Dietrich College Interdisciplinary Minors

Dietrich College interdepartmental minors are programs whose content and components span two or more academic departments to form coherent patterns of study.

A number of interdepartmental minors are offered by Dietrich College and are, in general, available to all Carnegie Mellon undergraduate students. As well, there are numerous other minors offered by other colleges in the university that are generally available to Dietrich College students. The full list of minors available to Carnegie Mellon students is located in the catalog index under “Minors.”

Completion of the requirements for any of these minors is noted on the final transcript.

To declare a Dietrich College interdepartmental minor, students should contact the college’s Academic Advisory Center (AAC) and the faculty advisor for that minor.

To discuss the possibility of declaring a non-Dietrich College minor, contact the college’s Academic Advisory Center (AAC) and the faculty advisor for that minor.

In general, unless noted, no course taken to fulfill requirements for these interdepartmental minors may apply toward any other program’s requirements.

The Minor in African and African American Studies

Faculty Advisor: Professor Edda L. Fields-Black; fieldsblack@andrew.cmu.edu, Baker Hall 362, 412-268-8012
Academic Advisor: Dr. Andrew Ramey; aramey@andrew.cmu.edu, Baker Hall 240, 412-268-7906

Mission

The African and African American Studies minor introduces students to several large regions of the world: sub-Saharan Africa, the Americas, and the Caribbean. Bread geographic coverage and a comparative framework encourage students to make connections between Africa and the African Diaspora, as well as among different Diasporan communities. The minor offers undergraduates the opportunity to undertake an empirical and theoretical examination of the cultural, political, social, and historical experiences of Africans and people of African descent.

This unique transnational minor brings together several departments and colleges within the university and allows students to develop analytical skills particular to the arts, humanities, social sciences, public policy, and management. The African and African American Studies minor allow students a considerable degree of freedom in their choice of electives and electives particular to the arts, humanities, social sciences, public policy, and management. The African American Studies minor allow students to develop analytical skills particular to the arts, humanities, social sciences, public policy, and management.

Courses taken to fulfill requirements in other major or minor programs may only be applied to this minor with permission of the Faculty Advisor.

Requirements

- The minor is composed of 54 units - two core courses and four elective courses.
- The elective courses must include one course that requires a research paper or project.
- Students may take an additional two core courses as electives, but not more than four total courses.
- Students must take courses in at least two of the four regions (African, African American, Latin American, and the Caribbean) between their core and elective courses.

Core Courses

Choose two from the History and/or English Department courses listed below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-232</td>
<td>Introduction to African American Literature</td>
<td>9</td>
</tr>
<tr>
<td>79-226</td>
<td>African History: Earliest Times to 1780</td>
<td>9</td>
</tr>
<tr>
<td>79-227</td>
<td>Modern Africa: The Slave Trade to the End of Apartheid</td>
<td>9</td>
</tr>
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</table>

Elective Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-332</td>
<td>African American Literature: The African American Crime Novel</td>
<td>9</td>
</tr>
<tr>
<td>79-241</td>
<td>African American History: Africa to the Civil War</td>
<td>9</td>
</tr>
<tr>
<td>79-242</td>
<td>African American History: Reconstruction to the Present</td>
<td>9</td>
</tr>
<tr>
<td>79-235</td>
<td>Caribbean Cultures</td>
<td>9</td>
</tr>
</tbody>
</table>

The Minor in Film and Media Studies

Faculty Co-Advisors: David Shumway (shumway@andrew.cmu.edu) and Jeffrey Hinkelmann (h51@andrew.cmu.edu)
Office: Department of English, Baker Hall 259

Film and the electronic media have become a crucial part of contemporary culture and society; they constitute an important tool for understanding social arrangements, historical changes, and play an increasingly important role in the development of aesthetic and cultural theory. The Dietrich College minor in Film and Media Studies takes an interdisciplinary approach to the study of film and other electronic media. Courses provide techniques for analyzing and criticizing film and other media, for assessing their value as historical, anthropological and social scientific data, and for understanding the aesthetic and philosophical premises of various media texts.

A maximum of two courses may double count with other programs.

The courses listed below are offered with at least general regularity. Participating departments may subsequently develop and offer other
courses that, while not listed here, are deemed appropriate for this minor. A faculty advisor for the minor should be consulted (especially when the schedule of courses to be offered for a given semester becomes available) to identify such additional courses.

