

**MATH 3800A— Fall 2021**  
**Mathematical Modeling and Computational Methods**

<b>Instructor</b>	Dr. Eric Hua, <a href="mailto:xhua@math.carleton.ca">xhua@math.carleton.ca</a>
<b>Course Web</b>	<a href="#">BrightSpace</a>
<b>Office Hours</b>	Mon & Wed 4pm-5pm, or by appointment, or by email ( <b>email Subject: MATH3800A</b> ).
<b>References</b>	(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
<b>Lectures</b>	Sep 8, 2021 to Dec 10, 2021. Monday and Wednesday: 8:35-9:55, <b>live class</b>
<b>Lab tutorial</b>	Monday: 13:35-14:25. Tutorial starts from <b>Sep 17</b> . A1: Mon Time: 13:35 - 14:25 Building: Herzberg Labs for Physics Room: 3393 A2: Fri Time: 11:35 - 12:25 Building: Herzberg Labs for Physics Room: 3393 A3: Wed Time: 12:35 - 13:25 Building: Herzberg Labs for Physics Room: 3393 A4: Tue Time: 08:35 - 09:25 Building: Herzberg Labs for Physics Room: 3393 AW: Mon Time: 13:35 - 14:25 Building: ON Room: LINE
<b>Assignments</b>	You will have 3 assignments. The due dates will be <b>Oct 15, Nov 5, Nov 26, Fridays, due at 10pm.</b>
<b>Tests</b>	There will be two tests, on the following dates: <ul style="list-style-type: none"> <li>• <b>Oct 20 (Test 1), Wednesday, 1 hour within 8:35-9:55.</b></li> <li>• <b>Nov 24 (Test 2), Wednesday, 1 hour within 8:35-9:55.</b></li> </ul> There will be no early nor make up tests. If you miss a test, the weight will be added to the final exam.

**Grading Scheme:**

- **30% (two tests) + 30% (assignments) + 40% (Final Exam).**

Any change about term marks (tests and assignments) should be done on or before **December 10**.

**To Pass This Course:** A student must obtain at least 50% of the course total and at least 40% from the term work (assignments and tests). Students who missed the examination may be eligible for a deferred exam. It is the Registrar's Office which makes the decision of granting a deferred examination.

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

**Course Contents:** Design and analysis of mathematical models for problems in science. Computational methods, including function evaluation, interpolation, solution of linear equations, root finding, integration, solution of differential equations, Fourier series and Monte Carlo methods.

**Science Student Success Centre:** <http://sssc.carleton.ca/>

**Assignments:** Assignments will be posted on Brightspace, and they will be submitted through Brightspace. Only a **single** pdf will be accepted with the questions in the correct order. If you have any changes after submission, you can resubmit before deadline. Assignments will NOT be acceptable after the due date for any reason.

**Midterm Tests:** The tests will be held on Brightspace. If you miss a test, its weight will transfer to the final exam.

**Final Examination:** This is a 3-hour exam scheduled by the University. It is each student's responsibility to be available at the time of the examination.

### **Homework**

Students are expected to do the exercises. These exercises are not to be handed in and will not be graded. However, in order to succeed in the course, it is absolutely essential to do the exercises on a regular basis.

### **e-Proctoring**

Please note that tests and examinations in this course will be proctored. You can find more information at <https://carleton.ca/ses/e-proctoring/>.

### **University Policies**

#### **Student Academic Responsibilities**

Each student is responsible for:

- Knowing the due dates of in-tutorial marked problem sets and tests.

- Maintaining a folder of all work done in the course during the semester for validation claims in cases of disagreement with faculty.
- Keeping both paper and electronic copies of all assignments, marked and unmarked, in case papers are lost or go missing.
- Regularly checking both Brightspace announcements as well as one's Carleton e-mail account for important messages from both professor and university administration
- Participating in tutorial exercises and activities as required.

### **Class Conduct**

To ensure an optimum-learning environment, students are expected to behave in a professional manner at all times. Disrupting a class is considered to be an Instructional Offence (see University Calendar). If a student exhibits disruptive behavior in class and chooses not to refrain from such behavior at the request of the instructor, the student will be asked to leave the class. The student's behavior will be reported to Campus Security and the Office of the Associate Dean of Student Affairs.

### **Student Academic Integrity Policy**

Every student should be familiar with the Carleton University student academic integrity policy. A student found in violation of academic integrity standards may be awarded penalties, which range from a reprimand to receiving a grade of F in the course or even being expelled from the program or University. Some examples of offences are: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found in the Undergraduate Calendar.

### **Plagiarism**

As defined by Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". The office of the Dean of Science will review such reported offences.

### **Unauthorized Co-operation or Collaboration**

Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis". Please refer to the course outline statement or the instructor concerning this issue.

### **Academic Accommodations for Students with Disabilities**

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 ([www.carleton.ca/pmc](http://www.carleton.ca/pmc)) for the deadline to request accommodations for the formally scheduled exam (if applicable).

### **Academic Accommodation**

To be worked out on individual basis with instructor. Consult Equity Services Website or an Equity Advisor, ext. 5622, for Policy and list of Holy Days ([www.carleton.ca/equity](http://www.carleton.ca/equity)). For Pregnancy Contact Equity Services (ext. 5622) to obtain letters of accommodation.

### **Student with Religious Obligations**

1. As soon as you receive your course syllabus, identify any potential conflicts between your religious obligations and course requirements. NOTE: Contact Equity Services if you are unclear if your religious observance requires accommodation under the Policy

2. Make a formal written request to your instructor indicating the nature of the religious obligation and suggest possible alternative dates and/or means of satisfying the academic requirements.

NOTE: Such request should be made during the first two weeks of the term, or as soon as possible after a need for accommodation is known to exist, but in no case later than the second last week of classes for that term. Even if you are unclear as to the exact date of the obligation (e.g., when waiting for a moon sighting) you are still expected to notify your instructor of the potential conflict and explore accommodation options.

3. If your request for accommodation is denied you may contact Equity Services and request assistance in an informal review of the decision.

[http://www.carleton.ca/equity/accommodation/student\\_guide.htm](http://www.carleton.ca/equity/accommodation/student_guide.htm)

### **Medical Notes**

The Self Declaration Form:

<https://carleton.ca/covid19/cu-faq/what-academic-accommodations-are-in-place/>

October 25-29, 2021: Fall break. Classes are suspended.

[Important Dates](#)