Department of Philosophy

David Danks, Department Head
Office: Baker Hall 161
http://www.cmu.edu/dietrich/philosophy/index.html

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.A. 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

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Email: ajlondon@andrew.cmu.edu
http://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 9 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 79-200 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. Economics Requirement

73-102 Principles of Microeconomics
9 units

II. History Core

36 units

Choose one 9-unit course from each category below:

Policy History (9 units)

79-300 History of American Public Policy
9 units

U.S. History (9 units)

79-240 Development of American Culture
9 units
79-249 20th & 21st Century U.S. History
9 units

Non-U.S. History (9 units)

79-202 Flesh and Spirit: Early Modern Europe, 1400-1750
9 units
79-203 Social and Political Change in 20th Century Central and Eastern Europe
9 units
79-205 20th & 21st Century Europe
9 units
79-207 Development of European Culture
9 units
79-222 Between Revolutions: The Development of Modern Latin America
9 units
79-223 Mexico: From the Aztec Empire to the Drug War
9 units
79-226 African History: Earliest Times to 1780
9 units
79-227 Modern Africa: The Slave Trade to the End of Apartheid
9 units
79-229 Origins of the Arab-Israeli Conflict, 1880-1948
9 units
79-230 Arab-Israeli Conflict Since 1948
9 units
79-237 Comparative Slavery
9 units
79-261 The Last Emperors: Chinese History and Society, 1600-1900
9 units
79-262 Modern China: From the Birth of Mao ... to Now
9 units
79-264 Tibet and China: History and Propaganda
6 units
79-265 Russian History: From the First to the Last Tsar
9 units

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9 units
79-262 Modern China: From the Birth of Mao ... to Now
9 units
79-264 Tibet and China: History and Propaganda
6 units
79-265 Russian History: From the First to the Last Tsar
9 units
97-266  Russian History: From Communism to Capitalism 9
97-307  Religion and Politics in the Middle East 9

Historical Methods and Approaches (9 units)
97-200  Introduction to Historical Research & Writing 9

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 this requirement.

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, Development, and Human Rights 9
80-447  Global Justice 9

IV. Senior Capstone Project Course 12 units
79-449  EHP Project Course [cross-listed] 12
80-449  EHP 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 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
73-358  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
73-408  Law and Economics 9
73-476  American Economic History 9

English
76-492  Rhetoric of Public Policy 9

History
Courses from the EHP 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.
79-217  The War in Vietnam 6
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
79-288  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 Edward Snowden 6
79-302  Killer Robots: The Ethics, Law, and Politics of Lethal Autonomous Weapons System 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
79-325  U.S. Gay and Lesbian History 6
79-331  Body Politics: Women and Health in America 9
79-335  Drug Use and Drug Policy 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
79-340  Juvenile Delinquency & Film: From "Juvenile Court" (1973) to "The Wire"(2002-08) 6
79-342  Introduction to Science and Technology Studies 9
79-343  Education, Democracy, and Civil Rights 9
79-349  The Holocaust in Historical Perspective 9
79-370  Disasters in American History (2): Epidemics & Fires 6
79-371  African American Urban History 9
79-374  Greening the Red, White, & Blue: Critical Issues American Environmental History 9
79-381  Energy and Empire: How Fossil Fuels Changed the World 9

Philosophy
Courses from the EHPH 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

Institute for Politics and Strategy
84-310  International Political Economy 9
84-380  Grand Strategy in the United States 9
84-393  Legislative Decision Making: US Congress 6
84-402  Judicial Politics and Behavior 9
Social and Decision Sciences
88-223 Decision Analysis 12
88-281 Topics in Law: 1st Amendment 9
88-387 Social Norms and Economics 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 Statistics & Data Science Methods 9
- 80-305 Choices, Decisions, and Games 9
- 84-265 Political Science Research Methods 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 Director of Ethics, History, and Public Policy, Professor Alex John London, a界定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>Fall</td>
<td>Spring</td>
</tr>
<tr>
<td>Core requirement in Economic</td>
<td>Core requirement in History or Philosophy</td>
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<td>Core requirement in History or Philosophy</td>
<td>Core requirement in History or Philosophy</td>
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<tr>
<td>Core requirement in History or Philosophy</td>
<td>Core requirement in History or Philosophy</td>
</tr>
<tr>
<td>Core requirement in History or Philosophy</td>
<td>Fifth 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
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Email: twerner@andrew.cmu.edu

http://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 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. Students may double count any course for the major simultaneously with another major or minor.

