The Department of Philosophy was founded in 1985 and reflects the tradition of philosophy as a central discipline in the humanities. The department has achieved an international reputation through the acclaimed research of its members and its innovative educational programs, not only in traditional topics such as ethics, philosophy of mind, logic, and theory of knowledge, but in such contemporary and applied areas as automated theorem proving, machine learning, the foundations of statistics, causal discovery, forward learning theory, game and decision theory, conflict resolution, and business ethics.

Philosophy thrives through contact with other disciplines. Interdisciplinary work, a traditional strength of the Carnegie Mellon community, is vital to the department and is reflected in the courses we offer, many of which incorporate substantive material from a range of other disciplines. Some courses are actually team-taught with professors from other departments and schools around the university.

Our programs are designed to develop our students' analytical sophistication and their practical and theoretical skills in specializations outside the department (see the sample curricula below). The department welcomes and, indeed, encourages minors and additional majors from other disciplines who are interested in reflecting on the foundation of their own subjects. The department offers two different undergraduate major programs, and jointly sponsors two interdepartmental majors: Ethics, History, and Public Policy (with the Department of History), and Linguistics (with English, Modern Languages, and Psychology):

- the B.A. or B.S. in Ethics, History, and Public Policy (interdisciplinary major with Department of History)
- the B.S. in Logic and Computation
- the B.A. in Philosophy
- the B.A. in Linguistics (interdisciplinary major with Departments of English, Modern Languages, and Psychology)

The major in Logic and Computation is perhaps the most non-traditional of the department’s majors. It offers students a firm background in computer science, together with a solid grounding in logic, philosophy, and mathematics. This reflects the department’s commitment to the use of formal, analytic methods in addressing philosophical issues. A flexible system of electives allows students to focus their efforts in any of a wide range of disciplines, from engineering to the fine arts. As a capstone to the program, students engage in original research in their senior year, and write a thesis under the direction of an advisor.

The department also sponsors four minor programs:

- the minor in Ethics
- the minor in Linguistics
- the minor in Logic and Computation
- the minor in Philosophy

Finally, the department offers two master’s programs directly extending the departmental majors. Both programs are coordinated with and build on the undergraduate programs, so that majors can complete the requirements for the master’s degree in one additional year:

- the M.S. in Logic and Computation
- the M.A. in Philosophy

Students who choose the appropriate specialized track in the Logic and Computation major (namely, sample 2 of the Curricula listed below) can be admitted to the M.S. program in Language and Information Technology offered by the School of Computer Science. To complete the discussion of departmental programs, it should be mentioned that the department sponsors as part of the Program in Pure and Applied Logic (offered jointly with the Departments of Computer Science and Mathematics) a Ph.D. in Logic, Computation, and Methodology.

Department of Philosophy

Richard Scheines, Department Head
Office: Baker Hall 135
http://www.hss.cmu.edu/philosophy/index.php

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The Major in Ethics, History, and Public Policy

Jay Aronson, Director; aronson@andrew.cmu.edu, Baker Hall 246B, 412-268-2887
http://www.cmu.edu/hss/ehpp/

The B.A./B.S. in Ethics, History, and Public Policy is an interdepartmental major offered jointly by the Departments of History and Philosophy. It prepares students for leadership positions in law, public policy, ethics, and advocacy by providing them with a rigorous, interdisciplinary humanistic and social-scientific education. It also serves as an excellent spring board for graduate study in a wide variety of disciplines. The program focuses equally on the historical understanding of how modern-day problems have evolved, and the importance of developing clear criteria for ethical decision-making. The capstone project course provides students with the opportunity to engage with real-world public policy challenges using the methods, theories, and knowledge that they have gained through the major. Offered jointly by the departments of History and Philosophy, the B.A./B.S. in EHPP encourages specialization, internship experiences, and research in a wide range of policy areas.

Curriculum

Students graduating with a primary major in Ethics, History, and Public Policy may elect to receive either a Bachelor of Arts or a Bachelor of Science Degree (additional requirements apply; see below). Basic requirements include 123 units encompassing 9 units in Economics, 39 units in History, 36 units in Philosophy, 27 units of elective courses, and a 12-unit, senior capstone course. This program may also be taken as an additional (e.g., second) major.

I. Economics Requirement 9 units

Choose one of the following:
73-100 Principles of Economics 9
88-220 Policy Analysis I 9

II. History Core 39 units

Choose one 9-unit course from each category below:
Policy History (9 units)
79-300 History of American Public Policy 9
U.S. History (9 units)
79-240 The Development of American Culture 9
79-249 20th Century U.S. 9
Non-U.S. History (9 units)
79-205 20th Century Europe 9
79-207 Development of European Culture 9
79-220 Caribbean: Cultures and Histories 9
79-222 Between Revolutions: The Development of Modern Latin America 9
79-226 Introduction to African History: Earliest Times to 1780 9
79-227 Introduction to African History: 1780-1994 9
79-261 Chinese Culture and Society 9
79-265 Russian History: From the First to the Last Tsar 9
79-266 Russian History: From Communism to Capitalism 9
79-307 Religion and Politics in the Middle East 9
Historical Methods and Approaches (12 units)
79-200 Introduction to Historical Research 12

III. Philosophy Core 36 units

Choose one 9-unit course from each category below. No more than 18 units at the 100 level may be counted toward this requirement.
Ethics (9 units)
80-130 Introduction to Ethics 9
80-230 Ethical Theory 9
Political Philosophy (9 units)
- 80-135 Introduction to Political Philosophy 9
- 80-235 Political Philosophy 9

