Department of Philosophy

Peter Sprites, Department Head
Location: Baker Hall
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 three different undergraduate major programs, and jointly sponsors an interdepartmental major: Ethics, History, and Public Policy (with the Department of History):

- 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

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 9 units

Choose one 9-unit course from the list below.

73-102 Principles of Microeconomics 9
84-104 Decision Processes in American Political Institutions 9
84-110 Foundations of Political Economy 9

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

U.S. History (9 units)
79-204 American Environmental History 9
79-231 American Civil Rights Movement: From Garveyism to Black Power 9
79-240 Development of American Culture 9
79-242 African American History: Reconstruction to the Present 9
79-244 Women in American History 9
79-245 Capitalism and Individualism in American Culture 9
79-248 U.S. Constitution & the Presidency 9
79-249 Politics and Social Change in 20th Century America 9
79-291 Innovation and Entertainment: A Business History of American Popular Culture 9
IV. Senior Capstone Project Course 12 units

79-449 EHPPL Project Course [cross-listed] 12 units
80-449 EHPPL Project Course [cross-listed] 12 units

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

V. Elective Courses 27 units

Choose any three courses (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 approval from the Academic Program Manager.

- Engineering and Public Policy (some courses have prerequisites; see EPP catalog listing) 9 units
  - 19-424 Energy and the Environment
  - 79-350 Benefit-Cost Analysis
  - 79-365 Firms, Market Structures, and Strategy
  - 79-408 Law and Economics
  - 79-420 American Economic History
- English 9 units
  - 76-492 Rhetoric of Public Policy
- History 9 units
  - Courses from the EHPPL 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.
  - 79-145 Genocide and Weapons of Mass Destruction
  - 79-189 History of Democracy: Thinking Beyond the Self
  - 79-233 The United States and the Middle East since 1945
  - 79-234 Technology and Society
  - 79-240 Development of American Culture
  - 79-242 African American History: Reconstruction to the Present
  - 79-249 Politics and Social Change in 20th Century America
  - 79-250 Voting Rights: An Unexpected History
  - 79-261 The Last Emperors: Chinese History and Society, 1600-1900
  - 79-265 Russian History: Game of Thrones
  - 79-266 Russian History and Revolutionary Socialism
  - 79-269 Israeli History and the Middle East
  - 79-270 Religion and Politics in the Middle East
- Economics (some courses have prerequisites; see Economics catalog listing) 9 units
  - 73-352 Public Economics
  - 73-359 Benefit-Cost Analysis
  - 73-365 Firms, Market Structures, and Strategy
  - 73-408 Law and Economics
  - 73-476 American Economic History
- Political Science 9 units
  - 79-270 Religion and Politics in the Middle East
- Philosophy of Economics 9 units
  - 80-136 Social Structure, Public Policy & Ethics
  - 80-244 Environmental Ethics
  - 80-245 Medical Ethics
  - 80-249 AI, Society, and Humanity
  - 80-336 Philosophy of Law
  - 80-348 Health, Human Rights, and International Development
  - 80-447 Global Justice
- Environmental Science 9 units
  - 80-397 Environmental Change and Climate Change: Global Perspectives
  - 79-336 Introduction to Environmental Ideas
- Public Policy 9 units
  - 79-320 Women, Politics, and Protest
  - 79-322 Stalin and the Great Terror
  - 79-325 U.S. Gay and Lesbian History
  - 79-331 Body Politics: Women and Health in America
  - 79-334 Climate Change and Climate Justice: Global Perspectives
  - 79-336 Introduction to Environmental Ideas
- History of Science 9 units
  - 79-304 History of Science
  - 79-305 Moneyball Nation: Data in American Life
  - 79-315 Thirsty Planet: The Politics of Water in Global Perspective
- Business Administration 9 units
  - 73-352 Public Economics
  - 73-359 Benefit-Cost Analysis
  - 73-365 Firms, Market Structures, and Strategy
  - 73-408 Law and Economics
  - 73-476 American Economic History
- Engineering 9 units
  - 19-424 Energy and the Environment
  - 79-350 Benefit-Cost Analysis
  - 79-365 Firms, Market Structures, and Strategy
  - 79-408 Law and Economics
  - 79-420 American Economic History
- History of Modern China 9 units
  - 73-261 The Last Emperors: Chinese History and Society, 1600-1900
- History of the Middle East 9 units
  - 79-269 Israeli History and the Middle East
  - 79-270 Religion and Politics in the Middle East
- History of Southeast Asia 9 units
  - 79-269 Israeli History and the Middle East
  - 79-270 Religion and Politics in the Middle East
- History of Latin America 9 units
  - 79-269 Israeli History and the Middle East
  - 79-270 Religion and Politics in the Middle East

