual mediums; important shifts in attitudes towards painting; the place of sound in the media of modernity; and the computerization of culture brought about by the computer, social networks, video games, and cell phones. In looking at these, we consider both the approaches that key scholars in the field of media studies use and the concepts that are central to the field itself (media/medium; medium-specificity; remediation; the culture industry; fascination and utopia; cultural politics). By the end of the class, students will have developed a toolkit for understanding, analyzing, and judging the media that shape their lives in late modernity. (Fall)

DMS 102 Introduction to Computers and Multimedia. Students learn introductory programming by writing programs that manipulate digital media, including text, audio, graphics, and video, using the Python programming language. In parallel, students explore digital media studies through readings, discussions, and essays. No previous programming experience is required. Students are expected to spend a significant amount of time outside of class on programming, reading, and writing. (Spring)

DMS 103 The Essential Digital Media Toolkit. This course introduces students to current industry-standard software for creating, editing, and producing core digital media objects: photographs, videos, GIS maps, 3D models, videogames, and websites/digital portfolios. The class is be project driven, drawing on application specialists and a new digital technologies leading collection to facilitate project development. By the end of the semester, students are able to manipulate photographs and GIS, edit a short video, use a laser scanner and software to make and modify a 3D model, create a small interactive videogame environment, and present all these creations in a website or digital portfolio. (Fall)

DMS 104 Design in a Digital Age. This course introduces students broadly to the theories and practices of design, which will help them to critique the media they encounter and to develop digital projects in future courses. (Spring)
that are shaping California. Opportunities for students to be involved in field-based research are also available. Recent examples include involvement of undergraduates in scientific expeditions to the Arctic, Tibet, East Africa, southern Africa, the Andes, and the western United States to study the Earth's past climate and tectonic processes.

Departmental Advice for Freshmen

The Department of Earth and Environmental Sciences offers programs leading to (1) the BA degree. The BS programs include geology, environmental science, and geomatics. BA programs are available in geology and environmental studies. The BS program in geology is designed to give students a broad preparation for graduate studies and a professional career. It contains a greater proportion of related science courses than the BA program. A typical first semester program for a BS student would be chemistry, geology, and an elective. A special track within the major enables students to emphasize the relationships between biology and geology. The BS in environmental science provides a broad basis in the natural sciences and their applications to processes and problems in the environment. This degree is intended for students who are interested in a career in environmental research. Students going through this program will be able either to seek employment directly or to go on to programs that offer advanced degrees in environmental science. A typical first semester program includes calculus, chemistry and/or biology, and an elective.

The BS program is a joint offering of the Department of Earth and Environmental Sciences and the Department of Mechanical Engineering. A student majoring in this program may be well suited for employment or graduate study in areas such as geology, petroleum geology, engineering geology, or geophysics. A typical first semester for a BS student in geomechanics would be calculus, chemistry, geology, and an elective.

The BA program in geology offers students more freedom in selecting courses, especially in the social sciences and humanities, while providing them with the minimum background required for graduate study. Freshmen interested in this program are not required to take certain courses for their first semester, but should take chemistry, geology, and mathematics during the first two years.

The BA in environmental studies combines natural science courses providing a basic understanding of environmental problems and social science courses that bear upon management of these problems. This program is intended for students who are interested in environmental policy and management. Students who complete this program typically go into fields such as environmental law or public policy. Students might take chemistry, calculus, economics, and an elective in the first semester. The department also offers minors in geology and environmental science to enable students majoring in other disciplines to develop an understanding of one area of geology.

Advanced Placement (AP)

Students who receive a 4 or 5 on the AP Environmental Science exam are awarded credit for EES 103.

International Baccaulaurate (IB)

Geography—Students who receive a higher-level exam score of 5 or better are awarded credit for EES 101.

Courses

Fall Semester

EES 101 Introduction to Geological Sciences.* This introductory geology class provides a broad overview of earth sciences, from plate tectonics to the interplay of geology and climate. The course is a prerequisite for all undergraduate majors who are considering careers in the earth and environmental sciences, while also satisfying science requirements for other undergraduate majors. We introduce the class with the unifying framework for earth science: plate tectonics. Throughout the semester, we look at the physical interactions between different realms on Earth, including the interior (core and mantle), the outer shell (lithosphere, oceans), and the atmosphere. We explore the dynamic processes operating on Earth and how these processes have been recorded and have varied over the geologic history. During the last third of the semester, we discuss geologic problems that have a particular relevance to human endeavors, such as energy and mineral resources, water resources, climate, and global change. Students are required to enroll in a lab section and are required to attend one field trip.

Spring Semester

EES 102 Earthquakes, Volcanoes, and Mountain Ranges in California. Understanding how the Earth works starts with an appreciation of geological processes in action. To observe these dynamic processes, such as earthquakes, volcanic eruptions, and mountain building, geoscientists must travel to areas of geological youth, such as California. In this quest, students are introduced to active geology through readings and discussion sections in preparation for a field excursion to California. Students learn to examine critically ideas about California Earth systems work and how active processes affect society.

EES 103 Introduction to Environmental Science.* An introduction to the natural, physical, chemical, biological, and geological processes that shape conditions at the Earth's surface; their interrelationships; and the modification of these processes by human activity. Students learn to critically analyze scientific hypotheses and the data on which they are founded and to understand economic and policy strategies that can be implemented to reduce environmental damage. The content of this course is similar to that of the AP environmental science curriculum. This course may be used as an introductory core requirement for the environmental studies or science majors.

EES 105 Introduction to Climate Change. This course explores the Earth's dynamic climate system through lectures, discussions, and hands-on laboratory activities. The course is designed to be accessible to all students. We work toward an understanding of several fundamental and important questions. What are the main factors that determine the Earth's climate? What forces can drive climate change? What can we learn from climate change in the Earth's distant past, when our planet experienced periods of both extreme cold and warmth? How do we know that our climate is now changing? What can we expect from the Earth's climate in the near future, and how would it affect us?

Information about the Program

The East Asian studies major is an interdisciplinary approach to the languages, deep history, and uncommonly rich culture of this increasingly important part of the world. Students in this major study Chinese or Japanese for at least two full years, and they must take classes in at least three—and they can take classes in four—departments in order to achieve a broad and deep understanding of East Asia.

Students who complete the major in East Asian Studies will have a broad knowledge of the major historic developments, cultures, literature and artistic expressions, philosophies, religions, and economics and politics of the region. They will be able to synthesize their knowledge of the region across disciplinary perspectives, and they will have an intermediate-level proficiency in either Chinese or Japanese.

Program Advice for Freshmen

Students begin their study of East Asia by taking three introductory courses, arranged historically, on the literature, history, religions, visual culture, and other foundational aspects of the region. They also are encouraged to begin their language studies.

Courses

Fall Semester

CHI 101 Elementary Chinese I. Students must register for both lecture and recitation. This course is designed for beginners of Chinese. It introduces students to the sounds, basic sentence structures, and the writing system of Mandarin Chinese. Pinyin, the phonetic translation system, is taught and required throughout the course. Emphasis is on developing listening and speaking skills as well as building a vocabulary based on 400 ideographic characters. (6 credits)

JPN 101 Elementary Japanese I. Students must register for both lecture and recitation. Designed to help beginners acquire a basic command of modern Japanese. The grammar lecture classes are conducted in English, the recitation in Japanese. In the beginning, students master Hiragana and Katakana writing systems. As the course progresses Kana Chinese characters also are introduced. Classes emphasize reading, writing, listening, and speaking. Requirements include regular assignments, quizzes, lesson tests, and final exam. Textbooks: 1) Genki I. An Integrated Course in Elementary Japanese by Eri Bonomi. Yotsuka Onono, et.al. (the Japan Times) and 2) course workbook by Shinno. (6 credits)

HIS 142 Traditional China. This course focuses on the history of traditional China from antiquity to the 18th century. Two thousand years of civilization, six thousand miles of the Great Wall, and seven maritime voyages sailing across the Pacific and Indian oceans. How have the notions of “China” and “Chinese” civilization transformed over time through cultural diffusion, commercial exchange, and military expansion? How does incorporation, exchange of knowledge of Chinese ideas, and the influence of Western civilization and the currents of world history? No prior knowledge of Chinese history or language is required for this course. Besides a standard textbook, an academic monograph (Moutan of Tokyo) and One Chinese classic (Dream of the Red Chamber) will anchor our readings throughout the course.

Spring Semester

CHI 102 Elementary Chinese II. Students must register for both lecture and recitation. This course is the continuation of Chinese 101. Knowledge of Pinyin is required. The focus continues to be on developing listening and speaking skills with an increasing emphasis on reading and writing in ideographic characters. It aims to build a vocabulary based on 500 characters. (6 credits)

JPN 102 Elementary Japanese II. Students must register for both lecture and recitation. Sequel to JPN 101. Lecture and recitation designed to help the students at the late beginning level acquire a practical command of modern Japanese in all areas. Although the main emphasis is still on speaking and listening, students have more opportunities for writing. (6 credits)

JPN 123 Intermediate Japanese I. Students must register for both lecture and recitation. Designed to help students master, among other things, keigo (polite language), female versus male speech style, and “direct” style verbals. Textbooks: 1) Genki I. An Integrated Course in Elementary Japanese by Eri Bonomi. Yotsuka Onono, et.al. (the Japan Times) and 2) course workbook by Shinno. (6 credits)
Students planning to major in economics should complete at least one semester of the calculus sequence. One semester of statistics (ECO 230 is recommended; STT 213 or MTH 203 is acceptable). By the end of your sophomore year, you should complete a semester of statistics (ECO 207. No credit is awarded. Students who receive a score of 5 or better on a higher-level exam are placed into ECO 207 and awarded credit for ECO 108. No credit is granted for subsidiary level exams.

Clusters
The department offers clusters in a number of areas of economics, including microeconomics, applied economics, and theoretical economics. For most students, ECO 108 is a required course for a cluster.

Courses
ECO 108 Principles of Economics. This course is an introduction to the fundamental concepts of both microeconomic theory (supply and demand, cost and production, prices in markets for individual commodities) and macroeconomic theory (national income, unemployment, and inflation), with applications of theory. It is a student preparation for subsequent economics courses. This course is required for an economics concentration and for all economics clusters. (Fall and Spring)

ECO 207 Intermediate Microeconomics. This course develops the fundamental building blocks of economic theory, enabling the student to gain an understanding of how economists evaluate economic problems and policies. The focus throughout is on how economic agents make choices and how prices serve as a key mechanism in the allocation of resources. Topics covered include competition, monopoly, taxes, subsidies, etc. Prerequisites: ECO 108 or equivalent. This course is required for economics concentration and for all clusters. (Fall and Spring)

ECO 207H Honors Intermediate Microeconomics. Rigorous treatment of ECO 207 for students pursuing the honors degree and valuable for those students considering pursuing a PhD in economics. Prerequisites: one semester of calculus, excellent performance in ECO 108 or equivalent, instructor’s permission. (Spring)

ECO 230 Economic Statistics. This course provides an introduction to basic probability and statistical theory for estimation and hypothesis testing, with emphasis on issues that arise when dealing with economic data. In the process, data analysis methods through the use of computer software are introduced. This course fulfills the statistics requirement for economics majors and should be completed by the sophomore year. (Fall and Spring)

For More Information
Please visit the economics program website at www.econ.rochester.edu/.
In a second project, a headphone amplifier, students are introduced to the fundamental concepts of electronics, including voltage, cur- rent, resistance, and impedance; basic circuit analysis AC circuits, impedance matching, and analog signals. The course then moves on to introduce basic digital signal processing concepts through a guitar effects processor (stomp box) project; this includes conversion of sound to digital format, frequency analysis, digital filtering and signal processing and musical sound synthesis. (Fall)

EAS 104/ME 104 The Engineering of Bridges. This course is an introduction to the art of bridge building based on the study of the engineering and technological problems involved in the design, con- struction, and collapse of bridges from antiquity to the present time. By studying several case studies of major historical bridges selected for their structural significance, students learn how to calculate the forces acting on structural elements, how these forces depend on the bridge structural form, how the form itself is conditioned by the structural materials, and how forces are measured with electromechanical instrumentation. The study includes fundamental notions of mechanics, strength of materials, structural behavior, instrumen- tation failure analysis, and design optimization. Working in teams, students use constructive experimental models as well as computer- aided programs to design, build, instrument, and test realistic bridge projects. (Fall)

EAS 105/OPT 101 Introduction to Optics. Starting with a discuss- ion of the properties of light (refraction, imaging, diffraction, and interference), the course also reviews the development of the micro- scope, telescope, laser, Internet, information storage and display, and medical applications. While covering the fundamentals of optics, this course also explores how optics intersects with other Hajim School disciplines. (Fall)

EAS 106/CSC 171 The Science of Programming. This course is all about discovering, formulating, and exploiting the structure of problems to aid in their solution by computer. The course is taught using Java and provides an introduction to algorithmic problem solving and computer programming. (Fall)

EAS 108/CE 101 Introduction of Computing Systems. This project-based course is designed to give students a general, high- level understanding of the workings of modern computing systems from circuit to computing system architecture to programming. It is intended to introduce students to a subset of principles topics in computer system design. There is an emphasis on hands-on experi- ence to give a “feel” of the materials that will be discussed in more detail in subsequent EE courses. (Fall)

EAS 141 Basic Mechanical Fabrication. This half-semester, two-credit course teaches students the safe and effective use of basic machine tools such as lathes, mills, bandsaw, and drill presses. Students complete a number of projects that utilize these principles. Grades are based on the successful completion of these projects. Read more about this course at www.hajim.rochester.edu/news/ cn_141.html. (Spring)

For More Information Please visit www.hajim.rochester.edu/ops and join the Hajim School’s Facebook page.

Toll all the truth but tell it slant—
Success in Circum fist
Too bright for our inform Delight
The Truth’s superb surprise

—Emily Dickinson

Information about the Department

The Department of English offers undergraduates the chance to explore a wide array of literary works—poetry, drama, fiction, and nonfiction—from the traditions of British, American, and Anglo- phone literature. We have richly varied offerings in creative writing, in the study of film and other media, and in journalism, rhetoric, and theater. Our classes encourage exploratory thinking and con- versation, always aiming to increase the students’ knowledge, their skills in reading and critical analysis, and their strengths as writers. The department offers opportunities for independent research and internships with both the University and the Rochester commu- nity, and we maintain close connections with other undergraduate programs in comparative literature, film studies, women’s studies, African and African-American studies, theater, and literary transla- tion studies.

Students wishing to major in English can choose from four distinct tracks: English Literature; Creative Writing; Theater, and Language, Media, and Communication. Double majoring in English and in another discipline—astronomy or philosophy, political sci- ence or music—is common for our students. Many combinations are possible. The English Honors Program offers students the chance to work closely with a visiting scholar or faculty member in their senior year. We also offer minors in four areas: English literature, creative writing, journalism, and theater, as well as a diversity of clusters for students seeking to fulfill the cluster requirement in the humanities.

Students with questions about any of these programs or possibilities should contact the department’s director of undergraduate studies.

Departmental Advice for Freshmen

The English courses listed below are intended to introduce students to the study of literature, language, film, theater, and creative writ- ing. They will allow students to discover the many ways of approach- ing imaginative works. Classes such as ENG 112, 113, 114, and 115 provide broad surveys of English and American literature—and their historical backgrounds—and are especially useful to those students considering the major in English literature or creative writ- ing. Two of these classes are in fact required for these tracks in the major, and they can also be counted for requirements in the Theater and Language, Media and Communication tracks.

It’s important to note, however, that neither these nor any of the 100-level classes we offer are in any way prerequisites for upper-level courses. Freshmen should be aware that, in fact, the department has no fixed and fast rules that prohibit them from taking most English courses at the 200 level, except for 200-level creative writing courses. If an upper-level course on, say, Shakespeare, the Victorian novel, modern poetry, post-Colonial literature, or contemporary film looks interesting, you should consider enrolling—although you might want to check with the professor if you have any questions about your preparedness.

For any additional questions about English courses or about the English majors, minors, and clusters theses contact the director of Undergraduate Studies in English.

Advanced Placement (AP)

Students who have received a score of 4 or 5 on the AP exam in English Literature will be awarded 4 elective credits of English (not for use toward an English major) upon earning a “B” grade or better in an English literature course.

International Baccalaureate (IB)

English—Students who receive a higher-level exam score of 6 or bet- ter are awarded 4 hours of elective credit (not for the major) after completing an English major course with a grade of C or better. No credit is granted for subsidiary level exams.

Theater Arts—Students who receive a higher-level exam score of 6 or better are awarded 4 hours of elective credit (not for the major).

Clusters

American and African-American Studies; Creative Writing; Gender and Writing; Great Books; Great Authors; Literature and Cultural Identity; Language, Media, and Communication; Medieval Studies; Modern and Contemporary Literature; Novels; Plays, Playwrights, and Theater; Poetry, Poetry, and Prose; Theater Production and Performance.

Courses

Introductory and Gateway Courses

ENG 100 Autobiography: Writing the Self, 400–1800. This course explores some of the greatest works of autobiography in the European tradition; with special focus at the genre’s emergence in the United States: Augustine’s Confessions, Peter Abelard’s Historia Calamitatum, Dante’s Vita Nuova, The Book of Margery Kempe, Samuel Pepys’s Diary, Collin’s Life, Benjamin Franklin’s Autogra- phy, and many others. (Spring)
ENG 122 Creative Writing: Poetry. An introductory course in the art of writing poetry. In addition to reading and writing poems, students learn about various essential elements of craft such as image, metaphor, line, syntax, rhyme, and meter. The course is conducted in a workshop setting. (Fall and Spring)

ENG 123 Playwriting. A half-semester course devoted to the understanding and execution of dramatic writing that is unique to the theatre. (Fall and Spring)

ENG 124 British Literature I. An introductory study of early British literature, its forms and themes, and the development of the literary tradition. May count toward completion of the clusters in Medieval Studies and Great Books, Great Authors. (Spring)

ENG 115 American Literature. Significant achievements by American writers of poetry, fiction, and other prose in the 19th and 20th centuries are covered. May count toward completion of the cluster in American and African-American Studies. (Fall)

ENG 116/AAS 156/WST 155 Introduction to African-American Literature. This course surveys African-American literature of a variety of genres—poetry, drama, autobiography, fiction, and nonfiction essays—from the 18th century to the 20th. The course interprets this tradition not only as the production of American writers of African descent, but also as a set of works that displays formal characteristics associated with black cultural traditions. Discussion topics include the meanings of race, the construction of black identity, and intraracial differences of class, gender, and sexuality. Course requirements include two short papers, occasional one-page reading responses, and a final paper. (Spring)

ENG 117/FMS 132/GER 132/AH 136 Introduction to the Art of Film. This course presents the concepts of film form, film aesthetics, and film style, while remaining attentive to the various ways in which cinema also involves an interaction with audiences and larger social structures. May count toward completion of the clusters in Language, Media, and Communication and in Modern and Contemporary Literature. (Fall)

ENG 118/FMS 131/DMS 101/AH 102 Introduction to Media Studies. The cultural, aesthetic, and economic history of visual media. May count toward completion of the cluster in Language, Media, and Communication. (Spring)

ENG 131 Reporting and Editing I. Laboratory course (requiring typing) on the fundamentals of gathering, assessing, and writing news. May count toward completion of the cluster in Language, Media, and Communication. (Fall, two sections)

ENG 132 Feature Writing. The study and practice of longer, more complicated newspaper and magazine stories, such as investigations and profiles. Emphasis is on the consideration of the various techniques of nonfiction writing. (Spring)

ENG 133 Editing. Study of newspaper and online editing with emphasis on news decision making; copy editing, ethics, and First Amendment issues such as libel. (Spring)

ENG 134 Public Speaking. Basic public speaking is the focus of this course. Emphasis is placed on researching speeches, using appropriate language and delivery, and listening critically to oral presentations. ENG 154 contains two quizzes, a final exam, and four viva voce speeches. The class activities include group remarks, speeches, self-evaluation, and group evaluation. (Spring)

ENG 135 Introduction to Debate. The purpose of this course is to give students an appreciation for the power and knowledge of critical thinking and reasoned decision making through argumentation. Students research both sides of a topic, write argument briefs, and participate in formal and informal debates. Students also are exposed to the major paradigms used in judging debates. Applicable English clusters: Media, Culture, and Communication. (Fall, two sections, and Spring)

ENG 161: Introduction to Video Art. This course introduces the basic aesthetic and technical elements of video production. Emphasis is on the creative use and understanding of the video medium while learning to use the video camera, video editing processes, and the fundamental procedures of planning video projects. Strategies for the use of video as an art-making tool are explored. (Fall and Spring)

Theater Courses

The University of Rochester International Theatre Program produces four major productions annually as well as other events (including a student One Act Play Festival). The program also offers students classes in acting, voice and movement, playwriting, directing, and backstage/technical arts. Though there is no theater major, and in fact most minor in theater and a number of students major with theater minor are available. Detailed information about the University of Rochester International Theatre Program can be found at www.rochester.edu/theatre.

