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 six minor programs:

- the minor in Ethics
- the minor in Linguistics
- the minor in Logic and Computation
- the minor in Philosophy
- the minor in Rationality, Uncertainty, and Choice: Formal Methods (RUC)
- 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.

Preparing students to be leaders is a vital goal of colleges and universities in every democratic society. The intellectual challenges facing public and private sector leaders have expanded dramatically since the pioneering EHPP program began in 1996, but the need remains as great as ever for broadly educated, ethically sensitive, and technically skilled leaders.

EHPP prepares students to demonstrate sophistication and flexibility in their command of interdisciplinary knowledge; deep historical understanding of how modern-day policy problems have emerged and evolved; and clear, rational criteria for ethical and socially just decision making. The curriculum provides students with a strong humanistic foundation for developing such high-level, historically grounded, and ethically attuned leadership capacities. It also offers ample room for specialization in a wide range of policy areas in which the History and Philosophy departments have special expertise, e.g., medicine and public health, criminal justice, environment, technology, artificial intelligence (AI), gender, civil rights, immigration, and education.

Curriculum

Students seeking 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 45 units in History, 45 units in Philosophy, 18 units in Law and Social Science, and a 12-unit EHPP Capstone Course. This program may also be taken as an additional (i.e., 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. Foundation Courses in History and Philosophy		**18 units**

Choose <u>one</u> of the following two courses:

79-189	Democracy and History: Thinking Beyond the Self	9
79-248	U.S. Constitution & the Presidency	9

Choose <u>one</u> of the following two courses:

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

II. Ethics and Policy Core		36 units

Choose <u>four</u> of the courses below:

No more than one course may be taken at the 100 level and at least one course must be taken at the 300 level or above.

80-135	Introduction to Political Philosophy	9
80-136	Social Structure, Public Policy & Ethics	9
80-208	Critical Thinking	9
80-221	Philosophy of Social Science	9

80-234	Race, Gender, and Justice	9
80-244	Environmental Ethics	9
80-245	Medical Ethics	9
80-249	AI, Society, and Humanity	9
80-305	Game Theory	9
80-306	Decision Theory	9
80-321	Causation, Law, and Social Policy	9
80-324	Philosophy of Economics	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

III. History and Policy Core   36 units

Choose four of the courses below:

79-175	Moneyball Nation: Data in American Life	9
79-204	American Environmental History	9
79-212	Jim Crow America	9
79-215	Environmental Justice from Conservation to Climate Change	9
79-234	Technology and Society	9
79-242	African American History: Reconstruction to the Present	9
79-248	U.S. Constitution & the Presidency	9
79-250	Voting Rights: An Introduction	9
79-278	How (Not) to Change the World	9
79-300	History of American Public Policy	9
79-320	Women, Politics, and Protest	9
79-321	Documenting Human Rights	9
79-330	Medicine and Society: Health, Healers, and Hospitals	9
79-343	Education, Democracy, and Civil Rights	9
79-360	Crime, Policing, and the Law: Historical and Contemporary Perspectives	9
79-370	Technology in the United States	9
79-380	Hostile Environments: The Politics of Pollution in Global Perspective	9

IV. Foundation Courses in Law and Social Science   18 units

Choose two of the courses below:

17-200	Ethics and Policy Issues in Computing	9
19-101	Introduction to Engineering and Public Policy	12
70-332	Business, Society and Ethics	9
73-102	Principles of Microeconomics	9
73-103	Principles of Macroeconomics	9
84-104	Decision Processes in American Political Institutions	9
84-110	Foundations of Political Economy	9
84-352	Representation and Voting Rights	9
84-393	Legislative Decision Making: US Congress	9
84-402	Judicial Politics and Behavior	9
88-281	Topics in Law: 1st Amendment	9
88-284	Topics of Law: The Bill of Rights	9

EHPP students will also be able to complete the Foundations of Law and Social Science category by participating in the Washington Semester Program. Students are encouraged to pursue additional policy-relevant courses in law and social science, along lines consistent with their career ambitions.

