

## MATH 1290 (Engineering Mathematics II, Credit Hours: 3), Winter 2020 - Course Outline

- Instructor:** Dr. Edward Yao, Dept. of Engineering Mathematics and Internetworking, [Edward.Yao@Dal.Ca](mailto:Edward.Yao@Dal.Ca)  
Office: O'Brien Hall 210 at 5217 Morris Street, Sexton Campus.
- Lectures:** **MWF 1:35pm – 2:25pm** Studley MCCAIN ARTS&SS AUD-2 (Ondaatje Hall).
- Tutorials:** **MWF 10:35am – 11:25am and 11:35am – 12:25pm** at various locations. There are basically two tutorials per week (see schedule below). Attendance is mandatory for both lectures and tutorials. The first tutorial is held on Wednesday January 8. **Students must attend tutorials in the assigned Home Tutorial Rooms - see "Grades" on Brightspace - for which the tutorial sections of registration are not allowed to change after 8:00am on Monday January 6.**
- Office Hours:** by appointment.
- Textbook:** **Calculus: Early Transcendentals** by W. Briggs *et al.*, 3<sup>rd</sup> Edition.
- WEB:** This course has a major presence on Brightspace.
- Assignments:** There will be 12 weekly Assignments. Due dates are given below. The assignments must be handed in **at the beginning of tutorial in the assigned home tutorial rooms**. All assignments will have to be submitted with a standard assignment Cover Sheet that can be downloaded from and/or filled in on Brightspace. Assignments that are either late or without a Cover Sheet are not accepted and a zero mark will be recorded. Copy of assignment solutions from others or from a solution manual is strictly forbidden (see [Academic Integrity](#)).

### Grading Scheme:

**Quizzes:** There will be three Quizzes. Quiz #1 accounts for 20%, Quiz #2 30%, and Quiz #3 40%. **All three Quizzes count.** No makeup quizzes. No Calculators. No listening devices. Turn off everything you have that makes noise. Bring your DAL ID to each Quiz. **If you miss a quiz of the first two due to illness, a legitimate medical diagnosis of the illness must be included by the attending physician, not a nurse, with "too ill to write" stated, and sent to the Associate Dean's Office for an approval. If approved, a comprehensive test defined by the instructor will replace your missed quiz and must be written on Tuesday April 7 (not negotiable). If not, a zero mark will be recorded. Quiz #3, treated as the final exam, is mandatory for all students registered in the course. No supplementary final exam.**

**Assignments:** 8%.

**Class Activity:** 2%. There will be a class activity that must be completed in class only. Attendance is mandatory. No makeup class activity at any rate. A zero mark will be recorded if you miss a class activity and/or your doctor's note is not approved by the Associate Dean's office.

**Assignments Due and Pickup Dates:** (Students must submit assignments to the assigned home tutorial rooms on the following due dates, **at the beginning only**. Unclaimed assignments are kept at the TA's offices and will be dumped out at the end of examination period in April)

A1 due: Mon Jan 13 (pick up: Mon Jan 20)	A9 due: Fri Mar 20 (pick up: Fri Mar 27)
A2 due: Mon Jan 20 (pick up: Wed Jan 29)	A10 due: Fri Mar 27 (pick up: Fri Apr 3)
A3 due: Wed Jan 29 (pick up: Wed Feb 5)	A11 due: Fri Apr 3 (pick up: Thu Apr 9 after 1:00 pm in the basement of <b>Chase Building</b> )
A4 due: Wed Feb 5 (pick up: Fri Feb 14)	A12 due: Tue Apr 7 at the door of <b>Dunn 327</b> b/t 1:00 – 3:00 pm (pick up: on Mon Apr 13 after 1:00 pm in the basement of <b>Chase Building</b> )
A5 due: Fri Feb 14 (pick up: Mon Feb 24)	
February 17 – 21 ( <b>Study Break</b> – no classes)	
A6 due: Mon Feb 24 (pick up: Mon Mar 2)	
A7 due: Mon Mar 2 (pick up: Wed Mar 11)	
A8 due: Wed Mar 11 (pick up: Fri Mar 20)	