ENG 123 Playwriting. A half-semester course devoted to the understanding and execution of dramatic writing that is unique to the theater. May count toward completion of the cluster in Theater Production and Performance. (Fall)

ENG 170 Technical Theater. An introductory course on the theories, methods, and practice of set construction, power tools, stage lighting, drafting, sound, and scene painting. Lab participation in theater program productions is required. May count toward completion of the cluster in Theater Production and Performance. (Fall)

ENG 171 Technical Theater. Same description as above. (Spring)

ENG 172 Introduction to Stage Lighting and Sound. The course introduces students to the creative design and technical production of the semester’s Theatre Program productions. It focuses on work related to the scenic design and technical production of the semester’s Theatre Program productions. Working in small seminars and one-on-one tutorials, the instructor assists students in learning more in the chosen technical areas and about problem-solving scenic and technical questions raised by the set/properties being built. Course work consists of supervisory responsibilities, one major and several smaller research projects. (Fall)

ENG 271 Advanced Technical Theater. Same description as above. (Spring)

ENG 290 Plays in Production. Set building, prop and costume development, and publicity for current production. May count toward completion of the cluster in Theater Production and Performance. (Fall)

ENG 291 Plays in Production. Same description as above. (Spring)

ENG 292/294 Plays in Performance. For actors and stage management, acting, stage management, and design. May count toward completion of the cluster in Theater Production and Performance. (Fall)

ENG 293/295 Plays in Performance. Same description as above. (Spring)

ENG 296 Stage Management: Fall. Students in stage management get an in-depth introduction to and immersion in stage managing a theatrical production. In addition, cover all areas of management skills, safety procedures, technical knowledge, and paperwork. Students are expected to serve as an assistant stage manager or producer during their strategies (or both) theater program productions in their registered semester. May count toward completion of the cluster in Theater Production and Performance. (Fall)

ENG 297 Stage Management: Spring. Same description as above. (Spring)

ENG 298 Performance Lab: 1st Production. Mandatory acting lab for students in ENG 291. A lab tutorial providing technical help for actors and stage managers in Plays in Performance (Eng 292/3/4/5). (Fall) (2 credits)

ENG 299 Performance Lab: 2nd Production. Mandatory acting lab for students in ENG 293. Same description as above. (Spring) (2 credits)

ENG 360 Special Projects: Theater. This is an independently designed course focusing on specific theater or theater-related projects.
and demanding significant skill application or acquisition and in- dependent and self-motivated research, including advanced written work, if appropriate. Topics may include elements of theater related to production, management, and/or design. (Fall and Spring)

ENG 398 Theater Internship: Public Relations and Market- ing. Students taking the PR Internship class help create all publicity materials for events in Todd Theater or events sponsored by the Theatre Program, including drafting press releases, planning marketing campaigns, etc. They distribute publicity materials both on and off campus. Finally, PR interns staff the box office during produc- tions, interacting with the public and the theater personnel. The PR internship is an excellent way to get a hands-on introduction to all the basic elements of public relations and marketing. Students also interact with artists, directors, journalists, and public relations pro- fessionals as part of the internship. Interns should have good writing and interpersonal skills and be willing to work creatively. Skills in graphic design are a plus. (Fall and Spring)

For More Information Please visit the English program website at www.rochester.edu/ college/eng.

FILM AND MEDIA STUDIES PROGRAM

Information about the Program

The Film and Media Studies (FMS) Program offers a major in film and media studies and a special concentration in media production. A minor in film and media studies is also available. The program consists of coordinated courses offered by various departments; all courses focus on the study of film, television, video, and digital media as art forms and cultural phenomena. The curriculum is aug- mented by internships and other special courses and by the resources of the Film and Media Studies Program’s Special Collection of 14,000 titles (housed in the Art/Music Library on the ground floor of Rush Rhees Library). Concentrators in film and media studies can elect to follow a special concentration in media production. Students interested in media production are encouraged to seek out courses that deepen their background in the arts, particularly in studio art, theater, and creative writing, and to then integrate these courses into their program of study. The goal of the special concen- tration is to prepare students with the basic creative background and the practical experience they need either to pursue the postgraduate study of film and media production (or multimedia authoring) or to begin careers in these industries.

In addition to pursuing graduate work in film and media produc- tion and/or analysis, history, or theory, FMS graduates often choose to continue their studies in professional school. Other options include graduate study or careers in entertainment law, journalism, film and photography conservation and curatorship, and multi-media software development. Many students study film for its own sake as an absorbing and challenging liberal art form and cultural phenomenon before taking up other careers. Many FMS students double-major in film and another field.

Departmental Advice for Freshmen

Students should take one of the two introductory courses—FMS 131, Introduction to Media Studies, or FMS 132, Introductory Study to the Art of Film—before going on to more advanced or specialized courses in film history, criticism, theory, and production. Majors are advised to take a film history course, also, before developing their special interests in advanced courses. Courses in art history, photography, painting, music, literature, anthropology, and history provide strong support for various film courses, and these should be explored during a student’s first two years. Freshmen are encour- aged to acquaint themselves with the resources of the Film and Media Studies Program’s Special Collection and to enlarge their background knowledge of classical as well as popular films. The Film and Media Studies Program also enjoys a close relationship with the George Eastman House, where all University students have free access to the museum and library with student identification; and the Dryden Theatre, where University students are offered tickets at a discounted price. Important film screenings and special events are also offered several nights a week at the Dryden and Curtis theaters (both located in the George Eastman House). The archives at the museum serve as invaluable resources for coursework and special projects.

Courses

These first two introductory courses may lead into the film studies clusters.

FMS 132/ENG 117 Introduction to the Art of Film. This course presents the concepts of film form, aesthetics, and technique, while remaining attentive to the various ways in which cinema also involves an interaction with audiences and larger social structures. We closely examine the construction of a variety of film forms and styles—including the classic Hollywood style, new wave cinemas, experimental films, and contemporary independent and global cinemas. We also pay particular attention to the construction of film images, systems of film editing, film sound, and the various ways in which film systems can be organized (narrative, non-narrative, genres, etc.). Same as AH 136. (Fall)

FMS 131/ENG 118 Introduction to Media Studies. Discusses the cultural and economic history of visual media, with a focus on U.S. TV and questions of race, gender, and cultural identity. We cover histories of different types of media (television, radio, audio recordings, television, film, Internet, etc.) as well as various theories and approaches to studying media. Same as AH 102. (Spring)

FMS 161/SA 161 Introductory Video and Sound. This course introduces the basic aesthetic and technical elements of video pro- duction. Emphasis is on the creative use and understanding of the video medium while learning to use the video camera, video editing processes, and the fundamental procedures of planning a video project. Video techniques are studied through screenings, group discussions, readings, practice sessions, and presentations of original video projects made during the course. (Fall and Spring)

FMS 162/SA 162 Concepts in Introductory Video and Sound Art. This course introduces the basic aesthetic and tech- nical elements of video production while exploring specific topics through production, readings, research, presentations, and writing assignments. Emphasis is on the creative use and understanding of the video medium while learning to use the video camera, video editing processes, and the fundamental procedures of planning a video project. Video techniques are studied through screenings, group discussions, readings, practice sessions, and presentations of original video projects made during the course. (Fall and Spring)

For More Information Please visit the film and media studies program website at www.rochester.edu/collge/fms.

GEOMECHANICS

Information about the Program

A four-year Geomechanics Program is offered jointly with the Department of Earth and Environmental Sciences and the Depart- ment of Mechanical Engineering for students interested in the application of the field of mechanics to problems associated with the atmosphere; rivers, lakes, and oceans; and the solid earth. Students following this program should be well equipped for employment or graduate work in a variety of fields, including geophysics, hydrology, structural geology and rock mechanics, civil engineering, oceanog- raphy, meteorology, environmental sciences, engineering geology, limnology, geothermal and petroleum exploration and production, and coastal and marine geology.

The geomechanics degree is awarded by the College in either the School of Arts and Sciences or in the Hajim School of Engineering and Applied Sciences—the choice is made by the student. If the student chooses the School of Arts and Sciences, his or her major advisor will be in the Department of Earth and Environmental Sci- ences; if the degree is to be granted through the Hajim School, the major advisor will be in the Department of Mechanical Engineering.

In each case, the student will also have a minor advisor in the other department.

Advice for Freshmen

The geomechanics curriculum is built around basic mathematics, physics, chemistry, earth and environmental sciences, and engineer- ing courses. The required earth and environmental sciences courses cover geologic processes, the evolution of the earth, mineralogy, and structural geology. Required engineering courses deal with basic mechanics, thermodynamics, fluid mechanics, and solid mechanics. Technical electives, chosen from a number of earth and environmen- tal sciences and engineering offerings, include courses in geochemistry; fluid dynamics; advanced mechanics; heat transfer; rheology; rock mechanics; materials science; hydrology; sedimentary processes; and computational, field, and laboratory studies.

Typical Freshman Year Program

Fall Semester

MTH 161 (or MTH 141) Elective or WRT105

Spring Semester

MTH 162 or (MTH 142) PHY 121

EES 101 CSCH 160

CHM131 WRT 105 or elective

For More Information Please visit the geomechanics information pages on the Earth and environmental sciences program website (www.ees.rochester.edu) or the mechanical engineering website (www.me.rochester.edu).
Information about the Department

The Department of History is a dynamic community of scholars interested in studying the origins and formation of the complex, multicultural, and interconnected world in which we live. Our distinguished faculty of teacher-scholars shares a commitment to excellence in teaching and working closely with students to develop historical literacy, critical thinking, writing, and research skills. We seek to use cutting-edge methods to connect the present with the past and consider human experience across time and space. Because an understanding of the past is crucial to a wide array of political, economic, literary, artistic, anthropological, and humanistic studies, taking history courses can also benefit students majoring in these disciplines.

The department offers programs of study leading to the BA degree (on campus or by appointment. Other faculty are also available during their on-call hours.) Majors who choose to double-major in history and another discipline or program in the humanities or the social sciences may, with the permission of the director of Undergraduate Studies, use one or two courses from the other major toward the fulfillment of the history major; double majors must, however, meet the geographical and chronological distribution requirements and the upper-level writing requirement with history courses.

Students with doubts about whether a given course is right for them are urged to discuss their selections with their course’s instructor or the department’s advisor. The History 100 course also welcomes visits from prospective students during office hours or by appointment. Other faculty are also available during their on-call advising hours.

Majors can pursue summer or semester-long public history internships (HIS 394) at a variety of local and regional museums, historic sites, archives, municipal agencies, and the Department of Rare Books and Special Collections. Accredited undergraduate history internships provide valuable “hands-on” experience in a wide range of history-related careers.

Freshmen interested in history are also encouraged to join the Undergraduate History Council, which provides information about the department, sponsor’s lectures, and holds social events.

Advanced Placement (AP)

Advanced placement credit will be granted for scores of 5 on either the American History, European History, or World History exam. This credit is elective credit and may not be used to satisfy the geographical, chronological, or topical requirements in the major or minor nor to satisfy the focus requirement in the major. A student may receive no more than a total of 4 elective credits for AP exams.

International Baccalaureate (IB)

International Baccalaureate credit will be granted in cases where students score 6 or better on their higher-level exams. No credit is granted for subsidiary-level exams. This credit is elective and may not be used to satisfy the geographical, chronological, or focus requirements of the major. A student may not receive more than a total of 4 elective credits for IB exams.

Clusters

Most courses offered by the history department can be used toward a social sciences cluster in history, and many can be used for clusters outside of the department. The history department’s clusters brochure is available at the departmental office in Room 164, Rush Library, or it can be viewed through the online cluster list/search engine at www.rochester.edu/college/ccas/clusterlist/cluster_directory7.html.

Introductory Courses (2015–16)

Fall Semester

HIS 100 Gateway to History: Abraham Lincoln’s America. Abraham Lincoln’s role in “freeing the slaves” has occupied much of the recent attention surrounding the nation’s 16th president and has overshadowed many of his other achievements. This course explores Lincoln’s contribution to a burgeoning American nationalism.

HIS 101 History of Civilization: European. This course provides an introduction to the study of history through an investigation of “the long 12th century” in France, using both primary and secondary source materials, discussion, analytic reading and good practice of the writing of history.

HIS 110 The Making of Modern Africa. This course uses film, novel, and historical studies to understand the transformation of Africa and the African American experience. The course also considers the role that African America played in the modernization of Africa. This course fulfills the college’s writing requirement.

HIS 111 Modern China. This course uses the works of fine novels, and historical studies to understand the transformation of modern China. This course also considers the role that Chinese America played in the modernization of China.

HIS 112 Vikings. This course focuses on the history of the Viking age. The Viking age lasted a few short centuries and ended a long time ago, approximately in 1100. Yet, the appeal of the Vikings has never waned. Their ocean-crossing travels, adventures of their gods, and their fighting and poetic skills continue to excite our imaginations. But who were they? How did they live? What made them travel such vast distances? In this course we explore the world of the Vikings, their religious beliefs, family life, technology, law, and literature. We read their sagas and myths, listen to their music, and watch documentaries that bring to life their ships and villages.

HIS 133 The Russian Revolutions from Lenin to Putin. This class we study the revolutions that shaped the history of Russia and the Soviet Union in the 20th and 21st centuries. The class focuses on the October Revolution of 1917, Joseph Stalin’s “revolution from above” in the early 1930s, Nikita Khrushchev’s “ thaw” of 1956–64, the collapse of the Soviet Union, and the establishment of a new authoritarianism under Vladimir Putin. At the end of the course we ask whether the Maidan revolution in Ukraine (2014) opened a new epoch in Russian history.

HIS 142 Traditional China. This course focuses on the history of traditional China from antiquity to the 18th century. Two thousand years of civilization, six thousand miles of the Great Wall, a silk road linking China to Rome, and seven maritime voyages sailing across the Pacific and Indian Oceans. How have the notions of “China” and “Chinese” civilization transformed over time through cultural diffusion, the flow of students, and the expansion of commercial and cultural exchanges? How has increased knowledge of Chinese history change our conceptions of Western civilization and the currents of world history? No prior knowledge of Chinese history or language is required for this course.

HIS 155 Colonial Latin America. This introductory survey course focuses on the processes of colonization that the indigenous societies of the Western Hemisphere experienced from the initial period of contact with Iberians to the Latin American independence movements. The course explores the effects of the “New Deal order” a liberal political economy centered on a constrained corporate capitalism, a modest welfare state, and a national security apparatus designed to wage the Cold War and extend American power abroad.

HIS 112 Vikings. The Viking age lasted a few short centuries and ended a long time ago, approximately in 1100. Yet, the appeal of the Vikings has never waned. Their ocean-crossing travels, adventures of their gods, and their fighting and poetic skills continue to excite our imaginations. But who were they? How did they live? What made them travel such vast distances? In this course we explore the world of the Vikings, their religious beliefs, family life, technology, law, and literature. We read their sagas and myths, listen to their music, and watch documentaries that bring to life their ships and villages.

HIS 133 The Russian Revolutions from Lenin to Putin. This class we study the revolutions that shaped the history of Russia and the Soviet Union in the 20th and 21st centuries. The class focuses on the October Revolution of 1917, Joseph Stalin’s “revolution from above” in the early 1930s, Nikita Khrushchev’s “ thaw” of 1956–64, the collapse of the Soviet Union, and the establishment of a new authoritarianism under Vladimir Putin. At the end of the course we ask whether the Maidan revolution in Ukraine (2014) opened a new epoch in Russian history.

HIS 142 Traditional China. This course focuses on the history of traditional China from antiquity to the 18th century. Two thousand years of civilization, six thousand miles of the Great Wall, a silk road linking China to Rome, and seven maritime voyages sailing across the Pacific and Indian Oceans. How have the notions of “China” and “Chinese” civilization transformed over time through cultural diffusion, the flow of students, and the expansion of commercial and cultural exchanges? How has increased knowledge of Chinese history change our conceptions of Western civilization and the currents of world history? No prior knowledge of Chinese history or language is required for this course.

HIS 155 Colonial Latin America. This introductory survey course focuses on the processes of colonization that the indigenous societies of the Western Hemisphere experienced from the initial period of contact with Iberians to the Latin American independence movements. The course explores the effects of the “New Deal order” a liberal political economy centered on a constrained corporate capitalism, a modest welfare state, and a national security apparatus designed to wage the Cold War and extend American power abroad.
HIS 170 African-American History I to 1900. We begin our survey of African-American life and culture in 15th-century Saharan Africa. After examining the primary features of pre-European African society, we assess the disruptions triggered by European arrival. A discussion of the “Middle Passage”—the transportation of enslaved Africans to North America and the Africans’ adjustment to their new environment—composes the first section of the course. We then focus on the process of “Africanization” as the Africans become African Americans. The struggle for freedom and citizenship concludes our survey. The course readings are selected from autobiographies by Africans and African Americans along with some brief selections from secondary texts. Using the autobiographies as historical source material, we describe the values and cultural practices of Africans in America and the ways in which African Americans adapted to and shaped American life and society.

HIS 174 African Military History. American history has been largely shaped by war. This course surveys the history of American wars; the military, naval, and civil institutions that have been created to serve the changing needs of national defense; and the citizens—soldiers, sailors, marines, and civilians—who have served in them.

HIS 210 Africa Welcomes China in a New Global Economy. Part I surveys major areas of interaction between Africans and the Chinese from the end of WWII to the present. Initially, Afri cans found in China an ally in their struggles for liberation from European colonialism and Western imperialism. Beginning in the late 1980s, the ties broadened to include educational and cultural exchanges, economic aid, and especially trade and investment. Part II places the above connections in historical and global contexts. A global perspective invites students to see that from the perspective of China, the central features of its ties with Africa today are not structurally different from its dealings with other regions of the world. China has, for example, fueled its rapid economic growth with raw materials from every corner of the globe, including coal from the United States. Research also shows that Africans are acutely aware of the historical significance of China’s appearance on the global scene; the rise has given Africans a world of options they had never enjoyed during the colonial period; and the expansion of American empire. We center our attention on the differing experiences of various segments of the population. The region’s history and politics are reexamined in the context of the changed geography and character of Africa.

HIS 250 Economies and Societies in Latin America and the Caribbean since 1492. The main thrust of the course is an attempt to provide a historical explanation for the general problem of material poverty and the attendant sociopolitical crises that characterize contemporary Latin America and the Caribbean. The course begins with an examination of the organization of the economies in the region in the period of the European conquest and the factors determining the level of development attained by this time. It is followed by a discussion of the socioeconomic processes during the colonial period. The post-colonial period (which differs from one country to another) is examined in the context of the inherited socioeconomic structures of the colonial period and the changing conditions in the evolving modern global system.

HIS 279 The Seward Family in Peace and War. A history class in the digital studies curriculum that examines the background in either one. It is a hands-on introduction to the history of the family, gender, and the antebellum and Civil War eras, to historical editing, and to website design and creation, using the Papers of William Henry Seward (1801–72).

Spring Semester

HIS 100 Gateway to History: Nostradamus.
HIS 100 Gateway to History: Sherlock Holmes.
HIS 122 Medieval Europe.
HIS 143 Modern China, 1600-Present.
HIS 155 Society and Culture in Modern Latin America: A Film Perspective.
HIS 161 United States History since 1865.
HIS 186 History of Energy Resources and Utilization.
HIS 201 New Perspectives in Global History.
HIS 208 Comparative Modern Revolutions: France, Japan, Mexico, Russia.
HIS 212 Africa’s Sleeping Giant: Nigeria since the Islamic Revolution of 1890.
HIS 213 Natural Disasters and History in Africa.
HIS 222 The Enlightenment.
HIS 225 Europe and the Great War, 1914–18.
HIS 231 The French Revolutions.
HIS 237 Modern Germany, 1945-Present.
HIS 248 The Samurai.
HIS 253 Mexico through Time.
HIS 269 The Civil War.
HIS 276 American Movies in their Moment.
HIS 281 The Role of the State in Global Historical Perspective.

For More Information
Please visit the history department website at www.rochester.edu/College/HIS/ or contact Professor Michael Janis, director of Undergraduate Studies (Michael.janis@rochester.edu).

JEWISH STUDIES

Information about the Program

The Center for Jewish Studies at the University of Rochester promotes research, scholarship, and education in Judaism and Judaica. Through publication, lectures, workshops, and conferences, the center aims to increase knowledge in the field of Jewish studies, to provide enriched learning opportunities for students, to contribute to the intellectual life of the University, and to share its resources with the Rochester community.

Departmental Advice for Freshmen

Freshmen are encouraged to begin with a 100-level course. More detailed information about Hebrew language courses follows.

Hebrew Courses

 vérable kind of knowledge: the knowledge of how to fear what ought to be feared and how not to fear what ought not to be feared.”

—David Ben-Gurion

Students who take HEB 103 are expected to have a good understanding of the structure and grammar of Hebrew. Students who are considering entering the sequence at a higher level than 101 are strongly encouraged to consult the instructor as soon as possible. Students who take HEB 103 are expected to have a good understanding of the structure and grammar of Hebrew.

Cluster and Minor

The program offers a minor in Jewish studies and a minor in Hebrew. There are two clusters: one in Jewish studies and one in Judaic. Information on minors and clusters may be found on the Center for Jewish Studies web page. Students are encouraged to contact the director of Jewish Studies with any questions.
Courses

Fall Semester
JST 101 Elementary Hebrew I. Introduction to the structure of modern Hebrew. Practice in vocabulary, use, grammar, reading, and writing.

JST 103 Intermediate Hebrew. Continuation of JST/HEB 102 with emphasis on enhancing reading comprehension, writing, and speaking skills. Students are expected to have a good understanding of the structure of Hebrew, including familiarity with verb forms.

JST 106 Introduction to the Old Testament. Examination of the Old Testament/Hebrew Bible in its religious, historical, and literary contexts in ancient Israel.

JST 110 Introduction to Biblical Hebrew. A one-semester introduction to classical Hebrew for beginners. The course covers the Hebrew writing system (alphabet and pointing/vocalization rules), basic grammatical structures and vocabulary, and the guided reading and translation of selected simple biblical narratives.

REL 145 Judaism in America. This course explores the development of American Judaism through the interplay of religion, ethnicity, politics, and culture.

JST 220 Jewish Women’s Writing. The American Jewish experience, from the Eastern European immigrant experience to the recent religious revival, through the lens of Jewish women’s literature.

Spring Semester
JST 102 Elementary Hebrew II. Direct continuation of JST/HEB 101 with emphasis on enhancing reading, writing, and speaking skills.

JST 113 History of Judaism. This course provides an overview of Jewish history, texts, traditions, practices, and beliefs and emphasizes Judaism as a living tradition, one that is subject to both continuity and change among its practitioners.

For More Information
Please visit the Jewish studies program website at www.rochester.edu/college/jst/.

LATIN AMERICAN STUDIES (MODERN LANGUAGES AND CULTURES)

Information about the Program
The minor in Latin American studies is an interdisciplinary program of study that can serve to complement the student’s major field of concentration by giving him or her a broad view of Latin American cultures and their relations to the United States and the rest of the world.

Five courses with Latin American content are required for the minor, of which three must be at the 200-level from the Department of Modern Languages and Cultures and one each (total of two) from two different related areas such as history, political science, religion, or anthropology.

Program Advice for Freshmen
The minor must be approved by the Spanish section in its beginning stages. Since many of the courses in the program are upper-level courses in the department involved, freshmen who are interested should consider study abroad in a Latin American country as they plan their eight semesters here.