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.
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.
Linguistic Typology: Diversity and Universals 9
Acoustics of Human Speech: Theory, Data, and Analysis 9

LANGUAGE REQUIREMENT
Students must successfully complete 2 semesters of foreign language study in a single language (e.g. 100 & 200 level).

Electives
Primary majors choose **three** additional electives (27 or more units). Additional majors choose **four** additional electives (36 or more units).

Primary majors: see thesis requirement below.

These Electives can be additional courses from the Core or Extended Core courses listed above, the electives list below, or any other course which is approved by the Academic Program Manager 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 Academic Program Manager 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.

Philosophy
80-380 Philosophy of Language 9
80-484 Language and Thought 9

English
76-318 Communicating in the Global Marketplace 9
76-325 Intertextuality 9
76-385 Introduction to Discourse Analysis 9
76-386 Language & Culture 9
76-389 Rhetorical Grammar 9

Modern Languages
82-358 Language Diversity & Cultural Identity 9
82-304 French & Francophone Sociolinguistics 9
82-305 French in its Social Contexts 9
82-373 Structure of the Japanese Language 9
82-383 Second Language Acquisition: Theories and Research 9
82-585 Topics in Second Language Acquisition 9

Psychology
85-354 Infant Language Development 9
85-421 Language and Thought 9

Language Technologies Institute
11-411 Natural Language Processing 12
11-492 Speech Processing 12
11-422 Grammar Formalisms 9

Note: all 11-xxx courses have significant Computer Science prerequisites. Interested students should check with the course instructor and with the Linguistics Academic Program Manager before registering.

SENIOR THESIS [PRIMARY MAJORS ONLY]
Primary majors must complete a senior thesis (a workload equivalent to a 12-unit course) 80-595 Senior Thesis. 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 Academic Program Manager 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 advisor, before the end of the semester preceding that in which the thesis research will be conducted..

Additional Major in Linguistics
The Linguistics additional major requires a total of 13 courses. This includes 2 semesters of language study for all majors. At least three courses (not including specific language courses) must be at the 300-level or higher. Additional majors are not required to write a thesis but must take four electives (36 or more units). 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. 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
Patrick Doyle, Academic Program Manager
Location: Baker Hall 161G
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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;
- 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

<table>
<thead>
<tr>
<th>Course</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>36-200 Reasoning with Data or 36-201 Statistical Reasoning and Practice</td>
<td>9</td>
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Logic and Computation Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<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 <em>Students should complete before their junior year.</em></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 <em>Students should complete this prerequisite before their junior year.</em></td>
<td>10</td>
</tr>
<tr>
<td>15-150 Principles of Functional Programming <em>Students should complete this prerequisite before their junior year.</em></td>
<td>10</td>
</tr>
<tr>
<td>80-595 Senior Thesis Var.</td>
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Logic and Computation Electives

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 and above, must be selected in consultation with the Academic Program Manager.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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Sample Curricula

Below are four 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 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 major (https://www.cmu.edu/dietrich/psychology/undergraduate/prospective-students/academics/cognitive-science/) major (Department of Psychology) this additional major would complement your coursework.

