Department of Philosophy

David Banks, Department Head
Location: Baker Hall 161
www.cmu.edu/dietrich/philosophy (http://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 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 five minor programs:

- the minor in Ethics
- the minor in Linguistics
- the minor in Logic and Computation
- the minor in Philosophy
- the minor in Societal & Human Impacts of Future Technologies (SHIFT)

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

The Major in Ethics, History, and Public Policy

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The B.A./B.S. in Ethics, History, and Public Policy, (EHPP) 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 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

Choose one 9-unit course from the list below.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>73-102</td>
<td>Principles of Microeconomics</td>
<td>9</td>
</tr>
<tr>
<td>84-104</td>
<td>Decision Processes in American Political Institutions</td>
<td>9</td>
</tr>
<tr>
<td>84-110</td>
<td>Foundations of Political Economy</td>
<td>9</td>
</tr>
</tbody>
</table>

II. History Core

Choose one 9-unit course from each category below:

Policy History (9 units)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-300</td>
<td>History of American Public Policy</td>
<td>9</td>
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</table>

U.S. History (9 units)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>79-204</td>
<td>American Environmental History</td>
<td>9</td>
</tr>
<tr>
<td>79-231</td>
<td>American Civil Rights Movement: From Garveyism to Black Power</td>
<td>9</td>
</tr>
<tr>
<td>79-240</td>
<td>Development of American Culture</td>
<td>9</td>
</tr>
<tr>
<td>79-242</td>
<td>African American History: Reconstruction to the Present</td>
<td>9</td>
</tr>
<tr>
<td>79-244</td>
<td>Women in American History</td>
<td>9</td>
</tr>
<tr>
<td>79-245</td>
<td>Capitalism and Individualism in American Culture</td>
<td>9</td>
</tr>
<tr>
<td>79-248</td>
<td>U.S. Constitution &amp; the Presidency</td>
<td>9</td>
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<tr>
<td>79-249</td>
<td>Politics and Social Change in 20th Century America</td>
<td>9</td>
</tr>
<tr>
<td>79-291</td>
<td>American Popular Culture and the Entertainment Business: 1800 to the Present</td>
<td>9</td>
</tr>
<tr>
<td>79-310</td>
<td>U.S. Business History: 1870 to the Present</td>
<td>9</td>
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<tr>
<td>79-320</td>
<td>Women, Politics, and Protest</td>
<td>9</td>
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</tbody>
</table>
Non-U.S. History (9 units)

79-202  Flesh and Spirit: Early Modern Europe, 1400-1750  9
79-203  Habsburg Empire to the End of Communism: Central & Eastern Europe (1740-1990)  9
79-205  20th Century Europe  9
79-223  Mexico: From the Aztec Empire to the Drug War  9
79-226  African History: Earliest Times to 1780  9
79-261  The Last Emperors: Chinese History and Society, 1600-1900  9
79-227  Modern Africa: The Slave Trade to the End of Apartheid  9
79-229  The Origins of the Palestinian-Israeli Conflict, 1880-1948  9
79-230  Arab-Israeli Conflict Since 1948  9
79-237  Comparative Slavery  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: Tsar, Power, and Rebellion  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 Academic Program Manager.

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

19-424  Energy and the Environment  9

Business Administration

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
73-427  Sustainability, Energy, and Environmental 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.

79-233  The United States and the Middle East since 1945  9
79-234  Technology and Society  9
79-240  Development of American Culture  9
79-242  African American History: Reconstruction to the Present  9
79-247  African Americans, Imprisonment, and the Carceral State  9
79-249  Politics and Social Change in 20th Century America  9
79-261  The Last Emperors: Chinese History and Society, 1600-1900  9
79-265  Russian History: Tsar, Power, and Rebellion  9
79-266  Russian History and Revolutionary Socialism  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
79-289  Animal Planet: An Environmental History of People and Animals  9
79-298  Guns in American History: Culture, Violence, and Politics  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
79-315  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
79-334  Climate Change and Climate Justice: Global Perspectives  6
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

Department of Philosophy
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 to accept equivalent courses as substitutions. 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. Double counting is not permitted. Courses from the EHPP Philosophy Core (above) may be taken as electives only if they are not being used to fulfill the core requirement.