Clusters
Students interested in Latin American studies may want to consider one of the following clusters:

- Latin American History and Culture (S1HIS019)
- Literature and Identity in Hispanic Societies (H1SP001)
- Hispanic Film and Popular Culture (H1SP003)

For More Information
Please visit the modern languages and cultures website at www.rochester.edu/college/mlc/.

LEGAL STUDIES (MULTIDISCIPLINARY STUDIES CENTER)

Information about the Program
The minor in legal studies is an interdisciplinary program of study incorporating courses from the departments of anthropology, economics, English, philosophy, political science, and history. It gives students the opportunity to examine law from a variety of perspectives.

The study of law is a humanitarian enterprise and, while the minor should be useful for those who may be thinking of attending law school, it is not specifically a pre-law program, but rather a way for students with any sort of interest in law to give focus to their studies. The goals of the minor are to educate students in certain broadly relevant analytical skills, to introduce students to what it means to study a social phenomenon from a variety of perspectives, to help students obtain a better understanding of law and the multiple functions it plays in a variety of societies, and to encourage writing and the development of writing skills.

Program Advice for Freshmen
Since many of the courses in the program are upper-level courses in the departments involved, freshmen who are interested in the minor may wish to begin by taking appropriate introductory courses in some of the relevant departments. Most legal studies minors do not declare the minor until their sophomore or junior year. Students of any year who are interested in the legal studies minor are encouraged to consult a legal studies minor advisor.

Clusters
There are two clusters in legal studies, one in the humanities division and one in the social sciences division.

Courses

ANT 104 Contemporary Issues and Anthropology. This course examines how anthropologists study one of today’s pressing issues: energy use and climate change. We consider examples from around the world of how people understand, produce, and use natural resources and various forms of energy. We ask what are the different ways people give meaning to natural resources and forms of energy?

ENG 135 Introduction to Debate. The purpose of this course is to give students an appreciation for and knowledge of critical thinking and reasoned decision making through argumentation. Students research both sides of a topic, write argument briefs, and participate in formal and informal debates. Students are also exposed to the major paradigms used in judging debates. (Fall and Spring)

PHL 103 Moral Problems. An introduction to moral philosophy as applied to current topics. Some questions to be explored: Is torture morally permissible in the fight against terrorism? Is it okay to destroy embryos for stem cell research? Can abortion sometimes be justified? How? Is active euthanasia ever permissible? Is capital punishment justifiable in principle? In practice? How far does our moral duty to aid distant strangers extend? What sorts of political and socioeconomic principles are morally justifiable? Do animals have moral rights? How should we understand the meaning and value of life and death? We also explore related general questions: Is it always possible for a good enough end to justify bad means? What is the relation, if any, between morality and religion? Are there objective facts about right or wrong, or is morality ultimately subjective or relative to cultures or times? Are there situations in which every available action is wrong? (Fall and Spring)

PHL 105 Reason and Argument. Methods of identifying, interpreting, reconstructing, and evaluating reasoning found in speeches, essays, editorials, magazine articles, and scientific reports. Analytical methods mastered in this course do not include those of formal symbolic logic. (Fall)

PHL 110 Introductory Logic. Symbolic logic through first-order quantification theory. Skill in deductive inference is strengthened through construction of proofs and other methods of a rigorously defined artificial language. (Fall and Spring)

Spring Semester
For information on spring course offerings, please visit the legal studies web page.

For More Information
Consult the legal studies program website at www.rochester.edu/college/msc/legal-studies.html.
LINGUISTICS

“The job of the linguist, like that of the biologist or the botanist, is not to tell us how nature should behave, or what its creations should look like, but to describe those creations in all their messy glory, and try to figure out what they can teach us about life, the world, and, especially, in the case of linguistics, the workings of the human mind.”

—Arika Okrent

Information about the Department

Language is among the most complex cognitive facilities we possess. Contemporary linguistics is the study of the formal aspects of language structure—what it is that we know when we know a language. The 200-level courses are the courses of the major and minor and others.

Courses in 2015–16

Every term

LIN 110 Introduction to Linguistic Analysis. This course introduces students to the study of the structure of human language. We cover the six core areas of linguistic investigation: phonetics (articulation, acoustics, and perception of speech sounds); phonology (sound patterns); morphology (internal structure of words and their organization in the mental lexicon); syntax (internal structure of phrases and sentences); semantics (word and sentence meaning); and pragmatics (language use in context). The course focuses on developing skills in the areas of linguistic data analysis and interpretation of linguistic data in ways that aim to address theoretical and empirical issues in the study of language. Part of clusters S1LIN001, S1LIN002, S1LIN004, S1LIN005, and S1LIN007. (Fall and Spring) Please note: Students who take LIN 110 in the fall may be eligible to take 200-level courses in the spring.

LIN 103 Language and Sexuality. This course investigates various aspects of language as used by members of sexual minority groups, focusing on language and sexual identity constructions, gender and sexuality, and transgender people, including “reclaimed epithets” (e.g., “dyke” and “queer”), gender versus sexuality versus sex, and the role of language in creating/maintaining sexual categories and identities. Part of clusters S1LIN002, S1LIN006, H1WST004, S1WST001, and H1WST005.

LIN 104 Language and Culture. This course investigates the relationship between language and culture at the interface of linguistics and anthropology. It examines the ways in which language reflects the perception of the world, ways of life, and beliefs of its speakers; creates rituals and maintains social ties; is used by people of different ages, genders, social classes, and ethnicities.

We discuss hypotheses that try to explain the nature of relationship between language and culture and then turn to a wide variety of topics that are relevant for both linguists and anthropologists. These include, for instance, kinship systems and language, language and ethnicity (e.g., colors, spatial relations); culture and language change; language variation, writing systems, and intercultural communication.

LIN 161 Modern English Grammar. This course is a comprehensive review of the grammar of modern standard English. With no prerequisites, the course is of interest to those who wish to sharpen their language skills or to know more about the workings of the English language whether for practical, cognitive, or creative ends. Drawing on work in mostly pretheoretical, descriptive linguistics, this course reveals the mechanics of standard English structure with occasional detours into the finesse of usage across registers (dialect to slang). Students learn to develop the ability to see patterns in grammar as well as its structural possibilities and limits. Assignments regularly involve reflection on form, usage, and speaker judgments. Through a final project, students investigate some aspect of an English variety available to them. Throughout, students work with their data samples of English to explore how speaker choices lead to particular grammatical structures or yield ungrammaticality. This course is a good fit for those interested in linguistics, writing, education, editing, or cognitive studies. Background in linguistics or grammar is not necessary.

LIN 105 Language and Advertising. This course examines the use advertisers make of language in selling their products and how it affects our perceptions of the product and ourselves. The emphasis in this course is on learning about the structure of language and how we can use it as a guide to how and understanding the effectiveness of communication. Part of clusters S1LIN002, S1LIN006, S1MA001, H1HMS001, and H1HMS002.

LIN 162 Modern African-American English. This course looks at the varieties of English used primarily by and among African Americans. We first explore and discuss the linguistic features (lexicon and grammar) of African American Vernacular English (AAVE)—also called African American English. We also investigate the ways in which AAVE is being utilized in popular culture. Additionally, we look at AAVE’s connection to African languages and cultural identity. At the same time, this course looks at the issues connected to AAVE and attitudes toward this variety and its effects on teachers’ expectations and students’ progress as well as on linguistic profiling and discrimination in employment and housing.

LIN 220 Introduction to Grammatical Systems. This introductory course examines the grammatical structure of sentences from the standpoint of transformational grammar. The course develops the basic techniques of syntactic analysis in order to develop a working grammar of (a fragment of) English. No syntax background is assumed. This course is intended for majors and non-majors alike. Prerequisite: LIN 110 (Full). Part of clusters S1LIN002, S1LIN004, S1LIN007, S1MAS001.

Information about the Department

The Department of Mathematics has several introductory sequences to suit students’ interests and goals. The sequence MTH 161–162 is the standard introductory calculus sequence for students who intend to major in mathematics, a physical science, engineering, or another technical field. The sequence MTH 141–143 covers the same material as MTH 161–162 but at a slower pace (in three semesters rather than two), using the same textbook. Students lacking the algebra or trigonometry skills necessary to perform successfully in MTH 141 should take the sequence MTH 140A–141A. Calculus with Calculus. This is a two-semester honors calculus sequence MTH 171–174 for talented students interested in mathematics or its theoretical applications to other fields. See below for more information on these sequences and AP credit rules. One of the primary factors conducive to success in mathematics is placement in the appropriate course. The Department of Mathematics uses a combination of SAT and ACT scores, AP calculus exam scores, and high school records to place students. Advanced Placement credit rules take precedence over SAT and ACT scores. For students placed in either MTH 140A or MTH 141 who wish to enroll in a higher course there will be a placement test offered at the beginning of the semester. See www.math.rochester.edu/undergraduate/handbook/courseinfo.html for more information regarding placement guidelines.

In case of discrepancy or questions, students are encouraged to speak with a representative of the mathematics department at the Academic Open House during Orientation.
The Department of Mathematics gives credit and placement to students who have taken the CEEB Advanced Placement examinations in Mathematics (Calculus AB and Calculus BC) as follows:

Note: taking more than one MTH course per semester in the freshman year is usually discouraged.

Student will be placed in MTH 161 or 162 after consultation with a mathematics faculty member. If registered in MTH 162, upon successful completion of that course (with a "C-" or better) students will receive one semester advanced placement credit (MTH 161, 4 credits).

Score of 2 or 5—Student will be placed in MTH 162 or 171 (after consultation with a mathematics faculty member) with one semester advanced placement (MTH 161, 4 credits) granted.

AP Calculus, BC exam:
Score of 2—Student will be placed in MTH 161 or 162 after consultation with a mathematics faculty member. If registered in MTH 162, upon successful completion of that course (with a "C-" or better) students will receive one semester advanced placement credit (MTH 161, 4 credits).

Score of 3—Student will be placed in MTH 162 or 171 (after consultation with a mathematics faculty member) with one semester advanced placement (MTH 161, 4 credits) granted.

Score of 4 or 5—Student will be granted two semesters of advanced placement (8 credits) for MTH 161 and MTH 162, and placed in MTH 164 or 165. Students interested in gaining a deeper understanding of mathematics are encouraged to register instead for MTH 171 and receive 4 credits of advanced placement. In rare instances of exceptional preparation, students may register for MTH 173 in consultation with the instructor of that course and receive 8 credits of advanced placement for MTH 161 and MTH 162.

Students who receive AP credit for MTH 161 may register for MTH 162 or another course. MTH 171 is particularly recommended for students interested in mathematics, physics, computer science, or theoretical engineering who would like to gain a deeper knowledge of how and why calculus works so effectively.

There is no advanced placement in the 140 sequence.

Note: An "AB subscore" is reported along with the BC score. Placement and credit should be the more generous of the two resulting from using both the AB subscore and the BC score in the guidelines above. However, if the difference between the AB subscore and the BC score is greater than or equal to two, the student should be referred to the mathematics table for further guidance.

International Baccalaureate (IB)
Mathematics—Students who score a 4 or better on a higher-level exam are placed into MTH 162 and awarded credit for MTH 161 after completion of MTH 162, a grade of C or better. No credit is granted for subsidiary level exams.

Courses

Traditionally, the different sections of the standard calculus sequences, MTH 141–143 and MTH 161–162, are coordinated with each other. They cover the same material, assign the same homework, have common exams, and are graded on a common scale.

MTH 130 Excursions in Mathematics
The nature of mathematics and its application are discussed. Emphasis is on concepts and understanding rather than techniques. This course is intended mainly for concentrators in the humanities. (Spring)

MTH 140A–141A Calculus with Foundations.
These courses integrate the learning of calculus with precalculus mathematics. They are intended for students who lack the algebra and trigonometry skills necessary to perform successfully in MTH 141. MTH 140A and 141A together cover all the material in MTH 141 with a thorough presentation of the standard precalculus material. When taken alone, MTH 140A covers, in addition to precalculus material, the theory and techniques of the differential calculus, but no material from the integral calculus. Note: Both are 4-credit courses and must be taken in sequence: 140A in fall, 141A in spring. MTH 104 is open to students with fewer than 0.5 mathematics credit. MTH 141A–143A Calculus I, II, III.
This course covers the same material as MTH 161–162 (see below) but in three semesters rather than two, using the same textbook. MTH 143 is an adequate prerequisite for MTH 164 and 165. Courses 141–143 must be taken in sequence and are offered every fall and spring. MTH 141 is open to all freshmen placed in MTH 141 or a higher-numbered course. (Fall and Spring)

MTH 150 Discrete Mathematics.
Logic, functions, algorithms, mathematical reasoning, mathematical induction, recurrence relations, techniques of counting, equivalence relations, graphs, trees, as well as specific questions given by the "Towers of Hanoi" and Euler's "Seven Bridges of Königsberg" problems. Required for computer science majors. Open to all freshmen. (Fall and Spring)

MTH 155A Discrete Mathematics Module
This module course is only available to students who are taking MTH 170 or MTH 175G and yields only 1 credit. Students do the exams in the regular MTH 150 course and may attend lectures if they wish. This module is primarily for computer science majors who need MTH 150 credit for their Spring semester computer science courses but have no room in their schedule for the regular 4-credit course.

MTH 161–162 and Calculus IA, II
The sequence 161–162 covers the same material as MTH 141–143 (see above) but in two semesters rather than three, covering only 1 credit each. Students wishing to do so should discuss their plans with a departmental representative.

MTH 164 Multidimensional Calculus.
This extends the calculus techniques to handle functions of more than one variable. It also concentrates increasingly on the geometric aspect of calculus, which is particularly important for applying calculus to problems in physical sciences and engineering. This course is open to freshmen with two semesters of advanced placement credit. Prerequisite: MTH 162. (Fall and Spring)

MTH 165 Linear Algebra with Differential Equations.
This course provides an introduction to the basic concepts of linear algebra and ordinary differential equations. It spends about two thirds of the semester covering linear algebra up through eigenvalues and eigenvectors and one third of the semester covering elementary methods involved in solving linear differential equations and systems with constant coefficients. This course is open to freshmen with two semesters of advanced placement credit. Prerequisite: MTH 162. (Fall and Spring)

MTH 171–174 Honors Calculus I; II; III; IV.
This sequence is an honors calculus sequence for talented students interested in mathematics or its theoretical applications to other fields. The sequence emphasizes the theoretical understanding of calculus in addition to teaching technical skills. Students completing the sequence will have acquired a deep understanding of the subject. The sequence satisfies all the basic mathematical prerequisites for majors and minors in mathematics, physics, and engineering. These include single variable calculus (MTH 161–162), multivariable calculus (MTH 164), differential equations, and linear algebra (MTH 165, 175). Each semester of the sequence is granted 5 credit hours rather than 4. Courses MTH 171–174 must be taken in sequence. MTH 171 is offered every fall. Students interested in taking MTH 171 should discuss their plans with a departmental representative from mathematics.

MTH 190 Topics in Problem Solving.
This course is intended for students interested in developing problem-solving skills in mathematics. This course also prepares students for college-level mathematical competitions such as the Putnam.

For More Information
Please visit the mathematics program website at www.math.rochester.edu or schedule an appointment with a mathematics faculty member.

Information about the Department
The mechanical engineering curriculum provides a balance of courses in the humanities and social sciences, physics, applied mathematics, and engineering principles and design. Since modern engineering is increasingly reliant on computers for things such as computation, data storage and retrieval, visualization of complex engineering problems, laboratory instrumentation, and presentation of project results, we have included computer work throughout the curriculum. Emphasis is placed on the underlying fundamentals in the required engineering coursework, enabling graduates to adapt throughout their careers to rapid advances in science and technology. Training in the design process is increasingly emphasized in the later years of the program. The capstone senior design sequence often features real design problems drawn from local industry. Design examples include wind turbines for third-world installation, automotive fuel valves, large optomechanical mirrors for solar power, automotive frames and suspensions, 3D printing of optics, heat transfer in organic farms, sustainable industrial refrigeration, and injection molding machines.

Departmental Advice for Freshmen
Mechanical engineering requires a solid foundation in mathematics, physics, and chemistry. This is built during the first two years of the program while students take a first set of core mechanical engineering courses. In the second two years of the program, students take an increased number of mechanical engineering specialty courses, including many with an open-ended design component. To provide the breadth of knowledge required to address modern engineering questions, this science and engineering focus is also balanced in the curriculum by a selection of humanities and social science courses.
Many undergraduates in the department assist faculty members in research projects during the academic year and the summer. Recent projects involving undergraduates include experiments in controlled nuclear fusion using high-power lasers, fuel cells, engineering computer design, and fabrication of MEMS and Micro-Electro-Mechanical Systems (MEMS) and Micro-Optical Electro-Mechanical Systems (MOEMS), precision engineering and instrumentation, precision grinding tools, CNC machining, optical manufacturing, experimental observation of quantum phenomena in fluids, edge strength testing of screens for smart devices, structural mechanics of historical structures, bubble dynamics, and the design of an automatic transmission for a biplane.

Many of our students interact with local companies like ITT Exelis, Xerox, General Motors, Bausch and Lomb, OptiPro, and Gleason Works. This often occurs through company sponsorship of a project in one of our clusters. Our “Industry Practicum” program provides part-time work during the academic year and full-time employment during the summer for selected students. Major University facilities such as the Laboratory for Laser Energetics and Strong Memorial Hospital are also sources for design and internship opportunities.

We encourage our students to study abroad, typically for one semester in the junior year. Study abroad credits transfer to the undergraduate major in mechanical engineering, and instruction can be in English. Examples of study abroad sites, among many others, are Australia, Spain, England, Botswana, New Zealand, and Israel.

Typical Freshman Year Program
Fall Semester  
MTH 141 or MTH 161  
CHM 137  
Technical elective (EAS 105 recommended)  
WRT 105 or elective
Spring Semester  
MTH 142 or MTH 162  
PHY 121  
ME 160  
ME 110  
WRT 105 or elective
Clusters  
The Department of Mechanical Engineering offers the following four clusters: Biomechanics, Mechanics with Materials, Engineering Design, and Force and Motion.

Courses (Mechanical engineering courses available to freshmen)  
EAS 104/ME 104 The Engineering of Bridges. An introduction to the art of bridge building based on the study of the engineering and technological problems involved in planning, design, construction, and collapse of bridges from antiquity to the present time. The course includes several case studies of major historical bridges selected for their structural significance. Students learn how to calculate the forces acting on structural elements, how these forces depend on the bridge structural form, how the form itself is conditioned by the structural materials, and how forces are measured with electromechanical instrumentation. The study includes fundamental notions of mechanics, strength of materials, structural behavior, instrumentation failure analysis, and design optimization. Working in teams, students use constructive experimental models as well as computer-aided programs to design, build, instrument, and test realistic bridge projects. This is a self-contained course open upon to all Rochester undergraduates. (Fall)

Information about the Program  
The minor in medieval and early modern studies enables students to pursue a program in the historical and cultural production of Europe and the Mediterranean from the fall of the Roman Empire and the rise of Islam to the mid-17th century. This period comprises distinct thematic continuities understood to be post-classical and pre-Enlightenment and it is intended to be multidisciplinary. The divisional identity of the minor in medieval and early modern studies can be used to satisfy either a humanities or a social sciences area requirement, depending on course content and number of courses taken in either division.

Courses  
AH 101 Introduction to Art and Visual Culture. This course is designed to introduce the student to aspects of the history of Western painting, sculpture, and architecture from the Renaissance through the present. We examine the various schools and movements in their historical contexts while paying particular attention to the histories that bear upon them, such as the influence of the classical past, religion, gender, political power, and the rise of the artist. The course, therefore, attempts two goals: 1) to familiarize students with the principal monuments of the Western tradition from about 1400 onward—that is, the paintings, sculptures, buildings, and artifacts that form the substance of this narrative; 2) to develop visual literacy—that is, the ability not only to identify but also to discuss artworks in a way that develops critical competence and an understanding of how the Western tradition of art has come about. (Fall)

ENG 113 British Literature I. This course immerses students in the most challenging, influential, and engaging writings in Eng- lish, from the 8th to the 18th centuries. Our aim is to enjoy and understand these texts in themselves while also examining their relation to each other and to their larger historical contexts. Students should leave the course with genuine affection and intimate knowledge of particular writings, together with an assured sense of the contours and highlights of cultural history. The course spans the medieval, Renaissance, Restoration, and Neoclassic eras and includes epic, romance, drama, and lyric in comic, tragic, satiric, and other modes. Our emphasis is on the careful appreciation of language, texture, tone, and structure in representative texts and authors. Together we read Beowulf, Chaucer, Malory, Spenser, Mar- lowe, Shakespeare, Donne, Jonson, Milton, Swift, Pope, and more. Class proceeds by lecture and discussion. (Fall)

REL 101 Introduction to the Old Testament. In this class, we examine the texts of the Hebrew Bible—Old Testament in their so- cial, historical, and religious contexts. We read major biblical books in English translation and examine their major themes against the background of ancient Near Eastern culture. We approach the texts of the Hebrew Bible as we would any other historical documents. Students are exposed to the methods of modern biblical scholarship as well. No previous knowledge of the Hebrew Bible or of Judaism is presupposed. (Fall)

REL 107 History of Islam. The development of Islam from its origins in the Quraan and Muhammad’s teachings, through the codification of the classical tradition in its various forms, and finally to the living Islam of the contemporary world. (Fall)

Students may also wish to consider the following course. Please note: the course has appropriate content but has not been officially approved for the ME minor. Students will need to consult with their medieval and early modern studies faculty advisor for approval.