**Quiz Dates:** (Quizzes 1 and 2 will be held in evenings from **7:30pm – 9:30pm** on Sexton campus)

- Quiz 1: **Tuesday February 11** (2 hours). Reference: A1 - A3  
(In case University closed on Tue Feb 11 due to a snowstorm alert, then Quiz 1 will be postponed to **Thursday February 13** from 7:30pm – 9:30pm)
- Quiz 2: **Tuesday March 17** (2 hours). Reference: A4 - A7  
(In case University closed on Tue Mar 17 due to a snowstorm alert, then Quiz 2 will be postponed to **Thursday March 19** from 7:30pm – 9:30pm)
- Quiz 3: scheduled in the exam period by the Registrars' Office (3 hours). Reference: A8 – A12

### Letter Grades (Faculty of Engineering default scheme):

90-100 A+	85-89.9 A	80-84.9 A-	77-79.9 B+	73-76.9 B	70-72.9 B-
65-69.9 C+	60-64.9 C	55-59.9 C-	50-54.9 D	<50 F	

**Schedule:**

January 6 - 10	6.1 Velocity and Net Change 6.2 Regions between Curves 6.3 Volume by Slicing
<b>Wed Jan 8</b>	<b>Tutorial #1</b>
<b>Fri Jan 10</b>	<b>Tutorial #2</b>
January 13 - 17	Assignment #1 due on Mon Jan 13 in the assigned home tutorial room only 6.4 Volume by Shells 6.5 Length of Curves 6.7 Physical Applications
<b>Wed Jan 15</b>	<b>Tutorial #3</b>
<b>Fri Jan 17</b>	<b>Tutorial #4</b>
	<b>January 17<sup>th</sup>: Last day for late registration</b>
January 20 - 24	Assignment #2 due on Mon Jan 20 in the assigned home tutorial rooms only 7.1 Logarithmic and Exponential Functions Revisited 7.2 Exponential Models
<b>Wed Jan 22</b>	<b>Tutorial #5</b>
<b>Fri Jan 24</b>	<b>Tutorial #6</b>
January 27 - 31	Assignment #3 due on Wed Jan 29 in the assigned home tutorial rooms only 8.2 Integration by Parts 8.3 Trigonometric Integrals 8.4 Trigonometric Substitutions
<b>Wed Jan 29</b>	<b>Tutorial #7</b>
<b>Fri Jan 31</b>	<b>Tutorial #8</b>
	<b>January 31<sup>st</sup>: Last day to drop winter term courses w.o. 'W'</b>
February 3 - 7	Assignment #4 due on Wed Feb 5 in the assigned home tutorial rooms only 8.5 Partial Fractions 8.8 Numerical Integration
<b>Mon Feb 3</b>	<b>Tutorial #9</b>
<b>Wed Feb 5</b>	<b>Tutorial #10a</b>
<b>*Fri Feb 7</b>	<b>Munro Day- University closed</b>
February 10 - 14	Assignment #5 due on Fri Feb 14 in the assigned home tutorial rooms only 8.9 Improper Integrals 9.1(Pgs 597-600)+9.3+9.4 Introduction to Differential Equations
<b>Mon Feb 10</b>	<b>Tutorial #10b</b>
<b>Fri Feb 14</b>	<b>Tutorial #11</b>
February 17 - 21	<b>Study Break – no classes</b>
<b>*Mon Feb 17</b>	<b>Tutorial #12 notes will be posted on Brightspace</b>
February 24 – 28	Assignment #6 due on Mon Feb 24 in the assigned home tutorial rooms only 12.1 Parametric Equations 12.2 Polar Coordinates
<b>Wed Feb 26</b>	<b>Tutorial #13</b>
<b>Fri Feb 28</b>	<b>Tutorial #14</b>