The Major in Linguistics

Patrick Doyle, Academic Program Manager
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www.cmu.edu/dietrich/linguistics

Linguistics is the scientific study of human language. The central goal of the Linguistics Major is to provide students with the analytical skills and linguistic concepts needed to understand language scientifically, whether formally, as researchers, or informally, as participants in daily linguistic interactions. The foundation of the Linguistics Major is a set of rigorous core courses, informed by contemporary approaches to the study of linguistic form and meaning. The Core courses cover the principal domains of linguistic analysis: phonetics and phonology, syntax, and semantics. Students then move on to the Extended Core, which includes more advanced courses as well as courses on a wider range of topics, such as intonation and language variation. These courses are supplemented by a wide-ranging set of electives including linguistically relevant courses taught in other departments. Primary majors complete their course of study with a Senior Thesis, a semester-long research project carried out independently with one-on-one guidance from a member of the linguistics faculty.

Curriculum

The Linguistics primary major requires a total of 12 courses plus a senior thesis. The Linguistics additional major requires a total of 13 courses (senior thesis not required). This includes 2 semesters of sequential 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 Code</th>
<th>Course Title</th>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>80-180</td>
<td>Nature of Language</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>80-282</td>
<td>Phonetics and Phonology I</td>
<td>9</td>
<td></td>
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<tr>
<td>80-280</td>
<td>Linguistic Analysis</td>
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<tr>
<td>or 80-285</td>
<td>Natural Language Syntax</td>
<td>9</td>
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<tr>
<td>80-381</td>
<td>Meaning in Language</td>
<td>9</td>
<td></td>
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<tr>
<td>or 80-383</td>
<td>Language in Use</td>
<td>9</td>
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</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 Code</th>
<th>Course Title</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-283</td>
<td>It Matters How You Say It</td>
<td>9</td>
<td></td>
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<tr>
<td>80-284</td>
<td>Invented Languages</td>
<td>9</td>
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<tr>
<td>80-286</td>
<td>Words and Word Formation: Introduction to Morphology</td>
<td>9</td>
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<tr>
<td>80-287</td>
<td>Language Variation and Change</td>
<td>9</td>
<td></td>
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<tr>
<td>80-288</td>
<td>Intonation: Transcription and Analysis</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>80-382</td>
<td>Phonetics and Phonology II</td>
<td>9</td>
<td></td>
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<tr>
<td>80-384</td>
<td>Linguistics of Turkic Languages</td>
<td>9</td>
<td></td>
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<tr>
<td>80-385</td>
<td>Linguistics of Germanic Languages</td>
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</table>
major or minor. If you are interested in obtaining an additional major in Linguistics, please reach out to the Academic Program Manager, Philosophy Department.

The Major in Logic and Computation

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www.cmu.edu/dietrich/philosophy/undergraduate/logic-and-computation
(http://www.cmu.edu/dietrich/philosophy/undergraduate/logic-and-computation/)

The Bachelor of Science in 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.

Curriculum

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.

Students in their first year and sophomore year, are expected to take three courses that provide preparation in computer science, mathematics, and statistics. Four advanced electives are chosen in the area of focus, as described below in the sample curricula, and should support independent research towards fulfilling the senior thesis requirement. In their senior year, Primary and Additional Majors in Logic and Computation will 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. Note: Students should work with the Academic Program Manager during their junior year to begin the process of identifying their topic and potential advisors. However, with suitable planning and advice from the Academic Program Manager, it is possible to complete the program in two years, beginning in the junior year.

All courses, if taken at Carnegie Mellon University, 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 31 units

15-112 Fundamentals of Programming and Computer Science 12
21-127 Concepts of Mathematics 10
36-200 Reasoning with Data 9
or 36-201 Statistical Reasoning and Practice

Logic and Computation Core 69–71 units

80-150 Nature of Reason 9
*Students should complete before their junior year.
80-211 Logic and Mathematical Inquiry 9
80-310 Formal Logic 9
*Students should complete before their junior year.
80-311 Undecidability and Incompleteness 9
15-122 Principles of Imperative Computation 10
*Students should complete this prerequisite before their junior year.
15-150 Principles of Functional Programming 10
*Students should complete this prerequisite before their junior year.
80-595 Senior Thesis Var.

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"
Sample Curricula
Below are five samples of Logic and Computation curricula (beyond the core courses), each reflecting a different emphasis: Computer Science, Language and Information Technology, Artificial Intelligence and Cognitive Science, Logic and the Foundations of Mathematics, and Methodology.

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

80-315 Modal Logic 9
80-413 Category Theory 9
15-312 Foundations of Programming Languages 12
15-317 Constructive Logic 9

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

80-280 Linguistic Analysis 9
80-281 Language and Thought 9
80-381 Meaning in Language 9
80-383 Language in Use 9
80-580 Seminar on the Philosophy of Language 9

Note: Students who wish to pursue the M.S. program in Language and Information Technology (https://lti.cs.cmu.edu/mlt/), at Carnegie Mellon University, should consider this specialized track.

