

Philosophy 31 – Logic, First Course

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Course Description:

This course focuses on sentential (propositional) logic and (monadic and polyadic) predicate logic (quantificational logic). No prior logic or mathematics training will be assumed. We will learn propositional connectives and their semantics as given by truth tables, translate natural language sentences to symbolic formulas (and vice versa), and engage in deductive reasoning by analyzing natural language texts, assessing (in-)validity, and doing formal derivations.

Course Resources:

- We will use selections from the following texts (which will be made available on BruinLearn):

Kalish, D., & Montague, R. (1964). *Logic: Techniques of formal reasoning*. Harcourt, Brace and World.

Parsons, T. (2013). *An Exposition of Symbolic Logic with Kalish-Montague Derivations*.

Gamut, L. T. F. (1991). *Logic, language, and meaning*. University of Chicago Press.

Baronett, S. (1980). *Logic*. Oxford University Press.

- We will use Logic 2010 (The following section is copied from previous syllabi):

The program is available to students of this class for free by downloading an installer from the LOGIC 2010 Download Page, which is accessible from the LOGIC 2010 Portal at:

<https://logiclx.humnet.ucla.edu/>

Any necessary updates are handled automatically. The program will be available in the CLICC labs and in the CDH lab as well as on the CLICC virtual desktop. It can also be used at home or in the dorms. The program runs on Macs and PCs and other devices through the CLICC virtual desktop. Work completed on the computer is saved, and is submitted over the Internet to a course database. Once you have submitted work, you will be able to view your submissions, as well as all assignments, on your own Student Website, also accessible from the portal at the above address. (Access to the Students' Website requires that you be "Registered" in the LOGIC 2010 database.) You may access the Students' Website from within the program by clicking on "Assignments."

Feel free to download the program and play with it. Detailed instructions for installing and starting are available in the document "Installing, Starting, Registering, and Backing Up in LOGIC 2010," which is linked to the download page. You will also find the document, "Using LOGIC 2010" to be a useful guide. Both documents are available on the course website.

Exams will use the same computer program that you will use to do your home-work. BUT—most of the error messages provided by the program will be disabled during exams. We will provide practice exams to give you an indication of the difficulty of the exam and to give you practice in solving problems with the diminished level of feedback that you will see in Exam Mode.

Academic Integrity: Plagiarism is a serious offense that will be dealt with in accordance with university policy, which you are expected to be familiar with. For information about academic integrity at UCLA, see the Dean of Student's Site on Academic Integrity:

<https://deanofstudents.ucla.edu/academic-integrity>

Grading:

1st Midterm Exam: 15%

2nd Midterm Exam: 20%

Final Exam: 40%

Homework: 15%

Section and Class Participation: 10%

Weekly Schedule:

Week 1

➔ **Propositional Connectives, Truth Table Semantics, Necessary vs. Sufficient Conditions**

➔ **Translations**

Kalish & Montague:

Chapter I: 'NOT' and 'IF'

Section 1. Symbols and sentences

Section 2. From symbols to English and back

pp. 1-13

Chapter II: 'AND', 'OR', 'IF AND ONLY IF'

Section 1. Symbols and sentences

Section 2. Translation and symbolization

pp. 50-59

Gamut:

Chapter 1: Introduction **pp. 1-25**

Chapter 2: Propositional Logic **pp. 28-58**

Baronett:

Chapter 11: Legal Arguments **pp. 555-587**

Week 2

→ Validity, Truth Tables of Arguments, Derivations

Kalish & Montague:

Chapter I:

Section 3. Derivability and validity of symbolic arguments

Section 4. Validity of English arguments

Section 5. Fallacies

Section 6. Theorems

Section 7. Historical remarks

pp. 13-46

Chapter II:

Section 3. Inference rules and derivability

Section 4. Theorems with unabbreviated proofs

Section 5. Abbreviated derivations

Section 6. Theorems with abbreviated proofs

Section 7. Arguments

Section 8. Truth-value analysis of sentences

Section 9. Truth-value analysis of arguments

Section 10. Historical remarks

pp. 59-107

Baronett:

APPENDIX A: The LSAT and Logical Reasoning **pp. 689-720**

Week 3

→ 1st Midterm

→ Starting Quantifier Logic

Parsons:

Chapter Three: Name letters, Predicates, Variables and Quantifiers

Section 1. Name Letters and Predicates

Section 2. Quantifiers, Variables, and Formulas

Section 3. Scope and Binding

Section 4. Meanings of the Quantifiers

Section 5. Symbolizing Sentences With Quantifiers

5A. Categorical Sentences

5B. Complex Categorical Forms

pp. 1-14

Chapter Four: Many-Place Predicates

Section 1. Many-Place Predicates

Section 2. Symbolizing Sentences Using Many-Place Predicates

pp. 1-5Gamut:Chapter 3: Predicate Logic **pp. 65-83****Week 4****→ Quantifier Logic Cont'd: Translations, Models & Invalidity**Parsons:

Chapter Three:

Section 5C “Only”

Section 5D Relative Clauses

Section 5E Implicit Universal Quantifiers

pp. 14-18

Section 10. Invalidities

Section 11. Expansions

pp. 40-48

Chapter Four:

Section 9. Showing Invalidity

Gamut:

Chapter 3: Predicate Logic **pp. 83-103**

Week 5

➔ **2nd Midterm**

➔ **Quantifier Logic Cont'd: Derivations**

Parsons:

Chapter Three:

Section 6. Derivations with Quantifiers

Section 7. Universal Derivations

Section 8. Some Derivations

Section 9. Derived Rules

pp. 19-39

Chapter Four:

Section. 3 Derivations

Section 10. Counter-Examples with Infinite Universes

Week 6

➔ **Review**

➔ **Pragmatics and issues about natural language**

➔ **Final exam**

Gamut:

Chapter 6: Pragmatics: Meaning and Usage **pp. 195-214**

Kaplan, D.

“The meaning of ouch and oops: Explorations in the theory of Meaning as Use” **pp. 1-32**

Grice, H. P.

“Logic and Conversation” **pp. 41-58**

