SYLLABUS FOR PHILOSOPHY 207: INTRODUCTION TO LOGIC

Instructor

Peter R. Murray
OH: Mon., Tues. 10am–12am
Ladd 108, 518-580-5401
Email: pmurray@skidmore.edu

Course Info

Philosophy 207
MTWThF 1:30pm–3:15pm
Ladd 106
Summer 2016

Course Description

Proper reasoning and argumentation is the foundation on which our intellectual achievements are built, and logic is the branch of philosophy that studies the forms of proper reasoning. In this course, we will learn the basic concepts and methods of modern symbolic logic, particularly as they relate to deductive reasoning and argumentation. We will learn how to represent sentences of English in logical notation, to reconstruct arguments in that notation, and to assess those arguments for validity and soundness. We will also learn how to prove conclusions from premises using the rules of a system of natural deduction. Along the way, we will come to recognize common argument forms and common mistakes in reasoning (fallacies), we will discuss some of the philosophical issues related to logic, and we will learn everything you never thought you wanted to know about love, logically speaking.

As you will see, learning logic can be enormously useful in many aspects of your life both at Skidmore and beyond. It will help you recognize and understand the arguments for, and the assumptions behind, various positions and views you encounter. It will help you to present an author's position persuasively and to know how to critique it. And it will help you make compelling, reasoned arguments for your own positions, whether in a philosophy class, another course at Skidmore, or elsewhere in life. Other benefits may include: a head start on a computer science career, since symbolic logic is the basis for everything that goes on in a computer; a dominating performance on your law school LSAT; clearer skin; and so much more!

Course Learning Objectives

The ability to understand, analyze, evaluate, and critique the reasoning and argumentation we encounter in the world, and that we present in support of our own conclusions, is an important skill. It is part of what allows us to see alternatives to given proposals, whether inside or outside the classroom, and it is essential to thinking creatively and successfully about solutions to the problems we face in the world. It is also a skill at which we become more competent through training and practice, which is just what a course in logic such as this one provides. Accordingly, the main objective of this class is to give you that training, and for you to practice and develop that skill. In particular, the learning objectives in this course are for you to be able to:

(1) Recognize and explain basic concepts used in the evaluation of reasoning and argumentation, and to apply them in the evaluation of arguments;

(2) Represent sentences of English in logical notation, reconstruct arguments in that notation, and evaluate those arguments;

(3) Recognize common argument forms and common mistakes in reasoning, and to prove conclusions from premises using the rules of a system of natural deduction.

Course Materials

Logic and Philosophy: A Modern Introduction, 11th ed. (by Hausman, Tidman, and Kahane)

See the course *Blackboard* site for other materials we will be working with in this class.

Course Requirements

There are 100 possible points in this course. Your final grade in this course is determined by your participation in class and your scores on homework assignments, peer grading, and tests:

1. **Participation** (worth 10 points, 10% of course grade)

To participate successfully in this class, you must:

- Read the assigned texts before class, think about them, and bring them to class;
- Come to class consistently and on time. *Students who miss more than three classes, for whatever reason, will fail the course*;
- Participate actively in class discussions and activities;
- Bring questions to office hours, post questions or other issues for discussion to the Support Forum section of the course *Blackboard* site, and/or respond to questions and issues that other students have posted to the Support Forum.

2. **Homework** (worth 30 points, 30% of course grade)

- There are homework assignments due in 17 classes of this course. Your two lowest homework grades will not count. Homework assignments are due at the beginning of the class following the day on which they are assigned, and no late or partially completed assignments will be accepted.
- For each exercise, you should do only the odd-numbered problems up to number 9 (So, you should do a maximum of five problems per exercise).
- You may either type or handwrite your homework. Please see the Course Resources page of the course *Blackboard* site for instructions on how to insert logical symbols in Microsoft Word. Your Skidmore Student ID number should be the only identifying information on your homework. *Please staple your homework pages together.*

3. **Peer-Grading of Homework** (worth 10 points, 10% of course grade)

- Homework is peer-graded on a ✓, ✓+, ✓- (check, check-plus, check-minus) basis. I will explain how peer grading and the check system work on the first day of class. See the

"Guidelines for Peer Homework Grading and the Check System" on the Course Resources page of the course *Blackboard* site for details.

- To get your points for a given homework assignment, you must grade a peer's homework assignment and turn it back in to me. Your grading of your peers' homework assignments is worth ten points (10% of your course grade). If you do all the grading that is assigned to you for the course, you receive the full ten points. For every grading assignment you do not complete, one point will be deducted from your grading point total, and you will not receive points for your own homework assignment. So, you will not receive a total of three points per grading assignment that you do not complete.