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

80-249 AI, Society, and Humanity 9
80-314 Causal Discovery, Statistics, and Machine Learning 9
80-315 Modal Logic 9
80-411 Proof Theory 9
85-412 Cognitive Modeling 9

Note: If you are a Cognitive Science (https://www.cmu.edu/dietrich/psychology/undergraduate/prospective-students/academics/cognitive-science/) major (Department of Psychology) this additional major would complement your coursework.

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

80-254 Analytic Philosophy 9
80-312 Mathematical Revolutions 9
80-411 Proof Theory 9
80-413 Category Theory 9

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

80-220 Philosophy of Science 9
80-221 Philosophy of Social Science 9
80-321 Causation, Law, and Social Policy 9
36-309 Experimental Design for Behavioral & Social Sciences 9

Additional major in Logic and Computation
The Logic and Computation major is also suitable as an additional 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 additional 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. In their senior year, the additional major in Logic and Computation will write a thesis under the supervision of a faculty advisor.

The M.S. Program in Logic, Computation & Methodology
The Department of Philosophy also offers a graduate M.S. degree in Logic and Computation & Methodology, 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 in the 5th-year Master's program (https://www.cmu.edu/dietrich/philosophy/graduate/5th-year-masters.html) Master of Science in Logic, Computation & Methodology, should contact the Academic Program Manager for more information on how to apply.

The Major in Philosophy
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The Major in Philosophy is intended to be flexible and to facilitate additional 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 Academic Program Manager. 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 Introduction to Philosophy 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. An 80-100 Introduction to Philosophy skills test, may be substituted with permission of the Academic Program Manager. 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 Grand Challenge First-Year Seminar course may not count toward the fulfillment of the major requirements.

Introduction to Philosophy 9 units
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
80-246 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, Human Rights, and International Development 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 Problems of Mind and Body: Meaning and Doing 9
80-271 Philosophy and Psychology 9
80-276 Philosophy of Religion 9
### Area 1: History of Philosophy

- 80-208 Kant
- 80-253 Continental Philosophy
- 80-248 Analytic Philosophy
- 80-254 Pragmatism
- 80-256 Modern Moral Philosophy
- 80-257 Nietzsche

### Area 2: Early Modern Philosophy

- 80-261 Experience, Reason, and Truth
- 80-263 Approaching Chinese Philosophy: Basic Texts and Implications
- 80-358 Hume
- 80-362 Russell

### Area 3: Logic/Philosophy of Mathematics

- 80-363 19th Century Foundations of Science

### Area 4: Epistemology

- 80-150 Nature of Reason
- 80-250 Ancient Philosophy

### Area 5: History of Philosophy

- 80-150 Nature of Reason
- 80-226 Revolutions in Science
- 80-250 Ancient Philosophy

### Area 6: Elective

Three other philosophy courses, or appropriate courses from other departments, with the permission of the Academic Program Manager.

### 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

   **Area 2**
   - 80-100 Nature of Language

   **Area 3**
   - 80-211 Logic and Mathematical Inquiry

   **Area 4**
   - 80-208 Critical Thinking

   **Area 5**
   - 80-150 Nature of Reason
   - 80-250 Ancient Philosophy

   **Area 6**
   - 80-321 Causation, Law, and Social Policy
   - 80-348 Health, Human Rights, and International Development
   - 80-447 Global Justice

2. **For an emphasis on Philosophy of Science, 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
   - 80-221 Philosophy of Social Science

   **Area 5**
   - 80-250 Ancient Philosophy
   - 80-226 Revolutions in Science

**Area 6**
- 80-150 Nature of Reason
- 80-221 Philosophy of Social Science
- 80-322 Philosophy of Physics
- 80-323 Philosophy of Biology

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

   **Area 1**
   - 80-276 Philosophy of Religion

   **Area 3**
   - 80-110 Nature of Mathematical Reasoning

   **Area 4**
   - 80-221 Philosophy of Social Science
   - 80-321 Causation, Law, and Social Policy

   **Area 5**
   - 80-250 Ancient Philosophy
courses at the 200-level or higher.

Complete three courses from any of the following areas with at least two

Area 1
80-130 Introduction to Ethics 9

Area 2
80-270 Problems of Mind and Body: Meaning and Doing 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: Network 9

Additional Major

Students who wish to pursue 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 M.A. Program in Philosophy provides exciting opportunities to pursue post-graduate studies in Philosophy for students with a degree in Philosophy who wish to continue their work in a more focused and advanced way, as well as for students with a degree in another field who wish to add a concentration in Philosophy. Two areas of specialization are offered in line with the distinctive strengths of the Philosophy Department that are not reflected in its other graduate degree programs, namely Ethics, Social and Political Philosophy, and Philosophy of Science. The latter specialization offers emphasis in Mathematics, Psychology, Physics, and the Social Sciences.