V. EHPP Capstone Course   12 units

In Fall semester of senior year, EHPP students will participate in an interdisciplinary capstone course that asks students to integrate their studies in Ethics and History by addressing a policy topic of contemporary national urgency (e.g., climate change, immigration, infrastructure, abortion, hate speech, reparations, law enforcement and policing, charter schools, affirmative action, vaccination, taxation, voting rights, global justice). The Departments of History and Philosophy will alternate teaching the EHPP Capstone Course.

| 79-449 | EHPP Capstone Course [cross-listed] | 12 |
| 80-449 | EHPP Capstone Course [cross-listed] | 12 |

VI. Bachelor of Science Option

Students may elect to earn a Bachelor of Science rather than a Bachelor of Arts degree by completing two courses from the list below, or by petitioning the Director of EHPP to accept equivalent courses as substitutions.

21-257	Models and Methods for Optimization	9
36-202 or 70-208	Methods for Statistics & Data Science Regression Analysis	9
36-303	Sampling, Survey and Society	9
36-309	Experimental Design for Behavioral & Social Sciences	9
70-257	Optimization for Business	9
80-305	Game Theory	9
80-306	Decision Theory	9
88-221	Markets, Democracy, and Public Policy	9
88-223	Decision Analysis	12
88-251	Empirical Research Methods	9
88-300	Programming and Data Analysis for Social Scientists	9

Additional Major

The B.A./B.S. in Ethics, History, and Public Policy may be scheduled as an additional major in consultation with the Director of Ethics, History, and Public Policy.

Ethics, History, and Public Policy Sample Curriculum

Third-Year		Fourth-Year	
Fall	**Spring**	**Fall**	**Spring**
Foundations Course in History	Foundations Course in Law and Social Sciences	EHPP Capstone Course	Ethics and Policy Core Course
Foundations Course in Philosophy	Foundations Course in Law and Social Sciences	Ethics and Policy Core Course	History and Policy Core Course
Ethics and Policy Core Course	Ethics and Policy Core Course	History and Policy Core Course	Third Course (open)
History and Policy Core Course	History and Policy Core Course	Fourth Course (open)	Fourth Course (open)
Fifth Course Open	Fifth Course (open)	Fifth Course (open)	Fifth Course (open)

The above sample program is presented as a two-year (junior-senior year) plan for completing EHPP major requirements. Its purpose is to show that this program can be completed in as few as two years; not that it must be.

Students may enter the EHPP major, and begin major course requirements, as early as they wish. Students should consult their advisor when planning their program.

The Major in Linguistics

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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 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. 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.

80-180	Nature of Language	9
80-282	Phonetics and Phonology I	9
80-280	Linguistic Analysis	9
or 80-285	Natural Language Syntax	
80-381	Meaning in Language	9
or 80-383	Language in Use	

Extended Core (27 units)

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

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
76-388	Coding for Humanists	9
76-389	Rhetorical Grammar	9

Modern Languages
82-239	Crazy Linguistically Rich Asian Languages	9
82-304	French & Francophone Sociolinguistics	9
82-305	French in its Social Contexts	9
82-334	Structure of Chinese	9
82-585	Topics in Second Language Acquisition	9
82-373	Structure of the Japanese Language	9

82-383	Second Language Acquisition: Theories and Research	9
82-388	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
11-423	ConLanging: Lrng. Ling. & Lang Tech via Constru Artif. Lang.	12
11-492	Speech Processing	12
11-422	Grammar Formalisims	12

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.

