Department of Philosophy

David Danks, Department Head
Location: Baker Hall 161
www.cmu.edu/dietrich/philosophy

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 interdisciplinary 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.

The Major in Ethics, History, and Public Policy

Alex John London, Director
Location: Baker Hall 150A
ajlondon@andrew.cmu.edu
www.cmu.edu/dietrich/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 by providing them with a rigorous, interdisciplinary humanistic and social-scientific education. It also serves as an excellent springboard for graduate study in a wide variety of disciplines such as law, public policy, ethics, and advocacy. 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 120 units encompassing 36 units in Economics, 36 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. All courses toward the major must be taken for a letter grade, and 79-300 must be passed with a grade of "C" or better. Students can double count any course for the major with another major or minor, with the exception of Social and Political History, for which a student can double count a maximum of two courses.

I. Foundations of Public Policy

9 units
Choose one 9-unit course from the list below:

73-102 Principles of Microeconomics
84-104 Decision Processes in American Political Institutions
84-110 Foundations of Political Economy

II. History Core

36 units
Choose one 9-unit course from each category below:

Policy History (9 units)
79-300 Guns in American History: Culture, Violence, and Politics

U.S. History (9 units)
79-240 Development of American Culture
79-242 African American History: Reconstruction to the Present
79-244 Women in American History
79-245 Capitalism and Individualism in American Culture
79-249 20th & 21st Century U.S. History
79-320 Women, Politics, and Protest

Non-U.S. History (9 units)
79-202 Flesh and Spirit: Early Modern Europe, 1400-1750
79-203 Social and Political Change in 20th Century Central and Eastern Europe
79-205 20th Century Europe
79-223 Mexico: From the Aztec Empire to the Drug War
79-226 African History: Earliest Times to 1780
79-227 Modern Africa: The Slave Trade to the End of Apartheid
79-229 Origins of the Arab-Israeli Conflict, 1880-1948
79-230 Arab-Israeli Conflict Since 1948
79-237 Comparative Slavery 9
79-261 The Last Emperors: Chinese History and Society, 1600-1900 9
79-262 Modern China: From the Birth of Mao ... to Now 9
79-264 Tibet and China: History and Propaganda 6
79-265 Russian History: From the First to the Last Tsar 9
79-266 Russian History and Revolutionary Socialism 9
79-307 Religion and Politics in the Middle East 9

**History Elective (9 units)**

Take at least 9 additional units in the History Department with course number 79-200 or above. The following courses may not count: 79-400, 79-420, 79-449, 79-491, 79-505, 79-506.

**III. Philosophy Core** 36 units

Choose one 9-unit course from each category below. No more than 9 units at the 100 level may be counted toward the Philosophy Core.

**Ethics (9 units)**

80-130 Introduction to Ethics 9
80-330 Ethical Theory 9

**Political Philosophy (9 units)**

80-135 Introduction to Political Philosophy 9
80-335 Social and Political Philosophy 9

**Foundations of Social Science (9 units)**

80-221 Philosophy of Social Science 9
80-321 Causation, Law, and Social Policy 9
80-324 Philosophy of Economics 9

**Applied Philosophy (9 units)**

80-136 Social Structure, Public Policy & Ethics 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-249 AI, Society, and Humanity 9
80-336 Philosophy of Law 9
80-348 Health, Human Rights, and International Development 9
80-447 Global Justice 9

**IV. Senior Capstone Project Course** 12 units

79-449 EHPP Project Course [cross-listed] 12
80-449 EHPP Project Course 12

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 (at least 27 units) from any category or categories shown below. Substitution of elective courses that cohere with a student's interest or concentration may be allowed after consultation with and approval from the Director.

**Engineering and Public Policy (some courses have prerequisites; see EPP catalog listing)**

19-424 Energy and the Environment 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)**

73-352 Public Economics 9
73-359 Benefit-Cost Analysis 9
73-365 Firms, Market Structures, and Strategy 9
73-372 International Money and Finance 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.

