**Philosophy 407 – Seminar: Advanced Symbolic Logic**

Spring 2015  
Noon-1:50 Tuesday and Thursday  
105 Fenton

**Instructor:** Professor Scott Pratt  
**Office Hours:** 2:00-3:00 W and By appointment.  
**Office:** 237 Susan Campbell Hall  
**Phone:** 541.346.2800  
**e-mail:** spratt@uoregon.edu

---

**Course Description:**

This course will study classical and non-classical logics using *An Introduction to Non-Classical Logic* (Second Edition) by Graham Priest and a variety of supplementary readings. The first four weeks will be an accelerated review of propositional and predicate logics using the 'tableaux' proof method and the introduction of basic modal logic. We will then consider the “non-normal” logics of strict implication, conditional logics, many-valued logics, and first degree entailment. We will conclude by considering constant and variable domain logics. Throughout the course we will also consider the philosophical issues raised by (and also motivating) these diverse logics. The course may be taken for a grade or P/NP.

**PREREQUISITE:** PHIL 325, Logic, Argument, and Inquiry or Equivalent.

**Required Text** (available at the UO bookstore):


Additional readings will be available on reserve.

**Course Requirements:**

**Problem Sets:** There will be eight problem sets due at the end of class on the date indicated in the schedule of topics and assignments below. Each Tuesday class will begin with a review of the problems for the day during which you may correct or complete problems that gave you difficulty. Since there will not be time to review all problems, you should come to class with all problems attempted and be prepared to discuss both the problems that were easily completed and those that were not.

**Participation:** All students will be expected to present answers to the problem sets on the board for the class. This practice will provide an opportunity to work collaboratively on the assigned problems, to learn strategies for problem solving, and discuss related philosophical considerations raised by the particular logic at issue.

**Quizzes:** There will be three quizzes given in class on the dates listed in the schedule. The quizzes will be open book but will be comparable to problem set questions.

**Take Home Final:** The final exam will be focus on the philosophical issues raised over the course of the term and several proofs. The exam will be uploaded to the course Blackboard site by Monday, June 10, at 5:00 pm.

**Course Objectives**

By the end of this course and successful completion of all course requirements, the student will at least be able to do all of the following:

- explain various motivations for using formal languages as a means of studying about necessity and possibility,
- have a good working knowledge of propositional and predicate logics,
- understand the philosophical conceptions of necessity, possible worlds, and paraconsistency,
- compare the notions of soundness and completeness, and summarize soundness and completeness proofs for classical and non-classical logics,
- compare and contrast various non-classical logics, and summarize various philosophical motivations and applications for these logics.

**Grading:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Sets (8)</td>
<td>48%</td>
</tr>
<tr>
<td>Participation</td>
<td>12%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15%</td>
</tr>
<tr>
<td>Take-Home Final</td>
<td>25%</td>
</tr>
</tbody>
</table>
Grading Standard:

A = excellent. No mistakes, well-written, and distinctive in some way or other.
B = good. No significant mistakes, well-written, but not distinctive in any way.
C = OK. Some errors, but basic grasp of the material.
D = poor. Several errors. A tenuous grasp of the material.
F = failing. Problematic on all fronts indicating either no real grasp of the material or complete lack of effort.

In order to receive a ‘P’ grade, you must receive a grade of ‘C’ or higher. Improvement in participation and written work will count positively in calculating your final grade.

Statement on Plagiarism: Plagiarism is grounds for failing the course. For more information, see: http://www.libweb.uoregon.edu/guides/plagiarism/students/.

Accommodation for a Disability: If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me soon.
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Readings/Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>March 31</td>
<td>Introduction</td>
<td><strong>Discussion</strong>: Background of propositional, predicate and modal logics. Review of the rules of propositional logic and the use of the Tableau method of proofs.</td>
</tr>
</tbody>
</table>
|      | April 2 | Review of Propositional Logic| **Practice Problem Set Due**: Practice Problems in Propositional Logic (Handout)  
**Reading**: Priest, Chapter 1 |
| 2    | April 7 | Review of Predicate Logic    | **Problem Set Due**: 1.14.1  
**Reading**: Priest, Chapter 12. |
|      | April 9 | Workshop on Propositional and Predicate Calculus | |
| 3    | April 14| Basic Modal Logic            | **Problem Set Due**: 12.10.2, 3, 5 (a, b, d, f), 6 (a, b, d) & 7  
**Reading**: Priest, Chapter 2.  
**Discussion**: System K and “Normal Worlds” |
|      | April 16| Workshop on Basic Modal Logic| |
| 4    | April 21| Normal Modal Logics          | **Quiz**  
**Problem Set Due**: 2.12.2 (b, d, f, h, j, l, n, p, r, s, v)  
**Reading**: Lewis, Alternative Systems of Logic.  
**Discussion**: Alternative Systems |
|      | April 23|                              | **Reading**: Priest, Chapter 3.  
**Discussion**: Normal Modal Logics. |
| 5    | April 28| The Meaning of Possible Worlds| **Problem Set Due**: 3.10.2 (l, n, p, r, s, v), 3 (a, c, e), 4 (a), 5 (a, b, c) & 6 (a, b).  
**Discussion**: The meanings of possible worlds. |
|      | April 30| Conditional Logics           | **Reading**: Priest, Chapters 4; C. I. Lewis, Pragmatism and Logic.  
**Discussion**: Lewis’s challenge to standard logic and the development of “non-normal” logics. |
| 6    | May 5   |                              | **Quiz**  
**Problem Set Due**: 4.13.2 (a, b, d), 3, 4, 5.  
**Reading**: Plumwood, The Politics of Reason: Towards a Feminist Logic  
**Discussion**: Logical Otherness and Possible Worlds. |
|      | May 7   |                              | **Reading**: Priest, Chapter 5  
**Discussion**: Conditional Logic. |
| 7    | May 12  | Many-Valued Logics and First Degree Entailment | **Problem Set Due**: 5.12.2 (a, c, e), 3 (a, b, c), 4 (a), & 5  
**Discussion**: Completing the problem set. |
|      | May 14  |                              | **Reading**: Priest, Chapters 7, 8, & 9  
**Discussion**: The concept of many-valued logics, entailment, and paraconsistency. |
| 8    | May 19  |                              | **Problem Set Due**: 8.10.1 & 6 (a, c, e, g, i); 9.11.2 & 4 (a, c, e, g, i), 9.11.7 & 8.  
**Reading**: Priest, What is so Bad about Contradictions?  
**Discussion**: Paraconsistency. |
|      | May 21  | Constant and Variable Domain Logics | **Quiz**  
**Reading**: Priest, Chapters 14 & 15.  
**Discussion**: Constant and Variable Domains. |
| 9    | May 26  |                              | **Problem Set Due**: 14.10.2, & 3; and 15.12.2 & 3.  
**Discussion**: Problem Set |
<table>
<thead>
<tr>
<th>Date</th>
<th>Reading</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 28</td>
<td>Kripke, Preface to <em>Naming and Necessity</em>.</td>
<td>The place of individuals in possible worlds</td>
</tr>
<tr>
<td>June 2</td>
<td>Priest, Sylvan’s Box</td>
<td>Agency and Impossible Worlds.</td>
</tr>
<tr>
<td>June 4</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td>Finals</td>
<td>Final take-home exam due on the course Blackboard by Monday, June 8, at 5:00 pm.</td>
<td></td>
</tr>
</tbody>
</table>

Note that the schedule of readings is subject to change during the quarter based on our progress through the work and developing interests. All changes will be announced in advance during class. If you have questions about the assignments, requirements, or subject matter, please let me know.