Statistics and Data Science
36-468	Special Topics: Text Analysis	9

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 faculty 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

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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		42 units
80-211	Logic and Mathematical Inquiry	9
36-200	Reasoning with Data	9
15-112	Fundamentals of Programming and Computer Science	12
21-127	Concepts of Mathematics	12

Logic and Computation Core		63 units
80-150	Nature of Reason *Students should complete before their junior year.	9
80-310	Formal Logic *Students should complete before their junior year.	9
80-311	Undecidability and Incompleteness	9
15-122	Principles of Imperative Computation *Students should complete this prerequisite before their junior year.	12
15-150	Principles of Functional Programming *Students should complete this prerequisite before their junior year.	12
80-595	Senior Thesis	12

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

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
80-315	Modal Logic	9
80-325	Foundations of Causation and Machine Learning	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 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	Game 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 and methodology

The Department of Philosophy also offers a graduate M.S. degree in Logic and Computation and 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. 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
80-234	Race, Gender, and Justice	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
80-348	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
80-282	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
80-388	Linguistic Typology: Diversity and Universals	9
80-484	Language and Thought	9
80-488	Acoustics of Human Speech: Theory, Data, and Analysis	9
80-580	Seminar on the Philosophy of Language	9

Area 3: Logic/Philosophy of Mathematics   9 units

One of the following:

80-210	Logic and Proofs	9
80-211	Logic and Mathematical Inquiry	9
80-212	Arguments and Logical Analysis	9
80-310	Formal Logic	9
80-311	Undecidability and Incompleteness	9
80-312	Mathematical Revolutions	9
80-315	Modal Logic	9
80-411	Proof Theory	9
80-413	Category Theory	9
80-419	Interactive Theorem Proving	9
80-514	Categorical Logic	9
80-518	Seminar on Topics in Logic	9

Area 4: Epistemology/Methodology   9 units

One of the following:

80-150	Nature of Reason	9
80-201	Knowledge and Justified Belief	9
80-208	Critical Thinking	9
80-220	Philosophy of Science	9
80-221	Philosophy of Social Science	9
80-226	The Nature of Scientific Revolutions	9
80-305	Game Theory After Spring 2023	9
80-306	Decision Theory	9
80-324	Philosophy of Economics	9
80-325	Foundations of Causation and Machine Learning	9
80-326	Epistemology of Machine Learning	9
80-405	Game Theory Prior to Fall 2023	9
80-516	Causality and Machine Learning	9

80-521	Seminar on Formal Epistemology: Belief and Evidence	9

Area 5: History of Philosophy   18 units

Two of the following:

80-150	Nature of Reason	9
80-226	The Nature of Scientific Revolutions	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
80-551	Seminar on History of Philosophy: Smith and Hume	9
80-255	Pragmatism: Making Ideas Work	9
80-261	Experience, Reason, and Truth	9
80-350	Adam Smith	9
80-358	Hume	9
80-365	Ramsey	9

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	9
Area 2		
80-180	Nature of Language	9
Area 3		
80-211	Logic and Mathematical Inquiry	9
Area 4		
80-208	Critical Thinking	9
Area 5		
80-150	Nature of Reason	9
80-250	Ancient Philosophy	9
Area 6		
80-336	Philosophy of Law	9
80-348	Health, Human Rights, and International Development	9
80-447	Global Justice	9

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

Area 1		
80-136	Social Structure, Public Policy & Ethics	9
Area 2		
80-270	Problems of Mind and Body: Meaning and Doing	9
Area 3		
80-211	Logic and Mathematical Inquiry	9
Area 4		
80-220 or 80-221	Philosophy of Science Philosophy of Social Science	9
Area 5		
80-250	Ancient Philosophy	9
80-226	The Nature of Scientific Revolutions	9
Area 6		
80-150	Nature of Reason	9
80-221	Philosophy of Social Science	9
80-524	Topics in Formal Epistemology: Topological Philosophy of Science	9

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

Area 1		
80-130	Introduction to Ethics	9
Area 2		
80-276	Philosophy of Religion	9

Area 3

80-211	Logic and Mathematical Inquiry	9

Area 4

80-221	Philosophy of Social Science	9

Area 5

80-250	Ancient Philosophy	9
80-251	Modern Philosophy	9

Area 6

80-330	Ethical Theory	9
80-335	Social and Political Philosophy	9
80-348	Health, Human Rights, and International Development	9

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

Area 1

80-130	Introduction to Ethics	9

Area 2

80-270	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
80-252	Kant	9

Area 6

80-521	Seminar on Formal Epistemology: Belief and Evidence	9
80-261	Experience, Reason, and Truth	9
80-271	Mind and Body: The Objective and the Subjective	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. 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 emphases in **Mathematics, Psychology, Physics, and the Social Sciences**.

