

MACF 491 (STAT 497/MAST 679/MAST 881), Sec. H
Topics in Mathematical & Computational Finance
Winter 2019

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Office Hours: Monday and Wednesday, 11:45-12:45.

Class Schedule: Monday and Wednesday, 8:45-10:00, room Hall 521, SGW campus.

Textbook: *Reinforcement Learning: An Introduction*, by R.S. Sutton and A.G. Barto, 2nd Edition, MIT Press. Available for free online at <http://incompleteideas.net/book/the-book-2nd.html>

Outline: This course is an introduction to reinforcement learning techniques. It requires extensive programming with the R language. Topics covered include:

- Multi-armed bandit problem
- Markov Decision Problems
- Dynamic Programming
- Monte-Carlo solution methods
- Temporal difference methods
- Multi-period
- Approximation methods
- Policy gradient

Evaluation: The course mark will be determined by a mid-term (35% weight), assignments (35% weight) and a project (30% weight).

If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.

Academic Integrity and the Academic Code of Conduct

This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: concordia.ca/students/academic-integrity." [Undergraduate Calendar, Sec 17.10.2]