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 listed for the minor in question.

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 Director: Edda L. Fields-Black
Undergraduate Advisor: Naum Kats
Office: Baker Hall 240

Mission
The African and African American Studies minor will expose students to the following regions: sub-Saharan Africa, the Americas, and the Caribbean. Broad geographic coverage and a comparative framework encourage students to make connections between Africa and the African Diaspora, as well as among Diasporan communities. The minor offers undergraduate students 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 minor brings together 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 is also designed to allow students a considerable degree of freedom in their choice of electives and independent research projects, including opportunities to study and conduct research in a relevant foreign language.

Courses taken to fulfill requirements in other major or minor programs may not be applied to this minor.

Requirements
- The minor is composed of 54 units - two core courses and four elective courses.
- The elective courses must include one research course.
- 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 18 units

African
- 79-226 Introduction to African History: Earliest Times to 1780 9
- 79-227 Introduction to African History: 1780-1994 9

African American
- 76-232 African American Literature 9
- 76-332 African American Literature 9
- 79-241 African American History: Africa to the Civil War 9
- 79-242 African American History: Reconstruction to the Present 9

Caribbean
- 79-220 Caribbean: Cultures and Histories 9

Elective Courses 36 units

African
- 79-225 West African History in Film 9
- 79-237 Comparative Slavery 9
- 79-290 States/Stateless Societies and Nationalism in West Africa 6
- 79-291 Globalization in East African History 6
- 79-305 The Making of the African Diaspora * 9
- 79-386 Entrepreneurs in Africa, Past, Present and Future * 9
- 82-304 The Francophone World ** 9

Caribbean
- 79-235 Caribbean Cultures 9
- 79-237 Comparative Slavery 9
- 79-295 Race Relations in the Atlantic World 9
- 79-385 The Making of the African Diaspora * 9
- 82-304 The Francophone World ** 9
- 82-454 The Hispanic Caribbean: Rhyme, Reason and Song ** 9

Latin American
- 79-317 Art, Anthropology and Empire 9
- 82-343 Latin America: Language and Culture 9
- 82-451 Studies in Latin American Literature and Culture 9

Notes:
* Denotes courses that require a research paper/project and fulfill requirement for research course.
** Denotes courses taught in a foreign language.

The Minor in Environmental Studies
Faculty Director: John Soluri
Office: Baker Hall 240
E-mail: jsoluri@andrew.cmu.edu

Human activities can have large-scale and long-term consequences for environmental quality. The thoughtful analysis of these consequences is required if we desire a sustainable society. The minor in Environmental Studies is designed to provide students with the interdisciplinary background and skills necessary to understand environmental issues. It emphasizes three general areas: humanities, social sciences, and technology and natural science. The humanities emphasis concerns the ethical, legal, and historical basis of environmental concerns. The social science area concentrates on the economic and political nature of environmental problems. The technology and natural science focus includes the exploration of the biological, chemical, and physical nature of the environment and the role of technology in both problem creation and problem solution.

Curriculum 73 units

The minor in Environmental Studies is offered jointly by the Departments of History and Social and Decision Sciences, with participation by selected departments from the Mellon College of Science and the Carnegie Institute of Technology. The minor requires that students take Biology and Chemistry in the Mellon College of Science or approved environmentally-related science courses at the University of Pittsburgh. In addition, minors are
required to complete two required core courses, three intermediate (distributional) courses spread across at least two of the areas of emphasis, and one advanced course. The advanced course requirement includes either pre-approved sections of Policy Analysis III or pre-approved sections of the History and Policy Project Course. It is important for students to work closely with the faculty advisor for the minor in order to select the proper mix of courses to fulfill requirements.

With the exception of the minor’s science prerequisites, courses taken to fulfill requirements in other major or minor programs may not be applied to the Environmental Studies minor requirements (and vice versa). In the case of the minor’s “Advanced Course” requirement, if one of the two advanced courses is being taken to fulfill a requirement for another program, it cannot also be applied to this minor requirement. If it is not possible to take the other advanced course option, the faculty minor advisor will work with the student to identify an alternative course for this requirement.

NOTE: 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. The minor faculty advisor should be consulted (especially when the schedule of courses to be offered for a given semester becomes available) to identify such additional courses.

