Modern Symbolic Logic

GREEN COURSES

PHL245H 2025F St. George Campus

Instructor: Alex Koo

Section: UofT St. George L0201

Lectures: Wednesday 1-3 (Online via Zoom) and Friday 2-3

Office Hours: Tuesdays from 3:15-4:30 in JHB 516
Wednesday 3-3:30 (Online via Zoom)
Additional office hours will be announced on Quercus

Course Email Address: phl245h1f.a@course.utoronto.ca
Please have "**Section L0201**" and your **student number** in your subject. If you do not have this information, you may not get a response.

Course Description:

Modern symbolic logic is an introductory course in first-order logic. The first half of the course will be dedicated to sentential logic. Students will be introduced to arguments, semantics, symbolization, and derivation techniques. The second half will expand these skills into predicate logic. While the obvious goal of the course is to master formal logic, students who complete the course will have significantly developed their abstract reasoning and argument analysis abilities. These skills lead directly to an improvement in critical reading, writing, and thinking.

Mode of Delivery:

This section of PHL245 is hybrid. The majority of the lecture materials will be delivered via videos posted online. Our two-hour class is **online synchronous via Zoom** where we will briefly review the lecture material and then we will focus on practicing problems and answering student questions. You should watch the videos and attempt some problems prior to class to get the most out of the synchronous sessions. Videos are posted on MyMedia (links are on Quercus) and on my YouTube channel: https://www.youtube.com/c/AlexKooLogic

There will typically not be a class during our one-hour session. You should use the free time to watch the online lectures and practice. The one-hour time slot will be used for **in-person** testing four times a semester. Locations for the tests will be announced on Quercus.

Communication:

Emailing the course email address is the best way to communicate with your instructor for all PHL245 issues. We will do our best to respond within 48-hours (not including weekends). We will not answer emails with questions about particular logic problems. If you have such questions, you should post them to the Piazza discussion board, go to the Logic Lab, or go to office hours to get them answered (see below for more information on these options). We will also not respond to emails where the answer can

easily be found on Quercus or in other course materials. For issues such as missed tests and quizzes, and test regrades, follow the instructions below.

> You must have your **section** and your **student number** in the subject of your email

If you wish to contact me personally for non-PHL245 related issues, you can email me at alex.koo@utoronto.ca. You should not use my personal email for course related issues.

Office Hours:

Please feel free to come to my office hours without an appointment. I will be happy to answer any question that you like. This includes requesting help with any logic question—including quiz questions. You may also come to my office hours if you don't have any questions at all and just wish to work on some problems. This way you can practice independently and I will gladly help out if anything comes up. This is a very good option for those who want to work together in a smaller group.

Quercus (REQUIRED):

All course materials will be posted on Quercus. This includes announcements, lecture slides, links to online lectures, video demonstrations, readings, test solutions, and quizzes. Check Quercus regularly to make sure you get all the content for the course.

Logic2010 (REQUIRED):

Logic2010 is a logic program developed by Terrance Parsons and David Kaplan at UCLA. This free program will be made available to students for practice purposes and for weekly quizzes. You can download the software for free. All links and instructions can be found here: https://logiclx.humnet.ucla.edu/. If you're having problems installing the software, check the Additional Logic2010 Installation Instructions in the Course Resources module in Quercus.

Please register using your **Student Number**, and not your UtorID. Make sure you select **UofT** as your institution and ensure that the **instructor**, **term**, and **course** are correct. If you forget your password, email the course email address with your full name, student number, and roughly the last time you remember signing in successfully.

Logic2010 will be used for quizzes 2-12. You should also use it as a question bank for practice. Please watch the instructional videos for tips on how to use Logic2010.

> Double check your Institution: **UofT**, Term: **Fall 2025**,
> Course: PHL 245H1 F **L0201**, Instructor: **Alex Koo**
> You must **SUBMIT EACH** of your quiz problems to Logic2010 to get credit.
> This is different from just saving your answer. **Be sure to submit!**
> You should **CONFIRM** your submitted questions on the Logic2010 website.