The course of study for the 5 year M.A. in Philosophy is very flexible, and can be tailored to a student’s interests and background. For more information, please contact the Academic Program Manager.

Philosophy Department Minors

The Philosophy Department offers five minors: Ethics, Linguistics, Logic & Computation, Philosophy, and Societal & Human Impacts of Future Technologies (SHIFT). The requirements are designed to be flexible and to allow students to tailor courses to their special interests, while providing some breadth.

The Minor in Ethics

The 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.

Ethics minors must complete five philosophy courses in the areas listed below. All five required courses must be taken for a letter grade and passed with a grade of “C” or above, except 80-294 Ethics Internship or 80-500 Undergraduate Internship 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
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-246 Moral Psychology 9

Extended Core: Choose 3 courses (27 units) from the Extended Core and/or additional courses from Core.

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, Human Rights, and International Development 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.

80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-246 Moral Psychology 9
80-248 Engineering Ethics 9
80-294 Ethics Internship 9
80-330 Ethical Theory 9
80-335 Social and Political Philosophy 9
80-336 Philosophy of Law 9
80-348 Health, Human Rights, and International Development 9
80-431 Meta-ethics 9
80-447 Global Justice 9
80-495 Independent Study 9

The Minor in Linguistics

Linguistics is the scientific study of human language. The central goal of the Linguistics Program is to provide students with the analytical skills and linguistic concepts needed to understand language scientifically, whether formally, as researchers, or informally, as participants in daily linguistic interactions. The foundation of the Linguistics Minor is a set of rigorous core courses, informed by contemporary approaches to the study of linguistic form and meaning. The Core courses cover the principal domains of linguistic analysis: phonetics and phonology, syntax, and meaning. Students then move on to the Extended Core, which includes more advanced courses as well as courses on a wider range of topics, such as intonation and language variation. All courses counted towards the minor must be taken for a letter grade and passed with a grade of “C” or above.

Core (27 units)

Required
80-180 Nature of Language 9

Select 2 from the following 3 options
80-282 Phonetics and Phonology I 9
80-280 Linguistic Analysis 9
or 80-285 Natural Language Syntax 9
80-381 Meaning in Language 9
or 80-383 Language in Use 9

Extended Core: Choose 3 courses (27 units) from the Extended Core and/or additional courses from Core.

Extended Core
80-283 It Matters How You Say It 9
80-284 Invented Languages 9
80-286 Words and Word Formation: Introduction to Morphology 9
80-287 Language Variation and Change 9
80-288 Intonation: Transcription and Analysis 9
80-382 Phonetics and Phonology II 9
80-384 Linguistics of Turkic Languages 9
80-385 Linguistics of Germanic Languages 9
80-388 Linguistic Typology: Diversity and Universals 9
80-488 Acoustics of Human Speech: Theory, Data, and Analysis 9

The Minor in Linguistics

Linguistics is the scientific study of human language. The central goal of the Linguistics Program is to provide students with the analytical skills and linguistic concepts needed to understand language scientifically, whether formally, as researchers, or informally, as participants in daily linguistic interactions. The foundation of the Linguistics Minor is a set of rigorous core courses, informed by contemporary approaches to the study of linguistic form and meaning. The Core courses cover the principal domains of linguistic analysis: phonetics and phonology, syntax, and meaning. Students then move on to the Extended Core, which includes more advanced courses as well as courses on a wider range of topics, such as intonation and language variation. All courses counted towards the minor must be taken for a letter grade and passed with a grade of “C” or above.

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80-382 Phonetics and Phonology II 9
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80-385 Linguistics of Germanic Languages 9
80-388 Linguistic Typology: Diversity and Universals 9
80-488 Acoustics of Human Speech: Theory, Data, and Analysis 9
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. All courses counted towards the minor must be taken for a letter grade and passed with a grade of “C” or above.

Logic and Computation Core Courses 27 units

80-150 Nature of Reason 9
80-211 Logic and Mathematical Inquiry 9 or 80-210 Logic and Proofs
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. 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 Academic Program Manager.

