

# MATH 3800 A

## Mathematical Modeling and Computational Methods

### Fall 2022

**Instructor:** Dr. Steve Desjardins

**Office:** 5218 HP      **Phone:** (613) 520-2600, Extension 8999

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**Office Hours:** Mondays and Wednesdays 10:30 - 11:30

**Lectures:** Mondays and Wednesdays 8:30 - 10:00 in 304 SA

**Labs:** (the Labs will start the week of September 19th)

A1	Mondays	13:30 - 14:30	3393 HP
A2	Mondays	12:30 - 13:30	3393 HP
A3	Mondays	10:30 - 11:30	3393 HP
A4	Tuesdays	11:30 - 12:30	3393 HP

**References:**

- (i) *A First Course in Mathematical Modeling (5th Ed)* by Giordano, Fox and Horton
- (ii) *Applied Numerical Methods (with Matlab) for Engineers and Scientists (4th Ed)* by Chapra

**Prerequisites:** i) MATH 1107 or MATH 1104; ii) MATH 1005 or MATH 2007; and iii) knowledge of a computer language.

**Course Contents:** In this course, we will study Mathematical Modeling. What exactly that means will be one of the topics we discuss. We will look at discrete, continuous and random processes, difference equations and differential equations. We will also study the numerical methods that come up along the way.

**Evaluation:** Your course grade will be determined by the following formula:

- The final exam will count 50% and will be held during the Exam Period (Dec. 10th - 22nd).
- There will be two 80-minute midterm tests worth 15% each. The tests will be held in the lecture periods on Wednesday, October 19th and Wednesday, November 23rd. If you miss a test, its weight will transfer to the final exam.
- There will be 4 assignments worth a total of 20%. The due dates will be September 28th, October 12th, November 9th and 30th. Assignments are due by 10:00 in class. You must indicate your Lab Section on the front page of your assignments (failure to do so may result in your assignment not being marked).

**Calculators:** You will need a basic scientific calculator for the tests and final exams. If you have a graphing and/or programmable calculator, you may find it useful for the assignments, but you will not be permitted to use it on the exams.

**Academic Accommodations:**

**Pregnancy obligation:** Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website:

<http://www2.carleton.ca/equity/human-rights/policy/>

**Religious obligation:** Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website:

<http://www2.carleton.ca/equity/human-rights/policy/>

**Academic Accommodations for Students with Disabilities:** The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable).