

PHIL 220-002 Symbolic Logic

Summer Term 2, 2021

Instructor Information

- Jade Hadley
- jade.hadley@ubc.ca
- Online office hours: Mondays and Wednesdays 1-2pm (or by appointment).
 - <https://ubc.zoom.us/j/65864473664?pwd=ZVAvaWFuOGM0YlpuT1NmK3pFaXFRdz09>
Meeting ID: 658 6447 3664 **Passcode:** 907348

Course Information

Description

[Source: UBC Calendar]

Sentential and predicate logic. Translation from natural language; truth tables and interpretations; systems of natural deduction up to relational predicate logic with identity; alternative proof methods. Some sections may use computer-based materials and tests.

Objectives

By the end of the course, you should:

- Think more clearly about arguments and argument structure, translate sentences and arguments from natural language into the language of First-Order Logic;
- Understand the inference rules for Sentential and First-Order Logic, be able to construct formal proofs within each of these systems;
- Feel prepared for future courses on metalogic and computability, having some familiarity with metatheoretical proofs.

Lectures

- **Mondays and Wednesdays, 10:00am-13:00pm PST.**
 - Lectures will be delivered online, via Zoom.
 - Lectures will be recorded and posted on the Canvas site. Recordings will only be made available to students enrolled in the course and are not to be distributed more broadly.

Class Structure

- Attendance is strongly encouraged, but not required (unless you choose to receive participation credit, in which case you should regularly attend class).

- I encourage you to keep your camera on and to ask questions through your microphone. However, if you do not wish to appear in the recordings, please keep your microphone and camera off during lectures.
- I ask that you be available for the entire class period but recognize that it is difficult to stay focused for three hours. During the first week we will decide on a class structure based on students' preferences – i.e., whether to have a longer break in the middle, or to finish earlier, etc.

Course Materials

Required Text

- P. D. Magnus and Tim Button, adapted by Thomas-Bolduc and Richard Zach: *For All X, Calgary Edition*. This is a free, open-source textbook.
 - There are several versions of *For All X*, please ensure that you are using the Calgary Edition.
- A PDF of the textbook will be posted on the Canvas site. Please use this PDF rather than searching for a version on the web, since I want to ensure that we all have the exact same copy.
- If you wish to purchase the textbook, there are some reasonably priced copies available here: <https://www.amazon.ca/dp/1077319851>

Other Resources

- We will use carnap.io for homework. More information will be provided during the first week of class.
 - [Carnap.io](http://carnap.io) also has a free textbook which you may find helpful as an additional resource (optional readings are specified in the course schedule).
- I am happy to provide further recommendations to anyone who would like something extra to read.

Course Schedule

Note: Specific deadlines and topic dates are provisional, this schedule is subject to change at the instructor's discretion.

Day	Topic	Reading	Work Due
Monday, July 5 th	Introduction, Syllabus and Logic Basics	<u>Required:</u> Part 1 Chapters 1-3	Quiz 1 assigned
Wednesday, July 7 th	Sentential Logic (SL): Connectives and Translation	<u>Required:</u> Part 2 Chapters 4-8 <u>Optional:</u> Carnap.io Chapters 1-2	Homework 1 assigned – due July 11 th
Monday, July 12 th	Truth Tables	<u>Required:</u> Part 3 Chapters 9-14	Quiz 1 due Quiz 2 assigned