Sample 3.
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 4.
A student interested in Methodology might consider the following courses:

- 80-220 Philosophy of Science 9
- 80-221 Philosophy of Social Science 9
- 36-309 Experimental Design for Behavioral & Social Sciences 9
- 80-305 Decision Theory 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

Patrick Doyle, Academic Program Manager
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https://go.oncehub.com/PatDoyle

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. 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
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
80-246 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
80-447 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 Mind and Body: The Objective and the Subjective 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
80-285 Natural Language Syntax 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
80-380 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
80-385 Linguistics of Germanic Languages 9
80-386 Linguistic Typology: Diversity and Universals 9
80-580 Seminar on the Philosophy of Language 9


Here are four sample curricula, reflecting different emphases.

### Sample Curricula

#### Area 3: Logic/Philosophy of Mathematics
- **9 units**
  - One of the following:
    - 80-110 Nature of Mathematical Reasoning
    - 80-210 Logic and Proofs
    - 80-211 Logic and Mathematical Inquiry
    - 80-212 Arguments and Logical Analysis
    - 80-310 Formal Logic
    - 80-311 Undecidability and Incompleteness
    - 80-312 Mathematical Revolutions
    - 80-314 Causal Discovery, Statistics, and Machine Learning
    - 80-315 Modal Logic
    - 80-411 Proof Theory
    - 80-413 Category Theory
    - 80-419 Interactive Theorem Proving
    - 80-513 Seminar on Philosophy of Mathematics
    - 80-514 Categorical Logic
    - 80-518 Seminar on Topics in Logic

#### Area 4: Epistemology
- **9 units**
  - One of the following:
    - 80-150 Nature of Reason
    - 80-201 Knowledge and Justified Belief
    - 80-208 Critical Thinking
    - 80-220 Philosophy of Science
    - 80-221 Philosophy of Social Science
    - 80-226 Revolutions in Science
    - 80-234 Philosophy of Economics
    - 80-327 Philosophy of Neuroscience
    - 80-405 Game Theory
    - 80-515 Seminar on the Foundations of Statistics
    - 80-516 Causality and Machine Learning
    - 80-520 Seminar on Philosophy Science
    - 80-521 Seminar on Formal Epistemology: Belief and Evidence

#### Area 5: History of Philosophy
- **18 units**
  - Two of the following:
    - 80-150 Nature of Reason
    - 80-220 Philosophy of Science
    - 80-225 Ancient Philosophy
    - 80-251 Modern Philosophy
    - 80-252 Kant
    - 80-253 Continental Philosophy
    - 80-254 Analytic Philosophy
    - 80-255 Pragmatism
    - 80-261 Experience, Reason, and Truth
    - 80-358 Hume
    - 80-362 Russell
    - 80-363 19th Century Foundations of Science
    - 80-365 Ramsey

#### Area 6: Elective
- **27 units**
  - 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**
     - 80-180 Nature of Language
   - **Area 3**
     - 80-211 Logic and Mathematical Inquiry

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

3. **For an emphasis on Ethics and Social Philosophy, a student might take:**
   - **Area 1**
     - 80-130 Introduction to Ethics
   - **Area 2**
     - 80-276 Philosophy of Religion
   - **Area 3**
     - 80-211 Logic and Mathematical Inquiry
   - **Area 4**
     - 80-221 Philosophy of Social Science

4. **For an emphasis on Philosophy of Mind, a student might take:**
   - **Area 1**
     - 80-130 Introduction to Ethics
   - **Area 2**
     - 80-270 Problems of Mind and Body: Meaning and Doing
   - **Area 3**
     - 80-211 Logic and Mathematical Inquiry

**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

- 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
- 80-249 AI, Society, and Humanity 9
- 80-330 Ethical Theory 9
- 80-335 Social and Political Philosophy 9
- 80-336 Philosophy of Law 9
- 80-347 Health, Human Rights, and International Development 9
- 80-447 Global Justice 9

Ethics Electives 18 units

- 80-244 Environmental Ethics 9
- 80-245 Medical Ethics 9
- 80-246 Moral Psychology 9
- 80-294 Ethics Internship 9
- 80-330 Ethical Theory 9
- 80-335 Social and Political Philosophy 9
- 80-336 Philosophy of Law 9
- 80-347 Health, Human Rights, and International Development 9
- 80-447 Global Justice 9
- 80-495 Independent Study Var.

