Philosophy 120: Introduction to Logic
Autumn 2015

INSTRUCTOR
INFORMATION

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Office Hours:	Wednesday 3:00-5:00 and by appointment
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TEACHING
ASSISTANTS

Name	Email	Office Hours
Julio Covarrubias Cabeza	covaj@uw.edu	Fri. 3-5
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Teaching assistants office hours will be held at the long wooden table in front of the philosophy department's main office (Savery 361) unless stated otherwise.

COURSE
DESCRIPTION

At the turn of the twentieth century, a group of philosophers and mathematicians led by Gottlob Frege and Bertrand Russell developed modern symbolic logic. Their discoveries were the culmination of over 2000 years of intense philosophical and mathematical investigation, which can be traced back at least to Aristotle. The theories and techniques developed by these early twentieth century thinkers was and continues to be tremendously influential on the development of mathematics, computer science, philosophy, and psychology, among other fields. This course is an introduction to logic, with an emphasis on applying techniques from symbolic logic to the analysis of everyday arguments. Along the way, we will briefly discuss the historical importance of the subject.

TEXTBOOK

We will be using an online textbook through the Open Learning Initiative. Instructions for creating an account are available on the Canvas page.

COURSE GOALS

The course has four central goals. By the end of the semester, students should be able to

1. Classify types of arguments (e.g., valid, sound, inductively strong) using logically precise terminology,
2. Translate arguments from their preferred natural language (e.g., English) into the language of sentential and/or predicate logic,
3. Use truth trees and truth tables to evaluate the validity of arguments,
4. Produce formal derivations of valid arguments in sentential and predicate logic.

Critical thinking is a skill, not unlike playing the piano, riding a bike, or dancing. Learning a new skill requires practice. Listening to piano concertos, for example, is not enough to learn how to play the piano. Similarly, merely reading the textbook and listening to me lecture is insufficient for learning how to think logically: you have to do it yourself. How can you practice critical thinking?

Most complex skills require several different forms of practice. For example, in addition to running and lifting weights, basketball players practice dribbling drills, shoot foul shots, and memorize plays. In addition to playing compositions, pianists practice scales and arpeggios; they perform transcription exercises, pitch recall drills, and more.

Similarly, critical thinking is best practiced through several different means. Thus, the assignments in this course aim to help you practice different aspects of thinking "logically." The table below indicates how each of the assignments contributes to the five course goals above.

Requirement	Course Goals
Quizzes	• Translate into sentential and/or predicate logic • Classify types of arguments (e.g., valid, sound, inductively strong) using logically precise terminology,
Labs	• Use truth trees and truth tables to evaluate the validity of arguments, • Produce formal derivations for valid arguments in sentential and predicate logic.
Handwritten Exercises	• Translate into sentential and/or predicate logic • Use truth trees and truth tables to evaluate the validity of arguments, • Produce formal derivations for valid arguments in sentential and predicate logic.
Clicker Responses	• Classify types of arguments (e.g., valid, sound, inductively strong) using logically precise terminology,
Exams	• All course goals

Assigning grades is an important but extremely difficult part of my job as an instructor. Before explaining how you will be assessed, I will describe the purpose of grades in my course. Many instructors attempt to use grades to perform (at least) four functions: (i) to provide feedback to students about how much they have learned, (ii) to provide feedback to students about how well they are performing in relation to other students in the class, (iii) to give incentives to students to learn particular skills, (iv) to record students' performance for future instructors, graduate schools, potential employers.

A moment's reflection shows that grades cannot perform all of four functions simultaneously. For example, if every student in a mathematics course earns a perfect score on an exam, then by the first criterion, each student ought to receive an "A". Why? An "A" grade accurately reflects how much students have learned. On the other hand, if every student earns a perfect score, then each student's performance is "average" for the class. If an instructor assigns "average" work a "C" grade and he or she thinks that grades ought to indicate the relative performance of students (i.e. fulfill the second function), then every student in the class would earn a "C." Similar reasoning shows the other criteria also conflict with one another.