Foundations of Social Science (9 units)
- 80-221 Philosophy of Social Science 9
- 80-321 Causation, Law, and Social Policy 9
- 80-337 Philosophy Politics & Economics 9

Applied Philosophy (9 units)
- 80-136 Social Structure, Public Policy & Ethics 9
- 80-241 Ethical Judgments in Professional Life 9
- 80-244 Environmental Ethics 9
- 80-245 Medical Ethics 9
- 80-247 Ethics and Global Economics 9
- 80-341 Computers, Society and Ethics 9
- 80-344 Management, Environment, and Ethics 9
- 80-348 Health Development and Human Rights 9
- 80-447 Global Justice 9

IV. Senior Capstone Project Course (79/80-449) 12 units

The Ethics, History and Public Policy Project Course is required for the Ethics, History and Public Policy major and is taken in the fall semester of the senior year. In this capstone course, Ethics, History and Public Policy majors carry out a collaborative research project that examines a compelling current policy issue that can be illuminated with historical research and philosophical and policy analysis. The students develop an original research report based on both archival and contemporary policy analysis and they present their results to a client organization in the community.

V. Elective Courses 27 units

Choose any three courses from any category or categories shown below.

Engineering and Public Policy (some courses have prerequisites; see EPP catalog listing)
- 19-424 Energy and the Environment 9
- 19-426 Environmental Decision Making 9
- 19-448 Science, Technology & Ethics 9

Business
- 70-311 Organizational Behavior 9
- 70-321 Negotiation and Conflict Resolution 9
- 70-332 Business, Society and Ethics 9
- 70-364 Business Law 9
- 70-365 International Trade and International Law 9
- 70-430 International Management 9

Economics (some courses have prerequisites; see Economics catalog listing)
- 73-148 Environmental Economics 9
- 73-310 Evolution of Economic Ideas and Analysis 9
- 73-352 Public Economics 9
- 73-357 Regulation: Theory and Policy 9
- 73-358 Economics of the Environment and Natural Resources 9
- 73-359 Benefit-Cost Analysis 9
- 73-365 Firms, Market Structures, and Strategy 9
- 73-372 International Money and Finance 9
- 73-375 History of Money and Monetary Policy 9
- 73-408 Law and Economics 9
- 73-476 American Economic History 9

English
- 76-492 Rhetoric of Public Policy 9

History

Courses from the EHPP History Core (above) may be taken as electives only if they are not being used to fulfill the core requirement. Double counting is not permitted.
- 79-221 Development and Democracy in Latin America 9
- 79-231 American Foreign Policy: 1945-Present 9
- 79-233 The United States and the Middle East since 1945 9

79-242 African American History: Reconstruction to the Present 9
79-267 The Soviet Union in World War II: Military, Political and Social History 9
79-303 Pittsburgh and the Transformation of Modern Urban America 6
79-305 Juvenile Delinquency: Images, Realities, Public Policy, 1825-1967 9
79-306 Delinquency, Crime, and Juvenile Justice: 1970's to the Present 9
79-320 Women, Politics, and Protest 9
79-331 Body Politics: Women and Health in America 9
79-333 Biology and Society: Evolution Animal Experimentation and Eugenics 9
79-334 Law, Ethics, and the Life Sciences 9
79-335 Drug Use and Drug Policy 9
79-338 Education and Social Reform 9
79-339 Juvenile Delinquency and Film (1920-1950) 6
79-342 Introduction to Science and Technology Studies 9
79-359 Sustainable Innovations: Ideas, Policies & Technologies to Make a Better Planet 9
79-368 Poverty, Charity, and Welfare 9
79-371 African American Urban History 9
79-374 American Environmental History: Critical Issues 9
79-381 Petrohistories: How Oil Changed the World 9
79-383 Epidemic Disease and Public Health 9
79-389 Stalin and Stalinism 9

Philosophy

Courses from the EHPP Philosophy Core (above) may be taken as electives only if they are not being used to fulfill the core requirement. Double counting is not permitted.
- 80-241 Ethical Judgments in Professional Life 9
- 80-256 Modern Moral Philosophy 9
- 80-305 Rational Choice 9
- 80-341 Computers, Society and Ethics 9
- 80-344 Management, Environment, and Ethics 9
- 80-405 Game Theory 9

Social and Decision Sciences
- 88-104 Decision Processes in American Political Institutions 9
- 88-181 Topics in Law: 1st Amendment 9
- 88-223 Decision Analysis and Decision Support Systems 9
- 88-343 Economics of Technological Change 9
- 88-345 Perspectives on Industrial Research and Development 9
- 88-347 Complex Technological Systems: Past, Present, and Future 9
- 88-371 Entrepreneurship, Regulation and Technological Change 9
- 88-387 Social Norms and Economics 9
- 88-423 Institutions, Entrepreneurship, and Innovation 9
- 88-444 Public Policy and Regulation 9

VI. Bachelor of Science Option

Students may elect to earn a Bachelor of Science rather than a Bachelor of Arts degree by completing two courses from the list below, or by petitioning the Director of EHPP to accept equivalent courses as substitutions.
- 21-257 Models and Methods for Optimization 9
- 36-202 Statistical Methods 9
- 36-208 Regression Analysis 9
- 36-207 Probability and Statistics for Business Applications 9
- 36-303 Sampling, Survey and Society 9
- 36-309 Experimental Design for Behavioral and Social Sciences 9
- 80-305 Rational Choice 9
- 88-251 Empirical Research Methods 9
Additional Major
The B.A./B.S. in Ethics History and Public Policy may be scheduled as an additional major in consultation with the departments concerned.