**Required Introductory Course**

76-239 Introduction to Film Studies 9 units
76-248 Shakespeare and Film 9 units
76-281 Mad Men, Television, and the History of Advertising 9 units
76-438 The Wire: Crime, Realism, and Long-Form TV 9 units
76-439 Seminar in Film and Media Studies 9 units
76-448 Shakespeare on Film 9 units
76-456 Independent Study in Film & Media Studies 9 units
76-469 Screenwriting Workshop: Screenwriting/Television Writing 9 units
76-472 Multimedia Storytelling in a Digital Age 9 units
76-205 Jane Austen 9 units
76-311 Acting Out in the London Theatre 9 units
76-327 Influential Women Writers 9 units
76-329 Unruly Women in Early Modern Drama 9 units
76-341 Gender and Sexuality in Performance 9 units
76-353 Transnational Feminisms: Fiction and Film 9 units
76-372 Performance and 18th Century Theatrical Culture 9 units
76-376 Gender and Sexuality Studies 4.5 units
76-441 Theorizing Sexuality 9 units
76-492 Between Revolutions: The Development of Modern Latin America 9 units
76-244 Women in American History 9 units
76-320 Women, Politics, and Protest 9 units
76-233 Family, Gender, and Sexuality in European History, 500-1800 9 units
76-324 #MeToo: Naming and Resisting Gender Violence 6 units
76-325 U.S. Gay and Lesbian History 6 units
76-327 Modern Girlhood: Historical and Contemporary Perspectives 6 units
76-331 Body Politics: Women and Health in America 9 units
76-333 Sex, Gender & Anthropology 9 units
76-391 Stardom, Gender, and American Film 9 units
76-224 Race, Gender and Science 9 units
82-300 Topics in Cross-Cultural Studies 9 units
84-312 Gender and Development in Sub-Saharan Africa 6 units
85-350 Psychology of Prejudice 9 units
85-446 Psychology of Gender 9 units

**Film and Media Electives**

Complete a minimum of 27 units of course work at the 200-level or above when the primary topic is film and media. Courses may include, but are not limited to, the following:

76-238 What Was the Hip-Hop Generation? 9 units
76-269 Survey of Forms: Screenwriting 9 units
76-312 Crime and Justice in American Film 9 units
76-338 The American Cinema 9 units
76-339 Special Topics: Film and Media 9 units
76-353 Transnational Feminisms: Fiction and Film 9 units
76-367 Fact Into Film: Translating History into Cinema 9 units
76-374 IDeATe - Dietrich College Cuban Interactive Documentary Project 9 units
76-377 Shakespeare and Film 9 units
76-381 Mad Men, Television, and the History of Advertising 9 units
76-419 Media in a Digital Age 9 units
76-438 The Wire: Crime, Realism, and Long-Form TV 9 units
76-439 Seminar in Film and Media Studies 9 units
76-448 Shakespeare on Film 9 units
76-456 Independent Study in Film & Media Studies 9 units
76-469 Screenwriting Workshop: Screenwriting/Television Writing 9 units
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76-353 Transnational Feminisms: Fiction and Film 9 units
76-372 Performance and 18th Century Theatrical Culture 9 units
76-376 Gender and Sexuality Studies 4.5 units
76-441 Theorizing Sexuality 9 units
76-492 Between Revolutions: The Development of Modern Latin America 9 units
76-244 Women in American History 9 units
76-320 Women, Politics, and Protest 9 units
76-233 Family, Gender, and Sexuality in European History, 500-1800 9 units
76-324 #MeToo: Naming and Resisting Gender Violence 6 units
76-325 U.S. Gay and Lesbian History 6 units
76-327 Modern Girlhood: Historical and Contemporary Perspectives 6 units
76-331 Body Politics: Women and Health in America 9 units
76-333 Sex, Gender & Anthropology 9 units
76-391 Stardom, Gender, and American Film 9 units
76-224 Race, Gender and Science 9 units
82-300 Topics in Cross-Cultural Studies 9 units
84-312 Gender and Development in Sub-Saharan Africa 6 units
85-350 Psychology of Prejudice 9 units
85-446 Psychology of Gender 9 units

**The Minor in Gender Studies**

**Faculty Advisor:** Lisa Tetrault, Professor of History
tetrault@cmu.edu

**Office to declare minor:** English Department, Baker Hall 259

Gender studies is an interdisciplinary field that investigates how gender is embedded in social, cultural, and political relationships. It understands gender as a category of power that intersects with other power relations, including race, class, and sexuality.

Courses allow students to develop a deeper understanding of how gender operates, and to transfer the analytical skills they acquire to other courses as well as to their personal and professional lives. The minor combines coursework in some combination of the following fields: English, history, anthropology, psychology, philosophy, economics, and modern languages.

Courses listed are only examples. Course offerings change regularly, so please consult semester offerings and the minor advisor for other courses. Courses taken to fulfill requirements in other major or minor programs may not be applied to the Gender Studies minor requirements (and vice versa).

**Curriculum**

The courses listed below are offered with at least general regularity. Participating departments may develop and offer other courses that, while not listed here, are appropriate for the study of gender. Consult the minor advisor to confirm the relevance of unlisted, gender-focused courses.

