

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the Musqueam people.

Introduction to Formal Logic

Instructor: Gary Neels
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Lectures:

- Wednesday: 10am-1pm Buchanan A103
- Monday: 10am-1pm (Zoom)

Office hours:

- Wednesday: 1:30-2:30pm Buchanan E274
- Monday: Mondays 1-2pm (Zoom)

TA: TBD
Email: TBD
Office hours: TBD

Course Description

Logic, broadly understood, is the study of reasoning. More specifically, it is the study of reasoning *well*. In Logic, we are interested in the activity of presenting arguments. But what makes an argument good? What makes an argument bad? What are the hallmarks we can use to identify good and bad arguments? In Formal Logic, we study these questions from a content-free perspective. That is, we focus on the *form* or structure of the argument rather than its *content*.

This course presupposes no background in Logic. We will cover the fundamentals of the syntax and semantics of Sentential Logic and Quantified Logic with identity. We will practice translating English sentences into sentences in formal languages, and we will learn how to use these formal languages to evaluate arguments. Along the way we will uncover some fascinating features of these formal languages. We will learn how to use tools like truth tables, truth trees, and natural deduction diagrams. We will also cover key concepts in logic, such as validity, logical truth, logical falsehood, consistency, soundness, and completeness.

Textbook

Our textbook is *forall-x* (UBC Edition) by Jonathan Jenkins Ichikawa. You will find a link to download it under the Modules tab on the course Canvas page.

Course Delivery

The course will be a hybrid format. Wednesday meetings will be in person, Buchanan A103). Monday meetings will be online using zoom. Our in-person meetings will feature lectures. Your mid-term exams (see below) will also be written during our in-person meetings. Our on-line meetings will be comprised of a mix of lectures and tutorials.

Evaluation

Your grade for this course will be based on four tests, all to be written in-person. The first 3 will take place during class time, and will be 50 minutes in length. Due to the nature of the course material, these will be cumulative. However, they will focus heavily on the most recent material for which you haven't yet been tested. The 4th will be the final exam, to be written during the final exam period. For calculating your final grade, the exams will be weighted as follows:

1. Midterm 1–15%
2. Midterm 2–25%
3. Midterm 3–25%
4. Final–35%

The course will use the standard UBC grading scale:

Letter Grade	Numerical Grade
A+	90-100
A	86-89
A-	80-85
B+	76-79
B	72-75
B-	68-71
C+	64-67
C	60-63
C-	55-59
D	50-54
F	0-49

Tentative Outline

This outline is subject to change. Any changes will be announced both in class and on Canvas. Be sure to stay up to date with any changes to the course schedule. You can do this by attending lectures and by turning Canvas email notifications on.

Session	Mode	Topic	Chapters
1-July 5	In-person	Introduction: What is Logic? Sentential Logic (SL)	1 2
2-July 10	On-line	Truth Tables	3
3-July 12	In-person	Mid-term 1 Entailment and Models for SL	(1-3) 4
4-July 17	On-line	Entailment and Models for SL (con't) Natural Deduction in SL	4 7
5-July 19	In-person	Natural Deduction in SL (con't)	7
6-July 24	On-line	Quantified Logic (QL)	8
7-July 26	In-person	Mid-term 2 Quantified Logic (QL)(con't)	(4,7) 8
8-July 31	On-line	A Formal Semantics for QL	9
9-August 2	In-person	Mid-term 3 Identity	(8-9) 12
August 7	No class	(BC Day)	
10-August 9	In-person	Natural Deduction Proofs in QL	13

Concessions

If you miss a test for a reason that is recognized by the University as warranting a concession (illness, family emergency, etc.), you should immediately submit a Student Self Declaration form (available on Canvas). Your first concession request should be submitted directly to me, and will be handled internally. Any subsequent requests must be submitted through your advising faculty.

If you miss a test, and are granted a concession, the weight of the test will be distributed forward across the remaining tests. So, for example, if you miss Midterm 2, your Midterm 3 would become worth 37.5% (rather than 25%) and your Final exam would become worth 47.5% (rather than 35%). Your Midterm 1 would remain at 15% of your grade.

If you miss the Final exam, your concession request must proceed through your faculty, and will result in an SD. Your SD exam would then be coordinated through enrolment services at a later date.

Special Arrangements

Anyone requiring special arrangements should register with the Center for Accessibility. In addition, feel free to contact me with any concerns you might have.

Academic Honesty

Plagiarism will be taken very seriously. Please review this description of plagiarism taken from the 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.

Please let me know if you have any questions about this issue. I am happy to clarify anything that might be unclear.