MAT4199: Special topics in Logic: Recursion Theory

Instructor: Pieter Hofstra

- email: phofstra@uottawa.ca
- office hours: Tuesdays 10-12, or by appointment. You are welcome to ask any questions about the course and the material. If (you think) you are having trouble with the course, come and see me as soon as possible and do not wait until it is too late.

Overview and aims of the course. Recursion theory starts by asking the question: “What (mathematical) problems can be solved (by algorithmic means)?” More concretely, it studies computability of functions on the natural numbers and of subsets of the natural numbers. This leads to a classification of “degrees of difficulty” for such problems. After the development of the basic theory, we will explore topics depending on student interest, such as Gödel’s incompleteness theorems.

Course homepage: http://mysite.science.uottawa/phofstra//MAT4199/4199.html

You should check this website regularly: course material, homework assignments, and other material will be made available here. It is the student’s responsibility to take note of the information posted on this page.

Prerequisite: Mathematica maturity and sufficient experience in advance pure math courses (3xxx) is essential.

Classes. Tuesdays 8:30–10:00 and Fridays 10:00-11:30, KEDB004. During the lectures, I will explain the material and illustrate with examples. You should take detailed notes.

Exams, homework and marking scheme.

- There will be a 3 hour, registrar scheduled final exam in the exam period (exact date will be announced). The exam will be cumulative (comprising all course material); The exam is closed book.
- There will be one midterm exam on March 3. The material for this midterm exam will be announced on the course website. No notes, books or calculators will be allowed.
- There will be 5 written homework assignments. The assignments have to be submitted at the beginning of class. More information can be found on the course homepage.

Note: Graduate students taking the course will be required to complete a larger number of homework and exam questions. In addition, they will be required to write a project paper on a topic of their choice relating to the course material (subject to instructor’s approval). The marking scheme for undergraduate students is as follows:
• Final exam: 50%
• Midterm exam: 20%
• Homework: 30%

The marking scheme for graduate students is as follows:
• Final exam: 40%
• Midterm exam: 15%
• Homework: 20%
• Project paper: 25%

**Literature.** Course notes are available at:

http://mysite.science.uottawa/phofstra//MAT4199/4199.html

**Academic Fraud.** Any incident will be reported to the Faculty without exception. Penalties range from receiving an F in the course to expulsion from the university. Please see the university policy on academic fraud.