Ethics, History, and Public Policy Sample Curriculum

<table>
<thead>
<tr>
<th>Junior Year Fall</th>
<th>Spring</th>
<th>Senior Year Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core requirement in History or Philosophy</td>
<td>Core requirement in History or Philosophy</td>
<td>Capstone Course</td>
<td>EHPP Elective Course</td>
</tr>
<tr>
<td>Core requirement in History or Philosophy</td>
<td>Core requirement in History or Philosophy</td>
<td>EHPP Elective Course</td>
<td>Second Course (open)</td>
</tr>
<tr>
<td>Core requirement in History or Philosophy</td>
<td>Core requirement in History or Philosophy</td>
<td>EHPP Elective Course</td>
<td>Third Course (open)</td>
</tr>
<tr>
<td>Core requirement in History or Philosophy</td>
<td>Core requirement in History or Philosophy</td>
<td>Fourth Course (open)</td>
<td>Fourth Course (open)</td>
</tr>
</tbody>
</table>

The above sample program is presented as a two-year (junior-senior year) plan for completing EHPP major requirements. Its purpose is to show that this program can be completed in as few as two years; not that it must be. Students may enter the EHPP major, and begin major course requirements, as early as the start of the sophomore year, or even in the first year. Students should consult their advisor when planning their program.

The Major 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 their goals and interests.

The major in Linguistics reflects the multidisciplinary character of the field and of the Linguistics faculty here at Carnegie Mellon, offering a program which provides students with the fundamental tools of linguistic analysis while maintaining a focus on the human context in which language is learned and used. The major is available as either a primary or an additional major. It is an ideal choice for students with a general interest in the language and thought and the human context in which language is produced and comprehended, and for those who wish to pursue a career in fields related to language such as education, law, and government.

Curriculum
The Linguistics major requires a total of 12 courses, which includes 2 semesters of language study. In addition, primary majors in Linguistics are required to write a Senior Thesis in their final year. At least three courses (not including specific language courses) must be at the 300-level or higher. All courses counted towards the major 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 major director. Students from other colleges may fulfill their Humanities requirement using courses taken towards the Linguistics Major. However, no courses may be counted simultaneously towards the Linguistics Major and any other major.

Introductory course
80-180 Nature of Language 9

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

<table>
<thead>
<tr>
<th>Sounds</th>
<th>Phonetics and Phonology</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-282</td>
<td>9</td>
</tr>
</tbody>
</table>

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

Breadth
Take one course from each of the following breadth subject areas:

Area 1: Language Learning and Language Cognition
76-420 Process of Reading and Writing 9
82-280 Learning About Language Learning 9
82-383 Second Language Acquisition: Theories and Research 9
82-585 Topics in Second Language Acquisition 9
85-354 Infant Language Development 9
85-421 Language and Thought 9

Area 2: Discourse, Society and Culture
76-318 Communicating in the Global Marketplace 9
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 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

Electives
Take four additional electives. These can be additional courses from the Fundamental Skills courses or Breadth courses listed 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.

Additional appropriate courses are offered irregularly or on a one-off basis. The Director will provide students with a list of possible electives each semester, and will assist students in selecting electives which are consistent with their goals and interests.

<table>
<thead>
<tr>
<th>76-373</th>
<th>Topics in Rhetoric: Argument</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-378</td>
<td>Literacy: Educational Theory and Community Practice</td>
</tr>
<tr>
<td>76-451</td>
<td>Topics in Language Study</td>
</tr>
<tr>
<td>76-476</td>
<td>Rhetoric of Science</td>
</tr>
<tr>
<td>80-281</td>
<td>Language and Thought</td>
</tr>
<tr>
<td>80-380</td>
<td>Philosophy of Language</td>
</tr>
<tr>
<td>82-345</td>
<td>Introduction to Hispanic Literary and Cultural Studies</td>
</tr>
<tr>
<td>82-373</td>
<td>Structure of the Japanese Language</td>
</tr>
<tr>
<td>82-378</td>
<td>Japanese Conversation Analysis</td>
</tr>
<tr>
<td>82-388</td>
<td>Understanding Second Language Fluency</td>
</tr>
<tr>
<td>82-442</td>
<td>Analysis of Spoken Spanish</td>
</tr>
<tr>
<td>82-444</td>
<td>The Structure of Spanish</td>
</tr>
<tr>
<td>82-476</td>
<td>Japanese Discourse Analysis</td>
</tr>
<tr>
<td>82-480</td>
<td>Social and Cognitive Aspects of Bilingualism</td>
</tr>
<tr>
<td>82-488</td>
<td>Language Learning in a Study Abroad Context</td>
</tr>
<tr>
<td>80-382</td>
<td>Linguistics of Germanic Languages</td>
</tr>
<tr>
<td>11-411</td>
<td>Natural Language Processing</td>
</tr>
<tr>
<td>11-716</td>
<td>Graduate Seminar on Dialog Processing</td>
</tr>
<tr>
<td>11-721</td>
<td>Grammars and Lexicons</td>
</tr>
<tr>
<td>11-722</td>
<td>Grammar Formalisms</td>
</tr>
<tr>
<td>11-761</td>
<td>Language and Statistics</td>
</tr>
<tr>
<td>11-762</td>
<td>Language and Statistics II</td>
</tr>
<tr>
<td>15-492</td>
<td>Special Topic: Speech Processing</td>
</tr>
</tbody>
</table>

Language Requirement
Students must successfully complete two semesters of consecutive language courses. (Note that students may not “test out” of this requirement. However, language courses taken at other institutions or as
part of a study abroad program will typically substitute for a semester of language study.)