IT 197 The Divine Comedy of Dante Alighieri: Discover the Wonders of a Medieval Mind. The course approaches The Divine Comedy both as a poetic masterpiece and as an encyclopedia of medieval culture. Through a close textual analysis of selected cantos from Inferno, Purgatorio, and Paradiso, students learn how to approach poetry as a vehicle for thought, an instrument of self-discovery, and a way to understand and affect the world. They also gain a perspective on the Biblical, Christian, and Classical tradi- tions as they intersect with the multiple levels of Dante’s concern ranging from humanism to religion, from philosophy to theology. Lectures and class discussion are comple- mented by a weekly recitation session. Intensive class participation is encouraged. Prerequisite: none. (Fall)

Spring Semester  
Consult the medieval and early modern studies program website at www.rochester.edu/college/msc/medieval.html for More Information  
Consult the medieval and early modern studies program website at www.rochester.edu/college/msc/medieval.html for More Information

Myers College of Education
MODERN LANGUAGES AND CULTURES

For Students with Previous Language Training

The College Board Subject Test Advanced Placement scores or International Baccalaureate rankings assist departmental advisors in finding the right course level for you. Information on how you learned the language or languages you know will also help us advise you on the most appropriate courses for you in the Department of Modern Languages and Cultures. The first step is to take the online placement exam for Chinese, French, German, Italian, Russian, or Spanish. (For Japanese, Korean, and Portuguese, contact the particular program’s undergraduate advisor.) For the online placement exams in Chinese, French, German, Russian, or Spanish, you will receive a score that will assist advisors to help you choose the advanced classes that you provide and with any AP or IB scores you have submitted that will help determine your placement in a specific language course. Please note that any semester placement you may receive with your score on the numerical test scores are not University of Rochester placement rubrics. For Italian, you should discuss your score with the undergraduate advisor in the program.

Advanced Placement (AP)

AP 4: Students will be placed into the department by 150 or 200. Credit is granted for 151 upon completion of 152 with a grade of B or better. Credit is granted for 151 and 152 upon completion of 200 with a grade of B or better.

AP 5: Placement into 200. Credit for 151 and 152 is granted upon successful completion of 200 with a grade of B or better.

French—AP score of 5: Students will be placed by the department into FR 200 Advanced French. Four credit hours will be awarded upon completion of FR 200 with a grade of B or better.

Spanish—AP score of 5: Students will be placed into SP 152. Credit is granted for SP 151 upon completion of SP 152 with a grade of B+ or better.

Spanish—AP score of 5: Placement into SP 200. Credit for SP 151 and SP 152 is granted upon successful completion of SP 200 with a grade of B+ or better.

International Baccalaureate (IB)

IB 5: Students are placed into IB 150 and are awarded credit for 151 after completion of 152 with a grade of B or better.

IB 6: Students are placed into IB 200 and are awarded credit for 151 and 152 upon completion of 200 with a grade of B or better.

IB 7: Students are placed into IB 200 and awarded credit for 151 and 152 upon completion.*

MLC Clusters

Completion of a cluster of three courses in MLC fulfills the humanities requirement for graduation. In addition, Russian study offers several humanities and one social sciences cluster. Each language program in the department offers clusters at the beginning, intermediate, and advanced levels, as well as others based on specific topics or themes, so any course you choose in MLC will fit into one or more clusters. Comparative literature and the national language programs offer clusters focusing on literary studies, cultural theory, and interdisciplinary topics. A few examples are Modern French Thought, Italian Culture and Civilization, Germany before Nazism, Japanese Popular Culture, Russian Literature and Culture, and Literature and Identity in Hispanic Societies. Some of these are in-take courses; others include MLC courses plus offerings in history, art and art history, music, anthropology, film and media studies, and gender and women’s studies. A couple examples are Introduction to European Studies and Continental Philosophy.

Special Opportunities: Study Abroad

MLC programs help students pick the study abroad offerings best suited to their interests and languages abilities. MLC also sponsors a yearlong exchange program with the University of Cologne and the University of Rennes. University of Rochester financial aid is transferable for many study abroad and internship opportunities. Through MLC, students taking courses in the department may also apply for a Mildred R. Burton Undergraduate Travel/Research Fellowship. Each year, many students are awarded fellowships to use toward our study abroad programs.

Courses

The Department of Modern Languages and Cultures currently offers introductory through advanced courses in Chinese, French, German, Italian, Japanese, Russian, and Spanish; introductory and intermediate courses in Portuguese; and introductory courses in Korean. This enables students to begin a new language or continue in a familiar one beginning with their first semester. Other courses, such as those listed here, provide more-advanced studies in other literatures and cultures. Some of these require proficiency in the language; others are cross-listed with CLT and taught in English.

Spring courses to be offered.

FR 204 Contemporary French Culture. This course is designed to provide students with a comprehensive view of French contemporary culture through major trends of French cultural, political, and intellectual history in recent years. While we cannot study the entire French cultural tradition, we will attempt to establish a conceptual framework that would help us in the understanding of complex questions such as What does it mean to be French? What is France? What is French culture? FR 233 Realists and Romantics. Nineteenth-century French literature witnessed two competing but also complementary literary currents: romanticism and realism. This course studies these two movements with reference to the historical, political, and social contexts in which they arose, as well as to their common intellectual source in Rousseau. We examine the lyric poetry of Lamartine, Vigny, and Musset, the literary and cultural criticism of Madame de Stael (De la littérature), the novels of Constant (Adelpho) and Hugo (Le dernier jour d’un condamné), the realist novels of Balzac (Le Cousin Pons), and Flaubert and his critical reputation (Madame Bovary). Youth and Education (Hugo, Le fancy of Education), the political and social significance of the Revolution, the development of literature as an institution in France during the 19th century. Each week, we will read and discuss a series of literary works. Students are placed into 200 and are awarded credit for 151 and 152 upon completion of 200 with a grade of B or better.*

*For Spanish, a grade of B+ or better is required.
RUS 215 Advanced Literature and Culture in the Original B. A continuation of RUS 212. Prior enrollment in RUS 212 is not required. (Fall) SP 203 Origins and Empire: Reading the Early Hispanic World. This course critically examines texts from a variety of literary genres for their portrayal of the Hispanic literary culture before the 19th century, with attention to several central and intertwining themes: literature and the spaces of the imagination; the experience of the past and the new version of tradition; changing relations between fiction and history; the transformation of historical narratives into the recalling of narrative; and the emergence of a vibrant urban culture. No background in Chinese literature is required or assumed. (Fall) CLT 101C Disability Studies: Rethinking Difference and Diversity. People with disabilities constitute the world's largest, most stigmatized, and most marginalized "minority," and yet many of us don't include this identity in our thinking when we speak of and celebrate human diversity and inclusion. The field of disability stud- ies has, since the 1990s, examined and theorized the complex mean- ings of disability throughout history. Work by DS scholars offers insights into disability identities as both embodied realities and social and cultural constructions. This course provides an introduction to disability studies and an exploration of the literary representations of physical, intellectual, and psychosocial disabilities in works chosen from a variety of national traditions. Reading journal, short essays, research paper. FR 289/CLT 261/IT 229/288/PHL 292 Philosophy of Art. Course examines the major philosophical approaches to art, both continental and analytic, focusing mainly on the 20th century. Top- ics include the nature of the art, the end of the ontology of art, the meaning of art, the permitted versus autonomous art, fascism and art, art and value, art and mass media. Students authorized to examine Nietzsche, Adorno, Sartre, Foucault, Derrida, Ranciere, Goodman, Danto, Crimp, Vattimo. Conducted in English. (Fall) GER 132/136/ENG 117/FMS 132 Introduction to the Art of Film. Course examines the major philosophical approaches to art, both continental and analytic, focusing mainly on the 20th century. Topics include the nature of the art, the end of the ontology of art, the meaning of art, the permitted versus autonomous art, fascism and art, art and value, art and mass media. Students authorized to examine Nietzsche, Adorno, Sartre, Foucault, Derrida, Ranciere, Goodman, Danto, Crimp, Vattimo. Conducted in English. (Fall) RUS 237/RST 237/RST 237/CLT 255D Dostoevsky. This course explores the weird, dreadful, eerie, exotic, and incomprehensible world of Kafka's writings. In Kafka's stories dogs conduct investigations, apost report to academies, turn men into bugs, the Statue of Liberty holds up a sword, and arrests occur without explanation as all expectations and assurances about the "rules" of existence, thought and social order come into question. In this course we read texts such as The Trial, The Metamorphosis, Amerika, The Castle, Investigations of a Dog, A Report to the Academy, The Little College, and A Hunger Artist. This course is taught in English. (Fall) GER 252/CLT 252/155 Bright Lights, Big City: The Urban Imagination. The city in film and literature is never just a physical space—discourses of modernity and urban life are mapped onto imagined urban spaces. In this course we explore how the relationship between the spaces of the city and the stories told about and through them shape our understanding of urban life. Some of the texts we examine are Fritz Lang's M, Arthur Schnitzler's Dream Story, and Lloyd Bacon's 42nd Street. (Fall)
Memory.
Speake
and
Obscura, Invitation to a Beheading, The Gift, Lolita, Pnin
King, Queen, Knave, The Defense, Camera
taught? Readings include published, how did the author himself think literature should be
dom, and independent thinking. We also analyze Nabokov's artistic
ing of Nabokov's style, philosophy, and ethical principles. Our
and culture of secrecy in Russia from Ivan the T errible to the present.
originally a defensive move came to undermine the state it sought to
the means by which this was accomplished. Official secrecy that was
get a richly detailed picture of the information that was hidden, and
a freer press began to do the same from below. W e use materials from
Gorbachev began the process of uncovering secrets from above, and
ation from the government, and foreign states sent out disinformation
(Fall)

For More Information
Please visit the modern languages and cultures program website at www.rochester.edu/college/mlc.

FR 211 French Grammar (TBD)
GER 152 Intermediate German I (Fall)
GER 152 Intermediate German II (Spring)
GER 200 Advanced German Conversation and Composition (Fall)
IT 114 Conversational Italian (Both)
IT 151 Intermediate Italian I (Both)
IT 152 Intermediate Italian II (Spring)
IT 200 Advanced Italian Composition and Conversation (Fall)
JPN 114 Intermediate Conversational Japanese (both)
JPN 151 Intermediate Japanese I (Fall)
JPN 152 Intermediate Japanese II (Spring)
JPN 202 Advanced Intermediate Japanese I (Fall)
JPN 203 Advanced Intermediate Japanese II (Spring)
JPN 205 Advanced Japanese I (Fall)
JPN 206 Advanced Japanese II (Spring)
POR 151 Intermediate Portuguese I (Fall)
POR 152 Intermediate Portuguese II (Spring)
RUS 110 Conversational Russian (Fall)
RUS 151 Intermediate Russian I (Fall)
RUS 152 Intermediate Russian II (Spring)
RUS 200 Advanced Russian (Spring)
RUS 202 Advanced Readings in Russian (Fall)
SP 151 Intermediate Spanish I (Both)
SP 152 Intermediate Spanish II (Both)
SP 200 Advanced Spanish Composition (Both)

Music

“The man that hath no music in himself Nor is not mov’d with concord of sweet sounds, Is fit for treasons, stratagems, and spoils; The motions of his spirit are dull as night, And his affections dark as Erebus. Let no such man be trusted.”
—William Shakespeare

Information about the Department

Students from all disciplines may participate in the pleasers of musical study and performance to acquire a deeper understanding of the many ways music reflects values of various cultures, influences lives, and enriches human existence. The Department of Music in the College offers courses of study leading to the BA degree with a major, a minor, and six clusters in music. Numerous varied courses address non-majors who wish to study music on an introductory, interdisciplinary, or aesthetic basis. Degree programs, course offer-
ings, and performance opportunities in music are diverse and invite choice and flexibility. Courses offered at the Eastman School of Music, normally open to any student presenting the proper prereq-
usites, augment the range and depth of musical experiences and courses available to students in the College.

Full-time, matriculated undergraduate students who pass an entrance audition may take applied music lessons at Eastman. See Departmental Advice for Freshmen, below, about applying and auditioning for lessons; interested students should visit www.esm.
rochester.edu/lessons and sign up for an audition prior to the first
week of classes. Note to brass musicians—unlike other instrumental areas, the brass auditions include musical excerpts to be prepared in advance. Please contact the performance program manager in the
music department to obtain PDF files of the required excerpts.

The BA with a Major in Music

The College’s Bachelor of Arts degree in music addresses students who can meet both the intellectual and muscular challenges of a rigorous program that emphasizes the broad experience of a liberally
educated person. The concentration comprises a balanced program of academic courses, private instruction, and ensemble experience that fosters understanding of musical languages, historical develop-
ments, and compositional styles while encouraging excellence in performance.

Students may choose from among eight individual “tracks” of study with the core curriculum in music theory and history, in-
cluded in all tracks, providing the common foundation for advanced study of specialized subject fields in music (musicology, theory, conduct-

[64]
ing, management, performance, composition, music education, etc.) both as emphases in the final years of undergraduate education and at the graduate or professional level. Majors wishing to pursue something other than the basic track can choose an alternative track in composition or music business, conducting music history/theory, music in world cultures, musical theater, performance, and popular music/jazz.

Any student interested in a 2+3 program in ethnomusicology or a BA/MA combined program with certification in music education, both offered in conjunction with Eastman, should contact Matthew Bailey/Shea during Orientation or soon afterward.

Although the major in music is a demanding one, students often also explore other majors or minor in music.

Freshmen who plan to major in music should take the theory placement examination to determine appropriate placement in the theory curriculum. Prospective majors should also audition for applied music lessons and an ensemble.

Advanced Placement (AP) Students who have taken the Advanced Placement Examination in Music Theory and earned a score of 4 or 5 can receive advanced placement credit for the course MUR 110.

Music Clusters Students whose major is in the social sciences or natural sciences and engineering divisions are invited to choose one of the six music clusters:

Music Theory (H1MUR01) Grammar and syntax of Western music, including notation, harmony, counterpoint, and some composition.

Introduction to Classical Music (H1MUR03) Explores Western art music from a variety of perspectives, including music theory, history, and performance.

Popular Music (H1MUR04) Explores various styles and forms of popular music in Western culture.

World Music (H1MUR17) An introduction to non-Western music.

Musical Styles and Ideas (H1MUR16) A diverse array of repertories and approaches to the musical experience.

The Performing Musician (H1MUR11) A hands-on approach to the experience of music.

Courses Applied Music Lessons. Each year, approximately 250 non-music majors on the River Campus take private instrumental or vocal lessons for credit at the Eastman School of Music. All full-time, matriculated students who read music and perform at an intermediate level are eligible. Each semester, students meet with their instructors once each week, receiving collegiate credit for their lessons. The addition of the lesson to a normal 16-credit-hour semester schedule is not considered an overload.

Courses Open to Freshmen MUS 100 Restricted Placement.

A new approach to “music appreciation” that could be offered only at the University of Rochester, with its extraordinary musical resources, including nearly 800 concerts and recitals per year, a professional-quality recording studio, and the largest system of collegiate music theater to be found in the world, offers students the “ears-on” experience of various aspects of musical performance and assumes no previous technical training in music. Participants develop listening skills through the enjoyment of live musical presentations, in-class performances, discussions with the performers and living composers, and guided listening sessions.

Students attend some rehearsals and performances, including at least one Rochester Philharmonic concert in Kodak Hall at the Eastman Theatre. Websites and other technological media are also used in lieu of text. (Spring, alternate years)

MUR 101 Elements of Music. A course for the student with no previous musical experience. Topics include notation, intervals, chords, and other basic components of the study of a wide range of styles, including popular idioms. Students should not be able to read music. Prerequisite for MUR 111. For the student with no previous musical experience. (Fall and Spring)

MUR 103 Musical Adventures (Too Hip a Trip to Miss). Back to Coolidge—and lots of stops in between—this course explores the wonderful world of music. We’ll fill our backpack with a few essentials for our journey: some musical vocabulary and grammar. We’ll explore such questions as: “What is music?” and “Why do humans make it?” We’ll find out what one another of us think is musically “mint” and musically “gross” and why. We’ll explore the interesting world of musical sounds and styles of New Orleans; Chicago, and Harlem. From concert halls to church halls; from beer halls to dance halls, we’ll go in search of music. We’ll meet Duke and Counts and Princes and Queens, royal and otherwise. And, because everyone has some sort of invention, we may even put our hand at a little musical creation. Prerequisites: none. (Spring)

MUR 104 Carillon. Private carillon instruction, weekly 30-minute lessons or the equivalent. By audition only. Permission of instructor required. (2 credits)

MUR 106 A Brief History of Western Music. This course is meant to be both a traditional class in music appreciation and a broad survey of Western notated music from its earliest manifestations up to the present day. Early lectures and assignments help students develop more sophisticated listening skills and a conceptual vocabulary with which to talk about music. We then focus on representative pieces from each major art-historical period (medieval, renaissance, baroque, classical, romantic, modern, postmodern) as well as explore how that music functioned and held meaning for the people in those specific historical periods. The study of music addresses the temporal and spatial aspects of music through repertory and musical style, and short writing assignments venture into more detailed analyses and interpretations of musical works.

MUR 109 Musicanship I: Literacy Skills. Extensive work with clefs, notation, intervals, and scales. Aural work through sight singing and dictation emphasizing melody and rhythm. Music-reading work emphasizes speed and fluency in recognizing structures in music. Prerequisite: Ability to read music notation in treble and bass clefs. (Fall and Spring) (1 credit)

MUR 110 Introduction to Music Theory. Basic concepts of music theory addressing students with some musical experience in an instrument or voice but little or no music theory. Scales, keys, intervals, modes, chord structure, and other fundamental aspects of musical structure. Some ear training and aural skills. Prerequisite: ability to read music, preferably in both treble and bass clefs. (Students who have completed MUR 101 should not register for MUR 110.)

MUR 111 Theory I. The first in a four-course sequence. Deals with basic elements of harmony, voice-leading, and analysis. Part-writing in choral style teaches elementary aspects of tonal theory. Prospective music majors should begin their theory requirement with this course. Prerequisites: MUR 101 or 110 or permission of instructor (placement test). (Fall only)

MUR 113 Musicship II. This course develops basic musicianship skills with an emphasis of diatonic sight-singing, rhythmical sight-reading, and dictation of diatonic melodies and chord progressions. The exercises and in-class activities are similar to MUR 109 but at a more advanced level. (Fall and Spring)

MUR 118 Beginning Piano for Non-Music Majors I. Elective course for non-music majors from River Campus with no previous keyboard instruction and cannot read music. The course includes techniques, fundamental skills, and repertoire. Note: Seating is limited due to keyboard availability; no additional students will be accepted once the sessions are full. Classes are held at the Eastman School of Music. Students should check the school’s website for information on start date, cancellations, etc.: www.esm.rochester.edu/classplan/ (Fall only) (2 credits)

MUR 119 Beginning Piano for Non-Music Majors II. Continuation of MUR 118. Note see MUR 118 above. (Spring) (2 credits)

MUR 122A History of Jazz. This study of jazz as an American musical art form is structured around the lives and music of jazz musicians across a range of instrumental, vocal, and ensemble genres. Course focuses on jazz titans, those individuals and musical groups distinguished by their seminal and permanent influences, such as Louis Armstrong, Miles Davis, or Coleman Hawkins or their shorter intense careers, such as Charlie Parker. Blues, ragtime, swing, bebop, cool, progressive, and free jazz are landmark terms. And finally, study of the musical history is enhanced by considerations from sociological, linguistic, and philosophical perspectives. The instructional format includes lectures, discussion, and intensive emphasis on listening. This course is designed for students with little or no musical training, simple technical, musical vocabulary and concepts will be provided. Reading, listening assignments, brief written assignments, and two exams. Prerequisites: none. (Fall only)

MUR 122B History of Jazz II. This course focuses on jazz music and musicians in the latter half of the 20th century (ca. 1955–2000). We investigate the relationship of jazz to the following topics: new musical styles; other art forms; changes in American society; technological developments; and the media, including radio, television, and new media. In doing so, we consider not only musicians who first emerged as leaders during this period (Omar Johnson, Bill Evans, Herbie Hancock, Keith Jarrett, Chick Corea, Wynton Marsalis, John Scofield) but also those whose careers began earlier (Louis Armstrong, Dizzy Gillespie, Miles Davis, Gil Evans) and continued into the 1990s and beyond. We also examine how telematics and new technologies are reviewed by subsequent generations of musicians and listeners. The instructional format includes lectures and discussion along with in-class viewings/listenings of recorded performances. This course is designed for students with little or no musical training. The coursework consists of assigned readings, listings, brief written assignments, and two exams. Prerequisite: none.

MUR 123 Music of Black Americans. The course studies the Black American Christian musical beginnings and includes forms of worship, early musical practices, the Spiritual, evolution of Gospel. An examination of antebellum musical activities follows, including several song types, character of the folk music with respect to poetic and musical form, language, and themes. Attention is given to significant literary and aesthetic developments, especially during the Harlem Renaissance and the poetry of several writers of that era are surveyed. The course treats blues, its origins, and its evolution through various stages of development. Physical music forms from the 1860s to mid-20th century; music of the theater from minstrel to Broadway; precursors of jazz, the synecdoche dance orchestra and brass bands; early jazz to bebop round out the course offerings. (Spring only)

MUR 124 Signed, Sealed, and Delivered: Deals and Innovations that Changed the Music Industry Forever. A look at the historical deals and innovations that have impacted the music business between 1877 and the present. From groundbreaking Territorial licensor initiatives to swapped back-deals, this course explores the key moments when the record industry changed forever, both for good and for bad. (2 credits)

MUR 125 History of Rock Music. This course explores the history of rock music, emphasizing the period between 1955 and 1990. The periods preceding (1900–55) and following (1990–present) are considered to a limited extent. Discussion and reading focus mostly on the music, identifying a wide variety of rock music styles within its historical context of the development, transformation, and interaction of popular styles of these decades in general. Issues of technological development, social, political, and cultural context, race and gender, and music business practices are considered also. Prerequisites: none. Knowledge of musical terms and ability to read music are not required for this course. (Spring)

MUR 126 Opera. A small number of representative operas are used to highlight the history of this controversial 400-year-old art form and its creators, performers, and audiences. Drama, music, staging, spectacle, and dance are examined as components of production. Divas welcome. Prerequisite: ability to read music.
MUR 127 The Blues. See online course description for REL 151.

MUR 128 Women and Music. This course focuses primarily on women composers but also includes material on women as performers, patrons, and consumers, as well as consideration of the role that gender plays in the experience of music. Prerequisites: none.

