MAT 1322A: Differential and Integral Calulus II
(Winter 2020)

Instructor:	Prof. Arian Novruzi
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Office:	STEM, room 527
Course hours:	Monday 10h00-11h20 and Wednesday 08h30-09h50 Learning Crossroads C240
Office hours:	Thursday 10h00–13h00, STEM room 527
Prerequisites:	MAT 1320
Site web:	Brightspace (to consult regularly for any important information concerning the course)
Textbook:	**Calculus. Early Transcendentals**, 8th edition, by J. Stewart. The textbook is available at the University Center Bookstore as well as at the Agora Bookstore (145 Besserer St.)
DGD:	**Attending DGDs is obligatory** The first DGD will take place on Friday January 10. You must register with one or the other following periods, depending on your availability: Fri. 8:30AM - 9:50AM — 140 Louis-Pasteur (MRN) 150 Fri. 10:00AM - 11:20AM — 136 Jean-Jacques L. (VNR) 3075 Fri. 11:30AM - 12:50PM — 136 Jean-Jacques L. (VNR) 5070 Fri. 1:00PM - 2:20PM — 60 University (SMD) 425 Fri. 2:30PM - 3:50PM — 60 University (SMD) 430 During the DGDs, the instructor will solve some problems the list of which will have been given in the course (this list will also be displayed on Brightspace). On occasion, he will also explain homework solutions for exercises that have been misunderstood. It's important to work the exercises before going to the DGD to benefit from it
Evaluation:	There will be two midterms exams of 80 minutes each. They will take place during the lecture hours.
Midterm 1:	**Monday February 3** The midterm will cover all the material developed in class from the beginning of the course to the lecture before the midterm 1 (excluded)
Midterm 2:	**Monday March 16**

The midterm will cover all the material developed in class from the lecture before midterm 1 (included) to the lecture before the midterm 2 (excluded)

Final grade: It will be the weighted sum of: homework grades (10 %), mid-term exams ($2 \times 20\%$) and the exam final (50%).
On the other hand, if you get less than 40% of the final exam, your grade for the course will be F, regardless your homework and midterm exam marks.

Remarks: If you cannot write a mid-term test for a valid reason (for example because of illness attested by a doctor's note), the weight of this exam will be reported on the final exam.
- **Calculators are not allowed for this course.**
- It is not allowed to leave an exam less than 20 minutes after the start of this test, or to arrive in an exam more than 20 minutes after the beginning of the exam.
- You must present your student card to each test.
- The marks of homeworks and exams will be available on the course webpage in Brightspace/Virtual Campus, normally within a week. All request related to your *mark must be submitted at the latest during the week following the delivery of the marked exams.*

Homeworks: - The homeworks will be done electronically using Möbius software. If you have an account from Fall session, it is still valid (good for one year).
To obtain a license Möbius follow the link: `https://store.digitaled.com/`. You must enter the access code **ACWI-2020-UOTW** to purchase the license. For more information on the procedure for acquiring a Möbius license, consult the following link: `https://mysite.science.uottawa.ca/bdionne/teaching/Mobius_en.html`.
After the purchase, you will need to edit your profile on Möbius to enter your last name, your name, your **student number** and your university e-mail address (with suffix @uottawa.ca), otherwise I will not be able to trace your homework notes and transfer them to Brightspace, in which case your mark will be 0 (zero).
To access your homework on Möbius, go to the link: `https://uottawa.mapleta.com/`.
For how to use Möbius, consult the guide by Benoit Dionne: `https://mysite.science.uottawa.ca/bdionne/teaching/Mobius_en.html`
- If you do not already have an account, you must get one as soon as possible.

- For homeworks, you'll have the possibility to redo the assignment up to a maximum of five times. As it is about customized homeworks, the questions will not be the same at each test but they will be overall of the same type. Only the best grade will be taken into account. After each test, you will be able to consult solutions and compare your answers. I encourage you to redo each duty at least twice as an exercise. The computer keeps and give me all your essays and their solutions. Start the assignment as soon as possible and make sure to have it finished before the due date.
- Notes of homeworks will be recorded on the site of Möbius and here are the dates selected for homework:

Homework 1:	deadline January 22
Homework 2:	deadline February 5
Homework 3:	deadline February 26
Homework 4:	deadline March 11
Homework 5:	deadline April 01

Attending lectures: A regulation of the Faculty of Sciences requires that all student **attends at least 80% of course lectures** to be admitted to the final exam. Moreover, the experience shows that students who do not attend lectures regularly are unlikely to succeed.

Help center:
- The help center has been set up to help you when you have difficulties in math basic courses. It is located at STEM 207 and for more information consult the site: `https://science.uottawa.ca/en/faculty-services/first-cycle`.
- You must ask specific questions when you are in the help center. Help Center staff are not there to explain complete chapters.
- The Help Center runs on **first come first serve** basis, and there is a 10 minute limit per student. You must accept that there may be a waiting time before answering your questions.
- Help Center staff will be happy to help you except as regards the problems of homework. If you have difficulties with an homework problem, you have to rather ask for help on a similar problem or see the professor during his office hours.