79-206 Crime and Punishment in Early Modern Europe 9
79-228 The Civil Rights Movement and the World 9
79-233 The United States and the Middle East since 1945 9
79-234 Technology and Society 9
79-242 African American History: Reconstruction to the Present 9
79-247 African Americans, Imprisonment, and the Carceral State 9
79-267 The Soviet Union in World War II: Military, Political, and Social History 9
79-288 Bananas, Baseball, and Borders: Latin America and the United States 9
79-298 Mobile Phones & Social Media in Development & Human Rights: A Critical Appraisal 6
79-299 From Newton to the Nuclear Bomb: History of Science, 1750-1950 9
79-301 History of Surveillance: From the Plantation to Data Capitalism 6
79-302 Killer Robots: The Ethics, Law, and Politics of Lethal Autonomous Weapons Systems 6
79-303 Pittsburgh and the Transformation of Modern Urban America 6
79-305 Moneyball Nation: Data in American Life 9
79-310 Modern U. S. Business History: 1870 to the Present 9
79-315 Thirsty Planet: The Politics of Water in Global Perspective 9
79-320 Women, Politics, and Protest 9
79-322 Stalin and the Great Terror 9
79-324 U.S. Gay and Lesbian History 6
79-330 Medicine and Society 9
79-331 Body Politics: Women and Health in America 9
79-336 Oil & Water: Middle East Perspectives 6
79-338 History of Education in America 9
79-339 Juvenile Delinquency & Film: From Soul of Youth (1920) to West Side Story (1961) 6
79-342 Introduction to Science and Technology Studies 9
79-343 Education, Democracy, and Civil Rights 9
79-349 United States and the Holocaust 6
79-370 Disasters in American History (2): Epidemics & Fires 6
79-371 African American Urban History 9
79-381 Energy and Empire: How Fossil Fuels Changed the World 9
79-397 Environmental Crises and the City 6

**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.

80-256 Modern Moral Philosophy 9
80-305 Choices, Decisions, and Games 9
80-405 Game Theory 9
Students should consult their advisor when planning their program as early as the start of the sophomore year, or even in the first year.

Public Policy, Professor Alex John London, ajlondon@andrew.cmu.edu.

The B.A./B.S. in Ethics, History, and Public Policy may be scheduled as an Arts degree by completing two courses from the list below, or by petitioning the Director of EHPP to accept equivalent courses as substitutions.

### 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.

### Additional Major

The B.A./B.S. in Ethics, History, and Public Policy may be scheduled as an additional major in consultation with the Director of Ethics, History, and Public Policy, Professor Alex John London, ajlondon@andrew.cmu.edu.