**Complete 1 of the following required courses.** 9 units

76-241 Introduction to Gender Studies 9 units
79-320 Women, Politics, and Protest 9 units
79-331 Body Politics: Women and Health in America 9 units

**Complete 5 or more additional courses totaling at least 45 units.** 45 units

See examples below, but other courses may fulfill this requirement.*

76-205 Jane Austen 9 units
76-311 Acting Out in the London Theatre 9 units
76-327 Influential Women Writers 9 units
76-329 Unruly Women in Early Modern Drama 9 units
76-341 Gender and Sexuality in Performance 9 units
76-353 Transnational Feminisms: Fiction and Film 9 units
76-372 Performance and 18th Century Theatrical Culture 9 units
76-376 Gender and Sexuality Studies 4.5 units
76-441 Theorizing Sexuality 9 units
76-492 Between Revolutions: The Development of Modern Latin America 9 units
76-244 Women in American History 9 units
76-320 Women, Politics, and Protest ** 9 units
76-233 Family, Gender, and Sexuality in European History, 500-1800 9 units
76-324 #MeToo: Naming and Resisting Gender Violence 6 units
76-325 U.S. Gay and Lesbian History 6 units
76-327 Modern Girlhood: Historical and Contemporary Perspectives 6 units
76-331 Body Politics: Women and Health in America ** 9 units
76-333 Sex, Gender & Anthropology 9 units
76-391 Stardom, Gender, and American Film 9 units
80-224 Race, Gender and Science 9 units
82-300 Topics in Cross-Cultural Studies 9 units
84-312 Gender and Development in Sub-Saharan Africa 6 units
85-350 Psychology of Prejudice 9 units
85-446 Psychology of Gender 9 units

* May be taken up to three times and counted for additional credit toward Film and Media Electives if topics differ.

Students should consult with a faculty advisor for the minor regarding courses not listed above.

**400-level Film and Media Course** 9 units

Complete one 400-level course that concentrates on film/media directly or that uses it as a tool of social or cultural analysis.

76-419 Media in a Digital Age 9 units
76-438 The Wire: Crime, Realism, and Long-Form TV 9 units
76-439 Seminar in Film and Media Studies 9 units
76-448 Shakespeare on Film 9 units

76-456 Independent Study in Film & Media Studies Var.
76-469 Screenwriting Workshop: Screenwriting/Television Writing 9 units
76-472 Multimedia Storytelling in a Digital Age 9 units

76-456 Independent Study in Film & Media Studies Var.
76-469 Screenwriting Workshop: Screenwriting/Television Writing 9 units
76-472 Multimedia Storytelling in a Digital Age 9 units

76-456 Independent Study in Film & Media Studies Var.
76-469 Screenwriting Workshop: Screenwriting/Television Writing 9 units
76-472 Multimedia Storytelling in a Digital Age 9 units

**Dietrich College Interdisciplinary Minors**
The Minor in Global Systems and Management

Faculty Advisor: Brandy Wilson
Office: HBH 3029

Graduates across all disciplines are increasingly likely to find themselves working as part of a global development team on a wide variety of business, consumer, and intellectual products and services.

The Global Systems and Management minor (GSM) is intended for students wishing to develop skills essential for participating in emerging opportunities in global business systems, systems development, product development and global project management. GSM exposes students to contemporary issues and practices facing organizations, managers and individuals working on a global scale across political, cultural and temporal boundaries. GSM presents an opportunity for students to learn about being part of an organization that works globally with its employees, business partners, customers and supply chains.

Students will learn about global project management, outsourcing and cross-cultural communications from theoretical and practical viewpoints. An organized elective structure enables students to tailor the minor to reflect their specific interests.

Curriculum

GSM is offered jointly across the departments and programs of the Dietrich College of Humanities and Social Sciences with participation from the Tepper School of Business. The minor is administered by the Dietrich College Information Systems program. The minor requires students to complete 63 units. Note that the courses listed below may be subject to change:

- one Information Systems course: 67-329 Contemporary Themes in Global Systems (offered annually)
- two courses in Communications
- a combination of 36 units with at least 9 units in each of the categories of:
  - Humanities, Heritage and Culture
  - International Management

Study Abroad Options

Students are encouraged to complete a semester of study abroad. With prior approval from the GSM Advisor, study abroad courses may be applied to GSM minor requirements except for 67-329 Contemporary Themes in Global Systems. Please consult with the GSM Advisor before embarking on the semester of study abroad.

