Phil 370: Theoretical Logic
Syllabus

Instructor: Dr. Audrey Yap (ayap@uvic.ca)
Office: CLE B307. Phone: 721-7510
Office Hours: Thursdays 10:00-12:00 and by appointment
Class Information: TWF 1:30-2:20 in CLE A308.
Drop-in Hours: TBA
Course Website: Through CourseSpaces http://coursespaces.uvic.ca
Textbook: Open Logic Textbook, downloadable from the course website. For more information on this textbook, see http://openlogicproject.org
Prerequisites: Phil 203, Math 122, or permission of the instructor.

Course Objectives: Techniques of formal symbolic logic are used in modeling deductive arguments. We use them most often to model the validity of arguments, and to prove that a conclusion follows from the premises. We have criteria for determining when one sentence is a logical consequence of others, and when one sentence is deducible from others. The metatheory of formal logic is the study of these rules and criteria. For instance, we want to make sure that our rules for deduction will always lead us to correct conclusions, and that we have enough rules to ensure that everything that logically follows can also be deduced. The goal of this course is to introduce you to the main ideas and metatheorems of formal symbolic logic, as well as teach you how to write mathematically rigorous proofs. It is important to know how to prove theorems, but such proofs also need to be clear and readable. Proof-writing skills will also be emphasized in this course.

Communication: Office hours are held on a drop-in basis. If you want to schedule an appointment outside my office hours, try emailing me with a few suggestions for times that would work for you. If you ask me a question over email, you can expect a reply within about 1 working day. If you don’t hear back from me after that time frame, feel free to try again in case your message went astray.

Course Logistics: This course typically requires regular attendance, and almost all students find it useful to attend at least one of the designated drop-in sessions. These are held every week in which an assignment is due and will give you the chance to work on the assignments in groups with instructor feedback. There will be 8 homework assignments which must be turned in by class time on the due date unless otherwise specified. Assignments will generally be due on Fridays, but any one assignment can be turned in late (the following Monday) without penalty, so long as you email me and ask for an extension before the class when it is due. Documentation is only required if you need an extension on more than one assignment without penalty. Otherwise, a second late assignment will lose 2 points per day and will not be accepted more than 5 days after the due date. Note that while I encourage you to work on your assignments in groups, you must write up your
answers independently. Plagiarised work will not receive credit. For more information on plagiarism, see the University Calendar.

Homework is worth 25% of the final grade. There will also be two non-cumulative tests (20% each) and a cumulative final to be held during the final examination period to be scheduled by the Registrar (35%). Exam rewrites will only be scheduled in cases of documented illness or other extenuating circumstances. Documentation must be received within a week of the exam date.

**Numerical and Letter Grades:** Grades will be given as percentile marks. The percentile mark for the course will be converted to a letter grade in the following manner:

- **A+** = 90 - 100, **A** = 85 - 89, **A-** = 80 - 84, **B+** = 77 - 79, **B** = 73 - 76, **B-** = 70 - 72, **C+** = 65 - 69, **C** = 60 - 64, **D** = 50 - 59, **F** = 0 - 49. The A range means exceptional, outstanding and excellent performance. A grade in the B range means a very good, good and solid performance. A grade in the C+ or C range means satisfactory, or minimally satisfactory, performance. A grade of D or D- indicates merely passable or marginal performance. An F indicates unsatisfactory performance.

**Course Evaluations:** I value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to [http://ces.uvic.ca](http://ces.uvic.ca). You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet or mobile device. I will remind you nearer the time, but please be thinking about this important activity, especially the following three questions, during the course.

1. What strengths did your instructor demonstrate that helped you learn in this course?
2. Please provide specific suggestions as to how the instructor could have helped you learn more effectively.
3. Please provide specific suggestions as to how this course could be improved.
Schedule:

- Week One: Sept 9, 11
  Topic: Sets and Relations.
  Reading: OLP Chap 1, 2

- Week Two: Sept 15, 16, 18
  Topic: Sets and Relations, continued. Functions.
  Reading: OLP Chap 3, 4

- Week Three: Sept 22, 23, 25
  Topic: Propositional Logic. Induction
  Reading: Course Notes
  HW1 due Sep 25th

- Week Four: Sept 29, 30, Oct 2
  Topic: Sentential Connectives.
  Reading: Course Notes
  HW2 due Oct 2nd

- Week Five: Oct 6, 7, 9
  Topic: First-Order Languages.
  Reading: OLP Chap 5
  HW3 due Oct 9th

- Week Six: Oct 13, 14, 16
  Topic: Structures.
  Reading: OLP Chap 5
  Test One: Oct 14th

- Week Seven: Oct 20, 21, 23
  Topic: Theories.
  Reading: OLP Chap 6
  HW4 due Oct 21st

- Week Eight: Oct 27, 28, 30
  Topic: Derivations.
  Reading: OLP Chap 7
  HW5 due Oct 30th

- Week Nine: Nov 3, 4, 6
  Reading: OLP Chap 7, 8
  HW6 due Nov 6th
• Week Ten: Nov 13  
  Topic: Completeness.  
  Reading: OLP Chap 8  

• Week Eleven: Nov 17, 18, 20  
  Topic: Compactness.  
  Reading: OLP Chap 8  
  Test Two: Nov 18  

• Week Twelve: Nov 24, 25, 27  
  Topic: Model Theory.  
  Reading: OLP Chap 9  
  HW7 due Nov 27th  

• Week Thirteen: Dec 1, 2, 4  
  Topic: Review.  
  HW8 due Dec 4th  

Note: This syllabus is provisional, and should only be used to give a rough guide to the course schedule. Dates may be changed if necessary.