Course Texts (OPTIONAL and ONLINE):

This course is an adaptation of Terrance Parsons' *Intro Logic Text*. An up-to-date version of the *TerryText* can be found through Logic2010 and is also posted on Quercus. My online videos are complete, which means that you do not need to read anything from this text to succeed in the course; however, doing the readings will compliment the video lectures very well.

Parsons' text is a modernization of Kalish, Montague, and Mar, *Logic: Techniques of Formal Reasoning.* You can find the KMM book in the library but be warned: it is a challenging read.

Piazza (RECOMMENDED):

Piazza is an online discussion board with lots of helpful features. If you have questions about course material, such as difficulties with logic problems, post your questions on the Piazza board. **Good questions** will be answered by your fellow students, teaching assistants, and myself. This is an excellent resource for getting extra-help throughout the course.

What is a good question? It should include the problem in it—don't expect people to go search for the problem you are working on. It should include some of your own work that shows where you got stuck—it's not helpful to just get the full solution. It should not just be about basic course issues that are answered in the syllabus or in course announcements—all this stuff is in the syllabus. If your question isn't answered, odds are it's not "good" in the senses above.

Your posts on Piazza are governed by UofT's student code of conduct. Click here for more information: https://governingcouncil.utoronto.ca/secretariat/policies/code-student-conduct-december-13-2019

Mentimeter (RECOMMENDED):

Mentimeter is an online voting platform that I will be using in class to get real-time feedback and responses from students. You can respond to questions using a phone or internet connected device with no registration required—just go to www.menti.com and enter the question code that will be on the screen. All responses are optional, anonymous, and have no bearing on your mark.

Logic Lab (RECOMMENDED):

The Philosophy Department is offering weekly drop-in help sessions for all your extra-help needs. The Logic Lab will have regular weekly hours where a tutor will help you with your questions, including those assigned for the weekly quizzes. Even if you don't have specific problems, you can go to the Lab to do your homework and hang out. The Logic Lab is a great way to get help and to meet other students in the class. Logic Lab hours and locations will be posted on Quercus every week.

Evaluation:

There will be four 50-minute tests during the semester that will always be during the one-hour timeslot. Test locations will be announced on Quercus. Tests will be written on paper and will be returned electronically through Crowdmark. I strongly suggest you write your test with a pencil and eraser. No matter what you use, be sure that it is dark enough so that it will scan clearly using a black and white scanner.

Quizzes will be submitted through Logic2010 except for Quiz 1, which will be on Quercus. See Quercus or the Logic2010 assignments page for details and due dates. Each weekly quiz is weighted the exact same regardless of how many marks it is actually out of.
The final exam will take place during the examination week at the end of the semester. It will be cumulative and three hours in length.

Four In-Class Tests	55% (13.75% each)
12 Weekly Online Quizzes	10% (0.83% each)
Final Exam	35%

Test Regrade Requests:

All test solutions will be posted to Quercus. If you feel that one of your questions was not graded accurately, your first step is to check the solutions. Once your test is returned via Quercus you will have seven days (including weekends and holidays) to submit a request for a regrade. This will be done by filling out an MS Form that will be linked on Quercus. **We will not handle regrade requests over email**. More specific instructions can be found on the regrade request form.

Exam regrade requests are not handled by the instructor. Contact your registrar for information on this.

Missed Test Policy:

If you have a legitimate excuse for medical or other reason, then you can request approval to write the make-up test. To request approval for the make-up, fill out the MS Form titled "Missed Test Form" on Quercus. This must be done within seven days (including weekends and holidays) of the test that you missed. The exception to this is that for test 4 there will be a much shorter window to request the make-up test. If you have an unusual request or you cannot fill out the form for some reason you may email the course email address.