Double Counting of Courses

Students may double count up to three courses with other major and minor programs.
Minor in Health Care Policy and Management

Sponsored by:
Heinz College of Information Systems and Public Policy
Dietrich College of Humanities and Social Sciences
Mellon College of Science

Faculty Advisors:
Jason D’Antonio, Mellon College of Science
James F. Jordan, H. John Heinz III College

The face of health care is changing. The practice of medicine is being fundamentally altered by the forces of change in public policy, health care organizations and in the industry as a whole. The role of individual professionals in this industry is changing as rapidly as the industry itself. Traditional career paths have disappeared overnight to be replaced by new demands on their professional and medical staffs. The criteria of efficiency and financial stability are entering the domains of diagnosis and treatment.

This minor is designed to provide students considering a career in the health professions with an understanding of how these changes are likely to affect their careers. Students will become familiar with the critical policy and management issues and will begin to learn to operate effectively in the emerging health care environment. The curriculum combines economic, organizational, managerial, historical and psychological perspectives on these issues to provide a foundation for a deepened understanding of the changing structure of health care organizations and policy.

Required Courses for HCPM Minor (45 Unit minimum)
A total of 69 units are required to complete this minor. Entry into the minor requires completion of 73-102 Principles of Microeconomics and 88-221 Analytical Foundations of Public Policy or the equivalent by approval.

Required Courses
Students are required to take the following courses.
79-330 Medicine and Society 9
94-705 Health Economics 12
90-836 Health Policy and Management Systems 6

Elective Courses 24 units
Complete a minimum of 24 units.

Heinz College Courses
90-721 Healthcare Management 6
90-818 Health Care Quality & Performance Improvement 6
90-723 Financial Statements and Analysis of Companies 6
90-831 Advanced Financial Management of Health Care 6
94-706 Healthcare Information Systems 12
90-832 Health Law 6

Humanities and Social Sciences Courses (9 units each)
76-494 Healthcare Communications 9
79-318 Sustainable Social Change: History and Practice 9
80-245 Medical Ethics 9
85-241 Social Psychology 9
85-442 Health Psychology 9
85-446 Psychology of Gender 9

Please note that some of these courses have prerequisites that will not count toward the completion of the requirements for this minor.

The Minor in Linguistics

Tom Werner, Director
Office: Baker Hall 155F
Email: twerner@andrew.cmu.edu

The Interdepartmental Minor in Linguistics combines courses from the departments of Philosophy, English, Modern Languages, Psychology and the Language Technologies Institute. It synthesizes the linguistics related offerings in these departments and provides students with an academic experience that reflects the interdisciplinary character of the subject.

The Minor in Linguistics requires a total of 6 courses: the introductory linguistics course; two fundamental skills courses; and three additional electives. All courses counted towards the Minor must be taken for a letter grade and passed with a grade of "C" or above.

Introductory Course
80-180 Nature of Language 9

Fundamental Skills
Take one course from two of the following core subject areas:

Sounds
80-282 Phonetics and Phonology I 9

Structure
76-389 Rhetorical Grammar 9
80-280 Linguistic Analysis 9
80-285 Natural Language Syntax 9

Meaning
80-381 Meaning in Language 9
80-383 Language in Use 9
76-385 Introduction to Discourse Analysis 9
or 76-484 Discourse Analysis 9

Electives
Take three additional linguistics courses. These can be additional courses from the Fundamental Skills categories above, or any other course which is approved by the Director as a linguistics elective. For electives taught on a regular basis, see courses listed as Breadth or Electives in the Undergraduate Catalog entry for the Linguistics Major.

Neural Computation Minor

Director: Dr. Tai Sing Lee
Administrative Coordinator: Melissa Stupka
Website: http://www.cnbc.cmu.edu/upnc/nc_minor/

Neural computation is a scientific enterprise to understand the neural basis of intelligent behaviors from a computational perspective. Study of neural computation includes, among others, decoding neural activities using statistical and machine learning techniques, and developing computational theories and neural models of perception, cognition, motor control, decision-making and learning. The neural computation minor allows students to learn about the brain from multiple perspectives, and to acquire the necessary background for graduate study in neural computation. Students enrolled
in the minor will be exposed to, and hopefully participate in, the research effort in neural computation and computational neuroscience at Carnegie Mellon University.

The minor in Neural Computation is an intercollege minor jointly sponsored by the School of Computer Science, the Mellon College of Science, and the Dietrich College of Humanities and Social Sciences, and is coordinated by the Center for the Neural Basis of Cognition (CNBC) (http://www.cnbc.cmu.edu/).

The Neural computation minor is open to students in any major of any college at Carnegie Mellon. It seeks to attract undergraduate students from computer science, psychology, engineering, biology, statistics, physics, and mathematics from SCS, CIT, H&SS and MCS.