The Minor in Philosophy

The Minor in Philosophy requires five courses and gives students a broad philosophical foundation, requiring one course in Logic/Methodology, two courses in the History of Philosophy and two Philosophy electives. The minor complements any primary major from around the University. All courses counted towards the minor must be taken for a letter grade and passed with a grade of “C” or above.

Logic/Methodology Requirements 9 units

Complete one course:

- 80-110 Nature of Mathematical Reasoning 9
- 80-210 Logic and Proofs 9
- 80-211 Logic and Mathematical Inquiry 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
- 80-223 Causality and Probability 9
- 80-226 Revolutions in Science 9
- 80-310 Formal Logic 9
- 80-311 Undecidability and Incompleteness 9
- 80-312 Mathematical Revolutions 9
- 80-314 Causal Discovery, Statistics, and Machine Learning 9
- 80-315 Modal Logic 9
- 80-321 Causation, Law, and Social Policy 9
- 80-322 Philosophy of Physics 9
- 80-323 Philosophy of Biology 9
- 80-324 Philosophy of Economics 9
- 80-411 Proof Theory 9
- 80-413 Category Theory 9
- 80-513 Seminar on Philosophy of Mathematics 9
- 80-514 Categorical Logic 9
- 80-515 Seminar on the Foundations of Statistics 9
- 80-516 Causality and Machine Learning 9
- 80-520 Seminar on Philosophy Science 9
- 80-521 Seminar on Formal Epistemology: Network Epistemology 9

History of Philosophy Requirements 18 units

Complete two courses:

- 80-150 Nature of Reason 9
- 80-226 Revolutions in Science 9
- 80-250 Ancient Philosophy 9
- 80-251 Modern Philosophy 9
- 80-252 Kant 9
- 80-253 Continental Philosophy 9
- 80-254 Analytic Philosophy 9
- 80-255 Pragmatism 9
- 80-256 Modern Moral Philosophy 9
- 80-257 Nietzsche 9
- 80-261 Experience, Reason, and Truth 9
- 80-263 Approaching Chinese Philosophy: Basic Texts and Implications 9
- 80-358 Hume 9
- 80-362 Russell 9
- 80-363 19th Century Foundations of Science 9

Philosophy Electives 18 units

Students must complete 18 units in the Philosophy department at the 200-level or higher.

The Minor in Societal & Human Impacts of Future Technologies (SHIFT)

Students pursing the SHIFT minor will gain the skills, knowledge, and experience to successfully take on roles in integrated, multidisciplinary analyses of current and near-future computational technologies. The SHIFT minor requires eight total courses, with no limit to double-counting with other majors or minors. All courses counted towards the minor must be taken for a letter grade and passed with a grade of “C” or above.

Core Courses (2 courses, 18 units total)

- 80-249 AI, Society, and Humanity 9
- 80-445 Shift Capstone Experience 9

Area Courses (6 courses, 54 units total)

Note: Five of the six Area Courses must be taken in different departments

Technology area (18 units)

Courses that build basic technological competence, and teach concepts & frameworks that provide high-level understanding of computational technologies, including their possibilities and limits.

- 05-317 Design of Artificial Intelligence Products 12
- 05-318 Human AI Interaction 12
- 05-320 Social Web 12
- 05-452 Service Design 12
- 15-110 Principles of Computing 10
- 15-112 Fundamentals of Programming and Computer Science 12
- 16-467 Human Robot Interaction 12
- 17-303 Cryptocurrencies, Blockchains and Applications Var.
- 17-313 Foundations of Software Engineering 12
- 17-331 Information Security, Privacy, and Policy 12
- 17-333 Privacy Policy, Law, and Technology 9
- 17-355 Program Analysis 12
- 36-201 Statistical Reasoning and Practice 9
- 36-202 Methods for Statistics & Data Science 9
- 67-250 The Information Systems Milieux 9
- 88-300 Programming and Data Analysis for Social Scientists 9

Social & Behavioral Sciences area (18 units)

Courses that teach the concepts and frameworks of social & behavioral sciences (e.g., economics, psychology, sociology), including methods and analyses such as experimental design and quantitative & qualitative data analysis.