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
  - 80-285 Natural Language Syntax 9
- 80-381 Meaning in Language 9
- 80-383 Language in Use 9

Extended Core: Choose 3 courses (27 units) from the Extended Core and/or additional courses from 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 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
- 80-301 Formal Logic 9
- 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 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-110</td>
<td>Nature of Mathematical Reasoning</td>
<td>9</td>
</tr>
<tr>
<td>80-210</td>
<td>Logic and Proofs</td>
<td>9</td>
</tr>
<tr>
<td>80-211</td>
<td>Logic and Mathematical Inquiry</td>
<td>9</td>
</tr>
<tr>
<td>80-214</td>
<td>Computing, AI, and Philosophy</td>
<td>9</td>
</tr>
<tr>
<td>80-220</td>
<td>Philosophy of Science</td>
<td>9</td>
</tr>
<tr>
<td>80-221</td>
<td>Philosophy of Social Science</td>
<td>9</td>
</tr>
<tr>
<td>80-222</td>
<td>Measurement and Methodology</td>
<td>9</td>
</tr>
<tr>
<td>80-223</td>
<td>Causality and Probability</td>
<td>9</td>
</tr>
<tr>
<td>80-226</td>
<td>Revolutions in Science</td>
<td>9</td>
</tr>
<tr>
<td>80-310</td>
<td>Formal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-311</td>
<td>Undecidability and Incompleteness</td>
<td>9</td>
</tr>
<tr>
<td>80-312</td>
<td>Mathematical Revolutions</td>
<td>9</td>
</tr>
<tr>
<td>80-314</td>
<td>Causal Discovery, Statistics, and Machine Learning</td>
<td>9</td>
</tr>
<tr>
<td>80-315</td>
<td>Modal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-324</td>
<td>Philosophy of Economics</td>
<td>9</td>
</tr>
<tr>
<td>80-365</td>
<td>Ramsey</td>
<td>9</td>
</tr>
<tr>
<td>80-411</td>
<td>Proof Theory</td>
<td>9</td>
</tr>
<tr>
<td>80-413</td>
<td>Category Theory</td>
<td>9</td>
</tr>
<tr>
<td>80-513</td>
<td>Seminar on Philosophy of Mathematics</td>
<td>9</td>
</tr>
<tr>
<td>80-514</td>
<td>Categorical Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-515</td>
<td>Seminar on the Foundations of Statistics</td>
<td>9</td>
</tr>
<tr>
<td>80-516</td>
<td>Causality and Machine Learning</td>
<td>Var.</td>
</tr>
<tr>
<td>80-520</td>
<td>Seminar on Philosophy Science</td>
<td>9</td>
</tr>
<tr>
<td>80-521</td>
<td>Seminar on Formal Epistemology: Belief and Evidence</td>
<td>Var.</td>
</tr>
</tbody>
</table>

**History of Philosophy Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-150</td>
<td>Nature of Reason</td>
<td>9</td>
</tr>
<tr>
<td>80-226</td>
<td>Revolutions in Science</td>
<td>9</td>
</tr>
<tr>
<td>80-250</td>
<td>Ancient Philosophy</td>
<td>9</td>
</tr>
<tr>
<td>80-251</td>
<td>Modern Philosophy</td>
<td>9</td>
</tr>
<tr>
<td>80-252</td>
<td>Kant</td>
<td>9</td>
</tr>
<tr>
<td>80-253</td>
<td>Continental Philosophy</td>
<td>9</td>
</tr>
<tr>
<td>80-254</td>
<td>Analytic Philosophy</td>
<td>9</td>
</tr>
<tr>
<td>80-255</td>
<td>Pragmatism</td>
<td>9</td>
</tr>
<tr>
<td>80-261</td>
<td>Experience, Reason, and Truth</td>
<td>9</td>
</tr>
<tr>
<td>80-358</td>
<td>Hume</td>
<td>9</td>
</tr>
<tr>
<td>80-362</td>
<td>Russell</td>
<td>9</td>
</tr>
<tr>
<td>80-363</td>
<td>19th Century Foundations of Science</td>
<td>9</td>
</tr>
<tr>
<td>80-365</td>
<td>Ramsey</td>
<td>9</td>
</tr>
</tbody>
</table>