Science Prerequisites* 19 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-121</td>
<td>Modern Biology</td>
<td>9</td>
</tr>
<tr>
<td>09-105</td>
<td>Introduction to Modern Chemistry I (equivalent to at least 18 Carnegie Mellon units)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>at the University of Pittsburgh (see faculty minor advisor)</td>
<td></td>
</tr>
</tbody>
</table>

OR

Pre-approved environmentally-related science courses (equivalent to at least 18 Carnegie Mellon units) which may also be taken at the University of Pittsburgh (see faculty minor advisor).

* These science courses may double count with other major and minor requirements.

Required Courses 18 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>73-148</td>
<td>Environmental Economics</td>
<td>9</td>
</tr>
<tr>
<td>80-244</td>
<td>Environmental Ethics</td>
<td>9</td>
</tr>
</tbody>
</table>

Intermediate (Distributional) Requirements 27 units

Complete three courses in at least two of these areas: Science and Technology, Social Science, and Humanities. Only one of the three courses can be an introductory course (as indicated below by an asterisk).

Science and Technology Area 12 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-100</td>
<td>Introduction to Civil and Environmental Engineering</td>
<td>12</td>
</tr>
<tr>
<td>12-651</td>
<td>Air Quality Engineering</td>
<td>9</td>
</tr>
<tr>
<td>19-101</td>
<td>Introduction to Engineering and Public Policy</td>
<td>12</td>
</tr>
<tr>
<td>19-448</td>
<td>Science, Technology &amp; Ethics</td>
<td>9</td>
</tr>
<tr>
<td>19-650</td>
<td>Climate and Energy: Science, Economics and Public Policy</td>
<td>9</td>
</tr>
<tr>
<td>24-424</td>
<td>Energy and the Environment</td>
<td>9</td>
</tr>
<tr>
<td>88-391</td>
<td>Technology and Economic Growth</td>
<td>9</td>
</tr>
</tbody>
</table>

Social Sciences Area 9 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>73-358</td>
<td>Economics of the Environment and Natural Resources</td>
<td>9</td>
</tr>
<tr>
<td>88-220</td>
<td>Policy Analysis I</td>
<td>9</td>
</tr>
<tr>
<td>88-221</td>
<td>Policy Analysis II</td>
<td>9</td>
</tr>
<tr>
<td>90-765</td>
<td>Cities, Technology and the Environment</td>
<td>6</td>
</tr>
<tr>
<td>90-798</td>
<td>Environmental Policy &amp; Planning</td>
<td>12</td>
</tr>
<tr>
<td>90-808</td>
<td>Energy Policy</td>
<td>6</td>
</tr>
</tbody>
</table>

Humanities Area 9 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-319</td>
<td>Environmental Rhetoric</td>
<td>9</td>
</tr>
<tr>
<td>76-476</td>
<td>Rhetoric of Science</td>
<td>9</td>
</tr>
<tr>
<td>79-372</td>
<td>Perspectives on the Urban Environment</td>
<td>9</td>
</tr>
<tr>
<td>79-374</td>
<td>American Environmental History: Critical Issues</td>
<td>9</td>
</tr>
<tr>
<td>79-375</td>
<td>China’s Environmental Crisis</td>
<td>9</td>
</tr>
</tbody>
</table>

79-377 Food, Culture, and Power: A History of Eating 9

79-381 Petrocultures: How Oil Changed the World 9

80-244 Environmental Ethics 9

Advanced Course 9 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-451</td>
<td>EPP Projects (pre-approved sections)</td>
<td>12</td>
</tr>
<tr>
<td>19-452</td>
<td>EPP Projects (pre-approved sections)</td>
<td>12</td>
</tr>
</tbody>
</table>

(Additional courses may be approved in consultation with the advisor.)

The Minor in European Studies

Faculty Advisors: Kenya C. Dworkin (Hispanic Studies), Chris Hallstein (German), or Bonnie Youngs (French & Francophone Studies)

Offered jointly by Modern Languages and History, the Minor in European Studies is a unique interdisciplinary program that seeks to develop and enhance students’ understanding of European societies and cultures. It aims to train students in literature and language, cultural history and the arts, as well as related areas of professional opportunity. It offers substantive knowledge of Western European society through two approaches. First, it provides a foundation in one of the continental Western European languages. Second, it encourages comparative inquiry across boundaries of time, nation, and scholarly discipline.