The course of study for the 5 (https://www.cmu.edu/dietrich/philosophy/graduate/5th-year-masters.html)[th] 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 six minors, and the requirements are designed to be flexible and to allow students to tailor courses to their special interests, while providing some breadth.

- Ethics
- Linguistics
- Logic & Computation
- Philosophy
- Rationality, Uncertainty, and Choice: Formal Methods (RUC)
- Societal & Human Impacts of Future Technologies (SHIFT)

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 a "C" or above, except 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.

		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
80-348	Health, Human Rights, and International Development	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.

		Units
80-234	Race, Gender, and Justice	9
80-244	Environmental Ethics	9
80-245	Medical Ethics	9
80-246	Moral Psychology	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

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		Units
80-180	Nature of Language	9

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

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

Extended Core		Units
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
		Units
80-150	Nature of Reason	9
80-211	Logic and Mathematical Inquiry	9
or 80-210	Logic and Proofs	
80-310	Formal Logic	9
or 80-311	Undecidability and Incompleteness	

Logic and Computation Electives		27 units

Students must take two courses in the Philosophy Department at the 300-level or higher, in subjects related to logic and computation. And an additional course at the 300-level or higher in an area that uses logical and computational tools, such as philosophy, computer science, linguistics, mathematics, psychology, or statistics. The choice of electives must be approved by the 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:		Units
80-210	Logic and Proofs	9
80-211	Logic and Mathematical Inquiry	9
80-220	Philosophy of Science	9
80-221	Philosophy of Social Science	9
80-226	The Nature of Scientific Revolutions	9
80-310	Formal Logic	9
80-311	Undecidability and Incompleteness	9
80-312	Mathematical Revolutions	9
80-315	Modal Logic	9
80-324	Philosophy of Economics	9
80-325	Foundations of Causation and Machine Learning	9
80-365	Ramsey	9
80-411	Proof Theory	9
80-413	Category Theory	9
80-514	Categorical Logic	9
80-516	Causality and Machine Learning	9
80-521	Seminar on Formal Epistemology: Belief and Evidence	9

History of Philosophy Requirements		18 units
Complete two courses:		Units
80-150	Nature of Reason	9
80-226	The Nature of Scientific Revolutions	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: Making Ideas Work	9
80-261	Experience, Reason, and Truth	9
80-358	Hume	9
80-551	Seminar on History of Philosophy: Smith and Hume	9
80-365	Ramsey	9

Philosophy Electives	18 units

Students must complete 18 units in the Philosophy department at the 200-level or higher. The choice of electives must be approved by the Academic Program Manager.

The Minor in Rationality, Uncertainty, and Choice: Formal Methods (RUC)

Students pursuing the minor in Rationality, Uncertainty, and Choice: Formal Methods (RUC) will learn interdisciplinary philosophical and mathematical approaches to reasoning about uncertainty and decision making in both individual and group contexts.

The RUC minor consists of three core requirements in **Game Theory, Decision Theory**, and a choice between the **Decision Analysis** and **Decision Models and Games** from the Department of Social and Decision Sciences. Students will then take 3 elective courses from two elective categories. Electives are intended to show how key concepts from the RUC core can be applied across many disciplines. The RUC minor uniquely complements majors from across Carnegie Mellon University and extends to fields such as economics and computer science. All courses counted towards the minor must be taken for a letter grade and passed with a grade of "C" or above.

Core Requirements

Complete all of the following:		Units
80-305	Game Theory	9
80-306	Decision Theory	9
88-223	Decision Analysis	12
or 88-312	Decision Models and Games	

Note: Students must complete three elective courses from the following two categories and must complete at least one course in each category.

