

PHILOSOPHY 111: INTRODUCTION TO SYMBOLIC LOGIC

Instructor: Janet Folina
(Folina@macalester.edu/(651-696-6159))

Office: OM 106
Hours: M, F: 2:10-3:10
(and by appointment)

Preceptors: Dan Lyew (dlyew@macalester.edu) and Sarah DeVore (sdevore@macalester.edu).
Provisional times for help sessions: 4-6 and 7-9 on Sundays (in general). Location TBD.

Text: E. J. Lemmon, Beginning Logic

Course Description:

Every day we hear, read, make and assess arguments. Whether it's political rhetoric, advertising campaigns, or friendly banter with friends and family, arguments are part of our culture; perhaps they are even part of human nature.

Many arguments are persuasive. But some persuasive arguments are incorrect (some of these abuse statistics, some are actually fallacies); and some correct arguments are not very persuasive (at least not immediately). So correctness requires a different criterion than persuasiveness.

Logic is the science of correct reasoning and argumentation, and symbolic logic is the use of symbols and formal rules to codify this correctness. Our approach is formal – symbolic logic depends only on the form of arguments rather than their content. (This course is thus somewhat abstract and theoretical; it is not a course on applied critical thinking.) We focus on formal properties of deductive arguments, and our tools and methods are fundamental to contemporary symbolic logic. We use symbols to represent types of sentences, and rules will be cited for each inference made in an argument. Thus, proofs in this course are somewhat like proofs in geometry: they both depend on explicit criteria for correctness and incorrectness.

Topics include:

1. Formalization of arguments in propositional logic.
2. Natural Deduction: learning and applying formal rules of proof in our system.
3. Truth tables and semantic trees.
4. Formalization of arguments in predicate logic.
5. Natural Deduction: proofs in Predicate Logic.

Objectives: The immediate aim of this course is to provide you with some formal methods for (i) determining whether or not an argument has a correct form, and (ii) proving a conclusion from a given set of premises. In addition to learning a formal system, the tools acquired in this course can be applied to real arguments. The course will help students to distinguish good arguments from bad ones, and to justify such distinctions. Logic also helps students improve their writing, as it assists in determining and articulating the logical structure of an argument. Finally, logic is central to mathematics as well as philosophy. This course provides a good foundation for both majors, and indeed any discipline that emphasizes correct, clear thinking, reading and writing.

Evaluation: Final grades will be based on the following.

(i) **Homework:** 20% -- Exercises will normally be available on Fridays (via Moodle page); completed exercises will normally be due at the beginning of class each (following) Monday. The preceptors grade all homework.

(ii) **Exams:** 80% -- 5 tests will be given on the following tentative dates. Please note that there will be **no makeup tests** unless there is a significant and documented reason - **provided in advance when at all possible**. (Provisional test schedule: Sept. 28, Oct 12, Oct 28, Nov. 23, Dec. 11.)

10/11

12/10

Policies:

*I am committed to ensuring that all students have access to course content. Reasonable accommodations are available for students with documented disabilities. Please contact the Office of Student Affairs, 651-696-6220 to schedule an appointment to discuss your individual circumstances. It is important to do this as soon as possible and to discuss any accommodations with me, so that they can be implemented early in the semester.

*Cell phones must be **turned off** and **stowed** during class; the same goes for all other electronic equipment, unless needed for a documented disability. **UNPLUG!!!**