Curriculum 54 units

European Studies minors must take two prerequisite courses (18 units) in the same foreign language (French, Spanish, or German) or demonstrate the equivalent in language ability through the Carnegie Mellon Language Placement Test. The requirements include a minimum of 54 units of core courses. Students are encouraged to take advantage of the Study Abroad Program.

Students are urged to check with the Minor Advisor in selecting courses for this major.

I. Core Courses in Modern Languages 27 units

Starting at the intermediate level or higher, 3 courses are to be completed in the same language area: French, German, or Spanish.

Complete two courses in a 200-level language sequence* 18 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>82-2xx</td>
<td>200-level language course</td>
<td>9</td>
</tr>
<tr>
<td>82-2xx</td>
<td>200-level language course</td>
<td>9</td>
</tr>
</tbody>
</table>

* Students who place out of 200-level language courses must take at least two 300-level courses or a combination of 300 and 400 level language courses.

Complete one 300-level language course 9 units

82-3xx 300-level language course

Core Courses in History 27 units

79-207 Development of European Culture 9

Pre-20th Century European History 9 units

Complete one 200-level (or above) course in Pre-20th century European history.

79-2xx/3xx Pre-20th century European History course

European History 9 units

Complete one 300-level course in European history.

79-3xx European History course

The Minor in Film and Media Studies

Faculty Advisor: David Shumway

Office to declare the minor: Baker Hall 259

Film and the electronic media have become a crucial part of contemporary culture and society; they constitute an important tool for under-standing social arrangements, historical changes, and play an increasingly important role in the development of aesthetic and cultural theory. The H&SS 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. In addition, students may take courses in the processes of film-making, offered through special arrangement with the Pittsburgh Filmmakers (a non-profit media arts center, operating since 1971, that provides workshops, seminars, screenings, exhibitions, and training programs in the media and photographic arts).

Courses taken to fulfill requirements for other major or minor programs may not be applied to the Film and Media Studies Minor requirements.

Curriculum 54 Units
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. The minor faculty advisor should be consulted (especially when the schedule of courses to be offered for a given semester becomes available) to identify such additional courses.

Introductory Course 9 Units
76-239 Introduction to Film Studies (prerequisite for 76-439)

Required Intermediate Course 9 Units
76-339 Advanced Film and Media Studies (May be taken up to three times and counted for additional credit toward Intermediate Courses if topics differ)

Intermediate Courses 27 Units
Complete a minimum of 27 units of course work, chosen in any combination from the following three course groups. (All courses are 9 units unless otherwise indicated).

1. Film and the Study of Society
76-238 Media and Film Studies 9
82-296 A Century of Russian Film 9

2. Film and Anthropology
79-278 Rights to Representation: Indigenous People and their Media 9

3. Filmmaking
76-269 Survey of Forms: Screenwriting 9
FM 200 Intermediate Filmmaking (please go to CFA 100 to register for this course)

Other 200 or 300 level courses in English, History, and Modern Languages can be counted in this category when their primary topic is film and media. Please consult the minor faculty advisor.

Advanced Courses 9 Units
Complete one advanced course that concentrates on film directly or that uses it as a tool of social or cultural analysis. One additional advanced course may be taken in place of an intermediate course.

FM 301 Advanced Filmmaking (please go to CFA 100 to register for this course)
76-438 Advanced Seminar in American Literary and Cultural Studies 9
76-439 Advanced Seminar in Film and Media Studies 9
76-469 Advanced Screenwriting Workshop 9
82-491 Literature, Politics and Film in Russia & East Europe Var. Today

The Minor in Gender Studies
Faculty Advisor: Kristina Straub
Office to declare minor: English, 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 identify gender in specific practices, situations, and historical periods. The minor combines coursework in English, history, anthropology, psychology, philosophy, economics, and modern languages.

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 54 units
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 faculty advisor to confirm the relevance of unlistered, gender-focused courses.