### Ethics, History, and Public Policy Sample Curriculum

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Senior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core requirement in History</td>
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<td>84-210 International Political</td>
<td>84-210 International Political</td>
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<td>84-280 Grand Strategy in the</td>
<td>84-280 Grand Strategy in the</td>
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<td>United States</td>
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<td>84-293 Legislative Decision</td>
<td>84-293 Legislative Decision</td>
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<tr>
<td>84-402 Judicial Politics and</td>
<td>84-402 Judicial Politics and</td>
</tr>
<tr>
<td>Behavior</td>
<td>Behavior</td>
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<tr>
<td>Social and Decision Sciences</td>
<td>Social and Decision Sciences</td>
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<tr>
<td>88-223 Decision Analysis</td>
<td>88-223 Decision Analysis</td>
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<td>88-281 Topics in Law: 1st</td>
<td>88-281 Topics in Law: 1st</td>
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<td>Amendment</td>
<td>Amendment</td>
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<td>88-444 Public Policy and</td>
<td>88-444 Public Policy and</td>
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<tr>
<td>Regulation</td>
<td>Regulation</td>
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<tr>
<td>88-280 Models and Methods for</td>
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<tr>
<td>Optimization</td>
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<tr>
<td>Methods</td>
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<tr>
<td>or 36-208 Regression Analysis</td>
<td>or 36-208 Regression Analysis</td>
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<tr>
<td>or 70-208 Regression Analysis</td>
<td>or 70-208 Regression Analysis</td>
</tr>
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<td>36-303 Sampling, Survey and</td>
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<tr>
<td>Society</td>
<td>Society</td>
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<tr>
<td>36-309 Experimental Design for</td>
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<tr>
<td>Behavioral &amp; Social Sciences</td>
<td>Behavioral &amp; Social Sciences</td>
</tr>
<tr>
<td>70-257 Optimization for Business</td>
<td>70-257 Optimization for Business</td>
</tr>
<tr>
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<td>9</td>
</tr>
<tr>
<td>80-305 Choices, Decisions, and</td>
<td>80-305 Choices, Decisions, and</td>
</tr>
<tr>
<td>Games</td>
<td>Games</td>
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<tr>
<td>80-405 Game Theory</td>
<td>80-405 Game Theory</td>
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<tr>
<td>84-265 Political Science</td>
<td>84-265 Political Science</td>
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<tr>
<td>Research Methods</td>
<td>Research Methods</td>
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<tr>
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<td>9</td>
</tr>
<tr>
<td>88-251 Empirical Research</td>
<td>88-251 Empirical Research</td>
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<tr>
<td>Methods</td>
<td>Methods</td>
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<td>9</td>
<td>9</td>
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<tr>
<td>88-221 Analytical Foundations</td>
<td>88-221 Analytical Foundations</td>
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<td>of Public Policy</td>
<td>of Public Policy</td>
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<tr>
<td>88-223 Decision Analysis</td>
<td>88-223 Decision Analysis</td>
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<td>88-300 Programming and Data</td>
<td>88-300 Programming and Data</td>
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<tr>
<td>Analysis for Social Scientists</td>
<td>Analysis for Social Scientists</td>
</tr>
<tr>
<td>9</td>
<td>9</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
Location: Baker Hall 155F
twerner@andrew.cmu.edu
www.cmu.edu/dietrich/linguistics

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 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 major or an additional major. It is an ideal choice for students with a general interest in their own or other languages, and combines well thematically with studies in any of the departments represented in the major.

### Curriculum

The Linguistics primary major requires a total of 12 courses plus a senior thesis. The Linguistics additional major requires at total of 13 courses. This includes 2 semesters of language study for all majors. 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. Students may double count any course for the major simultaneously with another major or minor.

### Linguistics Core (36 units)

Complete the following requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-180</td>
<td>Nature of Language</td>
</tr>
<tr>
<td>80-262</td>
<td>Phonetics and Phonology I</td>
</tr>
<tr>
<td>80-280</td>
<td>Linguistic Analysis</td>
</tr>
<tr>
<td>80-285</td>
<td>Natural Language Syntax</td>
</tr>
<tr>
<td>80-381</td>
<td>Meaning in Language</td>
</tr>
<tr>
<td>80-383</td>
<td>Language in Use</td>
</tr>
</tbody>
</table>

### Extended Core (27 units)

Choose three courses (27 units) from Extended Core and/or additional courses from Linguistics Core.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-283</td>
<td>It Matters How You Say It</td>
</tr>
<tr>
<td>80-284</td>
<td>Invented Languages</td>
</tr>
<tr>
<td>80-286</td>
<td>Words and Word Formation: Introduction to Morphology</td>
</tr>
<tr>
<td>80-287</td>
<td>Language Variation and Change</td>
</tr>
<tr>
<td>80-288</td>
<td>Intonation: Transcription and Analysis</td>
</tr>
<tr>
<td>80-382</td>
<td>Phonetics and Phonology II</td>
</tr>
<tr>
<td>80-384</td>
<td>Linguistics of Turkic Languages</td>
</tr>
<tr>
<td>80-385</td>
<td>Linguistics of Germanic Languages</td>
</tr>
<tr>
<td>80-388</td>
<td>Linguistic Typology: Diversity and Universals</td>
</tr>
</tbody>
</table>

### Electives

Primary majors choose three additional electives (27 or more units).

