

# MATH 3800 D

## Mathematical Modeling and Computational Methods

### Winter 2021

**Instructor:** Dr. Steve Desjardins

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**Lectures:** The Lectures are formally scheduled to be held on Tuesdays and Thursdays 13:00 - 14:30, so these days/times will be used for tests and assignment due dates (and any live interactions). However, the course will likely run asynchronously for the most part. Lecture materials for the course will be uploaded to the CULearn page on a regular basis.

**Labs:** The Labs will start on Thursday, January 21st. During these periods, the TA will present material from the Lab Manual and answer questions.

D1	Fridays	12:30 - 13:30
D2	Fridays	8:30 - 9:30
D3	Wednesdays	15:30 - 16:30
D4	Thursdays	14:30 - 15:30
D5	Thursdays	11:30 - 12:30
D6	Thursdays	10:30 - 11:30

**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 35% and will be held during the Exam Period (April 16th - 27th).
- There will be three 60-minute midterm tests worth 15% each. The tests will be held on CULearn during the scheduled lecture time on Thursday, February 4th, Thursday, March 4th and Thursday, March 25th. If you miss a test, its weight will transfer to the final exam.

- There will be 4 assignments worth a total of 20%. Assignments will be posted on CULearn at least one week before they are due (and they will be submitted through CULearn). The assignments will be due by 10pm on the evenings (Thursdays) of January 28th, February 25th, March 18th and April 8th.

**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).