Symbolic logic is a formal system of reasoning. It emphasizes mathematical methods (e.g. proofs) and symbolic representations of statements. It is often called ‘modern logic’ or ‘mathematical logic’ to distinguish it from traditional and ancient logics that do not rely on such techniques. Yet, like traditional and ancient logics, symbolic logic ultimately goes back to Aristotle and his efforts to codify laws of reasoning.

“Logic is to the philosopher what the telescope is to the astronomer: an instrument of vision,” according to Susanne Langer. It allows us to see things that we could not otherwise see, and has for this reason been essential to philosophical training. But it is also a little like learning a foreign language—it has its own rules and sometimes, just as with learning a foreign language, there simply is no substitute for practice and brute memorization.

The focus of logic is not so much on truth, but on validity—the conditions under which certain conclusions may be drawn from a given set of claims. In this respect, it deals not with what is the case but with how one might appropriately reason if some particular set of claims were true. The philosophy of logic, however, focuses on issues such as the relation between the extension and the intension of terms, set theory, the nature of logical truths (tautologies) and principles (e.g. the law of non-contradiction), bivalence, and generally on the relation between formal systems and philosophical problems.

The challenge of teaching logic to undergraduates is that students generally find it either really easy, or really difficult. In addition, there are both mechanical things to be learned as well as theoretical issues to be explored. It is difficult to do both of these, since the way one teaches mechanical things is generally different from the way one teaches theory. I can tell you about theory, but in order to learn the mechanical aspects—and the creative aspects—of logic, you must practice, practice, and practice some more. The structure of the class is intended to address this challenge, but it means that we will have a fairly non-traditional class.

The first few weeks, we will meet in a traditional classroom from 1-1:50 on MWF. But as you have no doubt noticed, the class is scheduled for MWF 1-2:15. Once we get to the non-traditional part of the class, we will use these blocks of time for more “free-form” and individualized activities—taking quizzes, tutoring, working together through proofs. We will cover units 1-6 in the traditional format, but from unit 7 on, we will shift the structure of the class to a format that uses tutorials, quizzes, and individualized meetings to help you work your way through the book at your own pace (within limits). When you have read the unit and believe that you have done enough problems for that unit, you will take a quiz on the unit. You must score 90% on each unit quiz before you may move on to the next unit. Your grade will be based almost entirely on how far you get in the book, except in the case of the A+ grade. In order to merit an A+, a student must write a short (3-5 pages) paper on a theoretical topic in logic (see the section on grading for specifics).
We won’t go exactly sequentially through the units, since there are special topics that I want you to work on that fall out of sequence. The order of units will be the following: 1-9, 23, 10-12, 24, 13-20.

The schedule, such as it is, will be the following:

Week 1: units 1-3
Week 2: units 4-6

Test on units 1-6 on Monday, 2 February.

Grading:
FF: this grade will be given if the student fails to progress beyond unit 23
F: through unit 10
D-: through unit 11
D: through unit 12
D+: through unit 24
C-: through unit 13
C: through unit 14
C+: through unit 15
B-: through unit 16
B: through unit 17
B+: through unit 18
A-: through unit 19
A: through unit 20
A+: through unit 20, and a paper on a topic to be determined by the student, in consultation with the professor, meriting a grade of B or better.