Philosophy 407 – Seminar: Advanced Symbolic Logic   Instructor: Professor Scott Pratt
Winter 2017   Office Hours: 3:00-4:00 Th and by appointment.
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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):

Graham Priest, *An Introduction to Non-Classical Logic: From If to Is* (Second Edition), Cambridge University Press, 2008.

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 dates 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 final exam must be scanned and uploaded to the Canvas site by noon, Monday, March 20.

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:

Problem Sets (8)	48%
Participation	12%
Quizzes	15%
Take-Home Final	25%

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.

Reading and Assignment Schedule
Philosophy 407—Advanced Logic

Week	Dates	Topic	Readings/Assignments
1	January 10	Introduction	Discussion: Background of propositional, predicate and modal logics. Review of the rules of propositional logic and the use of the Tableau method of proofs.
	January 12	Review of Propositional Logic	Practice Problem Set Due: Practice Problems in Propositional Logic (Handout) Reading: Priest, Chapter 1
2	January 17	Review of Predicate Logic	Problem Set Due: 1.14.1 Reading: Priest, Chapter 12.
	January 19		Workshop on Propositional and Predicate Calculus
3	January 24	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"
	January 26		Workshop on Basic Modal Logic
4	January 31	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
	February 2		Reading: Priest, Chapter 3. Discussion: Normal Modal Logics.
5	February 7	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). Reading: Meinong, "Kinds of Being,"; Quine, "On What there is" Discussion: The meanings of possible worlds.
	February 9		Reading: David Lewis, a short selection from *On the Plurality of Worlds*; Plantinga, "Actualism and Possible Worlds." Priest, Chapter 4 Discussion: The meaning of possible worlds and the system of strict conditionals.
6	February 14	Conditional Logics	Quiz. Problem Set Due: 4.13.2 (a, b, d), 3, 4, 5. Reading: C. I. Lewis, Pragmatism and Logic Discussion: Lewis's challenge to standard logic and the development of "non-normal" logics.
	February 16		Reading: Priest, Chapter 5 Discussion: Conditional Logic.
7	February 21	Many-Valued Logics and First Degree Entailment	Problem Set Due: 5.12.2 (a, c, e), 3 (a, b, c), 4 (a), & 5 Reading: Plumwood, The Politics of Reason: Towards a Feminist Logic Discussion: Logical Otherness and Possible Worlds.
	February 23		Reading: Priest, Chapters 7, 8, & 9 Discussion: The concept of many-valued logics, entailment, and paraconsistency.
8	February 28		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.
	March 2	Constant and Variable Domain Logics	Quiz. Reading**:** Priest, Chapters 14 & 15. Discussion: Constant and Variable Domains.
9	March 7		Problem Set Due: 14.10.2, & 3; and 15.12.2 & 3. Discussion: Problem Set
	March 9		Reading: Kripke, Preface to *Naming and Necessity*. Discussion: The place of individuals in possible worlds
10	March 14		Reading: Priest, Sylvan's Box Discussion: Agency and Impossible Worlds.
	March 16	Review	
Final	March 20		Final take-home exam due on the course Canvas by Monday, March 20, at noon.

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.