MUR 129 The Rolling Stones and British Blues-Rock. The music of the Rolling Stones is examined, starting with the earliest music from 1962 and extending to the early 1970s. Emphasis is on the band’s stylistic development, as well as on the British blues movement of the early to mid-1960s. The music of other blues-based British groups, including Free, Fairport Convention, the Animals, the Bluesbreakers, Cream, and Led Zeppelin, are also considered. No previous training or ability to read music is required. (Fall)

MUR 130 The Beatles, the British Invasion, and Psychyedelica. The history of the Beatles’ career and music is explored in the context of the band’s stylistic development, as well as against the backdrop of social, cultural, technical, and music-business events and issues in the 1950s, 60s, and 70s. No background in music theory or ability to play a musical instrument is required. (Fall)

MUR 131 Rock Music of the 1970s. This course surveys rock music in the 1970s, paying special attention to ways in which 70s styles developed out of 60s’ styles. Artists considered include Jimi Hendrix, Cream, Yes, Led Zeppelin, the Who, the Allman Brothers, the Eagles, Black Sabbath, the Car, Tom Petty, the Sex Pistols, and Elvis Costello, plus many more. No previous musical training is required. (Fall)

MUR 132 Star Makers. Includes a historical overview of music stars and the publicity campaigns used to promote their careers. From Frank Sinatra through the 1940s; through Elvis Presley and stars and the publicity campaigns used to promote their careers. We also look at how social media, such as career launching, crisis management (scandals, sudden death of celebrity), and tour press. We also look at how social media, such as career launching, crisis management (scandals, sudden death of celebrity), and tour press. (Spring)

MUR 140 Religion and Hip Hop Culture. Religion is an often overlooked element in the study of hip hop culture. This course offers students the opportunity to examine the variety of ways religion finds expression in the dynamic cultural medium of hip hop. (Fall)

MUR 141 Introduction to Audio and Music Engineering. The science and technology of the electric guitar and related accessories such as amplifiers and effects processors opens a window onto the fields of audio, music, and electrical engineering. The course begins with students building and experimenting with electric guitars to learn about the vibration of strings, musical tuning systems, overtones and timbre, modes of oscillation, Fourier analysis, transducers and passive electrical components, and circuits. In a second project, a headphone amplifier, students are introduced to the fundamental concepts of electronics, including voltage, current, resistance and impedance, basic circuit analysis, ac circuits, impedance matching, and analog signals. The course then moves on to introduce basic digital signal processing concepts through a guitar effects processor (stomp box) project; this includes conversion of sound to digital format, frequency analysis, digital filtering and signal processing, and musical sound synthesis. (Fall)

MUR 154 High Voltage: Heavy Metal Music and Its History. Behind the screaming guitars, thundering pulse, and soaring vocals of heavy metal lies an impressive history of censorship, rebellion, and redemption. In this course, students study both the musical structure and the fascinating social/cultural history of hard rock and metal through reading, listening, discussion, and analysis. More than 40 years of hard rock and metal trends are discussed—Suburban to Stryper to Slipknot—and several guest musicians and lecturers complement the course material with performances and anecdotes. Students demonstrate their knowledge through listening quizzes, three full-length exams, writing assignments, and a comprehensive final project. Prerequisites: none. (Fall)

MUR 161 Broadcasting in the Digital Age. A descriptive and critical analysis of the nature of electronic mass media, broadcast practices, and the historical development of mass media institutions and role of media in society, including evaluation of news, government regulation, economics, emerging technologies, and audience dynamics, as well as decision-making and organizational aspects of the broadcast industry. Designed to provide a broad, rigorous orientation for understanding basic elements of media production as well as skills training in reporting, writing, editing, delivery, and production of broadcast media. (Spring only)

MUR 201 Basic Jazz Theory and Improv I. Rudiments of jazz, including chord and scale spellings, chord/scale relationships, jazz/ pop chord symbol nomenclature, basic forms, chord substitutions, piano voicing; strong emphasis on ear training, vocalization, transcription from records of jazz solos. Prerequisite: MUR 111 or permission of instructor. (Fall only) (2 credits)

MUR 202 Basic Jazz Theory and Improv II. Continuation of MUR 201. Prerequisite: MUR 201 or permission of instructor. (Spring only) (2 credits)

MUR 203 Susan B. Anthony and Her World. See online course description for WST 201.

MUR 210 Ngoma: Drumming, Dance, and Ritual in Southern Africa. Ngoma is used in ceremonies focused around individual and social healing. In this class, students bring ngoma alive by learning to perform various Zimbabwean ngoma gestures with the option of specializing in either drumming or dance. Through video clips, audio recordings, photos, and articles, we also learn to understand ngoma within a larger cultural framework. (Spring only) (2 credits)

Eastman Courses

In addition to those listed above, qualified students may take courses at Eastman. In general, introductory theory courses (MUR 111 and 112) are prerequisites for taking most Eastman music courses, and the instructor’s permission is necessary to register.

Ensembles

Auditions for performing ensembles occur during the first week of the academic year. During orientation, audition sign-up sheets are posted on the large bulletin board in the hallways of Todd Union. Contact Joseph Hanson (joseph.hanson@rochester.edu) for details. Students accepted into the groups may receive credit for registering for ensembles during the Drop/Add period. Those who complete the semester satisfactorily receive one credit and a grade.

Information about the Program

The Music and Sound Initiative is an exciting collaboration between the University’s Arts, Sciences, and Engineering disciplines and the Eastman School of Music. Music, science, and engineering play pivotal roles in the University of Rochester in and the broader Rochester community. The Music and Sound Initiative serves as a focal point for enhancing and expanding research programs that span these disciplines. It welcomes new participants and encourages students who wish to engage in interdisciplinary study in these or related disciplines to visit our website (www.rochester.edu/College/ music/) and to contact us.

The Music and Sound Program at the undergraduate level includes two minors and five clusters that explore and unite the topics of music theory and music processing; language structure...
and processing; the auditory system that processes both music and language; and cognition, the larger set of abilities of perception, memory, and learning that permit humans to appreciate and learn music and language. The core undergraduate course in music and sound is BCS 260 Music and the Mind. This course is a requirement for all minors and clusters. While one semester of music theory is a prerequisite for all students taking BCS 260, students who are already taking music theory as part of a major or minor in music can take advantage of several clusters designed "for musicians." These clusters encourage the student to pursue an additional course in language, linguistics, or cognition to round out their experiences, rather than simply overlapping with their knowledge of music theory.

Advice for Freshmen

Students interested in a cluster or minor in music and sound should consider completing one or more of the following during their freshman year: BCS 110, BCS 111, MUR 110, MUR 111, LIN 110. Each of these courses is part of at least one cluster or minor.

Advanced Placement

Students who scored a 4 or 5 on the Advanced Placement Exam in music theory can enroll in Music Theory I, BCS 111 Foundations of Cognitive Science, BCS 111 Foundations of Cognitive Science I. These courses in the spring.

Freshmen who complete BCS 110 or 111 during the fall semester may be eligible to take certain upper-level brain and cognitive science electives in the spring. Similarly, students who complete NAV 093 Introduction to Naval Science. Freshman Year Classes

Naval Reserve Officer Training Corps Rochester leads 70 men and women, Midshipmen, to earn a college degree and a commission in the Navy or Marine Corps. We develop academic, moral, and physical excellence. Staff mentorship and fellow Midshipman camaraderie ease the transition to college and set a framework for future success. Midshipmen normally take one naval science course per semester, starting with the two listed below. Additionally, a weekly lab period covers topics of interest to the military service: leadership seminars, speakers on cultural studies, and visits from officers serving in the fleet. Outside the classroom, activities include intramural sports and community service. In regional military drill and athletic competitions, we consistently place among the top three. An integral part of the University and community, Midshipmen participate in the full range of Rochester activities.

For More Information

Please visit the naval science program website at www.nav.rochester.edu.

THE INSTITUTE OF OPTICS

Optics and optical engineering deal with the generation, propagation, detection, manipulation, and application of light. The University of Rochester's optics department, called the Institute of Optics, is one of the world's leading centers for teaching and research in this dynamic field and has been for quite some time—it awarded the nation's first BS degree in optics in 1932. Although few people realize that "optics" and "optical engineering" are things they could major

"...all our science, measured against reality, is primitive and child-like—and yet, it is the most precious thing we have."—Albert Einstein

Information about the Department

Courses

Freshman Year Classes

NAV 093 Introduction to Naval Science. This course introduces students to life in the United States Navy and Marine Corps. Taught by a naval officer, course content covers military customs, courtesies, and traditions; rank structures; officer and enlisted relationships; and potential career paths. Individual research projects allow students to explore areas of interest. Active-duty guest speakers share their service experience. (Fall)

NAV 250 Sea Power and Maritime Affairs. This course focuses on the development of the U.S. Navy and Marine Corps. As the country and the world have grown and changed, so too has our service. It examines how the history of the Navy fits in with, and has been shaped and influenced by, the history of the country and the world. The class also explores how changes in technology, strategy, politics, and personalities, along with the battles and wars fought, have made the Navy and Marine Corps what they are today. (Spring)

For More Information

Please visit the naval science program website at www.nav.rochester.edu.

NAVAL SCIENCE

"If you are going to achieve excellence in big things, you develop the habit in little matters. Excellence is not an exception; it is a prevailing attitude."—Colin Powell

Information about the Department

Courses

Freshman Year Classes

NAV 093 Introduction to Naval Science. This course introduces students to life in the United States Navy and Marine Corps. Taught by a naval officer, course content covers military customs, courtesies, and traditions; rank structures; officer and enlisted relationships; and potential career paths. Individual research projects allow students to explore areas of interest. Active-duty guest speakers share their service experience. (Fall)

NAV 250 Sea Power and Maritime Affairs. This course focuses on the development of the U.S. Navy and Marine Corps. As the country and the world have grown and changed, so too has our service. It examines how the history of the Navy fits in with, and has been shaped and influenced by, the history of the country and the world. The class also explores how changes in technology, strategy, politics, and personalities, along with the battles and wars fought, have made the Navy and Marine Corps what they are today. (Spring)

For More Information

Please visit the naval science program website at www.nav.rochester.edu.
Please note: Any freshman with a strong academic background in math and physics (i.e., AP credit) may, with instructor and advisor permission, directly enter OPT 241 Geometrical Optics.

Rochester students completing the BS in optics in recent years have chosen to pursue graduate studies in optics, physics, electrical engineering, and biomedical engineering; to accept positions as optical engineers in the thriving optics industry; to work in engineering sales; and to enter business programs to pursue an MBA. Medicine and law also offer significant opportunities for someone with a background in optics. Optical instrumentation and techniques are increasingly important in medical research and medical practice, so a medical doctor (or an MD/PhD) with a BS in optics is uniquely educated to become a key participant in these emerging areas.

Likewise, because of the strong entrepreneurial spirit of the optics community, a patent attorney with a BS in optics can establish a very active practice.

Typical Freshman Year Program

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 161</td>
<td>MTH 162</td>
</tr>
<tr>
<td>CHM 137</td>
<td>PHY 121</td>
</tr>
<tr>
<td>WRT 105 or cluster course</td>
<td>WRT 105 or cluster course</td>
</tr>
<tr>
<td>OPT 101 Introduction to Optics</td>
<td>Scientific computing course</td>
</tr>
</tbody>
</table>

Courses

OPT 101 Introduction to Optics. This course provides an introduction to the field of optics—from ancient history to the future. Fundamental concepts such as refraction, diffraction, interference, and imaging are explored in a nonmathematical interdisciplinary approach. Each class includes vivid demonstrations that students can try out in the laboratory afterward. The importance of optics in other fields such as electrical, mechanical, biomedical, and chemical engineering, as well as physics and biology are explored and highlighted. Team projects and presentations give students in-depth appreciation of modern technologies ranging from DVD data storage to quantum encryption. We also discuss career paths and jobs in optics.

Study Abroad Opportunities

We encourage our students to study abroad, typically during a semester of junior year. Many study abroad credits transfer to the optics curriculum, and instruction can either be in English or the language of the host country. Examples of study abroad programs for optics include Australia, Spain, and New Zealand.

For More Information

Please visit the Institute of Optics website at www.optics.rochester.edu or visit the undergraduate program manager located in Wilmot Building. Room 106.

Information about the Department/Advice for Freshmen

The Department of Philosophy offers a variety of courses concerning traditional and contemporary philosophical issues. Many philosophical problems arise from a reflective examination of our ordinary beliefs. An excellent example is the problem of freedom and determinism. Most people believe that they have free will but also believe that people are biological organisms whose behavior is determined by internal and environmental factors. These beliefs raise philosophical questions: Can people be both free and determined? If so, how can that be? If not, which are we? Some other philosophical problems concern the nature and methods of scientific inquiry, morality, the legitimacy of governmental coercion, and knowledge and skepticism. The department offers courses on these topics and others, as well as courses on reasoning and logic.

The philosophy major requires 10 courses, including PHILO 111, two required courses in the history of philosophy, one course in logic, and an undergraduate seminar. Concentrators wishing to emphasize a particular sub-field of interest may make use of optional guidelines for ways of satisfying the major that emphasize either Law and Ethics, History of Philosophy, or Logic and the Philosophy of Science. Many philosophy majors are double majors, and majors who qualify may participate in a philosophy honors program. (For more information about our requirements and guidelines, see www.rochester.edu/college/phl.)

The Department of Philosophy also offers a minor, which consists of five courses (at least two of which are upper-level, i.e., with numbers above 202), chosen in consultation with the undergraduate advisor.

In addition to the major and minor, the department offers six clusters: Ethics and Values; History of Philosophy; Logic; Knowledge, Mind, and Nature; Philosophy and Law; and Philosophy and Teaching Internship. All except the logic cluster are in the humanities. There is considerable flexibility within each cluster. Many introductory courses may be used as the first course in a cluster.

The department sponsors a variety of internships, including some for law and a teaching internship in which students work with elementary school children on reading, writing, and critical thinking skills. Many philosophy majors go on to law school, where they find the analytic and critical skills emphasized in philosophy most useful. Others go into medical or business school. Some go on to do graduate work in philosophy.

All students who wish to take a philosophy course, including those students who plan to major in philosophy, are encouraged to begin with any of the introductory courses listed below. It is possible for students to take some upper-level courses without taking an introductory course first, but it is undesirable to do so.

International Baccalaureate (IB) Philosophy—Students who receive a higher-level exam score of 5 or better are awarded credit for PHILO 101. No credit is granted for subsidiary-level exams.

Courses

PHL 101 Introduction to Philosophy. A study of fundamental philosophical problems and approaches to their solutions. (Fall and Spring)

PHL 102 Ethics. A critical examination of leading theories of right and wrong, and good and evil. (Fall and Spring)

PHL 103 Moral Problems. The application of ethical theory to moral problems, such as punishment, abortion, and racism. (Fall and Spring)

PHL 105 Reason and Argument. This course is a study of reason and argument on both scientific and nonscientific topics. We discuss how to evaluate reasoning as it is found in editorials, speeches, and essays and how to understand and evaluate the reasoning found in reports on scientific research. (Fall)

PHL 110 Introductory Logic. Precise methods for formalizing arguments, demonstrating their validity, and proving theorems in first-order symbolic logic are discussed. (Fall and Spring)

PHL 111 Philosophy of Religion. Same as REL 161. (Fall)

PHL 118 Business Ethics. A study of the applications of general moral theory to some of the important moral problems arising in the areas of business and management. (Spring)

PHL 152 Science and Reason. The nature of science and its relationship to religion: Are there criteria that distinguish science from non-science? Is there such a thing as the scientific method? Has knowledge advanced steadily through the history of science? What role do values play in science? Do science and religion conflict? Is intelligent design science? (Fall)

PHL 171 Philosophical Foundations of Feminism. The investigation of some of the philosophical issues raised by contemporary feminism, such as questions of power, justice, human nature, and human freedom. Same as WST 205. (Spring)
Information about the Department

The Department of Physics and Astronomy is dedicated to providing an environment that gives flexibility and customized study plans in which all undergraduate students have the resources they need to succeed. The research interests of the department are very broad, covering condensed-matter physics, nuclear and particle physics, biological physics, plasma physics, mathematical physics, quantum optics, atomic and molecular physics, astrophysics, and infrared astronomy. Research colloquia and seminars are offered every week during the academic year and are open to undergraduates.

We offer special programs for undergraduate students, such as the Research Experience for Undergraduates (REU), the Rochester Symposium for Undergraduate Physics Students (RSUPS), and the Teaching Internship Program. In addition, the department supports a students’ section of the American Institute of Physics, serving the interests of undergraduate and graduate students. Undergraduate students are encouraged to engage in research activities at research laboratories on and off campus. There are opportunities for learning data analysis using the excellent computer facilities of the department.

Most information is available in the Physics and Astronomy Undergraduate Handbook available from our undergraduate office (Room 211 Bausch & Lomb Hall) and on our website at www.pas.rochester.edu.

General Advice

The Department of Physics and Astronomy offers programs leading to the BA or BS in physics; the BA or BS in physics and astronomy minors in either physics or astronomy; and certificates in biological physics, medical physics, or biological and medical physics. The BA program in physics is designed for those students interested in physics in conjunction with another area of human endeavor (law, environmental sciences, energy policy, medicine, business, engineering, education, etc.). It lends itself to a double major with other departments.

The BS program in physics provides a thorough preparation for graduate work in physics and astronomy and to students with career interests in teaching and research. The curriculum stresses the fundamentals: classical mechanics, electromagnetism, thermal and statistical physics, quantum mechanics, modern laboratory practices, and introductions to nuclear and particle physics, solid state physics, biological physics, astrophysics, and astronomical techniques. Students are encouraged to present a senior thesis and to participate in research opportunities provided by the department’s research groups. Typically, about 30 undergraduates per year participate in summer and academic-year research. The department is the site of an NSF-funded Research Experience for Undergraduates (REU) program.

The BA and BS programs in physics and astronomy require, in addition to many of the same courses required for the degree programs in physics, up to two introductory and up to three upper-level courses in astronomy. Students without previous experience in astronomy and who are not expecting to pursue careers in astrophysics are encouraged to present a senior thesis and to participate in research opportunities provided by the department.

The Department of Physics and Astronomy offers programs leading to the BA or BS in physics; the BA or BS in physics and astronomy minors in either physics or astronomy; and certificates in biological physics, medical physics, or biological and medical physics. The BA program in physics is designed for those students interested in physics in conjunction with another area of human endeavor (law, environmental sciences, energy policy, medicine, business, engineering, education, etc.). It lends itself to a double major with other departments. The BS program in physics provides a thorough preparation for graduate work in physics and astronomy and to students with career interests in teaching and research. The curriculum stresses the fundamentals: classical mechanics, electromagnetism, thermal and statistical physics, quantum mechanics, modern laboratory practices, and introductions to nuclear and particle physics, solid state physics, biological physics, astrophysics, and astronomical techniques. Students are encouraged to present a senior thesis and to participate in research opportunities provided by the department’s research groups. Typically, about 30 undergraduates per year participate in summer and academic-year research. The department is the site of an NSF-funded Research Experience for Undergraduates (REU) program.

Departmental Advice for Freshmen

Students with interests in science, mathematics, or engineering who are not yet taking physics in high school are encouraged to begin their introductory study with PHY 141 (honors) in the fall semester. They will continue with PHY 143 (honors) in the spring semester and PHY 142 (honors) in the fall semester of their sophomore year. Students without previous experience in calculus and/or physics are advised to delay their first physics course until the spring semester, when PHY 121 is offered. Students who dwell in PHY 121 and wish to pursue introductory physics in greater depth can then switch to PHY 142 (honors) in the fall semester of their sophomore year. The regular continuation of PHY 121, PHY 122–123, is also suitable for physics and engineering students. PHY 113–114 is a calculus-based two-semester course sequence appropriate for majors in the biological and life sciences. For other majors requiring a less intensive introduction to physics or astronomy, PHY 100, 102, 103 and AST 102, 104, 105, 109 are courses for nonscientists and are intended for the physics or the physics and astronomy cluster programs.

Students enrolled in PHY 121 or PHY 141 should register concurrently for MTH 146 (Calculus I). Students with AP credit for MTH 143 or 162 or who wish to brush up on mathematical skills using books such as Preparing for General Physics, Math Skill Drills by Arnold D. Pickar (Addison Wesley). All physics and astronomy majors should start with the same recommended physics courses as physics majors (see above). In addition, freshmen are encouraged to take AST 111 in the fall semester.

Advanced Placement (AP)

Student’s AP grade

Placement/credit available

5 on test C-I (mech)  Credit for PHY 113 or 121, placement into PHY 114, 122, or 142

5 on test C-II (E&M)  Credit for PHY 114, conditional credit for PHY 122 or 142, placement into PHY 123 or 143

5 on test B (general)  Conditional credit for PHY 113 or 121, placement into PHY 114 or 122

4 on test C-I (mech)  Conditional credit for PHY 113 or 121, placement into PHY 114, 122, or 142

4 on test C-II (E&M)  Conditional credit for PHY 122, placement into PHY 123 or 143

International Baccalaureate (IB)

Physics—Students who receive a higher-level exam score of 7 are placed into PHY 114 or PHY 122. Additionally, they are awarded credit for PHY 113 or PHY 121 after completion of PHY 114 or PHY 122 with a grade of B– or better.

Clusters

Courses from the Department of Physics and Astronomy appear in 19 approved clusters. The clusters involve three-course sequences and include Science: Discovery, History, and Methodology; An Introduction to the Physical World; Quantitative Physics; Honors Physics: The Nature of the Universe; Origins; The Scientific Method; Introduction to Physical Science; The Science of Light and Sound; Musical Sound: Science and Synthesis; Mechanics; Energy and Power; Science and Technology by Inquiry; Chemistry and the Physical World; General Science; Physics in Seafaring.

Physics Courses

PHY 100 The Nature of the Physical World.

This introductory course is designed especially for students in the humanities and other non-scientific fields who are interested in learning something about the physical world. Topics include the scale of the universe from galaxies to atoms and quarks; the fundamental forces of nature, motion, and relativistic, energy, electromagnetism and its everyday applications; the structure of matter, atoms, light, and quantum mechanics. No background knowledge is required, and the material is presented with very little mathematics. Substantial use is made of demonstrations. Prerequisites: none. (Fall or Spring)

PHY 102 Visions of the Multiverse.

This is an introductory course designed especially for students in the humanities and other non-scientific fields who are interested in learning something about physics, and concepts (esp. scientific concepts) of a multiple universe reality. Topics include the nature of science, Newton’s laws, relativ- ity, light, quantum mechanics, the nature of particles and forces, and cosmology. In the course of surveying the modern scientific view of the universe, a number of serious concepts of a multiverse reality are examined, including the many-worlds view of quantum mechanics as well as fractal and cyclic cosmologies. There are no prerequisites. PHY 100 is required, although the material is presented with very little mathematics. Substantial use is made of demonstrations. This course is intended to be equivalent to our Physics 100 course in terms of satisfying cluster requirements. Prerequisites: none. (Fall or Spring)

PHY 103 Physics of Music.