The Neural Computation minor is open to students in any major of any college at Carnegie Mellon. It seeks to attract undergraduate students from computer science, psychology, engineering, biology, statistics, physics, and mathematics from SCS, CIT, Dietrich College and MCS. The primary objective of the minor is to encourage students in biology and psychology to take computer science, engineering and mathematics courses, to encourage students in computer science, engineering, statistics and physics to take courses in neuroscience and psychology, and to bring students from different disciplines together to form a community. The curriculum and course requirements are designed to maximize the participation of students from diverse academic disciplines. The program seeks to produce students with both basic computational skills and knowledge in cognitive science and neuroscience that are central to computational neuroscience.

**APPLICATION**

Students must apply for admission no later than November 30 of their senior years; an admission decision will usually be made within one month. Students are encouraged to apply as early as possible in their undergraduate careers so that the director of the Neural Computation minor can provide advice on their curriculum, but should contact the program director any time even after the deadline.

To apply, send email to the director of the Neural Computation minor Dr. Tai Sing Lee (tai@cnbc.cmu.edu) (tai@cnbc.cmu.edu) and copy Melissa Stupka (mstupka@cnbc.cmu.edu) (mstupka@cnbc.cmu.edu). Include in your email:

- Full name
- Andrew ID
- Preferred email address (if different)
- Your class and College/School at Carnegie Mellon
- Semester you intend to graduate
- All (currently) declared majors and minors
- Statement of purpose (maximum 1 page) – Describes why you want to take this minor and how it fits into your career goals
- Proposed schedule of required courses for the Minor (this is your plan, NOT a commitment)
- Research projects you might be interested in

**Curriculum**

The Minor in Neural Computation will require a total of five courses: four courses drawn from the four core areas (A: neural computation, B: neuroscience, C: cognitive psychology, D: intelligent system analysis), one from each area, and one additional depth elective chosen from one of the core areas that is outside the student’s major. The depth elective can be replaced by a one-year research project in computational neuroscience. No more than two courses can be double counted toward the student’s major or other minors. However, courses taken for general education requirements of the student’s degree are not considered to be double counted. A course taken to satisfy one core area cannot be used to satisfy the course requirement for another core area. The following listing presents a set of current possible courses in each area. Other computational neuroscience courses are being developed at Carnegie Mellon and University of Pittsburgh that will also satisfy core area A requirement and the requirements will be updated as they come on-line. Substitution is possible but requires approval.

**A. Neural Computation**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-386</td>
<td>Neural Computation</td>
<td>9</td>
</tr>
<tr>
<td>15-387</td>
<td>Computational Perception</td>
<td>9</td>
</tr>
<tr>
<td>15-883</td>
<td>Computational Models of Neural Systems</td>
<td>12</td>
</tr>
<tr>
<td>85-419</td>
<td>Introduction to Parallel Distributed Processing</td>
<td>9</td>
</tr>
<tr>
<td>86-375</td>
<td>Computational Perception</td>
<td>9</td>
</tr>
<tr>
<td>Pitt-Mathematics-1800 Introduction to Mathematical Neuroscience</td>
<td>Var.</td>
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</tr>
</tbody>
</table>

**B. Neuroscience**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-362</td>
<td>Cellular Neuroscience</td>
<td>9</td>
</tr>
<tr>
<td>03-363</td>
<td>Systems Neuroscience</td>
<td>9</td>
</tr>
<tr>
<td>03-761</td>
<td>Neural Plasticity</td>
<td>9</td>
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<tr>
<td>42-630</td>
<td>Introduction to Neuroscience for Engineers</td>
<td>12</td>
</tr>
<tr>
<td>85-765</td>
<td>Cognitive Neuroscience</td>
<td>Var.</td>
</tr>
</tbody>
</table>

Pitt-Neuroscience 1000 Introduction to Neuroscience 9

**C. Cognitive Psychology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>85-211</td>
<td>Cognitive Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-213</td>
<td>Human Information Processing and Artificial Intelligence</td>
<td>9</td>
</tr>
<tr>
<td>85-412</td>
<td>Cognitive Modeling</td>
<td>9</td>
</tr>
<tr>
<td>85-419</td>
<td>Introduction to Parallel Distributed Processing</td>
<td>9</td>
</tr>
<tr>
<td>85-426</td>
<td>Learning in Humans and Machines</td>
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</tr>
<tr>
<td>85-765</td>
<td>Cognitive Neuroscience</td>
<td>Var.</td>
</tr>
</tbody>
</table>