Senior Thesis (primary majors only)
Primary majors must complete a senior thesis (a workload equivalent to a 12-unit course) during their senior year. Topics must be approved by an advisor, who will work with the student and guide the thesis project.

Notes
Course numbers 82-305, 82-311, 32-312, 82-373, 82-378, 82-442, 82-444, 82-476 are taught in the language of analysis.

Course number 82-345 topics vary: consult with Director.

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

Language specific “Language and Culture” courses may be taken either as electives or towards the second breadth area. However only one such course per language area may be counted towards the major.

The Major in Logic and Computation
Peter Spirtes, Director
Office: Baker Hall 135
Email: ps72@andrew.cmu.edu

The Logic and Computation curriculum takes advantage of the preparation provided by the H&SS General Education Program in mathematics, philosophy, psychology, and statistics. It is flexible in that it permits students to focus on any of a number of areas including (but not limited to):

• computer science;
• language and information technology;
• artificial intelligence and cognitive science;
• logic and the foundations of mathematics;
• methodology and philosophy of science.

Students in the program take a common core of courses in logic, methodology, and computer science, together with an associated seminar in their senior year. The individual focus is achieved by selecting a sequence of four advanced and closely related courses. It is in this area of focus (or specialization) that students write their senior thesis under the supervision of a faculty member. A number of sample curricula are presented below.

The resulting education in logic, analytic philosophy, mathematics, statistics, and computer science enables students to pursue professional careers or graduate study. The analytic and communication skills developed in the major support a wide range of career choices, including those among the fields of technology, business, and law. Fields of graduate study for which students are well prepared include, for example, computer science, cognitive science, philosophy, logic, and linguistics.

Students who are interested in pursuing this major, or who are pursuing it already, should take note of the Cognitive Science major in the Department of Psychology. That major is so closely related that it is not difficult to pursue it as an additional major, and it provides an intellectually exciting complement.

Curriculum
Logic and Computation is a B.S. degree. In their freshman and sophomore years, students are expected to take three courses that provide preparation in computer science, mathematics, and statistics: 15-110 Fundamentals of Programming and Computer Science, 21-127 Concepts of Mathematics, and 36-201 Statistical Reasoning and Practice. 80-211 Logic and Mathematical Inquiry is part of the major’s Core Requirements, but should be taken no later than the spring of the sophomore year. This also applies to the computer science sequence 15-122 and 15-150/15-211. However, with suitable planning and advice from the program director, it is possible to complete the program in two years, beginning in the junior year.

The course requirements for the major consist of seven core courses (including one seminar) and four electives. The core courses provide comprehensive background in logic, computability, and analytic philosophy. 80-310 Formal Logic and 80-150 Nature of Reason must be taken no later than the fall of the junior year. Four advanced electives are chosen in the area of focus, and should support independent research towards fulfilling the senior thesis requirement. In their senior year, students present and discuss their research in 80-511 Thesis Seminar.

Prerequisites 28 units

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-110</td>
<td>Principles of Computing</td>
<td>10</td>
</tr>
<tr>
<td>21-127</td>
<td>Concepts of Mathematics</td>
<td>10</td>
</tr>
<tr>
<td>36-201</td>
<td>Statistical Reasoning and Practice</td>
<td>9</td>
</tr>
</tbody>
</table>

Logic and Computation Core 69-71 units

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-150</td>
<td>Nature of Reason</td>
<td>9</td>
</tr>
<tr>
<td>80-211</td>
<td>Logic and Mathematical Inquiry</td>
<td>9</td>
</tr>
<tr>
<td>80-310</td>
<td>Formal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-311</td>
<td>Undecidability and Incompleteness</td>
<td>9</td>
</tr>
<tr>
<td>15-122</td>
<td>Principles of Imperative Computation</td>
<td>10</td>
</tr>
<tr>
<td>15-150</td>
<td>Principles of Functional Programming</td>
<td>10</td>
</tr>
<tr>
<td>or 15-211</td>
<td>Fundamental Data Structures and Algorithms</td>
<td>10</td>
</tr>
<tr>
<td>80-511</td>
<td>Thesis Seminar</td>
<td>9</td>
</tr>
</tbody>
</table>

Logic and Computation Electives 36 units

Bearing in mind prerequisites, Logic and Computation majors must complete four advanced courses in areas that use logical and computational tools, such as philosophy, computer science, linguistics, mathematical logic, psychology, or statistics. The sequence of courses, mostly at the 300-level, must be selected in consultation with the program director.

Sample Curricula
Here are five samples of Logic and Computation curricula (beyond the core courses), each reflecting a different emphasis.