Mar 2 – 6	Assignment #7 due on Mon Mar 2 in the assigned home tutorial rooms only 10.1 An Overview 10.2 Sequences
<b>Fri Mar 6</b>	<b>Tutorial #15</b>
Mar 9 - 13	Assignment #8 due on Wed Mar 11 in the assigned home tutorial rooms only 10.3 Infinite Series 10.4 The Divergence and Integral Tests
<b>Mon Mar 9</b>	<b>Tutorial #16</b>
<b>Wed Mar 11</b>	<b>Tutorial #17</b>
<b>*Fri Mar 13</b>	<b>No tutorial</b> (Tutorial #18 is rescheduled on <b>Mon Mar 16</b> )
<b>March 9<sup>h</sup>: Last day to drop class w. 'W'</b>	
March 16 - 20	Assignment #9 due on Fri Mar 20 in the assigned home tutorial rooms only 10.7+10.5 The Ratio, Root, and Comparison Tests 10.6 Alternating Series
<b>Mon Mar 16</b>	<b>Tutorial #18</b>
<b>Fri Mar 20</b>	<b>Tutorial #19</b>
March 23 - 27	Assignment #10 due on Fri Mar 27 in the assigned home tutorial rooms only 11.1 Approximating Functions with Polynomials 11.2 Properties of Power Series
<b>Wed Mar 25</b>	<b>Tutorial #20</b>
<b>Fri Mar 27</b>	<b>Tutorial #21</b>
Mar 30 – 3	Assignment #11 due on Fri Apr 3 in the assigned home tutorial rooms only 11.3 Taylor Series 11.4 Working with Taylor Series
<b>Mon Mar 30</b>	<b>Tutorial #22</b>
<b>Fri Apr 3</b>	<b>Tutorial #23</b>
April 6	Class Activity on Monday April 6 – Last day of classes, winter term
<b>Mon Apr 6</b>	<b>Tutorial #24</b>
<b>Tue Apr 7</b>	Assignment #12 due at the door of Dunn 327 <b>b/t 1:00pm – 3:00pm</b> only
April 8 - 24	<b>Quiz #3</b> (3 hours) will be held in the exam period – a date will be scheduled by the Registrars' Office. Assignment #11 pickup on <b>Thu Apr 9 after 1:00 pm</b> in the basement of Chase Building Assignment #12 pickup on <b>Mon Apr 13 after 1:00 pm</b> in the basement of Chase Building

† The schedule is subject to change according to **Dal Alert** re unexpected snowstorms.

## Student Absence Reporting

Any absence resulting in missed academic work must be reported using the Engineering Student Absence Reporting online system. This applies to both Student Declaration of absence and Request for Accommodation. Visit [Engineering Forms](#) for details and to submit a request.

## Student Learning Outcomes

Through class assignments, in-class activities, and in-class quizzes, Students will be able to:

1. Effectively write mathematical solutions in a clear and concise manner.
2. Demonstrate ability to think critically effectively interpreting and using functions of single variable.
3. Locate and use information to solve calculus problems in single variable.
4. Demonstrate ability to think critically by recognizing patterns and determining and using appropriate techniques for solving a variety of integration and differentiation problems in single variable.
5. Demonstrate the ability to think critically by setting up and solving application problems involving definite integrals.
6. Demonstrate an intuitive and computational understanding for calculus applications by solving a variety of problems from physics, engineering, and mathematics.
7. Work effectively with others to complete in-class activities.

## Associate Deans Office – Undergraduate Studies

Associate Dean: Dr. Timothy Little [timothy.little@dal.ca](mailto:timothy.little@dal.ca)  
Undergraduate Office Coordinator: Jason Lecoure [Jason.lecoure@dal.ca](mailto:Jason.lecoure@dal.ca)  
Student Success Coordinator: Karyn Hemsworth [Karyn.hemsworth@dal.ca](mailto:Karyn.hemsworth@dal.ca)  
General Inquires: [engineering@dal.ca](mailto:engineering@dal.ca) or (902) 494-2963

## Dalhousie Engineering Student Oath

*I, as one who is preparing to enter the profession of engineering, promise to conduct myself in an honorable and ethical manner, and, as such, I will not cheat, plagiarize or be involved in any other academically dishonest activities. I shall uphold the values of truth, honesty and trustworthiness. I shall study diligently so that I will be able to safeguard human life, to protect the welfare of society and the environment, and to uphold the reputation of the profession. In all this I shall be concerned for the well-being of others, and not just myself.*

## University Policies, Statements, Guidelines and Resources for Support

This course is governed by the academic rules and regulations set forth in the University Calendar and the Senate. For details see the [University Calendar](#).