A study of the physical basis of musical phenomena. Topics of musical instruments, room acoustics, and selected topics. Two lectures and one lab per week. Half of the labs are devoted to individual student projects, often involving analysis of student instruments or of room acoustics. This course is open to any student with a strong interest in science and music. Prerequisites: none. (Fall)

PHY 109 Quantum Reality.

An introductory course for students in the humanities and other nonscientific fields who want to learn something about the basic principles of quantum mechanics. We plan to approach these concepts by relating them to human experience in everyday life. The course is designed with a lot of demonstrations, in many of which the students play a role of either quantum objects or the observers. Prerequisites: none. (Fall)

PHY 113 General Physics I.

First semester of a two-course sequence suitable for students in the life sciences. Newtonian particle mechanics, including Newton’s laws and their applications to the motion and circular motions, energy, linear momentum, angular momentum; and harmonic motion. Kepler’s laws; planetary and satellite motions. Calculus used as needed. In addition to two 75-minute lectures, one three-hour laboratory every other week and one workshop/recitation per week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisite: MTH 141 or 161 (may be taken concurrently). (Fall and Spring)

PHY 114 General Physics II.

Second semester of a two-course sequence suitable for students in the life sciences. Electricity and magnetism, optics, electromagnetic waves, and modern physics (introduction to relativity, quantum physics, etc.). In addition to two 75-minute lectures each week, one workshop/recitation per week, one three-hour laboratory every other week and one three-hour laboratory every other week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisites: PHY 113, MTH 143 or 162 (may be taken concurrently). (Spring and Summer I)

PHY 121 Mechanics.

First semester of a three-course sequence for students planning to major in physics, other physical sciences, or engineering. Motion in one and two dimensions, Newton’s laws, work and energy, conservation of energy, systems of particles, rotations, oscillations, gravity, thermodynamics. In addition to two 75-minute lectures each week, one workshop each week and one three-hour laboratory every other week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisite: MTH 162 (may be taken concurrently). (Spring and Summer I)
PHY 121P Mechanics (Mastery/Self-paced). Covers the same material as PHY 121 and runs in parallel with that course but operates as a self-paced, mastery-learning course, unlike the traditional, lecture/recitation-based PHY 121. The Mechanics course material is divided into 17 units that each focus on different topics: one at a time at his or her own pace, demonstrating mastery of each unit—by getting a near-perfect score on a quiz based on the unit’s material—before moving to the next unit. Instructor-facilitated, peer-led, and individual learning in a workshop staffed 40 hours per week by faculty and teaching assistants, replaces the lectures and recitations; video-lessons, study guides, and practice problems supplement the textbook and workshop. Mastery learning has been shown, in hundreds of controlled experiments, to be substantially better than traditional methods in promoting proficiency and retention. (See C. C. Kulik, et al. 1990, “Effectiveness of mastery learning programs: a meta-analysis.” Rev. Educ. Res., v.60, p. 265, for a review of such studies.) The laboratory requirements are the same as in PHY 121. Prerequisite: MTH 162 (may be taken concurrently). (Spring)

PHY 141 Mechanics (Honors). First semester of a three-course honors sequence, recommended for prospective departmental majors and other science or engineering students with an interest in physics and mathematics who have taken physics in high school. Topics are presented with a minimum of mathematical complexity. Prerequisites: PHY 121–122 or PHY 141–142; MTH 161–162 or MTH 163 or MTH 164 (may be taken concurrently). (Fall)

PHY 122P Electricity and Magnetism (Mastery/Self-paced). Covers the same material as PHY 122 and runs in parallel with that course but operates as a self-paced, mastery-learning course, unlike the traditional, lecture/recitation-based PHY 122. See the PHY 121P catalog entry for a brief description of the self-paced, mastery-learning format used in PHY 122P. The laboratory requirements are the same as in PHY 122. Prerequisite: PHY 121P or PHY 121 or MTH 162. (Fall)

PHY 123 Waves and Modern Physics. Third semester of a three-course sequence for students planning to major in physics, other physical sciences, or engineering. Wave motion, special relativity, photoelectric effect, Compton effect, X-rays, wave properties of particles, Schrödinger’s equation applied to a particle in a box, penetration of a barrier, the hydrogen atom, the harmonic oscillator, symmetries, vectors, coordinate and velocity transformations, motion in one and two dimensions, Newton’s laws, work and energy, conservation of energy and momentum, special relativity, systems of particles, gravity and Kepler’s laws, rotations, oscillations, molecular theory, and thermodynamics. In addition to two 75-minute lectures each week, one workshop/recitation each week and one three-hour laboratory every other week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisite: MTH 161 (may be taken concurrently). (Fall)

PHY 142 Electrodynamics and Magnetism (Honors). Second semester of a three-course honors sequence recommended for prospective departmental concentrators and other science or engineering students with a strong interest in physics and mathematics. The topics are the same as those of PHY 122 but are covered in greater depth. These topics include: Coulomb’s Law through Maxwell’s equations; electrostatics, electrical potential; capacitors; electric fields in matter; current and circuits; magnetostatics; magnetic fields in matter; induction, A.C.; circuits; waves. In addition to two 75-minute lectures each week, one workshop/recitation each week and one three-hour laboratory every other week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisites: PHY 141 or performance at B+ level in PHY 121 or by petition; MTH 162 (may be taken concurrently). (Spring)

PHY 143 Waves and Modern Physics (Honors). Second semester of a three-course honors sequence, recommended for prospective departmental concentrators and other science or engineering students with a strong interest in physics and mathematics who have taken physics in high school. Topics are presented with a greater depth than PHY 123. Bohr’s atomic model; Broglie waves; momentum and energy quantization; Heisenberg’s uncertainty relation; Schrödinger’s cat, electron spin, photon interference, and Bell’s inequalities. Key experimental results that support wave and particle interpretations are also discussed, as well as selected applications to solid-state, nuclear, particle, and astrophysics. In addition to two lectures each week, one workshop/recitation each week and one three-hour laboratory every other week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisite: PHY 141 or permission of the instructor; MTH 162 (may be taken concurrently). (Spring)

Astronomy Courses

AST 102 Relativity, Black Holes, and the Big Bang. We present a physical and astronomical (but nonmathematical) picture of the workings of Einstein’s theory of relativity and its application to cosmology and to black holes and wormholes, the most exotic and energetic objects known to scientists. Our aim is twofold: (1) to demystify black holes, big-bang cosmology, and the nature of space and time for non-science majors, to enable them to evaluate critically the frequent references to these esoteric concepts in the press and in popular science and science-fiction literature; and (2) to provide non-science majors with a glimpse of the processes by which scientific theories are conceived and advanced. In the course, we make heavy use of computer-generated graphs and simulations during lectures. Prerequisites: none. (Fall or Spring)

AST 104 The Solar System. The aim of the course is to acquaint the non–physical-science-concentrate student with aspects of the historical and modern study of the solar system, including results from space probe studies, and with theories dealing with the evolution of the solar system. Prerequisites: none. (Fall or Spring)

AST 105 Introduction to the Milky Way Galaxy. In this course we introduce students to our home galaxy, the Milky Way, and use the latest developments in our understanding of this normal galaxy to explore the origins of stars like the Sun, the origins of the chemical elements from which we are formed, and the evolution of galaxies through the life of the Universe. The emphasis in the presentation is on descriptive astronomy and the physical principles describing the operation of various celestial objects, with a minimum of mathematical detail. Prerequisites: none. (Fall or Spring)

AST 106 Cosmic Origins of Life. A review of the evidence for habitability and the building blocks of life in extraterrestrial space. The possibilities for the study of the solar system, galaxies, and cosmology. In addition to two 75-minute lectures each week, one workshop/recitation each week and one three-hour laboratory every other week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisites: PHY 141 or performance at B+ level in PHY 121 or by petition; MTH 162 (may be taken concurrently). (Fall)

AST 111 The Solar System and Its Origin. Designed to be taken by incoming freshmen. In this course, we become familiar with the tools, methods, and concepts of astronomy and begin a study of the observational basis for our understanding of the solar system; we go as far as single-variable calculus, classical mechanics, Newton’s law of gravity, and the ideal-gas law will take us. We discuss the overall structure and composition of the individual planets and the smaller solar-system bodies, as well as the orbital dynamics and overall structure of the solar system. Key experimental results that support wave and particle interpretations are also discussed, as well as selected applications to solid-state, nuclear, particle, and astrophysics. In addition to two lectures each week, one workshop/recitation each week and one three-hour laboratory every other week are required. Laboratory and workshop registration is done at the same time as course registration. Prerequisite: PHY 141 or performance at B+ level in PHY 121 or by petition; MTH 162 (may be taken concurrently). (Fall)

AST 142 Elementary Astrophysics. Intended to be taken by sophomore science majors. The techniques learned in the first year of physics and mathematics are applied in this course to the physics of stars, interstellar matter, galaxies, and cosmology. Nighttime observa- tional projects involve the use of the 24” telescope at the University’s C. E. Keck Observatories. Prerequisites: PHY 161 or PHY 171 (may be taken concurrently); high-school physics and calculus, or concurrent registration in PHY 141, are helpful. (Fall)

For More Information

Please visit the physics and astronomy program website at www.pas.rochester.edu or consult the undergraduate program coordinator (J.1 Bauch & Lomb).
Information about the Program/Advice for Freshmen

PSY 101 Introduction to Psychology. Fall section is exclusively for freshmen and has special features that enhance the first semester here. (A mixed class section of PSY 101 is offered in the spring term.) PSY 101 is an excellent entry point for all future directions in psychology. It is a prerequisite to the major and minors, and an entry point for the cluster Psychology as a Social Science and provides a broad background upon which to base a choice of more specialized clusters.

The following are courses in psychology programs that are available with advice to first-year students. Although PSY 101 is not a formal prerequisite for the higher-numbered courses listed below, it is strongly recommended as both substantial and contextual background.

PSY 110 Neural Foundations of Behavior. Introduces the structure and organization of the brain and its role in perception, movement, thinking, and other behavior. Topics include the brain as a special kind of computer, localization of function, effects of brain damage and disorders, differences between human and animal brains, sex differences, perception and control of movement, sleep, regulation of body states and emotions, and development and aging. (Fall)

PSY 111 Foundations of Cognitive Science. This course provides an introduction to basic concepts in modern cognitive science, adopting the perspective of modern cognitive psychology. The course is divided into three sections. The first section introduces central cognitive processes, such as pattern recognition, attention and memory. The second section focuses on natural language, using language comprehension and language production as a domain for introducing more detailed models of cognitive processes. The third section examines higher-level thinking, focusing on reasoning and decision making. Prerequisites: none. (Fall and Spring)

PSY 161 Social Psychology and Individual Differences. An introduction to the field of social psychology and an overview of research on individual differences in personality. Topics include the self, attitudes, social cognition, emotion, interpersonal attraction, relationships, helping, social influence, group behavior, and dispositional differences among people. Students complete several individual personality measures and receive feedback at the end of the course. Format is lectures augmented with discussions and demonstrations. (Spring)

PSY 171 Social and Emotional Development. An examination of the interpersonal, emotional, cognitive, and environmental factors that influence children’s physical and emotional development from early infancy through late adolescence. (Fall)

PSY 172 Development of Mind and Brain. Introduces human development, focusing on the ability to perceive objects and sounds, to think and reason, and to learn and remember language and other significant patterns of stimulation. Includes the nature and mechanisms of development in humans and an overview of what is known about brain and behavior development in other species. (Spring)

PSY 181 Theories of Personality and Psychotherapy. A survey of the different theoretical orientations and major schools in the history of psychological thought. We will begin with an overview of theoretical methods and an examination of the role of major authors and schools of thought in the development of clinical psychology. (Fall)

Courses

PSY 101 Introduction to Comparative Politics. This course introduces students to a wide variety of political institutions, processes, and outcomes in countries across the globe. Contemporary comparative politics includes the centrality of political and electoral institutions, the question of revolution, the power of ethnicity, the role of political culture, and the impact of international organizations on the evolution of power and the post-Cold War environment. This course is recommended for those thinking of a major or minor in political science, government, or international issues. Freshmen who have questions about any particular course should speak either to a departmental advisor or directly to the course instructor at the beginning of the semester.

We strongly recommend that students interested in international relations take at least one of these courses in their first year. Some 200-level courses are open to freshmen and may be suitable for students who have performed very well on an AP exam in American politics or comparative government, or who have an excellent background in high school courses in history and government and a strong interest in political science or international relations. Although it does not count for the major, freshmen might also choose a version that emphasizes politics, government, or international issues. Students who have questions about any particular course should speak either to a departmental advisor or directly to the course instructor at the beginning of the semester.

We strongly recommend that students interested in international relations take two courses in the field in the first year: PSC 101 (Introduction to Comparative Politics) and PSC 106 (Introduction to International Relations). These two courses fulfill part of the core requirements for the major in international relations. Students might also look for other courses, including 100-level courses that count toward one of the specialized tracks and 200-level courses open to freshmen. Students are also advised to begin or continue courses in a foreign language. Not only does this help meet the requirements, but it also allows the student to consider opportunities for study abroad that require proficiency in a language other than English.

Advanced Placement (AP) Political Science Students who receive a score of 4 or 5 on the AP exam in either American or Comparative Government will be granted 4 credits in political science. Students who receive a 4 or 5 on both AP exams are not eligible for additional credit.

Advanced Placement (AP) International Relations Students who receive a 4 or 5 on the AP exam in American or Comparative Government or in U.S., European, or World History will be granted credit for one course toward the International Relations major. Students who receive a 4 or 5 on multiple AP exams are not eligible for additional credit. This course will be classified as one of the three elective courses and will be considered a transfer course.

Courses

PSC 106 Introduction to International Relations. This course provides students with the background and conceptual tools they need to understand contemporary international relations. The course introduces students to the wide range of issues that make up the study of international relations, including the workings of the state system, the causes of international conflict and violence, and international economic relations. Students are introduced to the literature in a broad way to make them familiar with the main theoretical traditions in the field. Students are asked, as much as possible, to read original texts rather than to read from a textbook. Time permitting, we also examine topics of particular current interest, such as the evolving nature of power and the post-Cold War environment as well as special global challenges like nation-building and the proliferation of weapons of mass destruction. (Fall and Spring)

PSC 108 Introduction to Positive Political Theory. This course introduces students to positive political theory, a rigorous set of tools that helps clarify key questions in political science. Through examples drawn from all aspects of the political process (from elections to lawmaking to regulation) as well as from everyday life (where should we go for dinner? and Hollywood (Russell Crowe and Reese Witherspoon as political scientists?), we study how the rules of the game affect the decisions politicians make as well as the policy outcomes we observe.

For More Information Please visit the political science program website at www.rochester.edu/college/psc.
PSY 183 Animal Minds. Considers the cognitive and communicative abilities of animals, especially primates, as compared with humans. Topics include thinking, reasoning, remembering, communicating, and understanding numbers, time, and causality in animals ranging from ants to chimpanzees. (Fall)

PSY 210 Social Cognition. Social cognition combines classic social psychology with methods and theories from cognitive psychology and neuroscience to study how people make sense of each other and the social world. We examine how the social environment influences cognitive processes such as attention, heuristics, and stereotypes and how these processes in turn affect decisions, behaviors, and health. We critically evaluate research on a variety of topics, such as emotion regulation, stereotyping and prejudice, and stress and decision making. (Fall)

PSY 211 Introduction to Statistical Methods in Psychology. Introduction to the use of statistics in psychological research. Topics include descriptive statistics, correlation and regression, and inferential statistics. Examples are drawn from social and personality psychology. Logic of statistical inference and proper interpretation of research findings are emphasized. Please note that, because of the significant overlap between them, students may earn degree credit for only one of these courses: CSP/PSY 211, STT 211, and STT 212. (Fall and Spring)

PSY 232 Psychology of Consumerism. Examines the psychology behind product placement, marketing of products, brand identity, and advertising to consumers. (Spring)

PSY 262 An Approach to Human Motivation. This course provides a review of the theoretical and empirical development of a contemporary approach to human motivation, namely, Self-Determination Theory, which originated at the University of Rochester and is currently researched by scholars around the world. Topics also include applications of Self-Determination Theory to such domains as psychopathology and psychological health, work, education, sport, and culture. (Spring)

PSY 263 Relationship Process and Emotions. Relationships are among the most important endeavors of human activity. In the past two decades, extensive theory and research has been devoted to understanding the processes of regulating people’s thoughts, feelings, and behavior in meaningful relationships with friends, family, and romantic partners. The purpose of this seminar is to explore this literature. We examine psychological research on such important topics as attachment, emotion, intimacy, conflict resolution, relational differences and similarities, and the impact of relationships on physical health and emotional well-being (as well as other topics that may arise). (Fall)

PSY 264 Industrial and Organizational Psychology. Applications of psychological theory and research to work settings. Topics include personnel selection, training and appraisal; organizational structure and transformation; performance in work groups; motivation and satisfaction; leadership; work conditions; and cross-cultural issues. (Fall)

PSY 267 Psychology of Gender. Exploration of the ways males and females differ in interaction, theories of development of sex differences, and consequences for social change. (Fall)

PSY 278 Adolescent Development. This course surveys theory and research relating to normal development during adolescence. Adolescent development is examined in a variety of contexts, including families, peer groups, and schools; issues pertaining to biological, social, and cognitive development are discussed. (Spring)

PSY 280 Clinical Psychology. An introduction to the field of clinical psychology. Students are exposed to prevalent theoretical and research models as well as approaches and research findings to assessment, diagnosis, and treatment modalities. (Spring)

PSY 281 Psychology and the Law. This course provides an introduction and overview to the intersection between psychology and the legal system. Topics include forensic assessment, expert testimony, children and adolescents and the legal system, and the application of psychological science to legal issues. (Fall)

PSY 282 Abnormal Psychology. This course provides a conceptual overview to the field of psychopathology. We discuss assessment and diagnosis, etiology, developmental course, treatment, and prognosis of the major psychological disorders. Current theory and research are emphasized. (Spring)

PSY 283 Behavioral Medicine. An overview of the application of behavior/lifestyle change approaches to the treatment of medical disorders and the examination of interfaces between behavior and physiology. Topics include diabetes, cardiovascular risk factors, chronic pain, and cancer. (Topics)

PSY 289 Developmental Child Psychopathology. Presents theory, research, assessment, and intervention in child and adolescent psychological disorder. Contributions of the normal developmental perspective to understanding psychopathology and risk, and vice versa, are emphasized. (Fall)

PSY 391 Independent Studies in Psychology. Supervised research on topics in psychology. May be repeated. An Independent Studies Fair is held at the beginning of each semester to facilitate linkages between students and researchers. (Fall and Spring)

Information about the Program

The study of public health provides a rich intellectual framework for the multidisciplinary study of society’s most challenging problems. The program is designed to help students develop the many different skills that are needed to understand and respond to health challenges that arise in local, regional, and global populations.

The program offers both BA and BS degrees. BA degrees are offered in biostatistics, epidemiology, and public health studies, whereas BS degrees are offered in biostatistics, epidemiology, and public health studies along with a minor in public health. The program is designed to provide students with a strong liberal arts foundation and to prepare them for careers in public health or further study in public health.

Courses

PH 101 Introduction to Public Health I. This is a broad survey course designed to introduce beginning students to public health history, concepts, and contemporary issues locally, nationally, and globally. The course is divided into four sections: What is Public Health (history and definitions); Public Health Disparities (health and wealth; social justice; who gets sick/who stays healthy); Issues in Public Health (lead poisoning; tobacco; obesity; emergency; clean water/air; injury; health systems/ reform); and Global Health Issues (globalization and development; maternal and child health). (Fall and Spring)

PH 102 Introduction to Public Health II. This is a broad survey course designed to introduce beginning students to four core areas in public health: biostatistics, epidemiology, public health practice, and environmental health science, and social and behavioral sciences. Each of these areas is addressed by experts in the field. Prerequisite: PH 101. (Spring)

PH 103 Concepts of Epidemiology. This course provides beginning students with the fundamental concepts needed to understand health-related information and health policy. The course introduces students to the history of epidemiology and the basic methodological principles used to describe disease occurrence in populations and identify causes of disease. These concepts are subsequently discussed in the context of health policy, outbreak investigations, and epidemiological specialties. (Fall)

PH 116 Introduction to the U.S. Health System. This course examines the organization, financing, and functioning of the United States health care system. It also explores historical perspectives and the insights of international comparisons. Topics include the economics of the U.S. health system, access to care, health policy and politics, and disability and disability politics. (Fall)

PH 201 Environmental Health. Globally, almost 25 percent of mortality and disease burdens can be ascribed to environmental factors. This course provides an overview of the key areas of environmental health to understand the health risks associated with environmental exposures. The course introduces students to the definitions and history of environmental health and the basic methodological principles used to evaluate the potential human health risk of environmental exposures. The application of these principles is highlighted in myriad topics making up the environmental health

For More Information
Please visit the psychology program website at www.psych.rochester.edu/undergrad.
FRESHMAN ACADEMIC HANDBOOK

RELIGION AND CLASSICS

For More Information
Specific information on public health-related majors, minors, and clusters may be obtained by visiting our website, www.rochester.edu/prepprograms.htm, or by scheduling an appointment with our academic counselor in the Multidisciplinary Studies Center, Dewey 4-209-B.

Information about the Department
Religion is a major force in the world, both in the past and at present. It often plays a key role in the lives of individuals and in societies and cultures at large. It can be a source of peace and compassion or an impetus for division and war. The classical civilizations of Greece and Rome have influenced all successive western societies, leaving a legacy that includes ideas about democracy, empire, myth, society, and philosophy. Students of religion or of classics learn to employ a variety of theoretical approaches in the endeavor to understand diverse cultures, religions, societies, texts, rituals, and institutions.

The concentration in religion focuses on the world's major religions, both historically and through such thematic approaches as the study of mysticism, ritual, gender, myth, or violence. The concentration in classics is language centered, emphasizing ancient history, art and archeology, literature, and philosophy. In addition to Greek and Latin, students of religion or classics may take courses in Arabic, Candomblé, and African-American Spiritualism are explored. Specifically, these traditions are presented to students through the use of community field trips, lectures, discussions, and films.

