Logic II: introduction to non-classical logics

Dr. Jacob Archambault

Course Description

This course expands on material learned in *Logic I: classical and modal logic*. Where the first course introduced classical logic along with its modal expansions, the logics learned in this course are more naturally thought of as *rivals* of classical logics: all of them deny some of the valid consequences of classical logic, and thus imply that classical logic gets it wrong in certain cases. The course aims to introduce the student to the philosophical issues involved in these logics, while instilling technical proficiency in each of them.

Required Texts

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

Course Requirements

Homework (hurdle requirement) **–** Each week, I will select three problems (one on proof theory, one on semantics, and one in metatheory) for you to hand in. Assignments are due at the beginning of each class. Students who fail to turn in four or more problem sets automatically fail the course. In addition, at least two-thirds of all problems must be completed correctly for a passing grade.

Final Paper (50%) – Through the course, we will be reading articles, both classic and contemporary, on some of the philosophical issues to which different non-classical logics pertain. At the end of term, you are to hand in a paper engaged with some topic broached in the course. The paper may be philosophical in nature, or it may be technical.

Final Exam (50%) **–** a cumulative exam on the technical material covered in the class.

Syllabus

Week 1	Priest, ch. 6: Intuitionism I Brouwer, L. E. J. (1913/1999). Intuitionism and Formalism. *Bulletin of the American Mathematical Society* 37:1, 55-64.
Week 2	Priest, ch. 20: Intuitionism II Detlefsen, Michael (1990). Brouwerian Intuitionism. *Mind* 99:396, 501-534.
Week 3	Priest, ch. 7: Many-Valued Logics I Strawson, P. F. On Referring. *Mind* 59:235, 320-344.
Week 4	Priest, ch. 21: Many-Valued Logics II Kripke, Saul (1975). Outline of a Theory of Truth. *Journal of Philosophy* 72:19, 690-716.
Week 5	Priest, ch. 8: First Degree Entailment I Smiley, Timothy (1996). Rejection. *Analysis* 56:1, 1-9.
Week 6	Priest, ch. 22: First Degree Entailment II Rumfit, Ian (1997). The Categoricity Problem and Truth-Value Gaps. *Analysis* 57:4, 223-235.

Week 7	Priest, ch. 9: Logics with Gaps, Gluts and Worlds I Berto, Francesco (2015). A Modality Called 'Negation'. *Mind* 124:495, 761-793.
Week 8	Priest, ch. 23: Logics with Gaps, Gluts and Worlds II Thomas, Morgan (2015). A Generalization of the Routley-Meyer Semantic Framework. *Journal of Philosophical Logic* 44, 411-427.
Week 9	Priest, ch. 10: Relevant Logics I Anderson, Alan Ross, and Nuel D. Belnap, Jr. (1962). "The Pure Calculus of Entailment" *The Journal of Symbolic Logic* 27:1, 19-52.
Week 10	Priest, ch. 24: Relevant Logics II Steinberger, Florian (forthcoming). Explosion and the normativity of logic. *Mind.*
Week 11	Priest, ch. 11: Fuzzy Logics Cobreros, P. P. Egré, D. Ripley, and R. van Rooij. Tolerant, classical, strict. *Journal of Philosophical Logic* 41, 347-385.
Week 12	Priest, ch. 25: Fuzzy Logics II Alxatib, S., P. Pagin, and U. Sauerland (2013). Acceptable contradictions: pragmatics or semantics? A reply to Cobreros et al. *Journal of Philosophical Logic* 42, 619-634.
Week 13	Priest, ch. 11a: Many-Valued Modal Logics Archambault, Jacob. Powers Presentism.