Required Introductory Courses 18 units
Complete one of the following (9 units)
76-241 Introduction to Gender Studies 9
79-331 Body Politics: Women and Health in America 9
and one of the following (9 units):
79-244 Women in American History 9
79-320 Women, Politics, and Protest 9

Elective Intermediate Courses 27 units
Choose three of the following courses:
76-241 Introduction to Gender Studies * 9
76-245 Shakespeare: Histories and Tragedies 9
76-341 Advanced Gender Studies 9
79-243 African American Women's History 9
79-244 Women in American History * 9
79-320 Women, Politics, and Protest * 9
79-322 Family and Gender in Russian History 9
79-331 Body Politics: Women and Health in America 9
85-221 Principles of Child Development 9
85-352 Evolutionary Psychology 9
* If not taken as required introductory course

Elective Advanced Courses 9 units
Choose one of the following courses (9 units):
76-412 18th Century Literary and Cultural Studies 9
76-422 Theories of Sexuality and Gender 9
79-379 Extreme Ethnography 9
82-407 The Arts in Society Var.

The Minor in Global Systems and Management
Faculty Advisor: Carol S. Young
Office: PH 222F

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 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:

- one Information Systems course: 67-329 Contemporary Themes in Global Systems (offered only in the Spring semester)
- two courses in Communications
- a combination of 27 units with at least 9 units in each of the categories of:
  - Humanities, Heritage and Culture
  - International Management

for a total of 54 units to complete the GSM minor.

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.

NOTE: Participating departments may develop and offer other courses that, while not listed here, are deemed appropriate for GSM. Students may develop and submit to the GSM Advisor customized plans that substantially meet the requirements of this minor while allowing the student a personally-crafted learning experience. Proposals should generally be developed no later than the sophomore year, and the minor program started no later than the semester of study abroad.

Double Counting of Courses

Students may apply one course taken to fulfill a requirement in another major or minor program toward the GSM minor.

Core Course

Required course:

67-329 Contemporary Themes in Global Systems (Spring Semester Only)  9

Communications

18 units

Complete two courses:

70-321 Negotiation and Conflict Resolution  9
70-340 Business Communications  9
70/85/88-341 Organizational Communication  9
70-342 Managing Across Cultures  9
76-270 Writing for the Professions  9
76-318 Communicating in the Global Marketplace  9
76-386 Language & Culture  9
85-375 Crosscultural Psychology  9
88-419 Negotiation  9

Humanities, Heritage and Culture (HHC) & International Management (IM)  27 units

(Complete 9 units of HHC and 18 units of IM ---OR--- 18 units of HHC and 9 units of IM)

Humanities, Heritage and Culture

Humanities Heritage and Culture consists of:

- History Department courses: 79-200 level or above covering international/regional studies that are outside of U.S. history
- Modern Languages Department courses: 82-200 level or above, covering international or regional studies but not including elementary or intermediate language courses

79-205 20th Century Europe  9
79-212 China and Its Neighbors: Minorities, Conquerors and Tribute Bearers  9
79-221 Development and Democracy in Latin America  9
79-225 West African History in Film  9
79-226 Introduction to African History: Earliest Times to 1780  9
79-227 Introduction to African History: 1780-1994  9
79-229 Origins of the Arab-Israeli Conflict, 1880-1948  9
79-230 Arab-Israeli Conflict and Peace Process since 1948  9
79-235 Caribbean Cultures  9
79-236 Introduction to African Studies  9
79-251 India/America: Democracy, Diversity, Development  9
79-254 The Jewish Diaspora in Latin America  9
79-255 Irish History  9
79-256 20th Century Germany  9
79-257 Germany and the Second World War  9
79-258 French History: From the Revolution to De Gaulle  9
79-259 France During World War II  9
79-261 Chinese Culture and Society  9
79-262 Modern China  9
79-263 China’s Cultural Revolution  9
79-264 China in the Age of Reform, 1978-Present  9
79-265 Russian History: From the First to the Last Tsar  9
79-266 Russian History: From Communism to Capitalism  9
79-267 The Soviet Union in World War II: Military, Political and Social History  9
79-272 Iberian Encounters: Muslims, Christians and Jews in Spain  9
79-274 19th and 20th Century Russia: Society, Art, Music and Theater  9
79-275 Introduction to Global Studies  9
79-278 Rights to Representation: Indigenous Peoples and their Media  9
79-284 Islam, Africa and the Arab World  9
79-291 Globalization in East African History  6
79-292 China Inside Out: Going Global, 19th to 21st Centuries  9
79-295 Race Relations in the Atlantic World  9
79-297 Dilemmas and Controversies in Anthropology  9
79-307 Religion and Politics in the Middle East  9
79-308 18th Century China Through Literature  9
79-309 20th Century China Through Film  9
79-310 Religions of China  9
79-312 International Human Rights Institutions in Theory and Practice  9
79-322 Family and Gender in Russian History  9
79-323 Family Gender and Sexuality in European History, 500-1800  9
79-326 History of German Cinema History of Modern Germany through its Cinema  6
79-341 The Cold War in Documents and Film  9
79-349 The Holocaust in Historical Perspective  9
79-355 World Citizenship  9
79-358 Claiming the Pacific: Pacific Islander Struggles for Survival  6
79-375 China’s Environmental Crisis  9
79-381 Petrolecultures: How Oil Changed the World  9
79-385 The Making of the African Diaspora  9
79-386 Entrepreneurs in Africa, Past, Present and Future  9
82-215 Introduction Modern Arabic Literature and Culture  Var.
82-273 Introduction to Japanese Language and Culture: Intermediate Level  Var.
82-303 French Culture  9
82-304 The Francophone World  9
82-305 French in its Social Contexts  9
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 opportunities that require new skills. New organizations are placing 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.