4. **Tests** (worth 50 points, 50% of course grade)

- There will be six tests in this course, one at the end of each major unit. The lowest of your six test scores may be thrown out, subject to the conditions below. The five remaining tests will count for ten points each (10% of your course grade).
- You must take and make a good-faith effort to complete all six tests to be eligible to throw out your lowest test score. Test scores below 60 may not be thrown out, nor may the score on the final test be thrown out.

5**. Academic Integrity**

- Your work in this course is governed by the Skidmore College Honor Code and Code of Conduct (https://www.skidmore.edu/student_handbook/honor-code.php). Students must write and sign the Honor Code statement on all in-class and take-home exams: *"While taking this examination, I have not witnessed any wrongdoing, nor have I personally violated any conditions of the Skidmore Honor Code."*
- Violations of the Honor Code and/or Code of Conduct will result in your failing this course. If you have any questions regarding whether particular actions constitute violations of the Honor Code or Code of Conduct, please see me to discuss them.

Final course grades are determined according to the following scale:

F = below 60 pts	**D+** = 67–69 pts **D** = 63–66 pts **D-** = 60–62 pts	**C+** = 77–79 pts **C** = 73–76 pts **C-** = 70–72 pts	**B+** = 87–89 pts **B** = 93–86 pts **B-** = 80–82 pts	**A+** = 97–100 pts **A** = 93–96 pts **A-** = 90–92 pts

Academic Resources

Skidmore College has a variety of resources available to support your work in this and other courses. Please seek them out and let me know if you have any questions about them. An online listing of available resources is at https://www.skidmore.edu/advising/support.php. I have already contacted Student Academic Services about arranging a peer tutor for this course, and I will let you know if we are able to identify someone who can fill that role.

Skidmore is also committed to supporting your mental health and wellbeing. If you are experiencing depression or anxiety, suffering from an eating disorder, struggling with some other psychological difficulty or trauma, or if you just need someone with whom to talk, the Counseling Center (518-580-5555) is an excellent place to get the help you need. More information is available online at https://www.skidmore.edu/counseling/services.php. If you need immediate assistance at any time of the day or night, call Campus Safety at 518-580-5567, and they can connect you with the counselor on call.

Skidmore College considers sexual and gender-based misconduct to be one of the most serious violations of the values and standards of the College. Unwelcome sexual contact of any form is a violation of students' personal integrity and their right to a safe environment and therefore violates Skidmore's values. Sexual and gender-based misconduct is also prohibited by federal regulations. Skidmore College faculty are committed to supporting our students and upholding gender equity laws as outlined by Title IX. If a student chooses to confide in a member of Skidmore's faculty or staff regarding an issue of sexual or gender-based misconduct, that faculty or staff member is obligated to tell Skidmore's Title IX Deputy Coordinator. The Title IX Deputy Coordinator will assist the student in connecting with all possible resources for support and reporting both on and off campus. Identities and details will be shared only with those who need to know to support the student and to address the situation through the college's processes. If the student wishes to confide in a confidential resource, The Counseling Center Staff, Health Services, and Victim Advocates are all options available. More information can be found at https://www.skidmore.edu/sgbm/.

If you are a student with a disability and believe you will need academic accommodation, you must formally request accommodation from Meg Hegener, Coordinator for Student Access Services. You will need to provide documentation that verifies the existence of a disability and supports your request. For further information, please call 518-580-8150 or stop by the office of Student Academic Services in Starbuck Center.

From May 31–August 5, the Lucy Scribner Library is open at the following times:

Monday–Thursday	8:00 am – 11:00 pm
Friday	8:00 am – 5:00 pm
Saturday	Closed
Sunday	12:00 pm – 5:00 pm (EXCEPT on Sunday July 10, 17, 24, and 31 - hours for these days are 2:00 pm – 10:00 pm)

Closed July 4th holiday

Strategies for Success

Logic is a subject that builds systematically from class meeting to class meeting and from topic to topic. So, if you haven't understood what came before it, it is hard to understand what comes later in the course. It is also difficult to catch up once you've fallen behind, particularly in the impacted format of Summer Session. So, I encourage you to contact me as soon as you feel

you are not understanding or keeping up with the class material. We can then schedule an appointment and get you back on track.

Learning logic takes time and practice, and there are, unfortunately, no shortcuts. You should be prepared to spend at least two hours on reading and homework for every hour we spend in class (So, that's at least 15 hours per week outside of class). Coming to class prepared with questions about what you found difficult to understand in the reading and homework for that day is an important part of making steady progress and not falling behind.

The answers to the even-numbered problems are in the back of your textbook. As part of your preparation for the next day's class, I strongly suggest that you not only carefully read the relevant section of the text (as required), but that you also do at least five of the even-numbered problems in each exercise and then check your work against the answers in the back of the book to make sure you are getting it. These practice problems will not be graded, but doing them is essential to learning how to correctly apply the concepts you are reading about and to knowing what clarifications to ask for in class. Many people also find flash cards useful for memorizing the definition of key concepts and terms, e.g., validity, soundness, necessity, consistency, etc. Please see the Course Resources page of the Blackboard site for a Sample Five-Day Student Work Schedule to help you stay on top of your work in this class.

