Oran Magal

Lectures: Mondays and Wednesdays 10:05-11:25, Edu 627

Office hours: Friday 10:00-12:00, Leacock 941

Course Description

This course offers an introduction to the fundamental concepts of logic and computation. The focus is on understanding and learning to apply the relevant concepts and principles, along with the required technical tools at an accessible level.

The course comprises three parts. In the first part, we will acquire some necessary tools: the fundamentals of set theory as well as the principle of mathematical induction. In the second part, we will cover the syntax and semantics of first order logic (propositional and quantified) and learn some proof techniques for logic. In the third and final part, we will discuss the central concepts of computation as well as some central meta-logical results: Turing Machines, the Halting Problem, and Gödels First and Second Incompleteness Theorems. A detailed schedule of topics and readings is posted on *MyCourses*.

Eligibility:

Not open to students who have taken PHIL 310 or MATH 498 due to overlapping material.

Required and optional readings:

We will be using a textbook based on the Open Logic Project. It will be distributed online via *MyCourses*, along with any other required reading materials. For students interested in a more detailed technical treatment of the material, I strongly recommend: Boolos, Jeffrey, and Burgess, *Computability and Logic*, 5th edition (Cambridge University Press, 2007).

Marking and Assessment:

The final mark is composed of the following:

1. 2 in-class quizzes: 15% each
2. Midterm: 20%
3. Formal final exam: 50%
4. Note: the tentative dates of the quizzes and the midterm appear on the schedule posted on *MyCourses*. The final exam will be held during the exam period, day and time to be determined and advertised by McGill.

Policy for Late Work: Extensions to deadlines set will be granted only in **exceptional** circumstances, usually only for medical reasons and with a medical note or other, similar emergencies, appropriately documented. Late work will be penalized at the rate of 3 percentage points per day overdue.

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/integrity).