**Philosophy Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Var.</td>
<td></td>
<td>Var.</td>
</tr>
</tbody>
</table>

*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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-317</td>
<td>Design of Artificial Intelligence Products</td>
<td>12</td>
</tr>
<tr>
<td>80-318</td>
<td>Human AI Interaction</td>
<td>12</td>
</tr>
<tr>
<td>80-320</td>
<td>Social Web</td>
<td>12</td>
</tr>
<tr>
<td>80-452</td>
<td>Service Design</td>
<td>12</td>
</tr>
<tr>
<td>80-110</td>
<td>Principles of Computing</td>
<td>10</td>
</tr>
<tr>
<td>80-112</td>
<td>Fundamentals of Programming and Computer Science</td>
<td>12</td>
</tr>
<tr>
<td>80-467</td>
<td>Human Robot Interaction</td>
<td>12</td>
</tr>
<tr>
<td>80-703</td>
<td>Cryptocurrencies, Blockchains and Applications</td>
<td>Var.</td>
</tr>
<tr>
<td>80-313</td>
<td>Foundations of Software Engineering</td>
<td>12</td>
</tr>
<tr>
<td>80-331</td>
<td>Information Security, Privacy, and Policy</td>
<td>12</td>
</tr>
<tr>
<td>80-333</td>
<td>Privacy Policy, Law, and Technology</td>
<td>9</td>
</tr>
<tr>
<td>80-355</td>
<td>Program Analysis</td>
<td>12</td>
</tr>
<tr>
<td>80-361</td>
<td>Statistical Reasoning and Practice</td>
<td>9</td>
</tr>
<tr>
<td>80-362</td>
<td>Methods for Statistics &amp; Data Science</td>
<td>9</td>
</tr>
<tr>
<td>80-370</td>
<td>The Information Systems Milieux</td>
<td>9</td>
</tr>
<tr>
<td>80-300</td>
<td>Programming and Data Analysis for Social Scientists</td>
<td>9</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-413</td>
<td>Human Factors</td>
<td>9</td>
</tr>
<tr>
<td>80-724</td>
<td>Influence, Persuasion, and Manipulation Online</td>
<td>9</td>
</tr>
<tr>
<td>80-360</td>
<td>Reasoning with Data</td>
<td>9</td>
</tr>
<tr>
<td>80-311</td>
<td>Organizational Behavior</td>
<td>9</td>
</tr>
<tr>
<td>80-321</td>
<td>Negotiation and Conflict Resolution</td>
<td>9</td>
</tr>
<tr>
<td>80-341</td>
<td>Team Dynamics and Leadership</td>
<td>9</td>
</tr>
<tr>
<td>80-102</td>
<td>Principles of Microeconomics</td>
<td>9</td>
</tr>
<tr>
<td>80-103</td>
<td>Principles of Macroeconomics</td>
<td>9</td>
</tr>
<tr>
<td>80-265</td>
<td>Political Science Research Methods</td>
<td>9</td>
</tr>
<tr>
<td>80-369</td>
<td>Decision Science for International Relations</td>
<td>9</td>
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<tr>
<td>80-406</td>
<td>Behavioral Economics @ Work</td>
<td>9</td>
</tr>
<tr>
<td>80-418</td>
<td>Negotiation: Strategies and Behavioral Insights</td>
<td>9</td>
</tr>
<tr>
<td>80-419</td>
<td>International Negotiation</td>
<td>9</td>
</tr>
<tr>
<td>80-435</td>
<td>Decision Science and Policy</td>
<td>9</td>
</tr>
</tbody>
</table>

