McGill University
Department of Mathematics and Statistics
Mathematical Logic, MATH 318/Fall, 2007

Instructor: Professor Michael Makkai
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Office hours: MWF 10:30 AM-12:00 NOON, or by appointment
Assignment marker: TBA.

There will be no textbook used for this course. A set of **notes** will be made available on the website of the course: http://www.math.mcgill.ca/makkai ; click on MATH 318 . Other written materials (assignments, solutions to assignments, additional notes) will also be found on the site. Upon demand, materials may be made available at the Engineering Undergraduate Society Copy Center (COPIEUS) (McConnell Engineering Bldg, ground floor).

Classroom attendance and taking notes in class are important. The lectures will not follow exactly what is written in the notes.

The following two further sources may be consulted, but they are optional:

Joachim Lambek, Mathematical Logic (Notes for 189-318), 1983. Will be available at the COPIEUS.

Stanley N. Burris, Logic for Mathematics and Computer Science, Prentice Hall, 1998. On reserve in the Physical Sciences and Engineering Library.

Course description:

1. Sets, functions, relations, orders and lattices.
2. Boolean algebras and propositional logic. Boolean calculations.
3. Quantifiers. The syntax and the semantics of predicate logic. Writing and reading in the language of predicate logic.
4. Deductive first-order logic. Extended natural deduction in J. Lambek's style.
5. The Tarski algorithm for calculating truth-values. Skolem functions.
6. Formal arithmetic.

There will be about eight homework assignments.
There will be a 2-hour mid-term test: date and time: TBA.
There will be a 3-hour written final examination, in the usual exam period.

Method of evaluation: With H = homework mark, M = midterm mark, F = final exam grade, **final grade** = max(10%×H+30%×M+60%×F , 10%×H+90%×F) .
There will not be additional ways of upgrading the final grade.

There will be a supplemental examination, for 100% for the supplemental mark.

The Senate of the University has resolved that the following statement be included in this course outline: "McGILL UNIVERSITY VALUES ACADEMIC INTEGRITY. THEREFORE ALL STUDENTS MUST UNDERSTAND THE MEANING AND CONSEQUENCES OF CHEATING, PLAGIARISM AND OTHER ACADEMIC OFFENSES UNDER THE CODE OF STUDENT CONDUCT AND DISCIPLINARY PROCEDURES (see www.mcgill.ca/integrity for more information)."