Introductory course
80-180 Nature of Language 9

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

- Sounds
  - 80-282 Phonetics and Phonology I 9

- Structure
  - 80-280 Linguistic Analysis 9
  - 80-285 Natural Language Syntax 9

- Meaning
  - 80-381 Meaning in Language 9
  - 80-393 Language in Use 9
  - 76-385 Introduction to Discourse Analysis 9
  - or 76-484 Discourse Analysis 9

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

Area 1: Language Learning and Language Cognition
76-420 The Cognition of Reading and Writing: Introduction to a Social/Cognitive Process 9
80-281 Language and Thought 9
82-386 Language Acquisition: Theories and Practice 9
82-388 Understanding Second Language Fluency 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
76-385 Introduction to Discourse Analysis 9
or 76-484 Discourse Analysis 9
76-386 Language & Culture 9
80-283 It Matters How You Say It 9
82-273 Introduction to Japanese Language and Culture 9
82-283 Language Diversity & Cultural Identity 9
82-333 Introduction to Chinese Language and Culture 9
80-383 Language in Use 9
82-388 Understanding Second Language Fluency 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.

76-378 Literacy: Educational Theory and Community Practice 9
76-451 Language and Globalization 9
80-284 Invented Languages 9
80-286 Words and Word Formation: Introduction to Morphology 9
80-287 Historical and Comparative Linguistics 9
80-380 Philosophy of Language 9
80-382 Phonetics and Phonology II 9
80-384 Linguistics of Turkic Languages 9
80-385 Linguistics of Germanic Languages 9
82-373 Structure of the Japanese Language 9
11-411 Natural Language Processing 12
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. Students are responsible for identifying their topic and securing their thesis advisor. Students should work with the director of the major to begin the process of identifying their thesis topic and advisor during the fall of their senior year at the latest. Students will be required to submit a written proposal of their thesis project, signed by their thesis faculty advisor, before the end of the second week of classes in which the thesis is being completed.

Note

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

The Major in Logic and Computation

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Email: joelms@cmu.edu
http://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.

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>Units</th>
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<tbody>
<tr>
<td>15-112 Fundamentals of Programming and Computer Science</td>
<td>12</td>
</tr>
<tr>
<td>21-127 Concepts of Mathematics</td>
<td>10</td>
</tr>
<tr>
<td>36-201 Statistical Reasoning and Practice</td>
<td>9</td>
</tr>
<tr>
<td>or 36-200 Reasoning with Data</td>
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</tbody>
</table>

Logic and Computation Core 69–71 units

<table>
<thead>
<tr>
<th>Course</th>
<th>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>80-310 Formal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-311 Undecidability and Incompleteness</td>
<td>9</td>
</tr>
<tr>
<td>15-122 Principles of Imperative Computation</td>
<td>10</td>
</tr>
<tr>
<td>15-150 Principles of Functional Programming</td>
<td>10</td>
</tr>
<tr>
<td>80-595 Senior Thesis</td>
<td>Var.</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</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-315 Modal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-413 Category Theory</td>
<td>9</td>
</tr>
<tr>
<td>15-312 Foundations of Programming Languages</td>
<td>12</td>
</tr>
<tr>
<td>15-317 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</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-280 Linguistic Analysis</td>
<td>9</td>
</tr>
<tr>
<td>80-281 Language and Thought</td>
<td>9</td>
</tr>
<tr>
<td>80-381 Meaning in Language</td>
<td>9</td>
</tr>
<tr>
<td>80-383 Language in Use</td>
<td>9</td>
</tr>
<tr>
<td>80-580 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:
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. Students may double count any course for the major with another major or minor. As per the requirement of Dietrich College, 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