Additional majors choose four additional electives (36 or more units).

Primary majors see thesis requirement below.

These can be additional courses from the Core or Extended Core courses listed above, the electives list below, 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>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>80-380</td>
<td>Philosophy of Language</td>
</tr>
<tr>
<td>80-484</td>
<td>Language and Thought</td>
</tr>
</tbody>
</table>

Department of Philosophy
The Major in Logic and Computation

Joel Smith, Director
Location: Baker Hall 161C
joelsm@cmu.edu
www.cmu.edu/dietrich/philosophy/undergraduate/logic-and-computation

The Logic and Computation curriculum takes advantage of the preparation provided by the Dietrich College 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: 15-112 Fundamentals of Programming and Computer Science, 21-127 Concepts of Mathematics, 36-201 Statistical Reasoning and Practice (or 36-200 Reasoning with Data). 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.

NOTE: Students should complete the prerequisites before their junior year. It is strongly recommended that students take 80-211 Logic and Mathematical Inquiry no later than the spring of their sophomore year and, if possible, also 15-122 and 15-150. 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 the Senior Thesis) 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 engage in original research under the supervision of a faculty advisor in 80-595 Senior Thesis (a workload equivalent of 12 units). Students are responsible for identifying a thesis topic and securing a faculty advisor prior to the start of the semester in which they plan to complete the thesis. Students should work with the program director during their junior year to begin the process of identifying their topic and potential advisors.

All courses, if taken at CMU, must be taken for a letter grade and passed with a grade of "C" or above. Students may double count any course for the major with another major or minor.

Prerequisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-112</td>
<td>Fundamentals of Programming and Computer Science</td>
<td>12</td>
</tr>
<tr>
<td>21-127</td>
<td>Concepts of Mathematics</td>
<td>10</td>
</tr>
<tr>
<td>36-200</td>
<td>Reasoning with Data</td>
<td>9</td>
</tr>
</tbody>
</table>

Logic and Computation Core

<table>
<thead>
<tr>
<th>Course</th>
<th>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>
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<tr>
<td>80-595</td>
<td>Senior Thesis</td>
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Logic and Computation Electives

<table>
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<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>80-312</td>
<td>Artificial Intelligence</td>
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<tr>
<td>80-313</td>
<td>Computer Systems</td>
<td>9</td>
</tr>
<tr>
<td>80-315</td>
<td>Machine Learning</td>
<td>9</td>
</tr>
<tr>
<td>80-316</td>
<td>Programming Languages</td>
<td>9</td>
</tr>
<tr>
<td>80-317</td>
<td>Data Structures</td>
<td>9</td>
</tr>
<tr>
<td>80-318</td>
<td>Operating Systems</td>
<td>9</td>
</tr>
<tr>
<td>80-319</td>
<td>Database Systems</td>
<td>9</td>
</tr>
<tr>
<td>80-320</td>
<td>Networks</td>
<td>9</td>
</tr>
</tbody>
</table>

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

- 80-280 Linguistic Analysis
- 80-281 Language and Thought
- 80-381 Meaning in Language
- 80-383 Language in Use
- 80-580 Seminar on the Philosophy of Language

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

- 80-314 Causal Discovery, Statistics, and Machine Learning
- 80-315 Modal Logic
- 80-411 Proof Theory
- 85-412 Cognitive Modeling

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

- 80-254 Analytic Philosophy
- 80-312 Mathematical Revolutions
- 80-411 Proof Theory
- 80-413 Category Theory

