Department of Mathematics & Statistics
Concordia University

MATH 475 (MAST 661/MAST 865), Sec. D

Discrete Dynamical Systems, Chaos and Fractals

Winter 2020

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Office Hours: TBA or by appointment.

Recommended (but not obligatory) Textbooks:

1) *Discrete Chaos* (second edition) by Saber Elaydi.
2) *Fractals Everywhere* by Michael F. Barnsley.

Topics:

Iteration of Functions
Periodic and Fixed Points Bifurcations
Sharkovsky Theory
Henon Map
Complex Dynamics
Julia and Mandelbrot Sets
Iterated Function Systems

The three last topics involve fractals.

Assignments: Homework will be given weekly and constitutes a very important part of the course. Students are encouraged to use Maple (or other such system) whenever it is applicable. **Late homework will not be accepted.** Graduate student will be given extra work.

Midterm Exam: There will be an in-class test. The exact date of the exam will be announced during the lecture at least two weeks in advance.

Final Exam: To be announced.

Evaluation: The final mark is the maximum of:
20% assignments + 20% midterm test + 60% final exam
100% final exam.

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]

Below we show some objects that will be disscussed in class.