LOGIC
PHIL 230 (3 hrs), Manchester College, Fall 2011

Instructor: Dr. Steve Naragon, Office: Ad Bldg., #231c (Phone — office: 982-5041; home: 982-6033)

Required Text: Hurley, A Concise Introduction to Logic, 11th ed. (Wadsworth Publ., 2008). This should include the CD-ROM: “Learning Logic” (this is a tutorial of the entire book, arranged by chapter-sections and with new practice problems.

Course Objectives. This course has the highly practical aim of improving your ability to think clearly. Specifically, by the end of the semester you should have improved your abilities to: (1) identify arguments from other kinds of discourse, and separate what is relevant to an argument from what is not; (2) evaluate arguments in a reasoned and constructive way (as opposed to merely disagreeing with their conclusions); and (3) construct your own arguments that are clearly stated and free of fallacies.

On the more theoretical side, you will become familiar with different forms of deductive and inductive logic. Deductive forms include terminal (or syllogistic), propositional (or statement or sentential), and quantified predicate logics. Inductive forms include analogical, causal, statistical, and hypothetical, and includes work on calculating the probability of simple and compound events.

This will be, at times, a strenuous journey, but one not without rewards, perhaps the finest being the opportunity to contemplate beauty in its purest form. It also boosts your LSAT and GRE scores, for whatever that’s worth.

Requirements

Attendance. The occasional student will be able to master this material simply by working through the text and the computer tutorial, but most students will need some help from class in order to fully understand what’s going on. Apart from that, I will try to make class amusing.

Most class sessions will consist of four parts: (1) a brief quiz on the material discussed the previous day, (2) an explanation of the new material for that day, (3) a consideration of one or two practice exercises, and (4) a review of homework exercises (either orally or on the board). You should come to class each day having completed your homework to the best of your ability, and prepared to ask questions regarding concepts or homework you didn’t understand.

Exams. There will be four non-cumulative exams. [Makeup: Exams missed due to an excused absence are to be taken as soon as possible or else will be forfeited. It is your responsibility to see me about this.]

Quizzes. There will be a brief quiz nearly every day, given at the beginning of class, on material discussed the day before. [Makeup: Missed quizzes can be made up in my office the following day or at the beginning of the next class session; it is your responsibility to make this arrangement.]

Homework. I assign homework with each section. I will not be picking up this homework, but you must get in the habit of working it out on paper prior to class. Part of each class will involve working through this homework, either orally or on the board. If you neglect your homework, then you will find yourself unable to participate properly in class, you will be grossly under-prepared for the exams, and you will either fail the course, or else withdraw or wish you had. It will not be pleasant.

I have tried to assign just enough homework so that you understand the necessary concepts, learn the basic skills, and then have repeated them enough to get them well stuck in your head. If you honestly believe that you have mastered the material before finishing the homework set, then there is no reason to keep working through the remaining exercises. If you work through the text, the tutorial CD, the homework exercises and participate in class, you will almost certainly do quite well in this class.

Grading. The four exams are worth a total of 80% (22%, 14%, 22%, 22%); the set of quizzes is worth 20%. I use the following letter grade conversion scale: A (94-100), A- (90-93), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), F (0-59).

Weekly Work Schedule

<table>
<thead>
<tr>
<th>Wed, Aug 31</th>
<th>Overview of Logic</th>
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1: Basic Concepts

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<tr>
<th>Fri, Sep 2</th>
<th>1.1… Premise/Inference/Conclusion</th>
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<tbody>
<tr>
<td>1.1/I: 1-15; II: 2, 3, 5, 6; III: 1-10 (definitions); IV: 1-10</td>
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<tr>
<th>Mon, Sep 5</th>
<th>1.2… Recognizing Arguments</th>
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<tbody>
<tr>
<td>1.2/I: 1-15; IV: 1-11 (definitions); V: 1-10; VI: 1-10</td>
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<tr>
<th>Wed, Sep 7</th>
<th>1.3… Deduction and Induction</th>
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<tbody>
<tr>
<td>1.3/I: 1-20; III: 1-15; Bring to class: 1.3/IV</td>
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<tr>
<th>Fri, Sep 9</th>
<th>1.4-1.5… Validity and Invalidity</th>
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<tbody>
<tr>
<td>1.4/I: 1-10; II: 1-10; III: 1-10; IV (definitions); V: 1-15</td>
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<td>1.5/I: 1-5</td>
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<tr>
<th>Mon, Sep 12</th>
<th>1.6… Extended Arguments</th>
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<td>1.6/I: 1-10</td>
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<tr>
<th>Wed, Sep 14</th>
<th>1.6… Extended Arguments (cont.)</th>
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<tr>
<td>1.6/I: 1-12; Bring to class: 1.6/III</td>
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2: Language

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<tr>
<th>Fri, Sep 16</th>
<th>2.1-2.2… The Meaning of Words</th>
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<tr>
<td>2.1/I: 2, 3, 5, 6, 8; III: 1-10</td>
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<tr>
<td>2.2/I: 1-5, II: 1-10</td>
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<tr>
<td>Bring to class: 2.2/4.5</td>
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3: Informal Fallacies

Mon, Sep 19
3.1-3.2... of Relevance
  3.1/ I: 1-10
  3.2/ I: 1-15; II: 1-10
Bring to class: an example of one of the featured fallacies from a newspaper (e.g., editorial) or a blogsite.

We, Sep 21
3.3... of Weak Induction
Bring to class: an example of one of the featured fallacies from a newspaper (e.g., editorial) or a blogsite.

Fri, Sep 23
3.4... of Presumption, etc.
Bring to class: an example of one of the featured fallacies from a newspaper (e.g., editorial) or a blogsite.

Mon, Sep 26
3.5... Fallacies in Ordinary Language
  3.5/ I: 2, 5, 6, 8, 9, 12, 32, 33, 42, 48

9-13: Induction

Fri, Sep 30
9.1-9.3... Analogical Reasoning
  9/ II: 2, 3, 5, 9, 12

Mon, Oct 3
10.1-10.3... Determining Causality
  10/ I: 1-10; II: 1-5; III: 1-5

Wed, Oct 5
11.1-11.2... Probability
  11/ I: 1-10; II: 1-10, 15

Fri, Oct 7
11.2... Probability: Bayes’s Theorem
  11/ II: 17, 20

Mon, Oct 10
12.1-12.6... Statistical Reasoning

Wed, Oct 12
13.1-13.4... Hypothetical Reasoning

Fri, Oct 13
2nd Exam

Mon, Oct 17... Fall Break

4: Categorical Propositions

Wed, Oct 19
4.1-4.2... Quality, Quantity, Distribution
  4.1/ I: 1-8
  4.2/ I: 1-8; II: 1-4; III: 1-4; IV: 1-4

Fri, Oct 21
4.3... Venn Diagrams

Mon, Oct 24
4.4... Licit Inferences
  4.4/ I: 1-12, II: 1-3, III: 1-10

Wed, Oct 26
4.5... Square of Opposition
  4.5/ I: 1-5; II: 1-5; III: 1-10; IV: 1-20;
  VI: 1-10

Fri, Oct 28
4.6-4.7... Translation
  4.6/ I: 1-10; II: 1-10
  4.7/ I: 1-30

5: Syllogisms

Mon, Oct 31
5.1... Standard Form, Mood & Figure
  5.1/ I: 1-5; II: 1-5; III: 1-5; V: 1-10

Wed, Nov 2
5.2... Venn Diagrams
  5.2/ I: 1-10; II: 1-5; III: 1-10

Fri, Nov 4
5.3-5.4... Rules
  5.3/ I: 1-10; II: 1-5; III: 1-10
  5.4/ I: 1-5

Mon, Nov 7
5.5-5.6... Enthymemes
  5.5/ 2, 3, 5, 6, 8, 9
  5.6/ I: 2, 3, 5, 6, 8; II: 2, 3, 5, 6

Wed, Nov 9
3rd Exam

6: Propositional Logic

Fri, Nov 11
6.1... Symbols & Translations
  6.1/ I: 1-40; III: 1-10

Mon, Nov 14
6.2... Truth Functions
  6.2/ I: 1-10; II: 1-10; III: 1-15, IV: 1-10

Wed, Nov 16
6.3-6.4... Truth-Tables
  6.3/ I: 1-5; II: 1-5; III: 2, 3
  6.4/ II: 1-5

Fri, Nov 18
6.5... Indirect Truth-Tables
  6.5/ I: 1-10; II: 1-5; III: 1-5

Mon, Nov 21
6.6... Argument Forms
  6.6/ I: 1-20; II: 1-10; III: 2, 6, 9

Wed/Fri, Nov 23-25... Thanksgiving

7: Natural Deduction

Mon, Nov 28
7.1... Implication Rules I
  7.1/ I: 1-10; II: 1-10, 14

Wed, Nov 30
7.2... Implication Rules II
  7.2/ I: 1-10; II: 1-10; III: 1-10

Fri, Dec 4... No Class

Mon, Dec 5
7.3-7.4... Replacement Rules
  7.3/ I: 1-5; II: 1-10; III: 1-5, 21-25
  7.4/ I: 1-10; II: 1-10; III: 1-10

Wed, Dec 7
7.5-7.6... Conditional & Indirect Proof
  7.5/ I: 1-10; II: 2, 3
  7.6/ I: 1-10; II: 3, 5

Fri, Dec 9
7.7... Proving Logical Truths
  7.7/ I: 1-5

Finals Week

4th Exam