Elective Category 1: Formal Foundations		9-18 units
80-201	Knowledge and Justified Belief	9
80-208	Critical Thinking	9
80-210	Logic and Proofs	9
80-315	Modal Logic	9
80-325	Foundations of Causation and Machine Learning	9
80-516	Causality and Machine Learning	9
80-521	Seminar on Formal Epistemology: Belief and Evidence	9
80-524	Topics in Formal Epistemology: Topological Philosophy of Science	9
88-223	Decision Analysis	12
88-312	Decision Models and Games	9
88-379	Data-Driven Decision Analysis	9

Elective Category 2: Theory and Applications		9-18 units
80-246	Moral Psychology	9
80-249	AI, Society, and Humanity	9
80-252	Kant	9
80-255	Pragmatism: Making Ideas Work	9
80-261	Experience, Reason, and Truth	9
80-321	Causation, Law, and Social Policy	9
80-324	Philosophy of Economics	9

| 80-330 | Ethical Theory | 9 |
| 80-335 | Social and Political Philosophy | 9 |

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, 10 to 18 units total)		Units
80-249	AI, Society, and Humanity	9
80-445	Shift Capstone Experience	1-9

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 and frameworks that provide high-level understanding of computational technologies, including their possibilities and limits.

Complete two courses		Units
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	9
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
36-202	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 and behavioral sciences (e.g., economics, psychology, sociology), including methods and analyses such as experimental design and quantitative and qualitative data analysis.

Complete two courses		Units
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
73-103	Principles of Macroeconomics	9
84-266	Research Design for Political Science	9
84-267	Data Science for Political Science	9
84-369	Decision Science for International Relations	9
88-406	Behavioral Economics @ Work	9
88-418	Negotiation: Strategies and Behavioral Insights	9
88-419	International Negotiation	9
88-435	Decision Science and Policy	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.

Complete two courses		Units
05-413	Human Factors	9
08-200	Ethics and Policy Issues in Computing	9

16-161	ROB Freshman Seminar: Artificial Intelligence and Humanity	9
17-224	Influence, Persuasion, and Manipulation Online	9
36-200	Reasoning with Data	9
51-173	Design Center: Human Experience in Design	9
51-241	How People Work	9
51-371	Futures I	4.5
51-373	Futures II	4.5
51-382	Design Center: Design for Social Innovation	9
70-311	Organizational Behavior	9
70-321	Negotiation and Conflict Resolution	9
70-332	Business, Society and Ethics	9
70-341	Team Dynamics and Leadership	9
70-364	Business Law	6
73-102	Principles of Microeconomics	9
73-103	Principles of Macroeconomics	9
79-175	Moneyball Nation: Data in American Life	9
79-234	Technology and Society	9
79-302	Killer Robots:The Ethics, Law, and Politics of Lethal Autonomous Weapons Systems	9
80-130	Introduction to Ethics	9
80-135	Introduction to Political Philosophy	9
80-330	Ethical Theory	9
80-335	Social and Political Philosophy	9
84-266	Research Design for Political Science	9
84-267	Data Science for Political Science	9
84-275	Comparative Politics	9
84-319	Civil-Military Relations	9
84-325	Contemporary American Foreign Policy	9
84-369	Decision Science for International Relations	9
84-370	Nuclear Security & Arms Control	9
84-372	Space and National Security	9
84-373	Emerging Technologies and International Law	9
84-380	US Grand Strategy	9
84-386	The Privatization of Force	9
84-387	Remote Systems and the Cyber Domain in Conflict	9
84-389	Terrorism and Insurgency	9
84-390	Social Media, Technology, and Conflict	9
84-405	The Future of Warfare	9
88-221	Markets, Democracy, and Public Policy	9
88-406	Behavioral Economics @ Work	9
88-418	Negotiation: Strategies and Behavioral Insights	9
88-419	International Negotiation	9
88-435	Decision Science and Policy	9

Faculty

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