**D. Intelligent System Analysis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-601</td>
<td>Introduction to Machine Learning (Masters)</td>
<td>12</td>
</tr>
<tr>
<td>15-381</td>
<td>Artificial Intelligence: Representation and Problem Solving</td>
<td>9</td>
</tr>
<tr>
<td>15-386</td>
<td>Neural Computation</td>
<td>9</td>
</tr>
<tr>
<td>15-387</td>
<td>Computational Perception</td>
<td>9</td>
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<tr>
<td>15-494</td>
<td>Cognitive Robotics: The Future of Robot Toys</td>
<td>12</td>
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<tr>
<td>16-299</td>
<td>Introduction to Feedback Control Systems</td>
<td>12</td>
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<tr>
<td>16-311</td>
<td>Introduction to Robotics</td>
<td>12</td>
</tr>
<tr>
<td>16-385</td>
<td>Computer Vision</td>
<td>9</td>
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<tr>
<td>18-290</td>
<td>Signals and Systems</td>
<td>12</td>
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<tr>
<td>24-352</td>
<td>Dynamic Systems and Controls</td>
<td>12</td>
</tr>
<tr>
<td>36-225</td>
<td>Introduction to Probability Theory</td>
<td>9</td>
</tr>
<tr>
<td>36-247</td>
<td>Statistics for Lab Sciences</td>
<td>9</td>
</tr>
<tr>
<td>36-401</td>
<td>Modern Regression</td>
<td>9</td>
</tr>
<tr>
<td>36-410</td>
<td>Introduction to Probability Modeling</td>
<td>9</td>
</tr>
<tr>
<td>36-746</td>
<td>Statistical Methods for Neuroscience and Psychology</td>
<td>12</td>
</tr>
<tr>
<td>42-631</td>
<td>Neural Data Analysis</td>
<td>9</td>
</tr>
<tr>
<td>42-632</td>
<td>Neural Signal Processing</td>
<td>12</td>
</tr>
<tr>
<td>86-375</td>
<td>Computational Perception</td>
<td>9</td>
</tr>
<tr>
<td>86-631</td>
<td>Neural Data Analysis</td>
<td>9</td>
</tr>
</tbody>
</table>

**Prerequisites**

The required courses in the above four core areas require a number of basic prerequisites: basic programming skills at the level of 15-110 Principles of Computing and basic mathematical skills at the level of 21-122 Integration and Approximation or their equivalents. Some courses in Area D require additional prerequisites. Area B Biology courses require, at minimum, 03-121 Modern Biology. Students might skip the prerequisites if they have the permission of the instructor to take the required courses. Prerequisite courses are typically taken to satisfy the students' major or other requirements. In the event that these basic skill courses are not part of the prerequisite or required courses of a student's major, one of them can potentially count toward the five required courses (e.g. the depth elective), conditional on approval by the director of the minor program.

**Research Requirements (Optional)**

The minor itself does not require a research project. The student however may replace the depth elective with a year-long research project. In special circumstances, a research project can also be used to replace one of the five courses, as long as (1) the project is not required by the student's major or other minor, (2) the student has taken a course in each of the four core areas (not necessarily for the purpose of satisfying this minor's requirements), and (3) has taken at least three courses in this curriculum not counted toward the student's major or other minors. Students interested in participating in the research project should contact any faculty engaged in computational neuroscience or neural computation research at Carnegie Mellon or in the University of Pittsburgh. A useful webpage that provides listing of faculty in neural computation is www.cnbc.cmu.edu/computational-neuroscience. The director of the minor program will be happy to discuss with students about their research interest and direct them to the appropriate faculty.
Fellowship Opportunities

The Program in Neural Computation (PNC) administered by the Center for the Neural Basis of Cognition currently provides 3-4 competitive full-year fellowships ($11,000) to Carnegie Mellon undergraduate students to carry out mentored research in neural computation. The fellowship has course requirements similar to the requirements of the minor. Students do not apply to the fellowship program directly. They have to be nominated by the faculty members who are willing to mentor them. Therefore, students interested in the full-year fellowship program should contact and discuss research opportunities with any CNBC faculty at Carnegie Mellon or University of Pittsburgh working in the area of neural computation or computational neuroscience and ask for their nomination by sending email to Dr. Tai Sing Lee, who also administers the undergraduate fellowship program at Carnegie Mellon. See www.cnbc.cmu.edu/training/undergraduate/undergraduate-research-fellowships-in-computational-neuroscience/ for application information.

The Program in Neural Computation also offers a summer training program for undergraduate students from any U.S. undergraduate college. The students will engage in a 10-week intense mentored research and attend a series of lectures in neural computation. See www.cnbc.cmu.edu/training/undergraduate/summer-undergraduate-research-program-in-computational-neuroscience/ for application information.

The Minor in Religious Studies

Faculty Advisor: Professor Allyson Creasman; acreasman@cmu.edu
Academic Advisor: Dr. Andrew Ramey; aramey@andrew.cmu.edu

The Religious Studies minor offers students a range of intellectual tools for thinking about religious ideas, behaviors and institutions. It also enables students to build a base of knowledge that extends beyond any one particular religious tradition.

