

## MATH 1004, Sections H, Winter 2020 Calculus for Engineering or Physics

**Instructor:** Alia Alkhathami

**Office:** Herzberg Building, Room 4260

**E-mail:** [aliaalkhathami@email.carleton.ca](mailto:aliaalkhathami@email.carleton.ca)

**Office hours:** Tue 4:15 -5:15 or by appointment.

**Lecture Date/Time/Location:** Tue/Turs 14:35-15:55 Room: Azrieli Theatre 302

### Textbook:

The ABC's of Calculus, by Angelo Mingarelli, 2019 Edition (available only from the author in his office 4380 HP).

### Prerequisite:

Ontario Grade 12 Mathematics of Data Management; or Ontario Grade 12 Mathematics: Advanced Functions, or BIT 1000/1100/1200, MATH 1002/1007/1009, or equivalent, or permission of the School. Please speak to the instructor if you are uncertain about your background.

### Tutorials: (Tuesday 13:35-14:25)

On the tutorial sessions the students are expected to work in small groups or individually on specific problems. A Teaching Assistant (TA) will be present, to answer questions and to administer the tests.

The class is subdivided into the tutorial groups according to the last names of the students. Tutorial class are in the following rooms. Please confirm your assigned room before the first tutorial.

Last Name	A - Da	De - Ke	Kh - Nn	Nt - Si	Sk - Z
Room					
TA Name					
TA Office Hour					

**SA:** Southam Hall, **SP:** St. Patrick Building, **CB:** Canal Building.

### Term Mark:

- **One special test.** The General Knowledge Test ("Test0") will be 30 minutes in length, held during the **first tutorial January 14**, covering background material which would have been covered in your previous math courses (e.g. in high school, at another university or academic institution, etc.). This test will count for 5% for the term mark.

- There will be **six 50-minute tests** during the tutorial hours on **January 21, February 4, February 13, February 25, March 10 and March 24.**
- No makeup, early or late tests will be given. Any missing test will be counted as zero.
- It is your responsibility to pick up your test paper in the following tutorial hour. The remaining tutorial hours will be used for solving problems.
- The average of the best four out of six tests will count for 40% for the term mark.
- Tutorial work and attendance will count for 5%.

**Evaluation:** Final Grade = max (A, B)

**Option A:** General Knowledge Test 5 %  
 Tests (Best 4 of 6, each worth 10%) 40%  
 Tutorial attendance 5%  
 Final Exam 50%

**Option B:** 100% of the Final exam.

### **Final Examination:**

There is a 3-hour exam scheduled by the University and it will take place sometime during the examination period in April **2020 (including Saturdays)**. It is the responsibility of each student to be available at the time of the examination. In particular, no travel plans for the examination period in **December** should be made until the examination schedule is published.

### **MS-LAP:**

Math & Stats Learning Assistance Program supports first year mathematics courses. It helps students achieve their goals by providing learning support and solutions to homework questions through assistance videos, available on CuLearn.

### **Tutorial Centre:**

It is located at (3422 Herzberg Physics). This is a drop-in centre providing a one-to-one tutorial service, free of charge, for Q-year and first year students on a "first come first serve" basis. For more information visit <http://carleton.ca/math/math-tutorial-centre/>

### **Homework:**

You need to do the exercises in the textbook. These exercises are not to be handed in and will not be graded. However, to succeed in the course it is **absolutely essential** that you do the exercises on a regular basis.

### **Calculators:**

No calculators whatsoever permitted during tests or exam.

### **Announcements:**

You are responsible for keeping up with information announced in class or the message sent to your Carleton e-Mail account. The course schedule on the next page is approximate, and may change subject to the progress of the class.

### **ADDITIONAL GUIDELINES:**

1. Students who fail to achieve a passing final exam grade (25/50) will be assigned a letter grade of **F**. Exceptions to this rule may be made at the discretion of the instructors.
2. Concerns about tests grading must be brought to the instructor's attention within one business day after the first day the test are returned in tutorial. Concerns brought up after this time will not be addressed.
3. Any student wishing to review their final exam must make an appointment within the first two weeks of the later summer session. These appointments are solely for educational purposes and are not to be treated as an opportunity to debate your grade.
4. You must use your Carleton email account for all email communications. I am not able to respond to non-Carleton emails due to FIPPA (Freedom of Information and Protection of Privacy Act).
5. This course uses CuLearn. Additional content will be posted and announced to all students. In particular, all the tests solution will be in Culearn after each test.
6. All classroom teaching and learning activities (lectures and tutorials), and cuLearn content is COPYRIGHTED. Students are encouraged to take notes and make copies of course materials for their own educational use. However, students are NOT PERMITTED to snap pics, record lectures, share files, etc., or distribute content in any way without permission.
7. Any uncollected marked assignment papers will be destroyed after the final exam. Any issues with term grades must be addressed before the final exam.

### **Requests for Academic Accommodation**

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

#### **Pregnancy obligation**

Please contact your instructor 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: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](http://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

#### **Religious obligation**

Please contact your instructor 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: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](http://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

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

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for

a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC for the final exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made.

### Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor 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. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

### MATH 1004 A Tentative Course Schedule

WEEK	DATES	TESTS	SECTIONS	TOPICS
1	Jan 7	~	Chapter1	Functions, Review of Chapter 1
2	Jan 9 -14	Test 0	2.1, 2.2, 2.3-2.6,	Limits and Continuity, Derivatives, chain rules
3	Jan 16 -21	Test 1	3.1-3.4	Implicit differentiation
4	Jan 23 -28	~	3.5, 3.7- 3.10	Derivatives of trigonometric functions, Inverse functions,
5	Jan 30–Feb 4	Test 2	3.12, 4.1- 4.4	Inverse trigonometric functions and their derivatives, L'Hospital's rule
6	Feb 6 - 11	~	4.5- 4.6	Exponentials and Logarithms and their derivatives
7	Feb 13	~	6.1 - 6.4	Anti-derivatives, The Indefinite Integral, Definite Integrals

8	Feb 17 -21	~	Winter break	
9	Feb 25 - 27	Test 3	7.1 – 7.2	Area, Integration by substitution
10	Mar 3 - 5	~	7.3 -7.4, 7.5	Integration by Parts , Partial Fractions, Powers of Sines and Cosines.
11	Mar 10 - 12	Test 4	7.6 -7.7	Trigonometric substitutions, Improper Integrals
12	Mar 17 - 19	~	8.2	Area between Two Curves
13	Mar 24 - 26	Test 5	8.3	Volumes of Solids of Revolution
14	Mar 31 – Apr 2		Review	
15	April 7	Test 6	Review	

### Practice Problems for MATH 1004 A Calculus for Engineering or Physics

- Chapter 1.5** Chapter Exercises question 1 – 22
- Chapter 2.7** Chapter Exercises question 1 – 35
- Chapter 3.11** Chapter Exercises question 1 – 45
- Chapter 4.8** Chapter Exercises question 1, 3, 6, 8
- Chapter 6.5** Chapter Exercises question 1 – 25
- Chapter 7.8** Chapter Exercises question 15, 17, 19, 22, 25, 28,30,32, 38, 42, 45, 55, 58, 60, 63, 67, 70, 77, 87,160,170, 211
- Chapter 8.6** Chapter Exercises question 1, 3, 6, 8, 10