BIT 1000A Mathematics 1 for NET Fall 2021

Textbook: there is no textbook for the course.

Reference: We will follow closely the material from http://www.saylor.org/courses/ma005. This is an open source material and for your convenience, the relevant sections are put in the submodule MA005 in the *Course Material* module in *Brightspace*. This course will be delivered online using ZOOM in Brightspace. To access your courses in Brightspace go to

https://brightspace.carleton.ca Please use the *help link* there if you need further assistance.

This class or portions of this class will be recorded by the instructor for educational purposes. These recordings will be shared only with students enrolled in the course. Your instructor will communicate how you can access the recordings.

Unauthorized student recording of classroom or other academic activities (including advising sessions or office hours) is prohibited. Unauthorized recording is unethical and may also be a violation of University policy. Students requesting the use of assistive technology as an accommodation should contact the Paul Menton Centre. Unauthorized use of classroom recordings – including distributing or posting them – is also prohibited. Under the University's Copyright Policy, faculty own the copyright to instructional materials – including those resources created specifically for the purposes of instruction, such as lectures slides, lecture notes, and presentations. Students cannot copy, reproduce, display, or distribute these materials or otherwise circulate these materials without the instructor's written permission. Students who engage in unauthorized recording, unauthorized use of a recording, or unauthorized distribution of instructional materials will be referred to the appropriate University office for follow-up.

Instructor: Jason Z. Gao
Office hours (tentative)**:** Monday and Wednesday 14:00--15:00.
Email: zgao@math.carleton.ca
Lectures: Monday and Wednesday 10:05--11:25, using ZOOM.
Please use the *Class Meeting Links* module to attend lectures, tutorials, office hours, etc.

Tutorials: Wednesdays 11:35—12:25. Tutorials begin on **SEPT 22.**
TA: Arogya Dahal, arogyadahal@cmail.carleton.ca

Tutorials will be run by the TA. The tutorial link can be found in the *Class Meeting Link* module, through which you can communicate with the TA. You will work on some problems related to the material covered in lectures. Those problems are of the following three types: multiple choice, short answer, and detailed answer. Problems requiring detailed answers need to be done and submitted manually. Please see the instruction posted in *Brightspace* for instructions on how to scan and submit your manual works.

General Information

BIT 1000 [0.5 credit]
Mathematics I for NET
Tailored for students in the Network Technology program, this course covers basic concepts in functions and introduces concepts of limits, derivatives and rules of differentiation, applications of differentiation (max-min problems, curve sketching) and integration.
Includes: Experiential Learning Activity
Precludes additional credit for BIT 1100, BIT 1200, ECON 1401, ECON 1402, MATH1002, MATH 1004, MATH 1007, MATH 1009, MATH 1052, MATH 1401, MATH 1402.
Prerequisite(s): restricted to students in the B.I.T. degree program.

Grading :

- Final Exam 30% (two hours+20 minutes to upload manual work)
- Best two out of three tests: $2 \times 15\% = 30\%$
- Eight tutorials: $8 \times 4\% = 32\%$ (50 minutes+15 minutes to upload manual work)
- Exercises 8%

E-Proctoring: Please note that tests and final examination in this course will use a remote proctoring service provided by Scheduling and Examination Services. You can find more information at https://carleton.ca/ses/e-proctoring/.

The minimum computing requirements for this service are as follows:
Hardware: Desktop, or Laptop
OS: Windows 10, Mac OS 10.14, Linux Ubuntu 18.04
Internet Browser: Google Chrome, Mozilla Firefox, Apple Safari, or Microsoft Edge
Internet Connection (High-Speed Internet Connection Recommended)
Webcam (HD resolution recommended)

Note: Tablets, Chromebooks and Smartphones are not supported at this time. Windows-based tablets are not supported at this time.

Practice problems. Some suggested practice problems are selected from the e-book, which (and their answers) can be found in the *Course Material* module. You will also be given exercises after some lectures and they contribute to your final grade. The exercises, tutorials, tests, and exam problems will be similar to the practice problems.

Tentative weekly lecture schedule

Date	Topic	Section	Tutorial
Sep. 08	Preview of calculus; Lines in the plane	(Part I) 1.1, 1.2	
Sep. 13, 15	Functions and their graphs, Combinations of functions, Tangent lines, velocities, and growth rate.	(Part I) 1.3, 1.4	
Sep. 20,22	The limit of a function; Properties of limits.	(Part I) 2.1, 2.2, 2.3	Tutorial 1
Sep. 27,29	Continuous functions; Derivatives.	(Part I) 2.4, 3.1, 3.2	Tutorial 2
Oct. 04, 06	Rules for computing derivatives, trigonometric functions, higher derivative	(Part I) 3.3, 3.4, (Part II) 4.1	**Test 1**
Oct. 13	Derivatives of trigonometric functions, exponential and logarithmic functions.	(Part II) 4.2-4.7	Tutorial 3
Oct. 18,20	The chain rule, Some applications of the chain rule, implicit and logarithmic differentiation	(Part I) 3.5, 3.6, 3.10	Tutorial 4
Oct. 25, 27	Fall break		No class
Nov. 01,03	Finding maximums and minimums; The first derivative and the shape of a function	(Part I) 4.1, 4.3	**Test 2**
Nov. 08,10	The second derivative and the shape of a function; Applied maximum and minimum problems	(Part I) 4.4, 4,5	Tutorial 5
Nov. 15, 17	Infinite limits, asymptotes, graph sketching .	(Part I) 4.6	Tutorial 6
Nov 22, 24	Antiderivatives and integrals; The fundamental theorem of calculus	(Part II) 7.1, 7.2	**Test 3**
Nov. 29, Dec. 01	Some properties of integrals; Integration by substitution	(Part II) 7.3, 8.1	Tutorial 7
Dec. 06, 08	Integrals of trigonometric functions, Review	(Part II) 8.2	Tutorial 8
Dec. 10	Practice problems for the exam		

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You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:
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/
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/
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 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*) at http://www.carleton.ca/pmc .
You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at http://www.carleton.ca/equity