PHIL 201: *Symbolic* Logic
Spring 2018

MWF 2–2:52 PM • Coleman 020

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office hours: Tuesdays 1–3 PM (or by appointment)

Course Content This course picks up roughly where PHIL 103 (Logic) leaves off and focuses on various formal, symbolic tools for evaluating deductive arguments. Part of our goal here is to increase your competence in their use, but we will also be thinking about logic *itself* as a subject worthy of study (as philosophers might study knowledge or natural language). In particular, we shall develop two distinct but related natural deduction systems and a tree-based method for propositional logic before turning to a close study of first-order predicate logic with identity (a way to knit together the insights of propositional and categorical logic). Afterwards, our attention will shift to the meta-logical properties of these formal systems themselves, including the Completeness, Soundness, and Incompleteness Theorems. Topics in the last portion of the course will be decided according to student interest; possibilities include symbolic/mathematical approaches to *inductive* logic (e.g., Bayesian conditionalization), modal logic, and "deviant" logics designed to accommodate the vagueness of natural language or the semantic paradoxes (i.e., paraconsistent logic).

Learning Goals In successfully completing this course, you should:

- Continue refining your innate logical reasoning skills.

- Develop a deep understanding of a variety of modern logical tools and their application to evaluating arguments in natural language.

- Gain an understanding of the philosophically and mathematically important properties of these tools.

Required Text & Online Platform Patrick J. Hurley & Lori Watson, *A Concise Introduction to Logic* (13th Edition) — ISBN-13: 978-1-305-95809-8 (Note: the 12th Edition is also acceptable.)

There are various bundles of this text with the online MindTap online course system; it is also possible to buy MindTap access separately (and order a loose-leaf paper copy of the text for ~$20). MindTap access is optional for this course. You may find it a useful source of practice for certain problems but I leave it to you to decide whether to purchase it (if you were in PHIL 103 last term, your previous access may still be good for a while). To access MindTap resources for our course, go here and follow the instructions:

https://studentdashboard.cengagebrain.com/#/course-confirmation/MTPQNH3P2416/initial-course-confirmation

The course schedule, grades, assignments, and further readings will be maintained on our Moodle site:

http://moodle.bucknell.edu/course/view.php?id=28475

Evaluation Your final grade will be based the various weighted components described below. Note what the different letter grades represent: according to the Course Catalog (http://www.bucknell.edu/catalog.xml), an 'A' rewards 'Superior achievement', a 'B' means 'High pass', a 'C' means 'Pass', a 'D' means 'Low pass', and an 'F' stands for 'Failing work'.

Preparation & Professionalism (15%). It is helpful to think of the standards for your engagement with the course as analogous to expectations you'd find in most professional contexts. You should show up to each class meeting on time, prepared (having carefully and critically read and annotated assigned materials), and remain present (in the expansive sense), attentive, and engaged in our discussion for the entire time. Computers, phones, tablets, and other electronic marvels should be silenced and put away unless you have prior permission from me or are instructed otherwise. I've noticed a growing trend of students wandering in and out of the room during class periods. This is not okay; practice PPP (Proactive Potty Planning). If an actual bodily emergency forces you to leave, please be quick.

Homework (15%). Homework will be graded for effort/completion. The idea here is that the best way for you to master this material is to work with it yourself but that doing so will sometimes involve failure / frustration. Thus, for most class meetings, I will assign a range of required and suggested problem for you

to try in your notebook. On a roughly weekly basis, I will request to see your progress in class (I will not ask that you hand in anything) and assign a 0, 1, 2, or 3 according to the following scheme: 2: satisfactory/sufficient effort put in to required problems; 1: more effort required; 3: unusual effort/engagement demonstrated (e.g., by doing many of the suggested problems); 0: no/minimal effort demonstrated. At the end of the term, I will drop your lowest two scores and average the rest. An average of 2.0 will earn full credit for this portion of your grade. Higher averages will dispose me to bump borderline final grades.

Quizzes (30%). There will be several (~3–5) 30–40 minute, non-cumulative quizzes designed to assess your mastery of various major topics in the course. Your worst quiz score will be dropped from this average.

Final Exam (40%). A comprehensive final exam will be scheduled by the Registrar (date/time TBA). The format will be similar to the quizzes.

Office Hours   You are invited and encouraged to supplement your in-class learning by visiting me in my regular office hours (see above) or at some other time that suits us both. You don't need an appointment to come to office hours — just drop by. You may also contact me via Skype (my username can be found on our Moodle page); if you see me online, you may assume that I'm happy to chat. You may need to request that I add you as a contact (I will) — this cuts down on spam calls for me.

Policy on Late Work   I will only offer extensions/makeups on quizzes or exams in case I hear about a legitimate, documented reason for needing to miss class *before class*; do not assume that retrospective excuses will be granted (they rarely will).

Academic Honesty   I expect you to abide by Bucknell's Honor Code <bucknell.edu/x1324.xml>. I will not hesitate to refer students who are suspected of academic dishonesty to the University Board of Review.

Reasonable Accommodations   Any student who may need an accommodation based on the impact of a disability should contact Heather Fowler, Director of the Office of Accessibility Resources at 570-577-1188 or hf007@bucknell.edu who will help coordinate reasonable accommodations for those students with documented disabilities. See also <http://bucknell.edu/Accessibility>.