		<u>Optional:</u> Carnap.io Chapter 10	
Wednesday, July 14th	SL: Proofs, Natural Deduction	<u>Required:</u> Part 4 Chapters 15-17	Homework 2 assigned – due July 18 th
Monday, July 19th	SL: Proofs, Natural Deduction	<u>Required:</u> Part 4 Cont. Chapters 18-20	Quiz 2 due Quiz 3 assigned
Wednesday, July 21st	SL: More Natural Deduction, Intro to Soundness Theorem		Homework 3 assigned – due July 25 th
Monday, July 26th	SL: Soundness and Completeness	<u>Required:</u> Part 4 Cont. Chapter 21	Quiz 3 due Quiz 4 assigned
Wednesday, July 28th	First-Order Logic (FOL): Names and Predicates	<u>Required:</u> Part 5 Chapters 22-24 <u>Optional:</u> Carnap.io Chapter 11	Homework 4 assigned – due August 1 st
Monday, August 2nd	No Class: BC Day		Quiz 4 due
Wednesday, August 4th	FOL: Quantifiers	<u>Required:</u> Part 5/6 Chapters 25-31	Homework 5 assigned – due August 8 th
Monday, August 9th	FOL: Natural Deduction	<u>Required:</u> Part 7 Chapters 34-36 <u>Optional:</u> Carnap.io Chapter 12	
Wednesday, August 11th	Identity	<u>Required:</u> Part 7 Cont. Chapter 37	Homework 6 assigned – due August 15 th

Assessment

- Participation: 10%*
- Homework: 30%
- Quizzes: 30%
- Final Exam: 30%

* Participation is optional. If you choose to opt out, the final exam will be worth 40%.

Participation

You are welcomed to ask and answer questions about the course material in class. If you want to receive credit for participation – which, if you are able to, is strongly encouraged - you will need to sign up for Learning Catalytics (instructions will be posted on Canvas). A license is required, which costs \$12 USD for 6 months of access. One participation point will be available each class session and awarded to students who answer (correctly *or* incorrectly) at least 50% of questions asked during that session.

Quizzes

There will be 4 quizzes assigned throughout the course. The lowest score out of the 4 will be dropped and the 3 remaining scores will each be worth 10% of your final grade (totalling 30%). There will be no penalty for skipping one quiz, but you will lose the opportunity to drop your lowest score. Quizzes will be timed and must be completed in a single sitting (if internet connectivity is likely to be a problem for you, please reach out beforehand to make alternative arrangements).

Homework

There will be 6 assigned homework exercises, each worth 5% of your final grade (totalling 30%). Homework will be assigned every Wednesday and will be due the following Sunday by 11:59pm PST. During this period, you may redo the homework assignment as many times as you'd like. Only the highest score will count (but note that subsequent homework attempts may not have exactly the same questions).

Final Exam

There will be a final exam during the officially designated final exam period (TBD). This will be a cumulative exam, covering all course material. This exam will account for 30% of your final grade (unless you opt of receiving credit for participation, in which case it will account for 40%).

Additional Information and Resources

Late Assignment Policy

I am happy to consider reasonable requests for extensions, provided that the request is approved before the assignment is due. Otherwise, late work will not be accepted. You must complete quizzes during the scheduled period unless prior arrangements are made.

Intellectual Property

Instructor-generated course materials – this syllabus, homework, slides, etc. – are my own intellectual property and may not be copied or distributed without my explicit permission. Distributing recorded lectures or student discussion without the consent of all parties is a serious privacy violation.

UBC Values Statement

[Source: UBC Senate]

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available here:
<https://senate.ubc.ca/policiesresources-support-student-success>

Plagiarism

[Source: UBC Calendar]

Plagiarism, which is intellectual theft, occurs where an individual submits or presents the oral or written work of another person as his or her own. Scholarship quite properly rests upon examining and referring to the thoughts and writings of others. However, when another person's words (i.e. phrases, sentences, or paragraphs), ideas, or entire works are used, the author must be acknowledged in the text, in footnotes, in endnotes, or in another accepted form of academic citation. Where direct quotations are made, they must be clearly delineated (for example, within quotation marks or separately indented). Failure to provide proper attribution is plagiarism because it represents someone else's work as one's own. Plagiarism should not occur in submitted drafts or final works. A student who seeks assistance from a tutor or other scholastic aids must ensure that the work submitted is the student's own. Students are responsible for ensuring that any work submitted does not constitute plagiarism. Students who are in any doubt as to what constitutes plagiarism should consult their instructor before handing in any assignments.

A link about Academic Misconduct is here:
<http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,959>