- 05-413 Human Factors 9
- 17-224 Influence, Persuasion, and Manipulation Online 9
- 36-200 Reasoning with Data 9
- 70-311 Organizational Behavior 9
- 70-321 Negotiation and Conflict Resolution 9
- 70-341 Team Dynamics and Leadership 9
- 73-102 Principles of Microeconomics 9
### Ethics, Policy & Design Area (18 units)
Courses that teach core concepts and frameworks to address and analyze ethical, policy, and design challenges relevant to current and near-future computational technologies.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>05-413</td>
<td>Human Factors</td>
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<tr>
<td>08-200</td>
<td>Ethics and Policy Issues in Computing</td>
</tr>
<tr>
<td>16-161</td>
<td>ROB Freshman Seminar: Artificial Intelligence and Humanity</td>
</tr>
<tr>
<td>17-224</td>
<td>Influence, Persuasion, and Manipulation Online</td>
</tr>
<tr>
<td>36-200</td>
<td>Reasoning with Data</td>
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<tr>
<td>51-173</td>
<td>Design Center: Human Experience in Design</td>
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<tr>
<td>51-241</td>
<td>How People Work</td>
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<td>51-371</td>
<td>Futures I</td>
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<tr>
<td>51-373</td>
<td>Futures II</td>
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<tr>
<td>51-382</td>
<td>Design Center: Design for Social Innovation</td>
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<tr>
<td>66-161</td>
<td>DC Grand Challenge First-Year Seminar: Artificial Intelligence and Humanity</td>
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<tr>
<td>70-311</td>
<td>Organizational Behavior</td>
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<tr>
<td>70-321</td>
<td>Negotiation and Conflict Resolution</td>
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<tr>
<td>70-332</td>
<td>Business, Society and Ethics</td>
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<td>70-341</td>
<td>Team Dynamics and Leadership</td>
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<td>70-364</td>
<td>Business Law</td>
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<td>73-102</td>
<td>Principles of Microeconomics</td>
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<td>73-103</td>
<td>Principles of Macroeconomics</td>
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<tr>
<td>79-234</td>
<td>Technology and Society</td>
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<td>79-299</td>
<td>From Newton to the Nuclear Bomb: History of Science, 1750-1950</td>
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<td>79-302</td>
<td>Killer Robots/The Ethics, Law, and Politics of Lethal Autonomous Weapons Systems</td>
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<td>79-305</td>
<td>Moneyball Nation: Data in American Life</td>
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<td>80-130</td>
<td>Introduction to Ethics</td>
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<td>80-135</td>
<td>Introduction to Political Philosophy</td>
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<td>80-248</td>
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<td>80-330</td>
<td>Ethical Theory</td>
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<td>80-335</td>
<td>Social and Political Philosophy</td>
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<td>84-265</td>
<td>Political Science Research Methods</td>
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<td>84-369</td>
<td>Decision Science for International Relations</td>
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<td>84-370</td>
<td>Global Nuclear Politics</td>
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<td>84-372</td>
<td>Space and National Security</td>
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<td>Emerging Technologies and the Law</td>
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<td>84-380</td>
<td>Grand Strategy in the United States</td>
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<td>84-386</td>
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<td>Technology and Policy of Cyber War</td>
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<td>84-389</td>
<td>Terrorism and Insurgency</td>
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<td>84-390</td>
<td>Social Media, Technology, and Conflict</td>
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<td>84-405</td>
<td>The Future of Warfare</td>
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<td>84-414</td>
<td>International and Subnational Security</td>
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<tr>
<td>88-221</td>
<td>Analytical Foundations of Public Policy</td>
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<tr>
<td>88-406</td>
<td>Behavioral Economics @ Work</td>
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<tr>
<td>88-418</td>
<td>Domestic Negotiation</td>
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<tr>
<td>88-419</td>
<td>International Negotiation</td>
</tr>
<tr>
<td>88-435</td>
<td>Decision Science and Policy</td>
</tr>
</tbody>
</table>

### The Senior Honors Program
The Dietrich College Senior Honors Program (https://www.cmu.edu/dietrich/students/undergraduate/programs/senior-honors/) provides recognition of outstanding performance by students majoring in Philosophy, Logic and Computation, Linguistics, 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. In late spring, Dietrich College Senior Honors students are required to fulfill a presentation requirement by participating in the University's Meeting of the Minds Undergraduate Research Symposium (https://www.cmu.edu/uro/MoM/). This may be done as a poster presentation, or formal presentation, about their thesis projects. 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 at www.cmu.edu/dietrich/philosophy/research/lsec/fellowships.html (http://www.cmu.edu/dietrich/philosophy/research/lsec/fellowships.html), or contact Professors Joseph Ramsey or Wilfried Sieg for additional information.

### Faculty

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

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**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–

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