## University Statements

- Academic Integrity  
At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. For details visit [Academic Integrity](#).
- Accessibility  
The Advising and Access Centre and the Student Success Centre ([Agricultural Campus](#)) serve as Dalhousie's centres for expertise on student accessibility and accommodation. Our work is governed by Dalhousie's Student Accommodation Policy to best support the needs of Dalhousie students. Our team work with students who request accommodation as a result of: disability, religious obligation, an experienced barrier related to any other characteristic protected under Canadian Human Rights legislation. For details visit [Accessibility](#).
- Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. For details visit [Student Conduct](#).

- Diversity and Inclusion – Culture of Respect  
Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported. For details visit [Culture of Respect](#).
- Recognition of Mi'kmaq Territory  
Dalhousie University acknowledges that the University is located on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit the office in the McCain Building (room 3037) contact the programs at [elders@dal.ca](mailto:elders@dal.ca) or 902-494-6803.

### **University Policies and Programs**

- Important Dates in the Academic Year (including add/drop dates) can be found at [Important Dates](#).
- University Grading Practices: Statement of Principles and Procedures. For details visit [Grading Practices and Policy](#).
- Scent-Free Program. For details visit [Scent Free](#).
- Faculty Information: Student Self-Declaration of Absence. For details visit [Student Absence Declaration](#).

### **Learning and Support Resources**

- General Academic Support – Advising Halifax: Visit [Academic Support](#). Truro: Visit [Agricultural Campus Academic Support](#).
- Fair Dealing Guidelines. For details visit [Fair Dealing Guidelines](#).
- Black Students. For details visit [Black Student Advising](#).
- International Students. For details visit [International Centre](#).
- Indigenous Students. For details visit [Indigenous Student Center](#).
- Library. For details visit [Libraries](#).
- Copyright Office. For details visit [Copyright Office](#).
- E-Learning website [eLearning](#).
- Writing Centre. Visit [Writing Centre](#).
- Faculty or Departmental Advising Support: Studying for Success Program For details visit [Study Skills/Tutoring](#).
- Student Finance page: Visit [Money Matters](#).

### **Student Health and Wellness Resources**

- Student Health and Wellness. Visit [Student Health & Wellness](#).
- Student Services @ Sexton. Visit [Student Services @ Sexton](#).
- Online Resources for Students. For details visit [Online Resources for Students](#).

### **Safety**

- Biosafety. Visit [Biosafety](#).
- Research Laboratory Safety Policy Manual. Visit [Documents, Policies & Procedures](#).
- Laboratory Chemical Safety Manual. Visit [Chemical Safety](#).
- Radiation Safety Manual. Visit [Radiation Safety](#).

### **Other Info**

Lectures and Tutorials are not to be audio and video recorded in any format for this course.

## Course Description

**MATH 1010** Differential and Integral Calculus II  
CREDIT HOURS: 3  
A continuation of the study of calculus with topics including: Riemann sums, techniques of integration, elementary differential equations and applications, parametric equations and polar coordinates, sequences and series, Taylor series.

### **MATH 1290 Engineering Mathematics II**

CREDIT HOURS: 3

This course is a sequel to MATH 1280. All topics of MATH 1010.03 are covered, but in greater depth. This course also introduces the students to the application of mathematics in engineering problems.

NOTES: 1: Students who have already received credit for MATH 1290.03 cannot subsequently receive credit for MATH 1010.03 2: MATH 1010.03 is not equivalent to MATH 1290.03

FORMAT:

- Lecture
- Tutorial

**PREREQUISITES: MATH 1280.03**

## Math and Stat Learning Center Winter 2020 Schedule

Location: Chase 119

First day: Monday, January 6, 2020

Last day: Friday, April 24, 2020

Hours: Monday through Friday 12:00pm ~ 5:00pm

Closed on the holidays: February 7, February 17, and April 10

Reduced study break hours: February 17-21, open from 1:00pm ~ 4:00pm