REL 170 Religion and Chinese Society. This course examines the complicated relationship between religion and society in China. It takes a sociological approach, emphasizing that religion should be studied as a social phenomenon that closely interacts with the development of society and culture. Students of religion or classics may take courses in Arabic, Candomblé, and African-American Spiritualism are explored. Specifically, these traditions are presented to students through the use of community field trips, lectures, discussions, and films.

REL 179 Sexuality in World Religions. Study of issues surrounding human sexuality as it has been treated in world religions. Issues, such as homosexuality, transgender/transsexual, marriage, family, sexual ethics, and gender in world religions are covered.

CLA 115 Roman World. An examination of the history of Rome. Over the course of a few hundred years, Rome grew from a small village into the capital city of one of the world's greatest empires. How did a small town in central Italy succeed in imposing its government and cultural values throughout the Mediterranean world and beyond? And why did the Roman political and cultural system

PHL 228 Public Health Ethics. Most health care ethics focus on the individual decisions about health care, but many ethical questions have implications for society at large. The demands that individual health decisions make on the system may create collective problems, and conversely, the needs of society may limit the freedoms that individuals think they should have. Public health ethics, then, lie at the intersection of medicine, political philosophy, and public policy. This course examines the values of health, social needs, and freedom through a systematic examination of situations in which these conflicts arise. Three papers, weekly responses, class participation. Prerequisite: one previous course in philosophy or permission of the instructor. (Fall)
ultimately fail? Why do ancient Roman values and accomplishments still resonate with us so much today? Throughout this class, these are some of the questions we attempt to answer.

CLA 214 The Ancient City, Urbanism in the ancient Mediterranean world. Survey of the rise of cities in the Near East and Egypt and detailed study of the cities and colonies of ancient Greece and the Roman Empire using the evidence of archaeological remains.

ARA 101 Elementary Arabic I. An introduction to modern standard Arabic, including the alphabet, pronunciation, vocabulary, grammar, elementary conversation, and reading.

ARA 103 Intermediate Arabic I. Readings, drills, and continued study of grammar.

CGR 101 New Testament and Classical Greek I. This course provides an introduction to ancient Greek, the language used by the New Testament in its religious, historical, and literary context.

HEB 101 Elementary Hebrew I. A continuation of CGR 101. This course offers an intensive review of Greek grammar combined with readings in Greek prose in order to strengthen students’ knowledge of classical Greek and improve translation skills. We translate and discuss Xenophon’s Memorabilia, a dialogue about Socrates.

HEB 102 Elementary Hebrew II.

HEB 103 Intermediate Hebrew. Continuation of HEB 102 with emphasis on enhancing reading comprehension, writing, and speaking skills. Students are expected to have a good understanding of the structure of Hebrew, including familiarity with verb forms. Cross-listed with JST 101.

HEB 104 Intermediate Modern Hebrew II. Continuation of HEB 103.

HEB 204 Hebrew through Conversation. A conversational course designed to offer the opportunity to converse and discuss anything in Hebrew, from poetry to politics, depending on the interest of the class. Cross-listed with JST 204.

LAT 101 Elementary Latin I. An introduction to the Latin language based on the ancient authors and designed to prepare students for the reading of classical and medieval texts.

LAT 103 Intermediate Latin. This course, the third in the introductory sequence, consists of readings from a selection of Latin prose and poetry with accompanying grammar review.

For More Information Please visit the religion and classics program website at www.rochester.edu/college/mlc.

RUSSIAN STUDIES

Every Russian . . . lives in multiple worlds: in a past that still shapes his thinking and language and habits; in the sometimes unbearable present, with its economic and psychological shocks; and in the future, which is even more unmanageable, more unpredictable, than it is elsewhere. . . . every Russian is, in some way, engaged in building a new reality, a new state, a new identity, a place in the greater world.” —David Remnick

Information about the Program

Russian studies is an interdisciplinary program in the College that incorporates the perspectives of several disciplines and the linguistic, historical, and cultural background needed to understand Russia’s past, to analyze its present, and to make responsible predictions about its future.

The three departments providing the core faculty for this program are modern languages and cultures, history, and political science, but a concentration may include courses in, or cross-listed with, international relations, religion and classics, Judaic studies, Polish and Central European studies, film studies, women’s studies, comparative literature, and economics. The Russian studies curriculum, like Russia itself, is seen as a work in progress, and new courses are added and old ones revised to reflect new knowledge in this area and the changing opportunities for graduates.

A Russian studies major or minor can be designated as belonging either to the humanities or social sciences, depending on the student’s course choices. Students with a strong interest in Russian studies have done second majors in history, political science, international relations, and other fields. Russia has a history and culture that go back more than a millennium, while its democracy and market economy are relatively new. The Russian Studies Program prepares students not only to know about this area, but also to work in and with Russia at this time of transition.

Program Advice for Freshmen

Almost any course in our curriculum that interests you is a good place to get started, whether it is language, literature, current events, history, art history, or an introductory course in international politics. All Russian studies courses are open to first semester freshmen.

Clusters

The program offers two humanities clusters: (1) Introduction to Russian culture and Civilization, and (2) Russian Studies. There is also a Russian Studies Cluster in the Social Sciences: Great Experiences: Identities and Cultures in Transition. Additional Russian clusters are offered through the Department of Modern Languages and Cultures and the Department of History. All Russian-related courses fit one or more clusters.

Study Abroad

Students who major or minor in Russian studies are strongly encouraged to take part in the Summer Program at St. Petersburg University run by the Department of Modern Languages and Cultures or the semester-long CIEE program sponsored by the College. Scholarships are available through the Mildred R. Burton Undergraduate Travel/Research Fund.

Courses

Russian Language

Incoming students with a background in Russian should consult the Russian section in the Department of Modern Languages and Cultures for placement. There are courses at the beginning, intermediate, and advanced levels, and full of the freshman year is a ideal time to begin with 101 or to continue the study of Russian.

Russian Studies

The following courses given in English may be of particular interest to freshmen:

Fall Semester

RST 126 Russia Now. Students learn how to analyze ongoing political, economic, and social changes in the world’s largest country through the use of print and electronic sources along with background reading on Russia since the end of Communism. In English,
STATISTICS

Courses

**STT 211 Applied Statistics for the Social Sciences I**
Contains statistical analysis, methods, and procedures for applications in social sciences.

**STT 212 Applied Statistics for the Biological and Physical Sciences I**
Contains statistical analysis, methods, and procedures for applications in physical sciences.

**STT 213 Elements of Probability and Mathematical Statistics**
With a brief introduction to the elements of probability, the basic statistical analysis, principles, and procedures are introduced and illustrated through applications.

**STT 216 Applied Statistics II**
Prerequisite: can be taken after one of STT 211, 212, or 213. A quick review of the basic topics is followed by tests of hypotheses, sample size determination, paired comparisons, analysis of variance, regression and correlation, Chi-square tests for goodness of fit and for association and contingency.

Information about the Program

Statistical designs of experiments and their analysis are indispensable, for instance, in producing effective medical compounds and treatments, for improving the quantity and quality of food production, and for maintaining the quality of manufactured goods. Statistical techniques are also widely used in biological, educational, genetic, psychological, and other sciences. Refined statistical procedures are extensively employed in economics for studying education needs, predicting economic growth, forecasting industrial production and employment rates, studying stock market fluctuations, and assessing the environment, health care, and social welfare. A number of political and social studies routinely employ a variety of statistical procedures.

The program in statistics offers a wide variety of courses for a major or minor in statistics, a joint major in mathematics/statistics, and the prerequisites for majors in other departments. Some of these courses are also required for the certificates in actuarial and management studies and for those clusters within statistics. Double majors with statistics and other areas such as economic and mathematics are also possible.

Departmental Advice for Freshmen

STT 211, 212, and 213 are noncalculus courses, and only one of them is required for several majors and minors. These three courses and the intermediate level STT 216 introduce statistical analysis, methods, and procedures for a number of applications. Computer packages are used for statistical analysis in all these courses. A wide range of additional courses in statistical theory and applications is available.

"The great challenge of the twenty-first century is to raise people everywhere to a decent standard of living while preserving as much of the rest of life as possible."
—Edward O. Wilson

SUSTAINABILITY

(MULTIDISCIPLINARY STUDIES CENTER)

Courses

**BIO 104 Ecosystem Conservation and Human Society**
As the natural resources on which human society depends are depleted, the need for sound conservation policies increases. The course therefore examines a new approach in conservation biology that identifies and places economic value on the services that natural ecosystems provide. Such services are basic to sustainable societies and include clean water and air, waste decomposition, pollination, and farmland productivity. Major themes the course covers include an overview of other approaches in conservation biology; a review of the services that ecosystems provide; ways the value of these services are determined; and how this novel approach is influencing economic and political policy at local, national, and international levels. (Fall)

**CHE 150 Green Energy**
An introductory engineering course about energy production, conversion, and utilization. The first half of the course covers energy power metrics, material and energy balances, and the fundamental laws of thermodynamics. The remainder of the course examines traditional and alternative energy sources, energy distribution, and energy utilization. Course activities include weekly homework assignments, exams, and a project. Emphasis is on assumption-based problem solving. (Fall)

**ECO 108 Principles of Economics**
The fundamentals of microeconomic and macroeconomic theory, with applications; preparation for subsequent economics courses. This course is a prerequisite for ECO 258 Environmental Economics. (Fall and Spring)

**EES 105 Introduction to Climate Change**
This course explores the Earth's dynamic climate system through lectures, discussions, and hands-on laboratory activities. The course is designed to be accessible to all students. We work toward an understanding of several fundamental and important questions. What are the main factors that determine the Earth's climate? What forces can drive climate to change? What can we learn from climate change in the Earth's distant past, when our planet experienced periods of both extreme cold and warmth? How do we know that our climate is now changing? What can we expect from the Earth's climate in the near future, and how will it affect us? (Spring)

**PSC 246 Environmental Law and Policy**
An examination of federal environmental law and policy from a practical and historical perspective. This course provides a basic foundational understanding of U.S. environmental law and helps students develop the tools necessary to critique and improve environmental policy making. Topics include an overview of key federal environmental laws; some of their major loopholes; and how environmental laws are shaped through agency regulation, judicial interpretation, political pressure, and their efficacy at safeguarding the environment and the public. The course is taught through a combination of lectures, a group project focused on a specific case study, and student-led discussions about key aspects of environmental laws. Students finish by considering emerging environmental issues and ways to address them. (Fall)

Information about the Program

The minor in sustainability is an interdisciplinary program of study incorporating courses from the natural and social sciences and humanities. The goal of the minor is to provide a curriculum that encourages students to learn to communicate and to solve problems of societal relevance that straddle disciplinary boundaries in sustainability and global change. The required core includes one natural science course and a selection of two courses from the social sciences and humanities.

Students wishing to satisfy the natural science or social science distribution requirement must take four of the six classes from that division.

Program Advice for Freshmen

Courses appropriate for freshmen are listed below. Several other courses in the minor are upper-level courses and may have required prerequisites. Students interested in these courses are encouraged to take appropriate introductory courses in the departments of interest.

**Advanced Placement**
Students who have scored a 4 or 5 on the AP Environmental Science exam may use that credit for EES 103 Introduction to Environmental Science.

Clusters

There are four clusters in sustainability: one in humanities, one in natural sciences, and two in social sciences. The clusters are Sustainability and the Humanities; Health, Environment, and Sustainability; Society and Sustainability; and Energy and Sustainability.

Courses

[For More Information]

Please visit the statistics program website at www.rochester.edu/college/STT/.

[For More Information]

Consult the sustainability program website at www.rochester.edu/college/msc/sustainability.html
Susan B. Anthony Institute for Gender and Women’s Studies

Women’s studies focuses on the experiences of diverse groups of women and changing cultural gender issues as well as economic, political, and psychological relations between women and men. Because gender and women’s studies asks questions about women, sexuality, and gender that no single academic department is able to answer, the program encourages an interdisciplinary approach. The program offers an exciting range of internships in the community through which students may earn course credits.

The program offers an undergraduate major and minor, honors program, and clusters in the humanities and social sciences. Students have the opportunity to work with faculty from the humanities, sciences, and social sciences who are appointed in the College, the Eastman School of Music, the Margaret Warner Graduate School of Education and Human Development, the School of Nursing, and the School of Medicine and Dentistry. The College opened the program in women’s studies in 1982 to address curricular and scholarly issues important for understanding the role of women in contemporary society. The Susan B. Anthony Institute for Gender and Women’s Studies is named to honor Susan B. Anthony, the 19th-century suffragist who led a successful campaign to have women admitted to the University of Rochester in 1849. The institute draws on Anthony’s goals and ideals and preserves her rich historical connections with the city of Rochester.

In addition to the undergraduate curricular program, the institute also sponsors graduate certificates, graduate fellowships, regular faculty research seminars, public lecture series, conferences, and opportunities for students to meet with visiting scholars.

Departmental Advice for Freshmen

Students interested in a major, double major, or a minor in women’s studies are encouraged to take WST 100 (2 credits) and foundation courses (samples listed below) during their freshman and sophomore years. Courses open to freshmen vary from year to year. Our introduction and foundation courses generally lead into clusters. Numerous elective courses cross-listed with women’s studies are offered each year. Certain courses not already cross-listed with women’s studies can be taken through other departments and applied towards WST credit. Students are advised to check with the institute office.

Clusters

- Humanities
  Race and Gender (H1WST001)
  Gender, Culture, and Representation (H1WST002)
- Social Sciences
  Gender and Literacy (H1WST003)
  Gender and Sexuality (H1WST004)
- WST 205 Philosophical Foundations of Feminism. This course analyzes the conceptual foundations of beliefs about women and behavior of women, examines different types of feminist theory, and considers the political and ethical consequences of feminism. Topics include woman as Other; sex roles and self-determination; liberal, Marxist, and radical feminist theories; equal rights; and abortion. Clusters: History and Theory of Feminism S1WST002, Gender and Public Policy S1WST004, Theory and Philosophy of Feminism H1WST006, (Spring)
- WST 206 Feminism, Gender, and Health. This course considers how theories of gender, social organization, and biological sex shape the questions asked and explanations and interventions offered in the areas of health, disease, and well being. We examine the effects of gender, social class, and race in mediating health effects, with particular emphasis on women’s health. Some issues examined include life cycle and transitions, collective and individual trauma, access to health services, HIV/AIDS, reproductive health, and longevity. Clusters: Gender and Public Policy S1WST004, Gender and Social Issues S1WST001, History and Theory of Feminism S1WST002, Gender, Science and Health S1WST003, (Fall)
- WST 210 LGBTQ Experiences in U.S. History. This course looks at the history of sexuality in the United States through the voices of queer communities. The term “queer” encompasses lesbian, gay, bisexual, transgender, and intersex (LGBTQI) identities. Special attention is paid to issues of class, gender, race, ethnicity, repression, and resistance. While the primary focus of this course is 20th-century U.S. queer history, we also discuss LGBTQI identities and analyze the ideas of queer and safe spaces. The final part of the course examines contemporary issues facing queer communities such as legal rights, educational policy, and media representation. Cluster: LGBTQI Studies in the Humanities H1WST005, (Fall)
- WST 214 Women as Image and Text. Feminist art historians have changed the way we think about images of women, works by women artists, and the very notion of artistic genius. This course investigates the way in which visual images of women participate with other cultural and social factors in the construction of the idea of woman. It looks at types and conventions in works by male and female artists, as well as in anonymous prints and advertising from different periods, with a concentration on the 19th and 20th centuries. Readings introduce a variety of approaches. Cluster: Gender, Culture, and Representation H1WST002, (Fall)

Sample Foundation Courses

Foundation courses are offered under many general topics, including women and gender in history, society, politics, literature, art, philosophy, health, science, as well as issues in lesbian and gay studies. Foundation courses are offered in different periods, with a concentration on the 19th and 20th centuries. Some of our foundation courses are:

- WST 103 Language and Sexuality. This course investigates various aspects of language as used by members of sexual minority groups, focusing on language of and about gay men, lesbians, bisexuals, and transgendered people, including “reclaimed epithets” (e.g., “dyke” and “queer”), gender vs. sexuality vs. sex, and the role of language in creating/maintaining sexual categories and identities. Part of Cluster H1WST004, (Fall)

Courses

- WST 100 Writing Women’s Lives. (Fall 2015 topic) WST 100 topics change each semester. Women’s Personal Cinema approaches women’s studies through the heterogeneous genre of personal cinema, understood as autobiographical documentary, autoethnography, diary, and first-person cinema. Often utilizing amateur equipment (16mm/8mm film, consumer video cameras) and found footage, these sophisticated works interpenetrate private and public spheres and invert dominant practices to produce new meaning. Examining film, video, and photo projects by women in different cultural contexts we ask: how does the production and consumption of media contribute to the formation of modern social subjects? How can memory, identity, gender, and sexuality be interrogated through cinematic forms? Can personal cinema produce spaces of aesthetic possibility, expression, and political resistance? We consider these questions through forms transgressing categories of narrative, documentary, and avant-garde in addition to texts in cinema studies, feminist theory, and art history. (2 credits)

- WST 200 Colloquium in Women’s Studies. The diversity of feminist thought and practice in its importance in forming women’s studies, in its impact on other disciplines, and in its articulation with lives and social practices.

For More Information

Please visit the gender and women’s studies program website at www.rochester.edu/college/wst/.

Information about the Program

Faculty across the College agree that mastery of the skills of written argument, including critical thinking, problem solving, organization of ideas, and clarity and power of expression, is of enormous importance both in academic work during residence in the College and in the world of work beyond the College. Writing as part of college life is a given, whether by students completing required coursework, by scholars as part of their professional lives, or by those who find in writing a source of discovery and pleasure. Writing and speaking are how we know what it is that we know, because our ability to explain a subject clearly and precisely to others is an ultimate test of having learned it. To help students join Rochester’s community of writers, speakers, and researchers, the program offers writing courses and writing and speaking support services as well as opportunities to celebrate outstanding writers and their work.
Courses

WRT 105 Reasoning and Writing in the College. WRT 105 introduces students to disciplinary writing at the college level through instruction in small sections that focus on the act of writing. Section topics have ranged from “Abortion” to “The Peaceful Use of Whales: Myth, Science, and Ecological Sustainability” and cover a range of subjects and disciplines. The course provides instruction and practice in clear and effective writing and in constructing cogent and compelling arguments as students draft and revise numerous papers of different forms and lengths. Students consider the roles of audience and purpose in shaping the organization, style, and argumentative strategies of their own papers while they learn to become critical readers of their writing through peer critiques and revision and editing workshops. Each section has unique content. For an updated list of course descriptions, please refer to http://writing.rochester.edu.

WRT 105A Reasoning and Writing in the College: First Course in WRT 105A-WRT 105B Sequence. WRT 105A (Fall) and WRT 105B (Spring) distribute the work of WRT 105 across two semesters, with WRT 105A covering the first half of WRT 105E. WRT 105A immerses students in the experience of academic writing, with a particular emphasis on analyzing, using, and documenting scholarly and non-scholarly texts. It studies instruction and practice in constructing cogent and compelling arguments as students draft and revise two short argumentative essays. Students develop and test their ideas through discussion, informal writing, peer critiques, and self-assessments. All sections of WRT 105A and B revolve around a theme and include a weekly writing group in which students do the work of writing with immediate support from the course instructor. To proceed from WRT 105A to WRT 105B, students must earn a grade of “B−” or higher in WRT 105A (Fall) and WRT 105B (Spring).

WRT 105B Reasoning and Writing in the College: Second Part of WRT 105A-WRT 105B Sequence. The second half of the WRT 105A-WRT 105B sequence, WRT 105B immerses students in the experience of academic writing, with a particular emphasis on analyzing, using, and documenting scholarly and non-scholarly texts. It provides instruction and practice in constructing cogent and compelling arguments as students draft and revise a proposal and a research paper. Students develop and test their ideas through discussion, informal writing, peer critiques, and self-assessments. All sections of WRT 105A and B revolve around a theme and include a weekly writing group in which students do the work of writing with immediate support from the course instructor. WRT 105B students who have worked diligently but have not attained a grade of “B−” or higher may take an incomplete and sign up for WRT 105A the following semester.

