Logic

Logical reasoning is essential in most areas of human inquiry. The
discipline of Logic treats logical reasoning itself as an object of
study. Logic has been one of the main branches of philosophy since
Aristotle; it revolutionized the foundations of mathematics in the 20th
century; and it has been called “the calculus of computer science,” with
applications in many areas. Logic has also played an important role
in the investigation of language and the mind, as the basis for formal
semantics in linguistics and automated reasoning in artificial intelligence.

With these interdisciplinary connections, Logic serves as a bridge
between the humanities and STEM (Science, Technology, Engineering,
and Mathematics) fields. Studying logic enhances students’ abilities to
reason and argue rigorously, to read and write analytically, to discern
patterns amidst complexity, and to understand abstract structures. The
Logic Minor (offered through the Philosophy Department) consists of
three core courses in symbolic logic, which may be pursued in parallel
tracks within Philosophy or Mathematics, plus a choice of three upper
division electives from an array of courses in Philosophy, Mathematics,
Linguistics, and Computer Science. This minor is currently open to
students in the College of Letters & Science.

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logic, which may be pursued in parallel tracks within Philosophy or
Mathematics, plus a choice of three upper division electives from a list
of courses across Philosophy, Mathematics, Linguistics, and Computer
Science.

Course Requirements for Logic Minors

<table>
<thead>
<tr>
<th>Introductory</th>
<th>PHILOS 12A Introduction to Logic</th>
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<tr>
<td></td>
<td>or MATH 55 Discrete Mathematics</td>
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<tr>
<th>Mathematical Logic</th>
<th>PHILOS 140A Intermediate Logic</th>
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<td>or MATH 125A Mathematical Logic</td>
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<table>
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<tr>
<th>Computability and Logic</th>
<th>PHILOS 140B Intermediate Logic</th>
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<td>or MATH 136 Incompleteness and Undecidability</td>
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| Electives: Choose Three | 10-12 |

At least two of these electives must be at the undergraduate level
(unless an exception is granted by petition to the Logic Minor
Committee). Note also that undergraduate enrollment in graduate
seminars requires the consent of the instructor.

- COMPSCI 172 Computability and Complexity
- LINGUIS 121 Logical Semantics
- LINGUIS 221 Advanced Logical Semantics
- MATH 135 Introduction to the Theory of Sets
- MATH 225A Metamathematics
- MATH 225B and Metamathematics
- MATH 227A Theory of Recursive Functions
- MATH 229 Theory of Models
- MATH 235A Theory of Sets
- MATH 236 Metamathematics of Set Theory
- PHILOS 134 Form and Meaning
- PHILOS 142 Philosophical Logic
- PHILOS 143 Modal Logic

Students may optionally fulfill (at most) one of their electives with a
course on related formal methods and reasoning, or other courses
approved by petition: PHILOS 141, PHILOS 148, and COMPSCI 188.

1 Please note that PHILOS 140A and PHILOS 140B are typically not
offered in the same academic year, but rather in alternate years.
Also note that MATH 125A and MATH 136 may have additional
prerequisites, determined by the instructor.

2 LINGUIS 121 requires LINGUIS 120 as a prerequisite.

3 The Logic Minor Committee will decide which instances of
PHILOS 290 count as “Graduate Seminars in Logic” for the Logic
Minor.

Please note: It is a policy of the College of Letters & Sciences that no
more than one upper-division course may be included in both your minor
and major program.