When you fill out the form you will be asked (1) whether you are declaring or have declared your absence using UofT's ACORN Absence Declaration Tool, (2) to submit proper documentation (you can find the UofT medical note template here: http://www.illnessverification.utoronto.ca/), or (3) if you have a case that does not fit (1) or (2). For cases (1) and (2), you will be granted permission to write the make-up test to replace your missed test. For case (3), we will consider these on a case-by-case basis. See the section on the make-up test below for more information. Missing a test due to a course conflict is not a legitimate reason. Missing a test because you joined the course late is not a legitimate reason.

If you miss more than one test, you must discuss your situation with the instructor in person. This should be done at office hours, and no appointment is required. If you do not do this, you will get a 0 on any test that you miss beyond the first. It is your responsibility to come to the instructor's office hours.

If you miss the final exam, you must contact your registrar immediately. Exams are out of the jurisdiction of individual professors.

Make-Up Test:

There will be a single **cumulative** make-up test at the end of the semester that covers units 1-8. The mark you earn on it will substitute for the test that you missed. Exact details will be announced on

Quercus near the end of the course. To be clear: everyone will be writing the exact same make-up test regardless of which test you missed.

Missed Quiz Policy:

We will automatically accept all quiz questions submitted 48 hours past the quiz due date at a 50% penalty. This adjustment will be applied at the end of the course. We will not accept any quizzes after 48 hours.

As the quizzes are available from the start of the course and because they are meant to keep you on track with the course material, we will be quite strict with extension requests. If you have a legitimate reason for a quiz extension, fill out the MS Form "Quiz Extension Request Form" on Quercus. The form will ask you the same three options as in the case of missing a test. Requesting an extension because you joined the course late is not a legitimate reason.

Course Flow:

Each week you should watch the videos assigned on Quercus. Start with the lecture videos and then move on to the demonstrations. I suggest that you watch the videos early in the week so that you have the rest of the week to practice questions, get help at the Logic Lab (see below), ask questions on Piazza, or come to my office hours for help.

In general, you will have three weeks of learning followed by a test. This pattern is repeated four times in the semester (call each time a section). The number of videos assigned is frontloaded—this means that in your first week of a section you will have quite a bit of videos to watch, in the second week it will be less, and in the third week there will be relatively few. In each section you will spend the first two weeks learning the skills and by the third week you will be focussed on practicing and solving the more difficult questions.

Each week you have a quiz on Logic2010 that is due on Friday night (except for week 1 where the quiz is on Quercus). Get into the habit of starting the quiz early in the week and then finishing up the harder questions at the end. If you start early, you will have more than enough time to ask for help on your quiz questions—it is totally okay to source solutions from your peers, Logic Lab TAs, and myself!

You will want to do more questions for practice than what is assigned in the quizzes and shown in the demonstration videos. Use Logic2010 as a question bank for practice. You can do as many questions as you want, and whenever you are stuck just ask for help.

The most important part of the course flow for you to master is to give yourself time to attempt questions, get stuck, ask for help, process the feedback, and then try to solve the problem again. Getting feedback is critically important to developing your skills.

Accessibility Accommodations:

UofT has an excellent accessibility services: http://www.studentlife.utoronto.ca. If you need any accommodations, please contact accessibility services and then we can work together to make the course a positive experience for you.

Health and Wellness:

If you find yourself struggling with the course or any other aspect of university life, please make use of the resources at the school. Here are some links:

- Registrar: https://www.future.utoronto.ca/current-students/registrars
- Health and Wellness: https://www.studentlife.utoronto.ca/hwc
- Personal Safety: https://safety.utoronto.ca/
- Student Support Program: https://www.studentlife.utoronto.ca/cie/myssp
- Sexual Violence Prevention and Support Centre: https://www.svpscentre.utoronto.ca/
- Campus Police: http://www.campuspolice.utoronto.ca/

Academic Integrity:

The University of Toronto treats cases of academic misconduct very seriously. Academic integrity is a fundamental value of learning and scholarship at the UofT. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that your UofT degree is valued and respected as a true signifier of your individual academic achievement.

The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours that constitute academic misconduct, the processes for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

- On tests and exams: Using or possessing any unauthorized aid, including a cell phone. Looking at someone else's answers. Letting someone else look at your answers. Misrepresenting your identity. Submitting an altered test for re-grading.