WRT 108 Workshop in Writing. This course offers ongoing practice and instruction in writing and critiquing writing. Guided by a writing consultant, students plan, draft, and revise their writing: critique each other’s work; assess their own writing; and participate in workshops on writing issues shared by writers. The course work culminates in a final portfolio that features polished essays and an overall self-assessment. WRT 108 is a two-credit course, which is graded pass/fail. Prerequisite: WRT 105W/105E or alternative satisfaction of the Primary Writing Requirement. (Spring)

WRT 245 Advanced Writing and Peer Tutoring. (Cross-list: ENG 285) This course prepares sophomores, juniors, and seniors enrolled in five-year programs for work as writing fellows. Facilitates development of a strong, intuitive writer and speaker in order to become a successful reader, listener, and responder in peer-tutoring situations. All writing and rewriting experiences, practice in informal and formal speaking, and the critical reading of published essays and student work enhance students’ abilities to become conscious, flexible communicators. Before tutoring on their own, students observe writing fellows and writing center consultants conducting sessions with students. On completion of the course, a “B−” or better, students should be ready to conduct tutoring sessions as writing fellows. Prerequisites: satisfaction of Primary Writing Requirement and a minimum GPA of 3.0 by application only. (Fall)

WRT 247 Spoken Communication and Peer Tutoring. This course prepares selected sophomores, juniors, and eligible freshmen for work as speaking fellows. Focusses not only on the skill of public speaking but also on peer tutoring and assisting students with their other academic work. Speaking and presentation. In this course, we explore various components of presentations, including effective use of visual aids and professional delivery styles. We also explore several types of spoken communication for different purposes and audiences, including argumentative and descriptive speeches, interviews, and group presentations. Through analyzing, studying the construction of, and creating and delivering their own presentations, students improve their own speaking styles and develop the skills necessary to aid their peers in constructing and revising their presentations, as well as in making the transition from page to performance. By the end of the semester, students should be ready to take on their own hours as peer tutors. (Spring)

WRT 251/451 The Rhetorical Sentence. (Cross-lists: LIN 161W, ENG 451W) WRT 251 Writing in a Digital World. WRT 451 Drawing on work in linguistics, specifically linguistic grammar (e.g., Halliday, Biber, Kolln, Hyland), this course investigates the sentence—its structure, its potential, and its limits in discourse. We devise a proposal and a research project, and a final project, students investigate some aspect of the sentence in extended discourse or discuss how knowledge of the sentence might be meaningfully integrated into a writing curriculum. This course is ideal for those interested in writing, writing education, or editing. The course focuses on the mechanics of standard English structure, forms, and group presentations. Through analyzing, studying the constructs of, and creating and delivering their own presentations, students improve their own speaking styles and develop the skills necessary to help their peers in constructing and revising their presentations. As well as in making the transition from page to performance. By the end of the semester, students should be ready to take on their own hours as peer tutors. (Spring)

Prerequisites: WPR satisfied. Open to undergraduates and graduate students. (Spring)

WRT 261 Writing in a Digital World. (Cross-lists: ENG 288, DMS 250) The purpose of writing in a digital world is to engage with a broader community around a topic of interest and contribute to public knowledge. In this course, students are invited to dig deeply into a question of interest, write for a public audience, and use the Internet as an archive of information waiting to be discovered, analyzed, and written about. Students can draw on pre-existing research interests from their majors or develop a line of inquiry stemming from class discussions, writing, and research. In order to gain experience writing to a range of readers, students engage in a writing process informed by peer review, self-assessment, and revision. Shorter writing assignments help students develop and refine ideas as they transform texts for different audiences. The final research paper should be a sustained argument for a public audience, and should demonstrate your ability to think critically about a topic and effectively communicate that knowledge to a range of readers. Prerequisites: WPR satisfied. (Fall)

LIN 161 Modern English Grammar. (Cross-lists: WRT 250) This course is a comprehensive review of the grammar of Modern Standard English. The course is of interest to those who wish to sharpen their language skills or to know more about the workings of the English language whether for practical, creative, or creative purposes. Drawing on work in mostly pretheoretical, descriptive linguistics this course reveals the mechanics of standard English structure, with occasional detours into the finesse of usage across registers (dialect to slang). Students learn to develop the ability to see patterns in grammar, as well as its structural possibilities and limits. Assignments regularly involve reflection on form, usage, and speaker judgments. Through a final project, students investigate some aspect of an English variety available to them. Throughout, students work with their data samples of English to explore how speaker choices lead to particular grammatical structures or yield ungrammaticality. Background in linguistics or grammar not necessary. Prerequisite: WPR satisfied. (Fall)

Writing and Speaking Center Services

The Writing and Speaking Center offers a wide variety of writing and speaking support services for undergraduate students of all levels and in all disciplines. Our office is staffed by graduate-student Writing Consultants and undergraduate Writing Fellows. Services are available in the humanities, the social sciences, and the natural and applied sciences. Our tutors provide individualized feedback and assistance on all types of academic writing and speaking. We invite students to use our services during any stage of the writing process, from brainstorming ideas to polishing a final draft. Similarly, students can visit a Speaking Fellow at any point as they are developing or practicing a presentation. The Writing and Speaking Center is located on the ground floor of Rush Rhees Library, G-121. For more information about face-to-face and online tutoring services, please visit our website at http://writing.rochester.edu or call 273-5977.

For More Information

Please visit the writing and argument program administration website at http://writing.rochester.edu.
**GRADUATE PROGRAMS**

**William E. Simon School of Business**

**For More Information**
For more information on the school and its offerings, please contact the Simon School MBA and MS Admissions Office, 305 Schlegel Hall, (585) 275-3533 or email admissions@simon.rochester.edu.

**Margaret Warner Graduate School of Education and Human Development**

“Education is a social process. Education is growth. Education is not preparation for life; education is life itself.”

—John Dewey

**The Warner School**

The Warner School is a graduate school for students with passion, commitment, and drive who aspire to improve the human condition as leaders in education, broadly conceived as supporting learning and development in a variety of contexts and across the life course. Warner prepares teachers, counselors, K–12 and higher-education administrators, helping professionals, policy analysts, educational policymakers, scholars, researchers, and consultants to enter our nation’s most challenging arenas and become powerful forces for positive change and social justice.

The Warner School offers master’s and doctoral degree programs that may be of interest to undergraduates considering graduate work in education and human development. Students are encouraged to take courses in these programs as undergraduates, both to explore the interesting intellectual and career opportunities available in education and to possibly get a jump start on graduate work. Many undergraduates apply to the school’s programs in their senior year. In addition to the core programs in teaching and curriculum, counseling, human development, higher education, school leadership, and educational policy, Warner has interdisciplinary programs in health professions education, Applied Behavior Analysis (ABA), online education, and program evaluation. There is also a new certificate program for undergraduates interested in teaching English abroad.

The programs tackle enduring challenges in education and human development with fresh, nontraditional approaches. Warner School students think deeply about the many ways that teaching, learning, and development shape lives and societies. By combining research and practice, we work to improve schools and institutions and to make communities more just.

**Departmental Advice for Freshmen**

While the University does not offer a bachelor’s program in education, undergraduates interested in education and human development—and the many issues related to schools, socialization, learning, leadership, and change—are encouraged to take courses at the Warner School. Issues such as the relations among race, gender, language, ethnicity, class, disability, sexuality, and schooling; the uses of technology as teaching and learning tools; the application of sociocultural theory and research to human learning and development; the ties among economic, social, and educational practices and policies; and other matters of significance to contemporary society may be studied at the Warner School.

Undergraduates are encouraged to explore Warner School courses offered in teaching and curriculum, higher education, educational policy, counseling, human development, and health professions education. Such courses may complement undergraduate programs in the College and/or offer undergraduates the opportunity to explore new intellectual areas and career opportunities in the educating professions. It may even be possible to begin studies for specific careers at the Warner School as an undergraduate. Starting teacher education coursework as an undergraduate provides students with the opportunity to explore and better understand the teaching profession and can allow for the completion of a master’s degree and New York State Teaching Certification in only one additional year of postgraduate study. Students are also encouraged to explore the new certificate program to teach English abroad.

Students who are interested in a career in education are encouraged to meet with a Warner School admissions counselor to learn more about programs and opportunities for coursework as an undergraduate. The Office of Admissions offers day and evening appointments for student counseling and school tours. The Warner School is located in LeChase Hall on the historic Wilson Quadrangle between Todd Union and Wilson Commons on the River Campus.

**For More Information**
Contact admissions at (585) 275-3950 or admissions@warner.rochester.edu or visit us on the web at www.warner.rochester.edu.

---

*FRESHMAN ACADEMIC HANDBOOK*
NOTEWORTHY EDUCATIONAL OPTIONS

HEALTH PROFESSIONS ADVISING AT THE UNIVERSITY OF ROCHESTER

Curriculum
- All of the prerequisite courses (biology, chemistry, physics, math, and English) are necessary for admission to medical, dental, and veterinary school, as well as many other health professions programs. Students interested in the health professions should consult the Program in Biology and Medicine’s website for the latest information on biology course requirements. Please note that in order to fulfill the pre-professional requirement of “two semesters of biology with lab” and to adequately prepare for standardized admission tests, more than two semesters of biology coursework are required.

Clinical Opportunities
- It is essential that students interested in the health professions acquire hands-on experience before making a firm commitment. The University of Rochester School of Medicine & Dentistry (UR Medicine) and other area hospitals are always in need of volunteers, as are many local service organizations. The on-campus Medical Emergency Response Team (MERT) as well as the volunteer ambulance companies in the neighboring suburbs, for example, welcome volunteers and are excellent sources of experience. For students interested in mental health, the Compeer program pairs volunteers with troubled individuals who need companionship and emotional support. The nearby Al Sigl Center houses several organizations that serve the physically challenged. There are many, many ways in which students may explore health-related careers while helping others. More information on gaining experience is highlighted on the HP website: www.rochester.edu/college/ccas/health/experience/index.html.

Requirements
- A. Prerequisites: Schools of medicine, dentistry, osteopathy, optometry, podiatry, and veterinary medicine have similar foundational prerequisites for admission. Because individual programs vary, however, students should consult the web pages of the programs they wish to enter and talk with a health professions advisor. More information is also available on the health professions advising web page at www.rochester.edu/college/CCAS/health/.

Advising
- Students can meet most pre-professional requirements by taking any one of the sequences shown in the table for each subject. Nonetheless, students should consult a departmental advisor in order to choose the appropriate sequence for their ability and intended major.

Activities
- The u ndergraduate curriculum for a “pre-professional” student is similar to any other undergraduate in the college; there are academic prerequisites for complete before applying to graduate or professional school (noted on the following chart and the health professions website), and students must prepare for their future career through experiential learning. The successful applicant to graduate or professional school has both the academic background and the career experience gained through clinical and research experience to convince the admissions committee they are a “fit” for the profession. There is no “one-size-fits-all” approach to admissions, and preparation for a career in the health professions is an individual process.

Advising
- The advisors in the Office of Health Professions Advising provide students with the specialized academic and career information related to health professions schools. Health professions advising information can be found on the health professions website, www.rochester.edu/college/CCAS/health/ and advisors respond to email at UHealthProfessions@UR.rochester.edu.

Throughout the year, HP advising offers a range of specialized seminars, from gaining clinical and research experience to graduate/professional program application planning sessions.

Biology Requirement: Students who plan to pursue a BA degree in biology or a BS degree in biological sciences will complete more than enough biology courses to fulfill pre-professional requirements. Those who choose to major in a discipline unrelated to biology should consult with a health professions advisor. Regardless of major, all health professions students should consult the Program in Biology and Medicine’s website for the latest information on biology course requirements. Please note that in order to fulfill the pre-professional requirement of “two semesters of biology with lab” and to adequately prepare for standardized admission tests, more than two semesters of biology coursework are required.

C. English Requirement: The College writing requirement generally satisfies the pre-professional English requirement, but additional training in writing and reading is recommended to better prepare for standardized exams, applications, and professional school. The University of Rochester offers a wealth of courses in all divisions with substantial practice in these areas. Consult with your pre-major advisor, departmental and program advisors, or a health professions advisor for course specific suggestions.

D. General Program Planning Guidelines: It is important that students intending to apply to health professions schools make an early start on science courses. There is no “one size fits all” schedule (especially since so many entering freshmen have AP and/or transfer credit), but here are some key points to keep in mind:

1. The application process for medical, dental, and veterinary school is approximately 18 months long, meaning students will need to apply one full academic year before they intend to matriculate. Students should consider from the beginning that they may be better, more mature, more competitive applicants if they wait until their junior year to apply. There is no preferred timetable to prepare for medical, dental, or other health professions school, and spreading your prerequisite coursework over four years of study allows for greater flexibility in your course selection.

2. Any student considering a biology or biological sciences major should take biology in the freshman year. The biology department strongly recommends that a student enrolling in BIO 110 or BIO 112 also enroll in CHEM 151. If there is concern about a student’s ability to handle more than two science/technical courses in a semester, consider one of these alternatives:
  - Take biology and chemistry in the freshman year and calculus in the summer or in the sophomore year.
  - Take calculus with chemistry in the freshman year and biology in the summer.

3. You need only two semesters of mathematics for most health professions schools. Some medical schools do not require math; however, they do require physics, which has a requirement of one year of calculus. Many schools recommend statistics as well.

4. Many Rochester students who apply to health professions schools complete general chemistry in the freshman year, organic chemistry in the sophomore year, and physics in the junior year. This “timetable” may be altered to fit individual needs. What is most important to remember is that admission tests for health professions schools must be taken no later than a year before expected matriculation, and all required science courses must be completed prior to taking tests.

5. REPEATS: Most health professions schools do not treat repeated courses as the College does. Both grades are included in the cumulative average, so even an “A” in a second attempt does not substantially raise the average.

6. Health professions schools are not troubled by a few grades of “W” in an otherwise strong record, and they will certainly “forgive” course withdrawals resulting from circumstances beyond a student’s control (e.g., illness, family emergency). Students should keep in mind that a grade of “W” indicates that an effort was made to complete a course. When a course is dropped (deleted) from a transcript, the student appears to have carried an “underload” for the entire semester. This is usually more detrimental than a grade of “W.”

7. AP credit: Students should investigate how health professions schools treat AP credit, as most will accept additional coursework in a subject if a student uses AP credit to satisfy an introductory course requirement. Some schools will not accept AP credit at all.

On the next page are options for students to consider in order to fulfill prerequisite coursework for health professions graduate programs. Please note that this is not an exhaustive list, and it is best to work with an advisor or program to determine which options make the most sense for you. Please also refer to our Sample Schedules on the health professions advising website.
NOTEWORTHY EDUCATIONAL OPTIONS

STUDY ABROAD
Students majoring in all academic disciplines may study abroad. By the time of graduation, about a third of Rochester undergraduates have had an international educational experience. Most students study abroad in the junior year or in the first semester of their senior year, although a number of programs are open to sophomores.

Summer study is also an option. The University of Rochester offers more than 75 programs in 40 countries in Africa, Asia, Australia and New Zealand, Europe, and Latin America. There’s something for everyone!

Rochester students interested in study abroad experiences have an expanded and improved selection of opportunities in exchange programs. Exchange programs offer students the option of directly enrolling for a semester or year abroad at select partner institutions. Direct enrollment provides undergrads the opportunity to explore and study overseas in a more independent, self-directed way by integrating fully into the campus community as a full-time student. Consult with an advisor in the Center for Study Abroad about exchange opportunities in Australia, China, Hong Kong, Japan, Macau, Peru, Poland, Singapore, South Korea, Sweden, and the United Kingdom. A study abroad grant is available for those who participate in a semester abroad through one of the University of Rochester’s exchange partners.

It is never too early to learn about your options. Students majoring in science and engineering are especially encouraged to begin exploring their options in the freshman year. The best way to find out more is to attend a study abroad general information meeting. Schedules are available at our website: www.rochester.edu/abroad. The Center for Study Abroad and Interdepartmental Programs is located in Dewey Hall, 2-161. The phone number is (585) 275-7532, and the email address is abroad-admin@rochester.edu. Study abroad advisors are eager to meet with you to discuss study abroad as part of your undergraduate experience!

TAKE FIVE SCHOLARS PROGRAM
The Take Five Scholars Program, unique to the University of Rochester, provides free tuition for an additional year or semester of study to enrolled students. The program is open to students who have completed a year of study abroad and are admitted into a major and up to the fall semester of the senior year. A number of programs are open to sophomores.

KAUFFMAN ENTREPRENEURIAL YEAR (KEY) PROGRAM
The University of Rochester defines entrepreneurship as the “transformation of an idea into an enterprise that generates value”—intellectual, social, cultural, or economic. More than just a discrete set of business skills or practices, entrepreneurship is a way of thinking and approaching problems. The KEY Program provides selected students with the opportunity to devote one or two semesters to study entrepreneurship. Students may propose to participate in internships, special projects, business plan development, research, or visit various facets of entrepreneurship, or analysis of how culture and public policy influence entrepreneurial activity. Applications may be submitted once students have been accepted into a major, and up to the fall semester of the senior year.

CERTIFICATE AND CITATION PROGRAMS
Certificate programs are taken in conjunction with, not in place of, majors. They are meant to supplement a student’s chosen area of study and to formalize into a coherent whole, courses taken outside the area of the major. Specific requirements for each program are listed in the Undergraduate Bulletin.

Certificate programs approved by the College and administered through the Multidisciplinary Studies Center are:

- Actuarial Studies: 7 courses and 2.5 GPA required. Must also demonstrate computer proficiency. Students are encouraged to contact the Society of Actuaries for information about exams and professional certification.
- Literary Translation Studies: 7 courses in six core component areas. Minimum 2.0 in program coursework. There are also four requirements for admission to the program, including prior foreign language training.
- Mathematical Modeling in Political Science and Economics: 9–10 courses and 2.0 GPA required.
- Polish and Central European Studies: 10 courses and 2.0 GPA required.

Other certificate programs available to students are:

- Biophysics (administered through a Bio/Medphysics Committee in the Department of Physics and Astronomy)
- Biotechnology (administered through the Program in Biology and Medicine in Room 402 Hutchison Hall)
- MedPhysics (administered through a Bio/MedPhysics Committee in the Department of Physics and Astronomy)
Certain certificate programs are authorized clusters. See the Cluster Search Engine for details: www.rochester.edu/college/ccas/clusters. Note also the following:

Citation for Achievement in College Leadership
This program recognizes those students who have developed leadership skills through specific academic study coupled with specific practical application. Students need to complete at least three different leadership experiences. Each leadership experience has two components:

1. An academic course (2-credit minimum) to prepare students for specific leadership work.
2. A specific leadership practicum to implement ideas from the preparatory course.

Completion of the citation will appear as a notation on the transcript.

A handshake that includes all academic and practical components that have been authorized for use toward this citation is available at the Academic Services Counter in 312 Lattimore.

PRESTIGIOUS FELLOWSHIPS AND SCHOLARSHIPS

The Fellowships Office, located in 4-209B Dewey Hall, coordinates our advising program for prestigious national and international academic competitions such as the Beinecke, Carnegie Jr., Churchill, Critical Language, Davis Projects for Peace, Fulbright, Gates Cambridge, Goldwater, Marshall, NSF, Rhodes, RISE, Soros, Truman, and Udall. Funding for these highly selective programs comes from various public and private sources outside of the University, including international sponsors. The award programs provide fellowships and scholarships based on academic merit in addition to other criteria, including distinctive achievements in research, campus involvement, leadership, community service, civic engagement. A few programs also consider financial need status. Some fellowships may only be used in the United Stated, but there are programs for international experiences. Some of these programs provide funds to support undergraduate-level study and research, while others support advanced study and career development opportunities after the completion of a bachelor's degree. The Fellowships Office maintains information on and assists students applying for a wide range of high-profile awards. Becoming aware of these opportunities early in one's undergraduate career is key to presenting a competitive application. Rochester students have been successful in many of these competitions, and you can join the list of winners.

The director of fellowships invites students with outstanding academic and extracurricular records to apply for appropriate fellowships and scholarships and mentors them throughout the application process. Students interested in learning more about these awards and the application process may attend an information session, visit the fellowships website at www.rochester.edu/college/studentfellowships, or stop by the Fellowships Office in 4-209B Dewey Hall. Follow us also on Facebook and Twitter at /URFellowships. After reviewing published informational materials, students are encouraged to take the next step of visiting the office to discuss specific awards in light of their individual academic interests and aspirations.

Maybe there's a Critical Language Scholarship, Goldwater, Fulbright, or Rhodes in your future. Freshman year is the perfect time to begin preparing for these potentially life-changing opportunities.

SENIOR SCHOLARS RESEARCH PROGRAM

Have you considered in-depth research in an area of interest? Students admitted to this program are able to devote their entire final year of college to work on a single intellectual project. The project may include coursework in addition to independent study. The nature of the project can range from scholarly research to artistic creativity and should draw and build upon a student's career through the junior year. The project is composed and carried out under the supervision of a faculty advisor or advisors and reviewed by the Senior Scholars Committee. The formal application proposal takes place in spring of the junior year, although students are encouraged to meet with an advisor at any time to discuss the program. Contact the Center for Study Abroad and Interdepartmental Programs, 2-161 Dewey Hall, for more information.

MAJORS AND MINORS

MAJORS

Natural Sciences and Engineering
- Applied Mathematics
- Audio and Music Engineering
- Biological Sciences
  - Biochemistry
  - Cell and Developmental Biology
  - Computational Biology
- Computer Science
- Environmental Science
- Earth and Environmental Sciences
- Geological Sciences
- Geophysical Sciences
- Mathematics
- Physics
- Computer Science
- Electrical and Computer Engineering
- English Literature
- Environmental Engineering

Electrical and Computer Engineering
- Engineering and Applied Sciences
- Engineering Science
- Environmental Health Geomechanics
- Mathematics
- Mathematics-Statistics
- Mechanical Engineering
- Optical Engineering
- Optics
- Physics
- Physics and Astronomy Statistics

Social Sciences
- Anthropology
- Business
- Economics
- Epidemiology
- Financial Economics
- Health, Behavior, and Society
- Health Policy
- History
- International Relations

LINGUISTICS
- Political Science
- Psychology

HUMANITIES
- American Sign Language
- Art and Art History
- Art History
- Studio Arts

PHILOSOPHY
- English
- Film and Media Studies
- Modern Languages and Cultures
- Comparative Literature
- French
- German
- Japanese
- Russian
- Spanish

MUSIC
- Music
- Philosophy

NOTeworthy Educational Options

INTERDISCIPLINARY MAJORS
- African and African-American Studies
- American Studies
- Archeology, Technology and Historical Structures
- East Asian Studies
- Digital Media Studies
- Interdepartmental Studies
- Russian Studies
- Women's Studies

MINORS

American Sign Language
- Anthropology
- Arabic
- Archaeology, Technology, and Historical Structures
- Art History
- Astronomy
- Audio Music Engineering
- Bioethics
- Biology
- Biomedical Engineering
- Brain and Cognitive Sciences
- Business
- Chemical Engineering
- Chemistry
- Chinese
- Classics
- Clinical Psychology
- Comparative Literature
- Computational Biology
- Computer Science
- Creative Writing
- Dance
- Economics
- Electrical and Computer Engineering
- English Literature
- Environmental Engineering
- Environmental Geology
- Epidemiology
- Ethics
- Film and Media Studies
- French
- Geological Sciences
- German
- Greek
- Health, Behavior, and Society
- Health Policy
- Hebrew
- History
- History of Philosophy
- International Relations
- Italian
- Japanese
- Jewish Studies
- Journalism
- Latin
- Latin-American Studies
- Legal Studies
- Linguistics
- Mathematics
- Materials Science
- Mathematics
- Mechanical Engineering
- Medical Anthropology
- Medieval and Early Modern Studies
- Movement Studies
- Music
- Music Cognition
- Music and Linguistics
- Organization Psychology
- Paleontology and Evolution
- Philosophy
- Philosophy of Science
- Physics
- Political Science
- Psychology
- Psychology as a Natural Science
- Psychology as a Social Science
- Religion
- Research in Visual Science
- Russian
- Russian Studies
- Social and Emotional Development
- Spanish
- Statistics
- Studio Arts
- Sustainability
- Theater
- Visual Science
- Women's Studies

*Students in these programs may complete somewhat modified clusters.

[100]