Area 1: Values and Normative Theory  9 units
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
80-244  Environmental Ethics  9
80-245  Medical Ethics  9
80-248  Engineering Ethics  9
80-249  AI, Society, and Humanity  9
80-330  Ethical Theory  9
80-335  Social and Political Philosophy  9
80-348  Health, Development, and Human Rights  9
80-430  Ethics and Medical Research  9
80-447  Global Justice  9

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
80-276  Philosophy of Religion  9
80-280  Linguistic Analysis  9
80-281  Language and Thought  9
80-282  Phonetics and Phonology I  9
80-283  It Matters How You Say It  9
80-284  Invented Languages  9
80-327  Philosophy of Neuroscience  9
80-371  Philosophy of Perception  9
80-380  Philosophy of Language  9
80-381  Meaning in Language  9
80-382  Phonetics and Phonology II  9
80-383  Language in Use  9
80-384  Linguistics of Turkic Languages  9
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
80-310  Formal Logic  9
80-311  Undecidability and Incompleteness  9
80-312  Mathematical Revolutions  9
80-315  Modal Logic  9
80-411  Proof Theory  9
80-413  Category Theory  9
80-513  Seminar on Philosophy of Mathematics  9
80-514  Categorical Logic  9

Area 4: Epistemology  9 units
One of the following:
80-150  Nature of Reason  9
80-201  Knowledge and Justified Belief  9
80-208  Critical Thinking  9
80-214  Computing, AI, and Philosophy  9
80-220  Philosophy of Science  9
80-221  Philosophy of Social Science  9
80-222  Measurement and Methodology  9
3. For an emphasis on Ethics and Social Philosophy, a student might take:

Area 1
80-150 Nature of Reason 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
or 80-321 Causation, Law, and Social Policy 9
Area 5
80-250 Ancient Philosophy 9

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

Area 1
80-130 Introduction to Ethics 9
Area 2
80-270 Philosophy of Mind 9
Area 3
80-211 Logic and Mathematical Inquiry 9
Area 4
80-201 Knowledge and Justified Belief 9
Area 5
80-251 Modern Philosophy 9
Area 6
80-257 Nietzsche 9
80-371 Philosophy of Perception 9
80-521 Seminar on Formal Epistemology Var.

Sample Curricula
Here are four sample curricula, reflecting different emphases.

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

Area 1
80-335 Social and 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
80-250 Ancient Philosophy 9
Area 6
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
80-371 Philosophy of Perception 9
Area 3
80-211 Logic and Mathematical Inquiry 9
Area 4
80-220 Philosophy of Science 9
or 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
80-150 Nature of Reason 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
or 80-321 Causation, Law, and Social Policy 9
Area 5
80-250 Ancient Philosophy 9

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

Area 1
80-130 Introduction to Ethics 9
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80-211 Logic and Mathematical Inquiry 9
Area 4
80-201 Knowledge and Justified Belief 9
Area 5
80-251 Modern Philosophy 9
Area 6
80-257 Nietzsche 9
80-371 Philosophy of Perception 9
80-521 Seminar on Formal Epistemology Var.