Sample 1. A student interested in Computer Science might take the following courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-315</td>
<td>Modal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-413</td>
<td>Category Theory</td>
<td>9</td>
</tr>
<tr>
<td>15-312</td>
<td>Foundations of Programming Languages</td>
<td>12</td>
</tr>
<tr>
<td>15-317</td>
<td>Constructive Logic</td>
<td>9</td>
</tr>
</tbody>
</table>

Sample 2. A student interested in Language and Information Technology might take the following courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-280</td>
<td>Linguistic Analysis</td>
<td>9</td>
</tr>
<tr>
<td>80-281</td>
<td>Language and Thought</td>
<td>9</td>
</tr>
<tr>
<td>80-381</td>
<td>Meaning in Language</td>
<td>9</td>
</tr>
<tr>
<td>80-383</td>
<td>Language in Use</td>
<td>9</td>
</tr>
<tr>
<td>80-580</td>
<td>Seminar on the Philosophy of Language</td>
<td>9</td>
</tr>
</tbody>
</table>

Sample 3. A student interested in Artificial Intelligence and Cognitive Science might take the following courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-313</td>
<td>Philosophical Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-314</td>
<td>Logic and Artificial Intelligence</td>
<td>9</td>
</tr>
<tr>
<td>80-315</td>
<td>Modal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-411</td>
<td>Proof Theory</td>
<td>9</td>
</tr>
<tr>
<td>85-412</td>
<td>Cognitive Modeling</td>
<td>9</td>
</tr>
</tbody>
</table>

Sample 4. A student interested in Logic and the Foundations of Mathematics might consider the following courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-254</td>
<td>Analytic Philosophy</td>
<td>9</td>
</tr>
<tr>
<td>80-312</td>
<td>Philosophy of Mathematics</td>
<td>9</td>
</tr>
<tr>
<td>80-365</td>
<td>Ramsey</td>
<td>9</td>
</tr>
<tr>
<td>80-411</td>
<td>Proof Theory</td>
<td>9</td>
</tr>
<tr>
<td>80-413</td>
<td>Category Theory</td>
<td>9</td>
</tr>
</tbody>
</table>

Sample 5. A student interested in Methodology might consider the following courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-220</td>
<td>Philosophy of Science</td>
<td>9</td>
</tr>
<tr>
<td>80-221</td>
<td>Philosophy of Social Science</td>
<td>9</td>
</tr>
<tr>
<td>80-321</td>
<td>Causation, Law, and Social Policy</td>
<td>9</td>
</tr>
<tr>
<td>36-309</td>
<td>Experimental Design for Behavioral and Social Sciences</td>
<td>9</td>
</tr>
</tbody>
</table>
Logic and Computation as a Second Major

The Logic and Computation major is also suitable as a second major for students in H&SS or for students in other colleges within the university. Non-H&SS students interested in an additional major in Logic and Computation need to take only those courses in the H&SS General Education Program that are prerequisites to courses required in the major; all other H&SS General Education requirements are waived for these students. Depending on the student’s back-ground, the requirements of the second major in Logic and Computation can be fulfilled with as few as five additional courses. However, the department limits the courses that may be “double counted”; the core courses in the Philosophy department may not be double counted.

The M.S. Program in Logic and Computation

The Department of Philosophy also offers a graduate M.S. degree in Logic and Computation, which culminates with the writing of a master’s thesis. It is ordinarily a two-year program, but students in the Logic and Computation major are able to complete the additional requirements in one year. Interested students are invited to contact the department for further information and apply to the program in their senior year. Details can be found on the department’s homepage: http://hss.cmu.edu/philosophy/

The Major in Philosophy

Mara Harrell, Director
Office: Baker Hall 161G
Email: mharrell@andrew.cmu.edu

The Major in Philosophy is intended to be flexible and to facilitate double majors in other fields (including majors with a strong professional focus). It provides students with a broad humanities education and sharpens their analytical skills. We encourage, but do not require, students to choose a thematic concentration through their electives. Sample curricula emphasizing Pre-Law, Metaphysics and Epistemology, Ethics and Social Philosophy, and Philosophy of Mind are suggested below. However, alternative emphases can be proposed and approved by the Director. The Major in Philosophy is a B.A. degree.

Curriculum

In addition to the general education requirements for the student’s college, Philosophy primary majors and additional majors must complete 80-100 Introduction to Philosophy and nine Philosophy courses in the Areas listed below. The 80-100 requirement must be fulfilled before the first semester of the junior year. Only two of the remaining nine courses may be at the 100-level, and two of the nine courses must be at the 300-level or higher. All ten courses, if taken at CMU, must be taken for a letter grade and passed with a grade of “C” or above. Courses from other universities, as well as an 80-100 skills test, may be substituted with permission of the Director. For H&SS students, up to 4 of these courses may be counted also as satisfying the College’s General Education requirements, with permission of the Director. Students are to choose one course out of each of the Areas 1-4, two courses out of Area 5, and may freely select three courses in Area 6. As per the requirement of the College of H&SS, a student’s Freshman Seminar course may not count toward the fulfillment of the major requirements.

Introduction to Philosophy 9 units
80-100 Introduction to Philosophy 9

9 units Area 1: Values and Normative Theory
One of the following:
80-130 Introduction to Ethics 9
80-135 Introduction to Political Philosophy 9
80-136 Social Structure, Public Policy & Ethics 9
80-230 Ethical Theory 9
80-235 Political Philosophy 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-247 Ethics and Global Economics 9
80-335 Deliberative Democracy: Theory and Practice 9
80-337 Philosophy Politics & Economics 9
80-348 Health Development and Human Rights 9
80-430 Ethics and Medical Research 9
80-447 Global Justice 9
80-530 Seminar on Ethical Theory Var.