Cours breakdown week by week

Week	Monday	Wednesday
1: Jan. 6 to 8	§7.8: Improper integrals §6.1: Area between curves	§6.1: Area between curves §6.2: Volumes
2: Jan. 13 to 15	§6.2: Volumes §6.3: Volume by cylindrical shells	§6.4: Work §6.5: Average value of a function
3: Jan. 20 to 22	§8.3: Applications to physics and engineering (pressure, moments)	§11.1: Sequences §11.2: Series
4: Jan. 27 to 29	§11.2: Series §11.3: Integral tests and estimates of sums	§11.4:The comparison tests §11.5: Alternating series
5: Feb. 3 to 5	**Midterm 1** it covers: §7.8, 6.1-6.5, 8.3	§11.6: Absolute convergence and the ratio and root tests §11.7: Strategy for testing series
6: Feb. 10 to 12	§11.8: Power series	§11.9: Representation of functions as power series
7: Feb. 24 to 26	§11.10: Taylor and Maclaurin series	§11.11: Applications of Taylor polynomials
8: Mar. 2 to 4	§9.1: Modelling with DEs §9.2: Direction fields ad Euler's method	§9.2: Direction fields ad Euler's method §9.3: Separable DEs
9: Mar. 9 to 11	§9.3: Separable DEs §9.4: Models for population growth	§14.1 Functions of several variables 14.2: Limits and continuity
10: Mar. 16 to 18	**Midterm 2** it covers:	§14.3: Partial derivatives

	§11.4 - 11.11, §9.1-9.4	
11: Mar. 23 to 25	§14.4: Tangent planes and linear approximations	§14.5: Chain rule
12: Mar. 30 to Apr. 1	§14.6 Directional derivatives and the gradient vector	Review

Suggested problems

It is important to practice a lot of exercises. The list below is shot course volumes and have their answers at the end of each volume. Exercises marked with a star are more difficult but it is worth to try.

§6.1	# 1, 3, 7, 9, 11, 12, 16, 17, 20, 27, 28, 48, 53.
§6.2	# 3, 6, 8, 9, 11, 13, 15, 22, 24, 25, 27, 30, 54, 58, 59.
§6.3	# 3, 5, 9, 12, 14, 17, 19, 20, 23a, 25a, 42, 43.
§6.4	# 2, 3, 5, 6, 8, 12, 14, 15, 16, 20, 23, 24, 25, 26, 29.
§6.5	# 5, 7, 8, 15, 17.
§7.8	# 1, 3, 5, 11, 15, 19, 23, 28, 33, 34, 35, 39, 42.
§8.1	# 7, 9, 10, 12, 14, 18, 19, 36.
§8.3	# 4, 5, 6, 8, 9, 12ab, 14, 22, 26, 27, 37.
§9.1	# 3ab, 5, 7, 11, 12, 13.
§9.2	# 1, 3, 5, 11, 19, 20, 22, 24.
§9.3	# 1, 2, 3, 4, 7, 10, 12, 15, 19, 20, 42, 45, 47, 48.
§9.4	# 1, 6, 7, 9, 12.
§11.1	# 5, 6, 8, 15, 16, 23, 25, 29, 34, 37, 45, 47, 49, 55, 73, 76, 79.
§11.2	# 9, 13, 23, 24, 35, 40, 42, 43, 44, 45, 47, 48*, 52, 53, 80*.
§11.3	# 1, 2, 5, 7, 9, 15, 18, 22, 27, 29, 34.
§11.4	# 1, 3, 4, 7, 9, 13, 19, 23, 31, 33, 42.
§11.5	# 3, 5, 7, 10, 16, 17, 20, 23, 25, 27, 31.
§11.6	# 1, 2, 4, 5, 10, 17, 21, 26, 31, 36, 40.
§11.7	# 1, 2, 3, 8, 10, 11, 13, 16, 22, 31.
§11.8	# 4, 7, 9, 13, 15, 18, 20, 26, 28, 29.
§11.9	# 1, 2, 3, 4, 7, 9, 11, 15, 17, 26, 29, 30, 40ab.
§11.10	# 4, 11, 14, 21, 22, 32, 38, 40, 43, 49, 54, 55, 57, 60, 61, 67, 73, 77.
§11.11	# 13ab, 16ab, 20ab, 25, 26, 33*.
§14.1	# 1, 3, 7, 9, 13, 19, 23, 31, 33, 42.
§14.2	# 3, 4, 5, 15, 17, 19, 21, 25, 29, 33, 41, 43, 45, 47, 49, 51, 55, 57, 76abd, 83.
§14.3	# 1, 5, 11, 15, 19, 21, 23, 25, 33, 35, 39.
§14.4	# 3, 5, 7, 9, 13, 15, 17, 19, 23, 25, 27, 33, 35, 39, 41, 43.
§14.5	# 4, 5, 10, 15, 16, 17, 21, 29, 31, 33, 38, 43, 45, 59, 61.