- Misrepresentation: Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes. Falsifying institutional documents or grades.

See https://www.academicintegrity.utoronto.ca/ for more information.

How to Succeed:

1) Watch the video lectures REGULARLY

This is not the kind of course where you can watch everything and cram right before a test. Make sure you watch the content regularly! The weekly quizzes will help keep you on track.

2) Do the video demonstration problems—don't just watch them

It's not good enough to just watch me do a problem on YouTube. Pause the video and try the question yourself. Once you get stuck or you finish the problem, then watch the rest of my video to see how you did. It's also quite helpful to watch these demonstrations multiple times. You'll learn something different from each view.

3) Don't fall behind

Technical courses such as this one move quickly and the material always builds upon itself. If you fall behind early, either in your coursework or your understanding, later content will be nonsensical. It is crucial to make sure that you understand the weekly material so that you will grasp the new content in the following week.

4) Practice!

Unlike essay-based classes, technical courses require you to do problems almost every day. If you leave the homework problems until the days before the test, this will not give you enough time to digest the skills required. Try to do some logic problems as regularly as you can. This is not to say that you should work for hours every day of the week. One or two problems a day is often enough, and this will keep the material fresh in your mind. Logic is a skill, and skills take practice to get good at! It also helps to practice a variety of different question types and a variety of difficulties. Even if a question is too advanced for your level, attempting it and posting your partial solution to Piazza is an extremely effective way to improve. Challenge yourself with your practice!

5) Learn from your mistakes

Do not get frustrated when you get the answer wrong or get stuck. This is inevitable! When you do practice problems most of your learning will actually come from staring at an incorrect solution and trying to figure out what went wrong or what to do next. Do not just move to the next question! Compare your approach to what was done in lecture, in the text, or from videos and figure out what went wrong. This is far more useful than doing another problem. To that end, rushing to take a look at the solutions is often a mistake. It's far more useful for you to keep trying to solve a challenging problem than just looking at the solution and moving on.

6) Make use of all the extra resources

Post good questions on Piazza. Practice on Logic2010. Watch all the videos on Quercus. Go to my office hours and the Logic Lab for help with your quizzes and homework. Talk to your peers and try to work together on the homework. And of course, come to class! All these things will make it much easier to stay on top of the material.

7) Use pencil and paper in class

Logic does not lend itself to taking notes on a computer. Put your laptops away and just come to class with a pad of paper, pencil, and eraser. The notable exception here is if you have a stylus compatible computer—those are great! All the notes will be posted digitally after class, but you need to work through the problems by hand to learn and to simulate the experience of writing a test.

Tentative Weekly Schedule:

Week	Date	Topic and Notes
1	03-Sep	Introduction; Unit 1: Arguments
	05-Sep	Unit 1 continued; Unit 2 Semantics
2	10-Sep	Unit 2 continued; Unit 3 Symbolization
	12-Sep	No Class
3	17-Sep	Unit 3 continued
	19-Sep	Test 1 (Units 1-3)
4	24-Sep	Unit 4: Derivations in Sentential Logic
	26-Sep	No Class
5	01-Oct	Units 3 and 4 continued
	03-Oct	Test 2 (Units 3 and 4)
6	08-Oct	Unit 5: Single-Place Symbolization in Predicate Logic
	10-Oct	No Class
7	15-Oct	Unit 6: Single-Place Derivations in Predicate Logic
	17-Oct	No Class
8	22-Oct	Units 5 and 6 continued
	24-Oct	Test 3 (Units 5 and 6)
Reading Week		
9	05-Nov	Unit 7: Multi-Place Symbolization in Predicate Logic
	07-Nov	No Class
10	12-Nov	Unit 8: Multi-Place Derivations in Predicate Logic
	14-Nov	No Class
11	19-Nov	Units 7 and 8 continued
	21-Nov	Test 4 (Units 7 and 8)
12	26-Nov	Unit 9: Semantics in Predicate Logic
	28-Nov	No Class. Make-Up Test (Units 1-8).