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

- 80-220 Philosophy of Science
- 80-221 Philosophy of Social Science
- 80-321 Causation, Law, and Social Policy
- 36-309 Experimental Design for Behavioral & Social Sciences

Logic and Computation Degree Requirements (minimum)

Logic and Computation as a Second Major

The Logic and Computation major is also suitable as a second major for students in Dietrich College or for students in other colleges within the university. Non-Dietrich students interested in an additional major in Logic and Computation need to take only those courses in the Dietrich College General Education Program that are prerequisites to courses required in the major; all other Dietrich College General Education requirements are waived for these students. Depending on the student’s background, the requirements of the second major in Logic and Computation can be fulfilled with as few as five additional courses. The Philosophy Department does not limit the number of courses that can be counted for other majors and minors around the university.

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 to apply to the program in their senior year. Details can be found on the department’s website: www.cmu.edu/dietrich/philosophy.

The Major in Philosophy

Joel Smith, Director
Location: Baker Hall 161C
joelms@cmu.edu
www.cmu.edu/dietrich/philosophy/undergraduate/philosophy

The Major in Philosophy is intended to be flexible and to facilitate additional majors in other fields (including majors with a strong professional focus).
1. For an emphasis on Law & Social Policy, a student might take:

Area 3: Logic/Philosophy of Mathematics

One of the following:
- 80-210 Logic and Proofs
- 80-211 Logic and Mathematical Inquiry
- 80-214 Computing, AI, and Philosophy
- 80-310 Formal Logic
- 80-311 Undecidability and Incompleteness
- 80-312 Mathematical Revolutions
- 80-314 Causal Discovery, Statistics, and Machine Learning
- 80-315 Modal Logic
- 80-411 Proof Theory
- 80-413 Category Theory
- 80-419 Interactive Theorem Proving
- 80-513 Seminar on Philosophy of Mathematics
- 80-514 Categorical Logic

9 units

Area 4: Epistemology

One of the following:
- 80-150 Nature of Reason
- 80-201 Knowledge and Justified Belief
- 80-208 Critical Thinking
- 80-220 Philosophy of Science
- 80-222 Measurement and Methodology
- 80-223 Causality and Probability
- 80-224 Race, Gender and Science
- 80-226 Revolutions in Science
- 80-305 Choices, Decisions, and Games
- 80-321 Causation, Law, and Social Policy
- 80-322 Philosophy of Physics
- 80-323 Philosophy of Biology
- 80-324 Philosophy of Economics
- 80-327 Philosophy of Neuroscience
- 80-405 Game Theory
- 80-515 Seminar on the Foundations of Statistics
- 80-516 Causality and Learning
- 80-520 Seminar on Philosophy Science
- 80-521 Seminar on Formal Epistemology

Area 5: History of Philosophy

Two of the following:
- 80-150 Nature of Reason
- 80-226 Revolutions in Science
- 80-250 Ancient Philosophy
- 80-251 Modern Philosophy
- 80-252 Kant
- 80-253 Continental Philosophy
- 80-254 Analytic Philosophy
- 80-255 Pragmatism
- 80-256 Modern Moral Philosophy
- 80-257 Nietzsche
- 80-261 Experience, Reason, and Truth
- 80-263 Approaching Chinese Philosophy: Basic Texts and Implications
- 80-358 Hume
- 80-362 Russell
- 80-363 19th Century Foundations of Science

Area 6: Elective

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

27 units

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

Area 1
- 80-335 Social and Political Philosophy

Area 2
- 80-180 Nature of Language

Area 3
- 80-211 Logic and Mathematical Inquiry

Area 4
- 80-208 Critical Thinking

Area 5
- 80-150 Nature of Reason

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

Area 1
- 80-136 Social Structure, Public Policy & Ethics

Area 2
- 80-371 Philosophy of Perception

Area 3
- 80-211 Logic and Mathematical Inquiry

Area 4
- 80-220 Philosophy of Science
- 80-321 Causation, Law, and Social Policy

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

Area 1
- 80-130 Introduction to Ethics

Area 2
- 80-270 Philosophy of Mind

Area 3
- 80-211 Logic and Mathematical Inquiry

Area 4
- 80-201 Knowledge and Justified Belief

Area 5
- 80-251 Modern Philosophy

Area 6
- 80-257 Nietzsche

Sample Curricula

Here are four sample curricula, reflecting different emphases.