Curriculum

The minor consists of six courses, totaling at least 54 units. Courses taken to fulfill requirements in other major or minor programs may only be applied to this minor with permission of the Faculty Advisor.

Required Core Course

All Religious Studies minors are required to take 79-281, Introduction to Religion. This required course introduces several modes of inquiry into religion, such as the philosophy of religion, sociological and behavioral approaches to religion, historical analysis of religious subject, literary and critical analysis of religious texts, theological modes of thought, and anthropological treatments of religion. This course is offered regularly, usually in the Spring semester.

Distribution Requirements

In addition to the required Core Course, students must complete Distribution Courses totaling 18 units (usually two 9-unit courses). A Distribution Course is one that applies a particular discipline to more than one religion. Some examples of qualifying Distribution Courses have been offered include:

Elective Courses

In addition to the required Core Course and the Distribution Courses, students must complete Elective Courses totaling at least 27 units (usually three 9-unit courses). Unlike Distribution Courses, an Elective Course may focus on the study of only one religion (although courses examining more than one religious tradition can also count as Elective Courses if not otherwise used to fulfill the Distribution Requirement).

Some examples of qualifying Elective Courses that have been offered include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-337</td>
<td>Representations of Islam in Early Modern England</td>
<td>9</td>
</tr>
<tr>
<td>79-202</td>
<td>Flesh and Spirit: Early Modern Europe, 1400-1750</td>
<td>9</td>
</tr>
<tr>
<td>79-296</td>
<td>Religion in American Politics</td>
<td>6</td>
</tr>
<tr>
<td>79-349</td>
<td>The Holocaust in Historical Perspective</td>
<td>9</td>
</tr>
<tr>
<td>79-350</td>
<td>Early Christianity</td>
<td>9</td>
</tr>
</tbody>
</table>

In addition to the courses listed above, participating departments often offer other courses that may qualify as Elective Courses for the minor. The Faculty Advisor should be consulted to identify qualifying courses (especially after the Schedule of Courses for a given semester becomes available).

The Minor in Science, Technology and Society

Faculty Advisor: Professor Christopher J. Phillips; cjph1@cmu.edu
Academic Advisor: Dr. Andrew Ramey; aramey@andrew.cmu.edu

This minor provides interdisciplinary perspectives on the development and meaning of science and technology in modern society. The core courses enable you to explore the philosophical underpinnings, cultural and historical contexts, and economic and literary assessments of the interplay among science, technology, and society. Elective courses enable you to pursue in greater depth and variety subjects and approaches that build on both the core courses and your primary major.

Courses taken to fulfill requirements in other major or minor programs may only be applied to this minor with permission of the Faculty Advisor.

Curriculum

Core Courses

Complete two courses from Area 1 and one course from Area 2.

Area 1. History, Philosophy, and Social Studies of Science and Technology (18 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-234</td>
<td>Technology in American Society</td>
<td>9</td>
</tr>
<tr>
<td>79-299</td>
<td>From Newton to the Nuclear Bomb: History of Science, 1750-1950</td>
<td>9</td>
</tr>
<tr>
<td>79-305</td>
<td>Moneyball Nation: Data in American Life</td>
<td>9</td>
</tr>
<tr>
<td>79-330</td>
<td>Medicine and Society</td>
<td>9</td>
</tr>
</tbody>
</table>

Area 2. Language and Rhetoric in Science and Technology (9 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-346</td>
<td>Angles and Diplomats -- Renaissance Poetry from Wyatt to Milton</td>
<td>9</td>
</tr>
<tr>
<td>76-319</td>
<td>Environmental Rhetoric</td>
<td>9</td>
</tr>
<tr>
<td>76-395</td>
<td>Science Writing</td>
<td>9</td>
</tr>
<tr>
<td>76-425</td>
<td>Science in the Public Sphere</td>
<td>9</td>
</tr>
<tr>
<td>76-476</td>
<td>Rhetoric of Science</td>
<td>9</td>
</tr>
</tbody>
</table>
The Minor in Sociology

Faculty Director, Saurabh Bhargava  
Program Advisor, Connie Angermeier  
Office: Porter Hall 208A  
Email: cla2@andrew.cmu.edu

The Sociology minor introduces the student to central concepts in sociological theory and methods of empirical inquiry needed to broadly understand social behavior, including its structure, history, and dynamics. Students choose among a range of methodological approaches and substantive topic areas including social psychology, work and organizations, social networks, technology and society, medical sociology, and gender and family. Exposure to these topics will help students understand and appreciate the processes by which families, groups, and organizations form and evolve over time; by which individuals affect and are affected by the society in which they live; and by which technology and institutions shape and influence society. This background in empirical tools and social theory will strengthen the student’s ability to pursue graduate studies in sociology, social history, social science, and organizational theory; to begin professional careers involving social analysis, network analysis, data analysis of teams, groups and organizations, social analysis within journalism, political institutions, the government, and online; and to enter the corporate environment with a thorough understanding of organizational activity.