Curriculum 60 units minimum

Seven courses (a minimum of 60 units) are required to complete this minor. Entry into the minor requires completion of 73-100 Principles of Economics or 88-220 Policy Analysis I or the equivalent by approval.

Required Courses 39 units

Students are required to take the following courses.
79-330 Medicine and Society 9
90-836 Health Systems 6
90-861 Health Policy 6
94-705 Health Economics 12

27 units

Elective Courses

Complete a minimum of 27 units.

Heinz College Courses
90-708 Healthcare Ethics 6
90-721 Healthcare Management 6
90-818 Health Care Quality & Performance Improvement 6
90-830 Introduction to Financial Management of Health Care 6
90-831 Advanced Financial Management of Health Care 6
90-832 Health Law 12
90-863 Health Policy II 6
94-706 Healthcare Information Systems 12

Humanities and Social Sciences Courses (9 units each)
76-494 Healthcare Communications 9
79-335 Drug Use and Drug Policy 9
79-363 Epidemic Disease and Public Health 9
80-245 Medical Ethics 9
80-247 Ethics and Global Economics 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

Linguistics is the study of human language, and it encompasses a broad spectrum of research questions, approaches and methodologies. Some linguists are concerned with the cognitive aspects of language learning, production and comprehension; some are concerned with language as a social and cultural phenomenon; others engage in the analysis of linguistic form and meaning, some from a functional and others from a formal perspective. There are also computational approaches to linguistics with both applied and theoretical goals.

The interdepartmental Minor in Linguistics is sponsored by the departments of English, Modern Languages, Philosophy and Psychology and the Language Technologies Institute. It synthesizes the linguistics related offerings in these departments and provides students with an academic experience that reflects both the interdisciplinary character of the subject and its cross-departmental representation at Carnegie Mellon.
Curriculum

The Linguistics Minor requires a total of 6 courses. All courses counted towards the Minor must be taken for a letter grade and passed with a grade of "C" or above. For Dietrich College students, up to 2 of these courses may be counted also as satisfying the college’s general education requirements (as long as the double-counting maximum established by the college is not exceeded), with permission of the director. Students from other colleges may fulfill their Humanities requirements using courses taken towards the Linguistics Minor. However, no courses may be counted simultaneously towards the Linguistics Minor and any other major or minor.

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 9

Structure
80-280 Linguistic Analysis 9
76-389 Rhetorical Grammar 9
80-283 Syntax and Discourse 9

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

Electives
Take three additional courses. These can be additional courses from the Fundamental Skills category above, or any other course which is approved by the director as a linguistics elective. Listed below are the additional electives taught on a regular basis. Other appropriate courses are offered irregularly or on a one-off basis. The director will provide students with a list of possible electives each semester.

Electives are listed below with an indication of the broad areas into which they fall. Students are free to select any configuration of courses from any areas. The director will assist students in selecting electives which are consistent with their goals and interests.