1. For an emphasis on Law & Social Policy, a student might take:
Additional Major
Students who want an additional major in Philosophy must fulfill the same departmental requirements as primary majors in Philosophy. Students can double count any course for the major with another major or minor.

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 (http://www.cmu.edu/philosophy) for further information.

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 technologies, businesses, unions, and branches of government must face.

Curriculum
Ethics minors must complete five philosophy courses in the areas listed below. All five required courses, if taken at CMU, must be taken for a letter grade and passed with a grade of "C" or above, except 80-294 Ethics Internship / Practicum, which may be taken pass/fail.

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.

- 80-130 Introduction to Ethics
- 80-135 Introduction to Political Philosophy
- 80-136 Social Structure, Public Policy & Ethics
- 80-241 Ethical Judgments in Professional Life
- 80-242 Conflict and Dispute Resolution
- 80-243 Ethics of Leadership
- 80-244 Environmental Ethics
- 80-245 Medical Ethics
- 80-246 Moral Psychology
- 80-248 Engineering Ethics
- 80-249 AI, Society, and Humanity
- 80-330 Ethical Theory
- 80-335 Social and Political Philosophy
- 80-336 Philosophy of Law
- 80-348 Health, Human Rights, and International Development
- 80-430 Ethics and Medical Research
- 80-431 Meta-ethics
- 80-447 Global Justice

Ethics Electives 18 units
Complete two courses at the 200-level or higher. These courses may be additional courses from Ethics Core list above. Other applicable philosophy courses include the following: 80-294 or 80-495

Appropriate courses in ethics from other departments may count with the permission of the faculty advisors for this minor.

*Courses typically only offered on the CMU-Q campus.

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 Dietrich College. Students who wish to receive a minor in Linguistics must complete six courses: the introductory linguistics course; two fundamental skills courses; and three additional electives. All courses counted towards the minor must be taken for a letter grade and passed with a grade of "C" or above.

Introductory Course 9 units
80-180 Nature of Language

Fundamental Skills 18 units
Take one course from two of the following core subject areas:
- Sounds 80-282 Phonetics and Phonology I
- Structure 76-389 Rhetorical Grammar
- 80-280 Linguistic Analysis
- 80-285 Natural Language Syntax

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

Electives 27 units
Take three additional linguistics courses. These can be additional courses from the Fundamental Skills categories above, or any other course that is approved by the Director as a Linguistics elective. For electives taught on a regular basis, see the courses listed as Breadth or Electives in the Undergraduate Catalog for the Linguistics major.

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.

Logic and Computation Core Courses 27 units
- 80-150 Nature of Reason
- 80-211 Logic and Mathematical Inquiry
- 80-310 Formal Logic
- or 80-311 Undecidability and Incompleteness

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:
- 80-110 Nature of Mathematical Reasoning
- 80-210 Logic and Proofs
fellowships.html, or contact Professors Joseph Ramsey or Wilfried Seig for Department’s website at www.cmu.edu/dietrich/philosophy/research/lsec/ Computing (LSEC). Applications are reviewed in the fall. Visit LSEC from the senior years as fellows in the Laboratory for Symbolic and Educational Philosophy Department’s programs, may apply to serve in their junior or Qualified upper level undergraduates, preferably majors in one of the invited by the department to become a participant.