Curriculum

In addition to the general education requirements of the student’s college and the requirements of the student’s major, Sociology minors must satisfy the following requirements. The Core courses comprise 18 units of the minor. One course is taken from the Organizations cluster, and one course is taken from the Methodology cluster. The Elective courses comprise 36 units of the minor. Sociology minors should consult with the program advisor to plan a course schedule prior to registration.

NOTE: The core courses are offered regularly; the elective courses are offered with at least general regularity. Participating departments may subsequently develop and offer other courses that, while not listed here, are deemed appropriate for this minor. The program advisor should be consulted (especially when the schedule of courses to be offered for a given semester becomes available) to identify such additional courses.

No more than 9 units in the Sociology minor may be counted to fulfill any other major or minor’s requirements.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-311</td>
<td>Organizational Behavior</td>
<td>9</td>
</tr>
</tbody>
</table>

B. Methodology

Complete one course.

Elective Courses

Complete four courses (a minimum of 36 units) from the following list. Two courses (18 units) must be taken from one category to complete the depth requirement. One course (9 units) must be taken from the other category. The remaining course (9 units) may be taken from either category. Appropriate courses offered by the Department of Sociology at the University of Pittsburgh (available during the academic year through cross-registration) may also be included as part of this option. Contact the Sociology program advisor for more information.

1. Sociology of Gender, Family, and Culture

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-342</td>
<td>Managing Across Cultures</td>
<td>9</td>
</tr>
<tr>
<td>79-244</td>
<td>Women in American History</td>
<td>9</td>
</tr>
<tr>
<td>79-261</td>
<td>The Last Emperors: Chinese History and Society, 1600-1900</td>
<td>9</td>
</tr>
<tr>
<td>79-308</td>
<td>Crime and Justice in American Film</td>
<td>9</td>
</tr>
<tr>
<td>79-320</td>
<td>Women, Politics, and Protest</td>
<td>9</td>
</tr>
<tr>
<td>79-323</td>
<td>Family, Gender, and Sexuality in European History, 500-1800</td>
<td>9</td>
</tr>
<tr>
<td>79-331</td>
<td>Body Politics: Women and Health in America</td>
<td>9</td>
</tr>
<tr>
<td>79-332</td>
<td>Medical Anthropology</td>
<td>9</td>
</tr>
<tr>
<td>79-343</td>
<td>Education, Democracy, and Civil Rights</td>
<td>9</td>
</tr>
<tr>
<td>79-377</td>
<td>Food, Culture, and Power: A History of Eating</td>
<td>9</td>
</tr>
<tr>
<td>80-245</td>
<td>Medical Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-305</td>
<td>Choices, Decisions, and Games</td>
<td>9</td>
</tr>
<tr>
<td>85-241</td>
<td>Social Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-446</td>
<td>Psychology of Gender</td>
<td>9</td>
</tr>
</tbody>
</table>

2. Sociology of Work, Organizations, and Technology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-332</td>
<td>Business, Society and Ethics</td>
<td>9</td>
</tr>
<tr>
<td>70-414</td>
<td>Entrepreneurship for Engineers</td>
<td>9</td>
</tr>
<tr>
<td>73-331</td>
<td>Political Economy of Inequality and Redistribution</td>
<td>9</td>
</tr>
<tr>
<td>79-342</td>
<td>Introduction to Science and Technology Studies</td>
<td>9</td>
</tr>
<tr>
<td>88-275</td>
<td>Bubbles: Data Science for Human Minds</td>
<td>9</td>
</tr>
<tr>
<td>80-341</td>
<td>Computers, Society and Ethics</td>
<td>9</td>
</tr>
<tr>
<td>88-341</td>
<td>Team Dynamics and Leadership</td>
<td>9</td>
</tr>
<tr>
<td>88-402</td>
<td>Modeling Complex Social Systems</td>
<td>9</td>
</tr>
<tr>
<td>88-418</td>
<td>Domestic Negotiation</td>
<td>9</td>
</tr>
<tr>
<td>88-419</td>
<td>International Negotiation</td>
<td>9</td>
</tr>
<tr>
<td>88-435</td>
<td>Decision Science and Policy</td>
<td>9</td>
</tr>
<tr>
<td>88-451</td>
<td>Policy Analysis Senior Project</td>
<td>12</td>
</tr>
<tr>
<td>or 88-452</td>
<td>Policy Analysis Senior Project</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: Some courses have additional prerequisites.