Introduction to Logic

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Class time: Tuesday & Thursday, 12:00-2:00 pm
Office Hours: Tuesday & Thursday 4-5pm
Office: B5A, Mudd Hall of Philosophy (MHP)

Course Description

This is an introductory course on logic and critical thinking. We will cover the basics, starting from a definition of arguments and argument structure and ending with a study of sentential logic. Knowledge of mathematics or philosophy is not required.

To understand logic, one must practice a lot. This class will provide you with the tools required for good thinking, and every student will succeed at the task, if everyone does her homework every time. If you need help with an exercise, come to office hours and post it online on the discussion page. If you are wondering about it, chances are others will have the same problem. I will check the website periodically for open questions, but chances are that your colleagues will be quicker than me. If you simply cannot solve one exercise, it is no tragedy. But ask about it in class, if all else fails. Just make sure that you do not let anything remain unsolved; your exam will seem much easier this way.

To assist with the homework assignments, we will use a computer program, LOGIC 2010, designed to accompany the textbook. This program alerts you when a mistake has been made. The biggest advantage is that you can work on a problem until it is correctly solved. So you can submit only correct answers, if you work diligently enough.

Course Requirements and Grading Policy

Students are expected to attend all lectures and sections. The following are the components of the grade:

- 12 homework assignments, each worth 4% of your grade (The homework assignments will be distributed in class on Thursdays every week, and are due the following Wednesday at 12 pm).
- 2 midterm exams, each worth 15% of your grade
- 1 final exam, worth 22% of your grade

The exams are scheduled as follows:

  First Midterm: 9/23, during regular meeting time.
  Second Midterm: 10/21, during regular meeting time.
  Final exam: 12/9, from 4:30 to 6:30.
Books and Software

We will be using the book *An Introduction to Symbolic Logic*, by Terence Parsons. This is an online book, available for free at:

http://www.humnet.ucla.edu/humnet/phil/faculty/tparsons/Logic Text

The textbook is designed to be used along with the UCLA Logic2010 logic program, and we will be using it – for lectures and homeworks. For download instructions check:

http://logic2k.humnet.ucla.edu/download.html.

There are separate packages for Windows and Mac OS X.

Course Topics

The following schedule of topics may be changed if necessary. You will be notified of any changes, and the new syllabus will be posted online – on Blackboard and on my webpage.

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<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
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<tr>
<td>Week 1</td>
<td>08/24</td>
<td>What is Logic? Basic Argument Structure</td>
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<td>Deductive vs. Inductive Reasoning</td>
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<td>Truth and Validity</td>
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<td>8/26</td>
<td>Logical Fallacies – analyzing arguments in view of these errors of reasoning</td>
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<td>Homework 1 assigned.</td>
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<td>Week 2</td>
<td>8/31</td>
<td>Logical Fallacies (ctd.)</td>
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<td>Basic Steps for Writing a Critical Essay on a Given Issue</td>
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<td>9/2</td>
<td>Propositional Logic; Logical Form</td>
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<td>Symbolic Notation: Sentential Logic with ‘if’ and ‘not’</td>
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<td>Homework 2 assigned.</td>
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<td>Week 3</td>
<td>9/7</td>
<td>Meanings of the Symbolic Notation</td>
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<td>Symbolization: translating complex sentences into symbolic notation</td>
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<td>9/9</td>
<td>Symbolization: exercises</td>
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<td>Demonstration of how to use the Logic2010 program</td>
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<td>Homework 3 assigned.</td>
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<td>Week 4</td>
<td>9/14</td>
<td>Rules of inference</td>
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<td>9/16</td>
<td>Direct derivations</td>
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<td>Homework 4 assigned.</td>
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<td>Week 5</td>
<td>9/21</td>
<td>Direct derivations (ctd.)</td>
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<td>9/23</td>
<td>First Midterm</td>
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<td>Week 6</td>
<td>9/28</td>
<td>Conditional derivations</td>
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<td>Week</td>
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| Week 6     | 9/30   | Indirect derivations  
Homework 5 assigned.                                                    |
| Week 7     | 10/5   | Subderivations  
10/7: Shortcuts (in derivations)  
Homework 6 assigned |
| Week 8     | 10/12  | Introducing Theorems of the Systems for the Logic of ‘if ... then’ and ‘not’  
Proving Theorems  
10/14: Using previously proved theorems in derivations  
Homework 7 assigned |
| Week 9     | 10/19  | Propositional Logic with ‘and’, ‘or’, ‘if-and-only-if’  
Symbolic notation  
10/21: Second Midterm |
| Week 10    | 10/26  | English equivalents of the connectives  
Complex sentences  
10/28: Complex sentences (ctd).  
Symbolization exercises  
Homework 8 assigned |
| Week 11    | 11/2   | Rules of inference  
Some derivations using rules S, Adj, Cb  
11/4: Derivations (ctd).  
Abbreviating derivations  
Homework 9 assigned |
| Week 12    | 11/9   | Using theorems as rules  
11/11: Derived rules  
Homework 10 assigned |
| Week 13    | 11/16  | Official conditions for derivations  
11/18: Truth tables and tautologies  
Homework 11 assigned |
| Week 14    | 11/23  | Tautological implication  
11/25: Thanksgivings’ Day (holiday) |
| Week 15    | 11/30  | Tautological implication (ctd.)  
12/2: Review session  
Homework 12 assigned. |
| Final exam | 12/9   | 4:30-6:30. |