Language Learning and Cognition
76-378 Literacy: Educational Theory and Community Practice 9
76-420 Process of Reading and Writing 9
80-281 Language and Thought 9
82-480 Social and Cognitive Aspects of Bilingualism 9
82-280 Learning About Language Learning 9
82-383 Second Language Acquisition: Theories and Research 9
82-388 Understanding Second Language Fluency 9
82-488 Language Learning in a Study Abroad Context 9
85-354 Infant Language Development 9
85-421 Language and Thought 9

Discourse, Society and Culture
76-318 Communicating in the Global Marketplace 9
76-325 Topics in Rhetoric 9
76-373 Topics in Rhetoric: Argument 9
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 9
76-457 Topics in Rhetoric 9
82-273 Introduction to Japanese Language and Culture 9
82-305 French in Its Social Contexts 9
82-311 Arabic Language and Culture I 9
82-312 Arabic Language and Culture II 9
82-333 Introduction to Chinese Language and Culture 9
82-345 Introduction to Hispanic Literary and Cultural Studies 9
82-378 Japanese Conversation Analysis 9
82-476 Japanese Discourse Analysis 9

Linguistic Analysis
80-380 Conceptual Foundations 9
82-373 Structure of the Japanese Language 9
82-442 Analysis of Spoken Spanish 9
82-444 The Structure of Spanish 9
80-382 Linguistics of Germanic Languages 9
11-721 Grammars and Lexicons 12
11-722 Grammar Formalisms 12

Language Technologies
11-411 Natural Language Processing 12
11-710 Graduate Seminar on Dialog Processing 6
11-761 Language and Statistics 12
11-762 Language and Statistics II 12
15-492 Special Topic: Speech Processing 12

Notes
Course numbers 82-305, 82-311, 82-312, 82-378, 82-373, 82-442, 82-444 are taught in the language of analysis.

All 11-xxx and 15-xxx courses have significant Computer Science prerequisites. Interested students should check with the course instructor before registering.

The Minor in Neural Computation

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

The minor in Neural Computation is an inter college 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, 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.

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. Substitution is possible but requires approval by the director of the minor program.

A. Neural Computation

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-386</td>
<td>9</td>
</tr>
<tr>
<td>15-387</td>
<td>9</td>
</tr>
<tr>
<td>15-883</td>
<td>12</td>
</tr>
<tr>
<td>85-419</td>
<td>9</td>
</tr>
<tr>
<td>86-375</td>
<td>9</td>
</tr>
<tr>
<td>Pitt-Mathematics-1800 Introduction to Mathematical Neuroscience</td>
<td>9</td>
</tr>
</tbody>
</table>

B. Neuroscience

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-362</td>
<td>9</td>
</tr>
<tr>
<td>03-363</td>
<td>9</td>
</tr>
<tr>
<td>03-761</td>
<td>9</td>
</tr>
</tbody>
</table>
Carnegie Mellon University

C. Cognitive Psychology

85-211 Cognitive Psychology 9
85-213 Human Information Processing and Artificial Intelligence 9
85-412 Cognitive Modeling 9
85-419 Introduction to Parallel Distributed Processing 9
85-426 Learning in Humans and Machines 9
85-765 Cognitive Neuroscience Var.

D. Intelligent System Analysis

10-601 Machine Learning 12
15-381 Artificial Intelligence: Representation and Problem Solving 9
15-386 Neural Computation 9
15-387 Computational Perception 9
15-486 Artificial Neural Networks 12
15-494 Special Topic: Cognitive Robotics 12
16-299 Introduction to Feedback Control Systems 12
16-311 Introduction to Robotics 12
16-385 Computer Vision 9
18-290 Signals and Systems 12
24-352 Dynamic Systems and Controls 12
36-225 Introduction to Probability Theory 9
36-247 Statistics for Lab Sciences 9
36-401 Modern Regression 9
36-410 Introduction to Probability Modeling 9
42-631 Neural Data Analysis 9
42-632 Neural Signal Processing 12
86-375 Computational Perception 9
86-631 Neural Data Analysis 9

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, Differential Equations 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 http://www.cnbc.cmu.edu/studentfellowshipprogramatcmu. 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 http://www.cnbc.cmu.edu/studentfellowshipprogramatcmu for details.

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 the http://www.cnbc.cmu.edu/summercompneuro for application information.

The Minor in Religious Studies

Faculty Director: Allyson Creasman
Undergraduate Advisor: Naum Kats
Office: Baker Hall 240

The Religious Studies minor provides the student with a range of intellectual tools with which to think about religious ideas, behaviors and institutions. A further objective is to enable the student to build a base of knowledge which extends beyond any one particular religious tradition. The minor consists of six courses, totaling at least 54 units.

Courses taken to fulfill requirements in other major or minor programs may not be applied to this minor.