Though each student is required to do his or her own work, I highly encourage you to work on the homework in pairs or groups. Often, a breakthrough in your own understanding of the material is as close as another student working on the same problem. Also, please do come to my office hours to talk through any difficulties you are having with the course material. I've been where you are, and I want to help. I also encourage you to fill out the anonymous Instructor Feedback Form that is linked from the course *Blackboard* site to let me know while the class is still going on how I can help you better.

Course Schedule (subject to revision)

[iCalendar link for assignments available on the course *Blackboard* site]

Unit	Topic	Reading for Class	Homework Assignment
Introduction, Basic Concepts	**5/31**: Introduction to the course, syllabus, validity, soundness, deductive vs. inductive arguments	*LP* Ch. 1 pp. 1-11	Exercises 1-1, 1-2
	6/1: argument form, consistency and validity, contexts of discovery and justification	*LP* Ch. 1 pp. 12-16	Exercise 1-3

Sentential Logic Symbolization	**6/2**: **BASIC CONCEPTS TEST** atomic and compound sentences, variables and constants, truth functions, truth-functional connectives (conjunction, negation), parentheses and brackets	*LP* Ch. 2 pp. 18-30	Exercises 2-1, 2-2
	6/3: Truth-functional connectives (disjunction, material conditional and biconditional), not both, neither nor, unless, only if	*LP* Ch. 2 pp. 30-41	Exercises 2-3, 2-4, 2-5
	6/6: complex sentences	*LP* Ch. 2 pp.41-8	Exercises 2-6, 2-7, 2-8
	6/7: **SENTENTIAL LOGIC SYMBOLIZATION TEST**		
Truth-Table Method	**6/8:** valuations, logical form, tautologies, contradictions, contingent sentences	*LP* Ch. 3 pp. 53-68	Exercises 3-1, 3-5 3-6, 3-7
	6/9: logical equivalence, truth-table tests for validity and consistency, short truth-table tests for invalidity and consistency **Sign up for Instructor–Student Midterm Status Meetings during week of 6/13–6/17**	*LP* Ch. 3 pp.69-80	Exercises 3-8, 3-9 3-10, 3-11
	6/10: TRUTH-TABLE METHOD TEST computer logic gates		
Sentential Logic Proofs	**6/13:** Argument forms, implicational rules of inference (modus ponens, modus tollens, disjunctive syllogism, hypothetical syllogism, simplification, conjunction, addition, constructive dilemma)	*LP* Ch. 4 pp. 86-103	Exercises 4-1, 4-2 4-3, 4-5

	6/14: equivalence rules of inference (double negation, DeMorgan's, commutation, association, distribution, contraposition, implication, exportation)	*LP* Ch. 4 pp. 103-20	Exercises 4-6, 4-8, 4-9, 4-12
	6/15: conditional proofs	*LP* Ch. 5 pp. 123-32	Exercises 5-1, 5-2
	6/16: Indirect proofs	*LP* Ch. 5 pp. 132-40	Exercises 5-3, 5-5, 5-6, 5-7
	6/17: Extra Day on Sentential Logic Proofs		
	6/20: SENTENTIAL LOGIC PROOFS TEST		
Predicate Logic Symbolization	**6/21:** Individuals, properties, and quantifiers (universal, existential)	*LP* Ch. 7 pp. 167-78	Exercises 7-1, 7-3, 7-4, 7-5
	6/22: square of opposition, basic symbolizations and common mistakes	*LP* Ch. 7 pp. 178-89	Exercises 7-6, 7-7 7-9, 7-10
	6/23:Extra day on predicate logic symbolization		
	6/24: PREDICATE LOGIC SYMBOLIZATION TEST		
Predicate Logic Proofs	**6/27:** four quantifier rules (universal instantiation, universal generalization, existential instantiation, existential generalization), five restrictions quantifier rules	*LP* Ch. 9 pp. 200-15	Exercises 9-1, 9-2
	6/28: mastering the quantifier rules, quantifier negation	*LP* Ch. 9 pp. 216-25	Exercises 9-3, 9-4, 9-5
	6/29: relational predicates, overlapping quantifiers, places, times, somewhere, someone	*LP* Ch. 10 pp. 226-40	Exercises 10-1, 10-3, 10-4, 10-5
	6/30: relational logic proofs	*LP* Ch. 10 pp. 240-50	Exercises 10-7, 10-9, 10-10, 10-11
	7/1: PREDICATE LOGIC PROOFS TEST		