For these reasons and others, I use grades only for the first and fourth purposes, namely, to provide you (and others) with feedback about how well you have learned the skills and facts taught in the course. Very roughly, a final grade of between 90 and 100 percent indicates that your knowledge of the course material and your

performance of the skills taught in the course are both excellent; a final grade of between an 80 and 89 percents indicates your knowledge and skills are very good; a grade between 70 and 79 indicates that you have acquired a general understanding of the material and skills, but you have missed some important points; a grade between 60 and 69 indicates that your work contains some very serious errors and misunderstandings. I fail students only when their work contains very serious errors and misunderstandings throughout.

GRADING

Final Grades

Your final grade (as a percentage) is a weighted average, which is calculated using the following weights:

- Handwritten exercises (Weighted evenly) - 30%
- Final Exam - 20%
- Labs (weighted evenly) - 20%
- End of chapter quizzes (weighted evenly) - 15%
- Midterm - 10%
- Clicker questions - 5%

Your final grade will be converted to a four point scale using the following equation:

$$\text{Four Point Scale} = \min\{4, \frac{\text{Percentage}}{10} - 5.5\}$$

For example, if your final percentage is 90%, then your final grade will be $3.5 = \frac{90}{10} - 5.5$.

You may take each midterm and chapter quiz twice; only your highest score will count towards your final grade. Your lowest quiz, lab, and handwritten exercise scores will also be dropped. Finally, your lowest three scores from clicker questions will be dropped.

COURSE MECHANICS

Submitting assignments

All quizzes and lab problems should be submitted electronically via the Open Learning Initiative. They are due at 11:59PM on the day they are assigned. Starting in the second week, there will be one handwritten exercise due each week. You should submit your assignment to your TA *at the beginning of section* on Thursday. Once during the quarter, you may arrange to submit your handwritten assignment outside of section (e.g., by leaving it in your TA's mailbox). However, your TA must approve your request prior to section on Thursday (i.e., your TA is not required to accept assignments submitted via email at the last minute), and your TA is not required to accept handwritten exercises that are not submitted during section more than once.

Late work

Late work will not be accepted for two reasons. First, all of the labs and quizzes are available from the first day of class. If you foresee missing class due to an extracurricular activity, plan ahead. Second, your lowest lab, quiz, and handwritten exercise scores will be dropped at the end of the quarter. Moreover, your lowest three in-class (clicker) assignments will be dropped. So if an unexpected activity prevents you from finishing your work to the best of your ability during one week of the quarter, it will not adversely affect your final grade.

The only reason that late work may be accepted is because of a life-changing event. Such "life-changing" events include (but are not limited to) the death or sickness of a family member, financial emergencies, house fires, etc. If you need to ask for an extension on work, you should speak to me (Conor) and not your TA. You should bring documentation (e.g., a note from a psychiatrist, or a plane ticket verifying that you flew home for a funeral) explaining your circumstances. I recognize that you are taking several courses and that there are many important events in your life that trump logic problem sets. But you have plenty of time to complete the assignments for this class (as the assignments are available from the first day of class), and in the absence of compelling personal reasons, you should not need to turn in late work. One aspect of achieving success in college is learning how to manage your own time.

Grade Changes and Appeals

Unlike some other philosophy classes, in symbolic logic, there are right answers, and there are wrong ones. Details also matter: a misplaced or missing parenthesis can make a world of difference. So before appealing your grade, please try to understand why your assignment was marked in the way that it was, and please do not downplay the seriousness of an error, if you have made one. Recognizing even seemingly small errors is absolutely critical to learning.