**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>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-413</td>
<td>Human Factors</td>
<td>9</td>
</tr>
<tr>
<td>80-200</td>
<td>Ethics and Policy Issues in Computing</td>
<td>9</td>
</tr>
<tr>
<td>80-161</td>
<td>ROB Freshman Seminar: Artificial Intelligence and Humanity</td>
<td>9</td>
</tr>
<tr>
<td>80-724</td>
<td>Influence, Persuasion, and Manipulation Online</td>
<td>9</td>
</tr>
<tr>
<td>80-360</td>
<td>Reasoning with Data</td>
<td>9</td>
</tr>
<tr>
<td>80-173</td>
<td>Design Center: Human Experience in Design</td>
<td>9</td>
</tr>
<tr>
<td>80-241</td>
<td>How People Work</td>
<td>9</td>
</tr>
<tr>
<td>80-371</td>
<td>Futures I</td>
<td>4.5</td>
</tr>
<tr>
<td>80-373</td>
<td>Futures II</td>
<td>4.5</td>
</tr>
<tr>
<td>80-382</td>
<td>Design Center: Design for Social Innovation</td>
<td>9</td>
</tr>
<tr>
<td>80-311</td>
<td>Organizational Behavior</td>
<td>9</td>
</tr>
<tr>
<td>80-321</td>
<td>Negotiation and Conflict Resolution</td>
<td>9</td>
</tr>
<tr>
<td>80-332</td>
<td>Business, Society and Ethics</td>
<td>9</td>
</tr>
<tr>
<td>80-341</td>
<td>Team Dynamics and Leadership</td>
<td>9</td>
</tr>
<tr>
<td>80-364</td>
<td>Business Law</td>
<td>9</td>
</tr>
<tr>
<td>80-102</td>
<td>Principles of Microeconomics</td>
<td>9</td>
</tr>
<tr>
<td>80-103</td>
<td>Principles of Macroeconomics</td>
<td>9</td>
</tr>
<tr>
<td>80-234</td>
<td>Technology and Society</td>
<td>9</td>
</tr>
</tbody>
</table>

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**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)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-249</td>
<td>AI, Society, and Humanity</td>
<td>9</td>
</tr>
<tr>
<td>80-445</td>
<td>Shift Capstone Experience</td>
<td>Var.</td>
</tr>
</tbody>
</table>

**Area Courses (6 courses, 54 units total)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Var.</td>
<td></td>
<td>Var.</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.

Philosophy 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 Computation (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-

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

ADAM BJORNDahl, Associate Professor of Philosophy – Ph.D., Cornell University; Carnegie Mellon, 2014-

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

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

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-

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

RICHARD SCHEINES, Professor of Philosophy, Bess Family Dean’s Chair of the Dietrich College of Humanities and Social Sciences – Ph.D., University of Pittsburgh; Carnegie Mellon, 1987-

TEDDY I. SEIDENFELD, Herbert A. Simon Professor of Philosophy and Statistics – Ph.D., Columbia University; Carnegie Mellon, 1985-

WILFRIED SIEG, Patrick Suppes Professor of Philosophy – Ph.D., Stanford University; Carnegie Mellon, 1985-

MANDY SIMONS, Professor of Philosophy – Ph.D., Cornell University; Carnegie Mellon, 1998-

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

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

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

DANIELLE WINNER, Associate Professor of Philosophy – Ph.D., Rice University; Carnegie Mellon, 2013-

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

WAYNE WU, Associate Professor, Philosophy and the Neuroscience Institute – Ph.D., University of California, Berkeley; Carnegie Mellon, 2010-

FRANCESCA ZAFFORA BLANDO, Assistant Professor of Philosophy – Ph.D., Stanford University; Carnegie Mellon, 2020-

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

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

Adjunct Faculty

FRANK PFENNING, Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2002-

Special Faculty

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

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

Emeriti Faculty

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

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

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