

PHIL 2120: Methods of Reasoning

Course Description

Designed as an introduction to formal logic, this course lays the foundation for methods of reasoning and skills of deduction. Students will begin with a general approach to arguments and logic by considering truth, validity, what makes an argument good, when we can recognize arguments, and how we make them ourselves. From here, the course moves students into the formal techniques of propositional and predicate logic, which is the core focus of this course. Students should expect to be challenged, but to walk away with a better understanding of the formal structure of arguments, and deduction and inference skills that can be broadly applied.

Course Objectives

By the end of the course students will:

- Be able to form and recognize formal arguments.
- Understand valid arguments via truth tables.
- Have an introductory grasp of both propositional and predicate logic.
- Have an introduction to formal proofs.

Required Texts

1. [*Logic: A complete introduction*](#), Siu-Fan Lee
2. Other texts, provided as PDFs

Course Points

Assignment	Points Possible	Assignment	Points Possible
Test #1	20	Exercises	20
Test #2	20	Participation	10
Final Exam	30	<i>Total:</i>	<i>100</i>

Course Assignments

1. *Homework Exercises*: Students will be assigned exercises after every class. See course website.
2. *In-Class Exercises*: These exercises are meant to be collaborative work, and count towards students' participation grades. These exercises are graded on completion, only.
3. *Tests & Final Exam*: There are three tests for this course, multiple choice and short answer. The first two tests **are not** cumulative, the final exam **is** cumulative.

Extra Credit & Late Policy: Extra credit is not provided for this course. Homework assignments will be deducted .5 point per day late, **up to 5 days after the deadline**. Tests can only be made up with an excused absence.

Course Schedule

<i>Week</i>	<i>Dates</i>	<i>Topics</i>
1	August 31 st - September 6 th	Introduction to Logic & Arguments
2	September 7 th - September 13 th	Good Arguments, Truth, & Validity
3	September 14 th - September 20 th	Fallacies & Unclear Expressions
4	September 21 st - September 27 th	Propositions & Syntactical Elements
5	September 28 th - October 4 th	Test #1
6	October 5 th - October 11 th	Propositional Logic: Connectives
7	October 12 th - October 18 th	Propositional Logic: Truth Tables
8	October 19 th - October 25 th	Propositional Logic: Translating Language
9	October 26 th - November 1 st	Test #2
10	November 2 nd - November 8 th	Introduction to Natural Deduction Proofs
11	November 9 th - November 15 th	Introduction to Predicate Logic
12	November 16 th - November 22 nd	Translating Whole Arguments
13	November 23 rd - November 29 th	Thanksgiving Break
14	November 30 th - December 6 th	Flex Week (Epistemology & Phil of Language)
15	December 7 th - December 13 th	Finals Review
16	December 14 th - December 20 th	Finals Week

Course Readings & Assignments

All readings are due for the date of the class they are listed under; all assignments are due **before the start of the **following** class, unless otherwise stated.*

September 1st

- Topics: What is logic? What is an argument?
- Readings: None
- Assignments: None

September 3rd

- Topics: Discovering arguments, deductive vs. inductive reasoning
- Readings: *Logic*, Chapter 1, pgs. 1-13
- Assignments: Exercise #1, see course site

September 8th

- Topics: Good arguments, the metaphysical question of truth
- Readings: "Truth" [PDF]
- Assignments: Exercise #2, see course site.

September 10th

- Topics: Valid arguments, argument structures, sound & cogent arguments
- Readings: *Logic*, Chapter 1, pgs. 13-25

SAMPLE SYLLABUS

- Assignments: Exercise #3, see course site

September 15th

- Topics: Unclear expressions
- Readings: *Logic*, Chapter 2, 27-37
- Assignments: Exercise #4, see course site

September 17th

- Topics: Fallacies
- Readings: *Logic*, Chapter 3
- Assignments: Exercise #5, see course site

September 22nd

- Topics: Propositions, sentences, and statements
- Readings: *Logic*, Chapter 2, 38-62
- Assignments: Exercise #6, see course site

September 24th

- Topics: Logical connectives, converting language into symbolic form
- Readings: *Logic*, Chapter 5, 173-214
- Assignments: Exercise #7, see course site

September 29th

- Topics: Test review, weeks 1-4
- Readings: None
- Assignments: Come prepared with questions!

October 1st

- **Test #1**

October 6th

- Topics: Propositional logic, introducing truth tables, logical connectives
- Readings: *Logic*, Chapter 5, 173-208
- Assignments: Exercise #8, see course site

October 8th

- Topics: Propositional logic, truth tables, continued
- Readings: *Logic*, Chapter 5, 173-208
- Assignments: Exercise #9, see course site

October 13th

- Topics: Propositional logic, translating ordinary language into truth tables
- Readings: *Logic*, Chapter 5, 209-215
- Assignments: Exercise #10, see course site

SAMPLE SYLLABUS

October 15th

- Topics: Propositional logic, translating ordinary language into truth tables, continued
- Readings: *Logic*, Chapter 5, 209-215
- Assignments: Exercise #11, see course site

October 20th

- Topics: Propositional logic, using truth tables to test for validity
- Readings: *Logic*, Chapter 5, 215-249
- Assignments: Exercise #12, see course site

October 22nd

- Topics: Propositional logic, using truth tables to test for validity, continued
- Readings: *Logic*, Chapter 5, 215-249
- Assignments: Exercise #13, see course site

October 27th

- Topics: Test review, weeks 6-9
- Readings: None
- Assignments: Come prepared with questions!

October 29th

- **Test #2**

November 3rd

- Topics: Introduction to natural deduction, rules of inference
- Readings:
 - *Logic*, Chapter 5, 173-261 (173-249 is review)
 - “Natural Deduction” [PDF]
- Assignments: Exercise #14, see course site

November 5th

- Topics: Introduction to natural deduction, rules of inference, continued.
- Readings:
 - *Logic*, Chapter 5, 173-261 (173-249 is review)
 - “Natural Deduction” [PDF]
- Assignments: Exercise #15, see course site

November 10th

- Topics: Introduction to predicate logic
- Readings: *Logic*, Chapter 6
- Assignments: Exercise #16, see course site

November 12th

- Topics: Introduction to predicate logic, continued.

SAMPLE SYLLABUS

- Readings: *Logic*, Chapter 6
- Assignments: Exercise #17, see course site

November 17th

- Topics: Translating whole arguments
- Readings: None
- Assignments: Exercise #18, see course site

November 19th

- Topics: Translating whole arguments
- Readings: None
- Assignments: Exercise #19, see course site

November 24th

- No Classes, Thanksgiving Break

November 26th

- No Classes, Thanksgiving Break

December 1st

- Topics: **FLEX WEEK** - Sneak peek: Logic & Epistemology
- Readings: TBD
- Assignments: None

December 3rd

- Topics: **FLEX WEEK** - Sneak peek: Applied Logic
- Readings: TBD
- Assignments: None

December 8th

- Topics: Final Exam review, weeks 6-8
- Readings: None
- Assignments: Come prepared with questions!

December 10th

- Topics: Final Exam review, weeks 10-12
- Readings: None
- Assignments: Come prepared with questions!

Finals Week

- Final Exam