For this reason, your TAs and I agree to acknowledge our own errors. We will sometimes make mistakes when grading or entering grades on Canvas. Moreover, because electronic assignments are automatically graded by a computer, a legitimately insubstantial mistake (e.g., misspelling the word "contradiction") might result in an unnecessary reduction in your grade. If you believe that either we or a computer has made a mistake grading your assignment, please contact your TA via email using the directions provided on the Canvas site. We want to make sure that you receive credit for your work.

Computer use

Because the course employs an online textbook, *some days* I will encourage you to bring a laptop (if you have one) to class. *Unless I explicitly tell you to bring a computer to class*, I highly encourage you to leave all computers at home. Instead, I suggest you bring a notebook, a pen or pencil, and hard copies of the assigned readings (which may be downloaded as .pdfs and printed). Extensive empirical evidence indicates that students who use computers learn less for two reasons. First, students who use computers often attempt to "multi-task" (e.g., take notes, read, and browse the internet simultaneously), and extensive research shows that (i) no one can multi-task effectively, and (ii) multi-tasking hinders learning. Further, research shows that even those students who use computers exclusively for note-taking still learn more when they take notes by hand..[1]

So here is my policy on computers in the classroom. You may not use phones or any other hand-held devices during class. You may bring a laptop to class, but it can only be used for note-taking, working on logic problems, and/or referring to the readings assigned for the day. If I (or any other student) sees that you are browsing the internet, instant messaging, playing video games, or some other non-academic activity during class, you forfeit the right to use a computer in the classroom. When you browse the internet in class, you harm not only your own education but also that of those students around you.

STUDENTS WITH DISABILITIES   If you have a disability that may affect the quality of or timeliness with which your work is submitted, please visit the office of disabilities resources for students (DRS) at the beginning of the semester and have them send me appropriate suggestions concerning how to modify course requirements. I want every student to succeed, and I am more than happy to adjust the course so that it suits you. The DRS's website is listed in the important websites section at the end of this document:

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[1]P. A. Mueller and D. M. Oppenheimer. "The Pen Is Mightier Than the Keyboard Advantages of Longhand Over Laptop Note Taking". In: *Psychological Science* (Apr. 2014), pp. 1159–1168.

Cheating

Almost no student plans to cheat at the beginning of the semester. The two most common reasons for cheating are (1) ignorance of what constitutes cheating and (2) lack of planning. In other words, students cheat most frequently because they either do not know what "cheating" means or they run out of time (and think that copying another person's work is a quick fix). Here is how you can make sure you do not cheat.

First, read the university's academic conduct policy, which can be found in the list of websites below. If you know the university's definition of "cheating" then you are less likely to cheat. Second, talk to me if you are having difficulty keeping up in the course. I know what it is like to have too much to do and not enough time. Let's try to find a solution together.

If, despite your best intentions and my advice, you find yourself contemplating cheating in the future, you should know that the penalties for cheating, if you are caught, are extremely high. Why are the penalties high? I am required to report your conduct to the Dean of Arts and Sciences. You will then attend an embarrassing and time-consuming trial-like procedure in which the Committee on Academic Conduct will evaluate your conduct and issue some form of punishment. Some penalties are small (e.g., warning or probation), but the committee may also suspend or dismiss you from the university. In addition to institutional penalties, I have the following policy: students who cheat once will have their final GPA divided by two (e.g., a 3.9 final grade will become a 1.9); students who are caught cheating twice will receive a failing grade.

Distributing Course Materials

Do not upload course materials (or your answers to assignments) to any website other than Canvas. *Doing so is a violation of copyright laws and of the university's conduct policy*. You may view answer keys to assignments and exams in my office or your TA's office. *You are not permitted to scan, photocopy, or take pictures of answer keys.*

You are attending a great university with a huge number resources that will help you succeed. Here are some suggested resources.

Resource	Website
Philosophy Writing Center	http://www.phil.washington.edu/resources/writing-center
Clue Writing Center	http://depts.washington.edu/aspuw/develop/writing-center/
Disability Resource Services	http://depts.washington.edu/uwdrs/
Academic Misconduct	https://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf

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