Area 2: Philosophy of Mind/Language/Metaphysics 9 units
One of the following:
80-180 Nature of Language 9
80-270 Philosophy of Mind 9
80-271 Philosophy and Psychology 9
80-275 Metaphysics 9
80-276 Philosophy of Religion 9
80-280 Linguistic Analysis 9
80-281 Language and Thought 9
80-282 Phonetics and Phonology 9
80-283 Syntax and Discourse 9
80-380 Philosophy of Language 9
80-381 Meaning in Language 9
80-382 Linguistics of Germanic Languages 9
80-383 Language in Use 9
80-384 Linguistics of Turkic Languages 9
80-575 Seminar on Metaphysics Var.
80-580 Seminar on the Philosophy of Language 9

Area 3: Logic/Philosophy of Mathematics 9 units
One of the following:
80-110 Nature of Mathematical Reasoning 9
80-210 Logic and Proofs 9
80-211 Logic and Mathematical Inquiry 9
80-212 Arguments and Logical Analysis 9
80-310 Formal Logic 9
80-311 Undecidability and Incompleteness 9
80-312 Philosophy of Mathematics 9
80-313 Philosophical Logic 9
80-314 Logic and Artificial Intelligence 9
80-315 Modal Logic 9
80-411 Proof Theory 9
80-413 Category Theory 9
80-513 Seminar on Mathematical Understanding and Cognition 9
80-514 Categorical Logic Seminar 9

Area 4: Epistemology/Metaphysics 9 units
One of the following:
80-150 Nature of Reason 9
80-201 Epistemology 9
80-208 Critical Thinking 9
80-220 Philosophy of Science 9
80-221 Philosophy of Social Science 9
80-222 Measurement and Methodology 9
80-226 Revolutions in Science 9
80-305 Rational Choice 9
80-321 Causation, Law, and Social Policy 9
80-322 Philosophy of Physics 9
80-323 Philosophy of Biology 9
80-324 Philosophy Economics 9
80-405 Game Theory 9
80-515 Seminar on the Foundations of Statistics 9
80-516 Seminar on Causation Var.
80-520 Seminar on Philosophy Science 9
80-521 Seminar on Formal Epistemology 9

Area 5: History of Philosophy 18 units
Two of the following:
80-150 Nature of Reason 9
80-226 Revolutions in Science 9
80-250 Ancient Philosophy 9
80-251 Modern Philosophy 9
Here are four sample curricula, reflecting different emphases.

**1. For an emphasis on Law & Social Policy, a student might take:**

Area 1
80-235 Political Philosophy 9
Area 2
80-180 Nature of Language 9
Area 3
80-211 Logic and Mathematical Inquiry 9
Area 4
80-208 Critical Thinking 9
Area 5
80-150 Nature of Reason 9
Area 6
80-250 Ancient Philosophy 9
80-321 Causation, Law, and Social Policy 9
80-348 Health Development and Human Rights 9
80-447 Global Justice 9

**2. For an emphasis on Philosophy of Science, a student might take:**

Area 1
80-136 Social Structure, Public Policy & Ethics 9
Area 2
80-275 Metaphysics 9
Area 3
80-211 Logic and Mathematical Inquiry 9
Area 4
80-220 Philosophy of Science 9
80-221 Philosophy of Social Science 9
Area 5
80-250 Ancient Philosophy 9
80-226 Revolutions in Science 9
Area 6
80-150 Nature of Reason 9
80-221 Philosophy of Social Science 9
80-322 Philosophy of Physics 9
80-323 Philosophy of Biology 9

**3. For an emphasis on Ethics and Social Philosophy, a student might take:**

Area 1
80-230 Ethical Theory 9
Area 2
80-276 Philosophy of Religion 9
Area 3
80-110 Nature of Mathematical Reasoning 9
Area 4
80-221 Philosophy of Social Science 9
Area 5
80-321 Causation, Law, and Social Policy 9

**4. For an emphasis on Philosophy of Mind, a student might take:**

Area 1
80-321 Causation, Law, and Social Policy 9
Area 2
80-320 Analytic Philosophy 9
Area 3
80-325 Modern Moral Philosophy 9
Area 4
80-327 Nietzsche 9
Area 5
80-321 Causation, Law, and Social Policy 9
Area 6
80-327 Nietzsche 9

**Area 6: Electives 27 units**

Three other philosophy courses, or appropriate courses from other departments, with the permission of the Director.

Sample Curricula

**Additional Major**

Students who want an additional major in Philosophy must fulfill the same departmental requirements as primary majors in Philosophy.

The M.A. Program in Philosophy

The Department of Philosophy also offers a graduate M.A. degree in Philosophy, which culminates with the writing of a master’s thesis. It is ordinarily a two-year program, but students in the Philosophy major are able to complete the additional requirements in one year. Interested students are invited to visit the department’s homepage for further information: [www.hss.cmu.edu/philosophy/](http://www.hss.cmu.edu/philosophy/).

**Philosophy Department Minors**

All majors in the Department allow for minors; in addition, there is a Minor in Ethics and an interdepartmental minor in Linguistics. The requirements are again designed to be flexible and to allow students to tailor courses to their special interests, while providing some breadth.

