

Phil 210:

Introduction to Deductive Logic

Fall 2014

ORAN MAGAL

E-mail: oran.magal@mcgill.ca

Office: Leacock 941

Lectures: Monday, Wednesday, Friday 10:35–11:25

McIntyre Med Bldg 522

Office hours: Monday & Wednesday 12:00–13:00

Summary of Material.

The purpose of this course is to convey the main elements of *deductive logic*, the modern form of the discipline which has traditionally studied correct forms of inference and reasoning. The course is specifically an introduction to *symbolic logic*, in which such notions as logical consequence and consistency are rendered in a formal way, which makes it possible to study them systematically. The key ideas of logic are introduced in a language which, for reasons we will discuss, is called *first-order logic*. The course begins with the simpler case, that of the logical relations between whole sentences, or *propositional logic*, as well as the *logical connectives* such as ‘or’, ‘and’ or ‘if – then’, which we use to form more complex statements and arguments. Within this system, we define central notions of logic such as validity, equivalence and consistency. Following this, we consider a more complex form of first-order logic: a logic which can handle quantification (‘all’, ‘some’, ‘there exists...’, etc.), and in which we will consider sentences not merely as wholes but also as comprised of predicates which apply to objects, making it possible to formalise and study a broader range of deductive reasoning.

The lectures will closely follow the presentation of the material in the textbook (see below). Therefore, the textbook should be carefully studied and consulted often. The expectation is that the lectures come *in addition to* an independent study of the textbook, including going through the examples given there. The key to successfully mastering symbolic logic is a great deal of practice. While we will go through sample exercises in the classroom, there is no substitute to independently thinking about the material outside the lectures, especially by working through homework exercises. Another thing worth remembering is that logic, not unlike learning a foreign language, is a *cumulative* effort. It will be very difficult to follow the material late in the course without a good knowledge of the material with which we start. Therefore, consistent attendance and keeping up with the exercises as we go along are absolutely essential to success in the course. A final note: handouts to supplement the textbook, as well as the mandatory homework assignments (see below), will be distributed through MyCourses. Make sure to check there routinely during the course.

Required reading material. The textbook for the course is Barwise, Etchemendy et al.: *Language, Proof & Logic*, 2nd edition. An online version (book + software) is available through the publisher (CSLI), and a physical package will be available from The Word Bookstore, 469 Milton Street (near University Street Gates). **This text is essential. NB.** Cheques and cash only; no credit cards.

Software The book comes with a CD-ROM containing software essential for many of the exercises. There are 4 software programs which are to be used to practice various aspects of the course, and files based on these programs. (The CD also contains a PDF copy of the textbook.) Instructions how to use the software will be given in class.

Marking and Assessment There will be two *mandatory* homework assignments, worth 15% of the final mark each. There will also be a midterm, held in class, which is worth 30%, and a final exam worth 40%, date and location determined by the university. While it is not part of your final grade, keeping up with weekly homework is essential to success in the course. **Please keep copies of work submitted.** *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.* NB

Policy for Late Work Late work will be penalised 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).

NB

NB