Curriculum 54 units

In addition to the general education requirements of the student’s college and the requirements of the student’s major, Religious Studies minors must satisfy the requirements as outlined below.

The “required” course listed below is offered regularly; the “distribution” and “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 minor faculty advisor should be consulted (especially when the schedule of courses to be offered for a given semester becomes available) to identify such additional courses.

Core Course 9 units

This required course introduces a variety of methods of religious inquiry such as philosophy of religion, sociological and behavioral approaches to religion, historical analysis of religious subject matter, literary and critical analysis of religious texts, theological modes of thought, and anthropological treatments of religion.

79-281 Introduction to Religion 9

Distribution Requirements 18 units

A distribution course is one that applies a particular discipline to more than one religion. Complete a course from each of two different disciplinary approaches. See the faculty advisor for other options.

Anthropological Approaches 9 units

79-310 Religions of China 9

Historical Approaches 9 units

79-272 Iberian Encounters: Muslims, Christians and Jews in Spain 9
79-307 Religion and Politics in the Middle East 9
79-353 Religious Identities and Religious Conflicts in 19th Century Europe 9

Philosophical Approaches 9 units

80-276 Philosophy of Religion 9

Textual Approaches 9 units

76-346 Renaissance Studies 9
79-325 Angels and Diplomats 9

Elective Courses 27 units

Complete courses totaling at least 27 units. In addition to the Carnegie Mellon courses listed below, electives may be chosen from among any of the courses listed above under “Distribution Requirements” that were not used to fulfill that requirement.
The Minor in Science, Technology and Society

Faculty Advisor: Jay Aronson,
Undergraduate Advisor: Naum Katz
Office: Baker Hall 240

This minor provides varied perspectives on the development and meaning of science and technology in modern society. The core courses provide for the exploration of the philosophical underpinnings, cultural and historical contexts, and economic and literary assessments of the interplay among science, technology, and society. Elective courses allow students to pursue more deeply subjects and approaches that build on both core courses and students’ primary majors.

Courses taken to fulfill requirements in other major or minor programs may not be applied to this minor.

Curriculum 54 units

Core Courses 27 units

Complete one course from Area 1, two from Area 2, and three Electives.

Area 1. Language and Rhetoric in Science and Technology 9 units

51-326 Photography & Family 9
76-319 Environmental Rhetoric 9
76-395 Science Writing 9
76-425 Science in the Public Sphere 9
76-476 Rhetoric of Science 9
76-492 Rhetoric of Public Policy 9

Area 2. History, Philosophy and Social Studies of Science and Technology (18 units)

79-330 Medicine and Society 9
79-333 Biology and Society: Evolution Animal Experimentation and Eugenics 9
79-334 Law, Ethics, and the Life Sciences 9
79-342 Introduction to Science and Technology Studies 9
79-382 History of Biomedical Research 9
80-226 Revolutions in Science 9
80-323 Philosophy of Biology 9

Electives 27 units

Complete three courses from the approved list of elective courses. Courses listed in Areas 1, 2, and 3 may also be taken as electives if not already completed for an Area requirement. For a listing of approved courses, consult the description of the minor in Science, Technology and Society on the Dietrich College of Humanities and Social Sciences’ webpage (http://www.hss.cmu.edu/index.html), or contact the faculty advisor directly at aronson@andrew.cmu.edu.

15-xxx Special Topics 9-12
17-400 Electronic Voting 12
18-482 Telecommunications, Technology Policy & Management 12
19-448 Science, Technology & Ethics 9
39-100 Special Topics: WHAT IS ENGINEERING? 9
48-448 History of Sustainable Architecture 9
79-331 Body Politics: Women and Health in America 9
79-332 Medical Anthropology 9
79-335 Drug Use and Drug Policy 9
79-381 Petrocultures: How Oil Changed the World 9
79-383 Epidemic Disease and Public Health 9
80-245 Medical Ethics 9
80-247 Ethics and Global Economics 9
80-343 Computers, Society and Ethics 9
88-343 Economics of Technological Change 9
85-380 In Search of Mind: The History of Psychology 9

The Minor in Sociology

Faculty Advisor, John Miller
Program Advisor, Connie Angermeier
Office: Porter Hall 208A
Email: cla2@andrew.cmu.edu

The Sociology minor provides the student with a solid introduction to the central concepts in sociological theory and a grounding in the methods of empirical inquiry needed to understand societies, their histories, and how they change over time. Students choose among selected topics 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 students’ ability to enter 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 to enter the corporate environment with a thorough understanding of organizational activity.