**The Minor in Ethics**

With the explosive growth of science and technology have come both new possibilities and new problems. Developments in medicine, in biology, in chemistry, in nuclear engineering or in computer science all have costs as well as benefits, and they present us with many hard choices. Some of the hardest of these new problems are moral problems.

The Philosophy Department’s Minor in Ethics introduces students to central ethical concepts and theories proposed and defended by the great philosophers of the past; it provides an understanding of how these theories and concepts can be applied to practical problems. This background in ethical theory and its applications should help students to respond more sensitively and appropriately to the new and unavoidable ethical problems that businesses, unions, and branches of government must face.

**Ethics Core Courses 27 units**

Complete three courses from any of the following areas with at least two courses at the 200-level or higher.

Area 1
80-136 Social Structure, Public Policy & Ethics 9
80-230 Ethical Theory 9
80-235 Political Philosophy 9
80-241 Ethical Judgments in Professional Life 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-247 Ethics and Global Economics 9
80-335 Deliberative Democracy: Theory and Practice 9
80-337 Philosophy Politics & Economics 9

Area 2
80-135 Introduction to Political Philosophy 9
80-320 Analytic Philosophy 9
80-325 Modern Moral Philosophy 9
80-327 Nietzsche 9
80-321 Causation, Law, and Social Policy 9

Area 3
80-136 Social Structure, Public Policy & Ethics 9
80-230 Ethical Theory 9
80-235 Political Philosophy 9
80-241 Ethical Judgments in Professional Life 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-247 Ethics and Global Economics 9
80-335 Deliberative Democracy: Theory and Practice 9
80-337 Philosophy Politics & Economics 9
with a broad philosophical grounding. The Minor in Philosophy allows students to complement their primary majors

The Minor in Linguistics

The Interdepartmental Minor in Linguistics is jointly sponsored with the departments of English, Modern Languages, and Psychology. 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 in H&SS. Students who wish to receive a minor in Linguistics must complete six courses. For a detailed discussion of the curriculum and the flexible electives, consult the H&SS Interdisciplinary Minors section of the catalog.

The Minor in Logic and Computation

The Minor in Logic and Computation provides students with general course work in logic, the theory of computation, and philosophy. Students must complete six courses, among them the following three core courses.

<table>
<thead>
<tr>
<th>Logic and Computation Core Courses</th>
<th>27 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-150 Nature of Reason</td>
<td>9</td>
</tr>
<tr>
<td>80-211 Logic and Mathematical Inquiry</td>
<td>9</td>
</tr>
<tr>
<td>or 80-210 Logic and Proofs</td>
<td>9</td>
</tr>
<tr>
<td>80-310 Formal Logic</td>
<td>9</td>
</tr>
<tr>
<td>or 80-311 Undecidability and Incompleteness</td>
<td>9</td>
</tr>
</tbody>
</table>

Logic and Computation Electives | 27 units

Students must take two courses in the Philosophy Department at the 300-level or higher, in subjects related to logic and computation, and an additional course at the 300-level or higher in an area that uses logical and computational tools, such as philosophy, computer science, linguistics, mathematics, psychology, or statistics. The choice of electives must be approved by the program director.

The Minor in Philosophy

The Minor in Philosophy allows students to complement their primary majors with a broad philosophical grounding.

Logic/Methodology Requirements | 9 units

Complete one course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-110</td>
<td>Nature of Mathematical Reasoning</td>
</tr>
<tr>
<td>80-210</td>
<td>Logic and Proofs</td>
</tr>
<tr>
<td>80-211</td>
<td>Logic and Mathematical Inquiry</td>
</tr>
<tr>
<td>80-212</td>
<td>Arguments and Logical Analysis</td>
</tr>
<tr>
<td>80-220</td>
<td>Philosophy of Science</td>
</tr>
<tr>
<td>80-221</td>
<td>Philosophy of Social Science</td>
</tr>
<tr>
<td>80-222</td>
<td>Measurement and Methodology</td>
</tr>
<tr>
<td>80-226</td>
<td>Revolutions in Science</td>
</tr>
<tr>
<td>80-310</td>
<td>Formal Logic</td>
</tr>
<tr>
<td>80-311</td>
<td>Undecidability and Incompleteness</td>
</tr>
<tr>
<td>80-312</td>
<td>Philosophy of Mathematics</td>
</tr>
<tr>
<td>80-314</td>
<td>Logic and Artificial Intelligence</td>
</tr>
<tr>
<td>80-315</td>
<td>Modal Logic</td>
</tr>
<tr>
<td>80-321</td>
<td>Causation, Law, and Social Policy</td>
</tr>
<tr>
<td>80-322</td>
<td>Philosophy of Physics</td>
</tr>
<tr>
<td>80-323</td>
<td>Philosophy of Biology</td>
</tr>
<tr>
<td>80-324</td>
<td>Philosophy Economics</td>
</tr>
<tr>
<td>80-411</td>
<td>Proof Theory</td>
</tr>
<tr>
<td>80-413</td>
<td>Category Theory</td>
</tr>
<tr>
<td>80-513</td>
<td>Seminar on Mathematical Understanding and Cognition</td>
</tr>
<tr>
<td>80-514</td>
<td>Categorical Logic Seminar</td>
</tr>
<tr>
<td>80-515</td>
<td>Seminar on the Foundations of Statistics</td>
</tr>
</tbody>
</table>