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 College Honors. To qualify for the honors program, students must complete an honors thesis in their senior year. By completing the opportunity to develop their skills and to apply their knowledge through Computation or Ethics, History, and Public Policy. Students have the

The Dietrich College Senior Honors Program provides recognition of the

Complete 18 units in the Philosophy department at the 200-level or higher.

History of Philosophy Requirements 18 units

Complete two courses:

History of Philosophy Requirements

Complete 18 units in the Philosophy department at the 200-level or higher.

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 (LSEC). Applications are reviewed in the fall. Visit LSEC from the Department’s website at www.cmu.edu/dietrich/philosophy/research/lsec/fellowships.html, or contact Professors Joseph Ramsey or Wilfried Seig for additional information.

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-

ADAM BJORNDALH, Assistant Professor of Philosophy - Ph.D., Cornell University; Carnegie Mellon, 2014-

SIMON CULLEN, Assistant Teaching Professor of Philosophy - Ph.D., Princeton University ; Carnegie Mellon, 2018-

DAVID DANKS, L.L. Thrustone Professor of Philosophy & Psychology, Department Head - Ph.D., University of California, San Diego; Carnegie Mellon, 2003-

B. R. GEORGE, Assistant Professor of Philosophy - Ph.D., University of California, Los Angeles; Carnegie Mellon, 2014-

MARALEE HARRELL, Teaching Professor of Philosophy - Ph.D., University of California, San Diego; Carnegie Mellon, 2003-

KEVIN T. KELLY, Professor of Philosophy - Ph.D., University of Pittsburgh; Carnegie Mellon, 1985-

ALEX JOHN LONDON, Clara L. West Professor of Ethics and Philosophy - Ph.D., University of Virginia; Carnegie Mellon, 2000-

RICHARD SCHEINES, Professor of Philosophy, Bess Family Dean’s Chair of the Dietrich College of Humanities and Social Sciences – Ph.D., University of Pittsburgh; 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, Professor of Philosophy - Ph.D., Cornell University; Carnegie Mellon, 1998-

JOEL SMITH, Distinguished Career Teaching Professor of Philosophy - Ph.D., University of Pittsburgh; Carnegie Mellon, 2000-

PETER L. SPIRITES, Professor of Philosophy - Ph.D., University of Pittsburgh; Carnegie Mellon, 1987-

DANIELLE WENNER, Assistant Professor of Philosophy - Ph.D., Rice University; Carnegie Mellon, 2013-

THOMAS WERNER, Assistant Teaching Professor of Philosophy – Ph.D., Rutgers University; Carnegie Mellon, 2003-

KUN ZHANG, Assistant Professor of Philosophy - Ph.D., The Chinese University of Hong Kong; Carnegie Mellon, 2015-

KEVIN ZOLLMAN, Associate Professor of Philosophy - Ph.D., University of California, Irvine; Carnegie Mellon, 2009-

Special Faculty

CHRISTINA BJORNDALH, Teaching Instructor – Ph.D. Candidate, Cornell University; Carnegie Mellon, 2014-

DERRICK GRAY, Teaching Instructor – Ph.D., Rice University; Carnegie Mellon, 2013-

JOSEPH RAMSEY, Director of Research Computing – Ph.D., University of California, San Diego; Carnegie Mellon, 2006-

PATRICK WALSH, Assistant Teaching Professor of Philosophy, Carnegie Mellon-Qatar – Ph.D., Carnegie Mellon; Carnegie Mellon, 2019-

Affiliated Faculty

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

Emeriti Faculty

ROBERT CAVALIER, Teaching Professor (Emeritus) - Ph.D., Duquesne University; Carnegie Mellon, 1987-

CLARK GLYMOUR, Alumni University Professor of Philosophy (Emeritus) - Ph.D., Indiana University; Carnegie Mellon, 1984-
DANA S. SCOTT, Hillman University Professor of Mathematical Logic, Computer Science and Philosophy (Emeritus) – Ph.D., Princeton University; Carnegie Mellon, 1981–