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/dietrich/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 9
- 80-135 Introduction to Political Philosophy 9
- 80-136 Social Structure, Public Policy & Ethics 9
- 80-241 Ethical Judgments in Professional Life 9
- 80-242 Conflict and Dispute Resolution * 9
- 80-243 Ethics of Leadership * 9
- 80-244 Environmental Ethics 9
- 80-245 Medical Ethics 9
- 80-246 Moral Psychology 9
- 80-248 Engineering Ethics 9
- 80-249 AI, Society, and Humanity 9
- 80-330 Ethical Theory 9
- 80-335 Social and Political Philosophy 9
- 80-336 Philosophy of Law 9
- 80-348 Health, Development, and Human Rights 9
- 80-430 Ethics and Medical Research 9
- 80-431 Meta-ethics 9
- 80-447 Global Justice 9

**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 9

**Fundamental Skills** 18 units

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

- Sounds 80-282 Phonetics and Phonology I 9
- Structure 76-389 Rhetorical Grammar 9
- Linguistic Analysis 80-280 9
- Natural Language Syntax 80-285 9
- Meaning 80-381 Meaning in Language 9
- Language in Use 80-383 9
- Introduction to Discourse Analysis 76-385 9
- or 76-484 Discourse Analysis 9

**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 9
- 80-210 Logic and Mathematical Inquiry 9
- 80-310 Formal Logic or 80-311 Undecidability and Incompleteness 9

**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>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>80-110</td>
<td>Nature of Mathematical Reasoning</td>
</tr>
<tr>
<td>80-210</td>
<td>Logic and Proof</td>
</tr>
<tr>
<td>80-211</td>
<td>Logic and Mathematical Inquiry</td>
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<tr>
<td>80-214</td>
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<td>Measurement and Methodology</td>
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<tr>
<td>80-223</td>
<td>Causality and Probability</td>
</tr>
<tr>
<td>80-226</td>
<td>Revolutions in Science</td>
</tr>
<tr>
<td>80-310</td>
<td>Formal Logic</td>
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<tr>
<td>80-311</td>
<td>Undecidability and Incompleteness</td>
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<tr>
<td>80-312</td>
<td>Mathematical Revolutions</td>
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<tr>
<td>80-314</td>
<td>Logic and Artificial Intelligence</td>
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<tr>
<td>80-315</td>
<td>Modal Logic</td>
</tr>
<tr>
<td>80-321</td>
<td>Causation, Law, and Social Policy</td>
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<td>80-324</td>
<td>Philosophy of Economics</td>
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<td>80-411</td>
<td>Proof Theory</td>
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<td>80-413</td>
<td>Category Theory</td>
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<tr>
<td>80-513</td>
<td>Seminar on Philosophy of Mathematics</td>
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<tr>
<td>80-514</td>
<td>Categorical Logic</td>
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<tr>
<td>80-515</td>
<td>Seminar on the Foundations of Statistics</td>
</tr>
<tr>
<td>80-516</td>
<td>Causality and Learning</td>
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<tr>
<td>80-520</td>
<td>Seminar on Philosophy Science</td>
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<tr>
<td>80-521</td>
<td>Seminar on Formal Epistemology</td>
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</tbody>
</table>

**History of Philosophy Requirements** 18 units

Complete two courses.

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>80-150</td>
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<tr>
<td>80-226</td>
<td>Revolutions in Science</td>
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<tr>
<td>80-250</td>
<td>Ancient Philosophy</td>
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<tr>
<td>80-251</td>
<td>Modern Philosophy</td>
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<tr>
<td>80-252</td>
<td>Kant</td>
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<tr>
<td>80-253</td>
<td>Continental Philosophy</td>
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</tbody>
</table>
Philosophy Electives 18 units

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

The Honors Program

The Dietrich College 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 (LSEC). Applications are reviewed in the fall. Visit LSEC from the Department’s website, http://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 BJORNDAL, 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. Thurstone 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 Angels; Carnegie Mellon, 2014-

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

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 – 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, Herbert A. Simon 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. SPIRTES, 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 BJORNDAL, Teaching Instructor – Ph.D. Candidate, Cornell University; Carnegie Mellon, 2014-

DAVID GRAY, Assistant Teaching Professor of Philosophy, Carnegie Mellon-Qatar - Ph.D., Carnegie Mellon University; Carnegie Mellon, 2009-

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-

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 – Ph.D., Duquesne University; Carnegie Mellon, 1987-

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