Curriculum 54 units

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 18 units

a. Organizations

Complete one course.

70-311 Organizational Behavior 9
88-260 Organizations 9

b. Methodology

Complete one course.

36-202 Statistical Methods 9
70-208 Regression Analysis 9
85-340 Research Methods in Social Psychology 9
88-251 Empirical Research Methods 9
88-252 Empirical Research for Social Science and Policy 9

Elective Courses 36 units

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

70-342 Managing Across Cultures 9
79-244 Women in American History 9
79-261 Chinese Culture and Society 9
79-305 Juvenile Delinquency: Images, Realities, Public Policy, 1825-1967 9

2. Social Psychology, Work and Organizations

80-245 Medical Ethics 9
80-247 Ethics and Global Economics 9
80-343 Computers, Society and Ethics 9
88-343 Economics of Technological Change 9
85-380 In Search of Mind: The History of Psychology 9
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-306</td>
<td>Delinquency, Crime, and Juvenile Justice: 1970's to the Present</td>
<td>9</td>
</tr>
<tr>
<td>79-308</td>
<td>18th Century China Through Literature</td>
<td>9</td>
</tr>
<tr>
<td>79-320</td>
<td>Women, Politics, and Protest</td>
<td>9</td>
</tr>
<tr>
<td>79-322</td>
<td>Family and Gender in Russian History</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>79-329</td>
<td>Health and the Environment in US History</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>79-333</td>
<td>Education and Social Reform</td>
<td>9</td>
</tr>
<tr>
<td>79-339</td>
<td>Juvenile Delinquency and Film (1920-1950)</td>
<td>6</td>
</tr>
<tr>
<td>79-340</td>
<td>Juvenile Delinquency and Film: From &quot;Blackboard Jungle&quot; to &quot;The Wire&quot;</td>
<td>9</td>
</tr>
<tr>
<td>79-343</td>
<td>History of American Urban Life</td>
<td>9</td>
</tr>
<tr>
<td>79-368</td>
<td>Poverty, Charity, and Welfare</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>79-379</td>
<td>Extreme Ethnography</td>
<td>9</td>
</tr>
<tr>
<td>80-230</td>
<td>Ethical Theory</td>
<td>9</td>
</tr>
<tr>
<td>80-245</td>
<td>Medical Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-305</td>
<td>Rational Choice</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 Code</th>
<th>Course Title</th>
<th>Credits</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>Technology Based Entrepreneurship for CIT</td>
<td>9</td>
</tr>
<tr>
<td>73-432</td>
<td>Economics of Education</td>
<td>9</td>
</tr>
<tr>
<td>79-342</td>
<td>Introduction to Science and Technology Studies</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>Organizational Communication</td>
<td>9</td>
</tr>
<tr>
<td>88-345</td>
<td>Perspectives on Industrial Research and Development</td>
<td>9</td>
</tr>
<tr>
<td>88-347</td>
<td>Complex Technological Systems: Past, Present, and Future</td>
<td>9</td>
</tr>
<tr>
<td>88-371</td>
<td>Entrepreneurship, Regulation and Technological Change</td>
<td>9</td>
</tr>
<tr>
<td>88-391</td>
<td>Technology and Economic Growth</td>
<td>9</td>
</tr>
<tr>
<td>88-402</td>
<td>Modeling Complex Social Systems</td>
<td>9</td>
</tr>
<tr>
<td>88-413</td>
<td>Energy and Climate: History, Science, Technology, &amp; Policy in the US 1776-2076</td>
<td>9</td>
</tr>
<tr>
<td>88-415</td>
<td>Global Competitiveness: Firms Nations, and Technological Change</td>
<td>9</td>
</tr>
<tr>
<td>88-419</td>
<td>Negotiation</td>
<td>9</td>
</tr>
<tr>
<td>88-423</td>
<td>Institutions, Entrepreneurship, and Innovation</td>
<td>9</td>
</tr>
<tr>
<td>88-435</td>
<td>Analysis of Uncertain Social Systems</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>12</td>
</tr>
</tbody>
</table>

Note: Some courses have additional prerequisites.