

Philosophy 520A 001
PHILOSOPHY OF LOGIC
September 2016-December 2016

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Meeting location: BUCH E 276
Meeting times: TBA
Office Hours: TuTh 8:00-9:00 & 11:00-11:30

Please note that the course webpage is the same as the instructor's

WHAT IS THE COURSE ABOUT? This is a course which examines properties of philosophical interest that rise from developments in modern symbolic logic in the period from 1879 to the present day.

One question of interest is the problem of *multiplicity and strife*. It is widely held that logic's authority is supreme, that logic is that one discipline which no other may transgress. However, there is a huge multiplicity – in the hundreds at least – of formal systems that call themselves logic, many of which conflict with at least some of the others. On the face of it, this is an intellectual embarrassment. We'll examine a measure by which logicians have attempted to rehabilitate the intellectual reputability of logic. Their remedy is called *pluralism*.

A second question has to do with the *formality* of formal logic. A formal logic is one whose object language is a formal or artificial language. A formal language is a language in name only. It is a system of meaningless marks, strings thereof, and sequences of these. Properties of interest – e.g. logical truth, entailment and inconsistency – are handled in a quite particular way. They are formalized by the logic in question. Taking logical truth as an example, the logic defines some property P over its own meaningless language. The definition is precise and completely rigorous. It is then proposed that the well-defined property P formally represents the natural language property of logical truth and thereby reveals what we wanted to know about logical truth in the first place. This raises the quite general question of how formal representability is possible and how it elucidates the concept it supposedly represents. This is the *formal representability problem*.

A third example deals with *inconsistency*. Logicians hate inconsistency like the plague. Not only does a sentence's inconsistency preclude its truth, but in most systems of logic it is easily proved that if any sentence or sentence-set is inconsistent, all the system's sentences are provable, including their own negations. In other words, the system *detonates*. When this happens, it would appear that the system is completely disabled for useful (and rational) employment. One way out of this difficulty is to override the proof that causes detonation. These remedies are developed by *paraconsistent logicians*. Other approaches redefine the proof in ways that make it safe from paraconsistent rebuttal and turn instead to how theories affected by the widespread inconsistency of detonation can be put to useful and rational work. This is *the naturalized logic* solution.

WHAT IS THE COURSE'S COVERAGE? Taking first order classical logic as a given, the logics to be discussed may include intuitionist logic, relevant logic, paraconsistent logic,

preservationist logic, dialethic logic logics of paradox, and naturalized logic. Among the principal figures to be covered are Frege, Russell, Hilbert, Brouwer, Tarski, Church, Turing, Anderson and Belnap, Routley, Jaśkowski and Priest.

WHAT ARE THE REQUIRED READINGS?

- JC Beall and Greg Restall, *Logical Pluralism*, New York: Oxford University Press, 2006. Paperback, 0-19-928841-0.
- Stewart Shapiro, *Varieties of Logic*, New York: Oxford University Press, 2014.
- Attendance at all lectures in Philosophy 324 and sitting all its tests and final exam. Additionally, a major paper on a topic to be decided. Academic credit is achieved in 520 only, not 324.
- John Woods, online notes posted as needed.

ARE THERE RECOMMENDED SUPPLEMENTARY READINGS WE MIGHT CONSIDER?

- W. V. Quine, *Philosophy of Logic*, second edition, Cambridge, MA: Harvard University Press, 1986. Paperback. 0-674-66563-5.
- John P. Burgess, *Mathematics, Models and Modality: Selected Philosophical Essays*, New York: Cambridge University Press, 2008; paperback 2011.

WHAT ARE THE ASSIGNMENTS?

- First in-class test, Tuesday, 18 October, 2016. Worth 30% of the course grade.
- Second in-class test, Thursday, 17 November, 2016. Worth 30% of the course grade.
- Two-hour final examination, TBA. Worth 40% of the course grade.
- Supplementary articles, posted online as needed.
- *UBC Policy on Academic Honesty*
The University requires all students to familiarize themselves with its policy on cheating, plagiarism and other forms of academic dishonesty. Please check the UBC website or consult with the Student Advising office of your particular Faculty.

UBC Grading Chart

Marking key

A+ 90-100	A 85-89	A- 80-84
B+ 76-79	B 72-75	B- 68-71
C+ 64-67	C 60-63	C- 55-59
	F 0-49 (fail)	