Ethics Electives | 18 units

Complete two courses at the 200-level or higher.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-348</td>
<td>Health Development and Human Rights</td>
</tr>
<tr>
<td>80-430</td>
<td>Ethics and Medical Research</td>
</tr>
<tr>
<td>80-447</td>
<td>Global Justice</td>
</tr>
</tbody>
</table>

History of Philosophy Requirements | 18 units

Complete two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-150</td>
<td>Nature of Reason</td>
</tr>
<tr>
<td>80-226</td>
<td>Revolutions in Science</td>
</tr>
<tr>
<td>80-250</td>
<td>Ancient Philosophy</td>
</tr>
<tr>
<td>80-251</td>
<td>Modern Philosophy</td>
</tr>
<tr>
<td>80-252</td>
<td>Kant</td>
</tr>
<tr>
<td>80-253</td>
<td>Continental Philosophy</td>
</tr>
<tr>
<td>80-254</td>
<td>Analytic Philosophy</td>
</tr>
<tr>
<td>80-255</td>
<td>Pragmatism</td>
</tr>
<tr>
<td>80-256</td>
<td>Modern Moral Philosophy</td>
</tr>
<tr>
<td>80-257</td>
<td>Nietzsche</td>
</tr>
<tr>
<td>80-258</td>
<td>Hume</td>
</tr>
<tr>
<td>80-261</td>
<td>Empiricism and Rationalism</td>
</tr>
<tr>
<td>80-262</td>
<td>Introduction to the Philosophy of Bertrand Russell</td>
</tr>
<tr>
<td>80-363</td>
<td>19th Century Foundations of Science</td>
</tr>
<tr>
<td>80-364</td>
<td>William James and Philosophical Psychology</td>
</tr>
</tbody>
</table>

Philosophy Electives | 18 units

Complete two courses in the Philosophy Department at the 200-level or higher.

The Honors Program

The H&SS Senior Honors Program provides recognition of outstanding performance by students majoring in Philosophy, Logic and Computation or Ethics, History, and Public Policy. Students have the opportunity to develop their skills and to apply their knowledge through completion of an honors thesis in their senior year. By completing the thesis, students earn 18 units of credit and qualify for graduation with College Honors. To qualify for the honors program, students must maintain a quality point average of at least 3.50 in the major and 3.25 overall, and be invited by the department to become a participant.

Undergraduate Research Fellows

Qualified upper level undergraduates, preferably majors in one of the Philosophy Department’s programs, may apply to serve in their junior or senior years as fellows in the Laboratory for Symbolic and Educational Computing. Applications are reviewed in the fall. Visit LSEC from the Department’s website: http://www.hss.cmu.edu/philosophy/labs-lsec.php.

Faculty

JEREMY AVIGAD, Professor of Philosophy – Ph.D., University of California, Berkeley; Carnegie Mellon, 1996–.

STEVEN AWODEY, Professor of Philosophy – Ph.D., University of Chicago; Carnegie Mellon, 1997–.

ROBERT CAVALIER, Teaching Professor of Philosophy – Ph.D., Duquesne University; Carnegie Mellon, 1987–.

DAVID DANKS, Associate Professor of Philosophy – Ph.D., University of California, San Diego; Carnegie Mellon, 2003–.

CLARK GLYMOUR, Alumni University Professor of Philosophy – Ph.D., Indiana University; Carnegie Mellon, 1984–.

MARALEE HARRELL, Associate Professor of Philosophy – Ph.D., University of California; Carnegie Mellon, 2003–.

ROBERT CAVALIER, Teaching Professor of Philosophy – Ph.D., University of Pittsburgh; Carnegie Mellon, 1995–.

ALEX LONDON, Associate Professor of Philosophy – Ph.D., University of Virginia; Carnegie Mellon, 2000–.

RICHARD SCHEINES, Professor of Philosophy – Ph.D., University of California, San Diego; Carnegie Mellon, 1987–.

TEDDY I. SEIDENFELD, Herbert A. Simon Professor of Philosophy and Statistics – Ph.D., Columbia University; Carnegie Mellon, 1985–.
WILFRIED SIEG, Patrick Suppes Professor of Philosophy – Ph.D., Stanford University; Carnegie Mellon, 1985–.
MANDY SIMONS, Associate Professor of Philosophy – Ph.D., Cornell University; Carnegie Mellon, 1998–.
JOEL SMITH, Distinguished Career Teaching Professor – Ph.D., University of Pittsburgh; Carnegie Mellon, 1985–.
PETER L. SPIRITES, Professor of Philosophy – Ph.D., University of Pittsburgh; Carnegie Mellon, 1987–.
KEVIN ZOLLMAN, Assistant Professor of Philosophy – Ph.D., University of California, Irvine; Carnegie Mellon, 2009–.

Special Faculty
DAVID GRAY, Assistant Teaching Professor, Carnegie Mellon-Qatar – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2009–.
ANDY NORMAN, – Ph.D., Northwestern University; .
JOSEPH RAMSEY, Director of Research Computing – Ph.D., University of California, San Diego; Carnegie Mellon, 2006–.

Adjunct Faculty
THOMAS WERNER, – Ph.D., Linguistics, Rutgers University; .

Affiliated Faculty
WAYNE WU, Assistant Professor and Associate Director of CNBC – Ph.D., University of California, Berkeley; Carnegie Mellon, 2010–.

Emeritus Faculty
DANA S. SCOTT, Hillman University Professor of Mathematical Logic, Computer Science and Philosophy (Emeritus) – Ph.D., Princeton University; Carnegie Mellon, 1981–.