

MAT 1330 A: Calculus for the Life Sciences I

Professor: Dr. Frithjof Lutscher

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Lectures: Monday 10:00-11:30 and Wednesday 8:30-10:00 (MNT 203).

Office hours: TBA or by appointment.
You are welcome to attend office hours of the other MAT 1330/1730 instructors (will be announced on blackboard)

Contact: If you have questions about the class or assignments:
1. Read the course website. 2. Ask your classmates or contact one of the TAs. 3. You are always welcome to discuss class content or assignments with me during office hours. No appointment needed during office hours. Due to the large number of students in this course, I may not be able to answer your emails in a timely fashion.

Textbook: **recommended but not required for 1330 and 1332:**
Calculus for the Life Sciences:
Modelling the Dynamics of Life
by Frederick Adler and Miroslav Lovric.
(There are several editions of this textbook, some available used, some with F. Adler as sole author. Any of them will work for this course.)

recommended for 1332: two add-on modules:
Linear Algebra and Functions of Several Variables.

Other Resources: There are many other calculus textbooks that cover very similar material. Feel free to use those. There are also many online textbooks and other course material, for example the Khan Academy. Check out <http://openaccesstexts.com/math/>

Content: Sections 2.1-6.4 (initial brief review of Sections 0 and 1)
Derivatives:
product and quotient rules, chain rule, derivative of exponential, logarithm and basic trigonometric functions, higher derivatives, curve sketching.
Applications of the derivative to life sciences.
Discrete dynamical systems: equilibrium points, stability, cobwebbing.
Integrals: indefinite and definite integrals, fundamental theorem of calculus, antiderivatives, substitution, integration by parts, applications of the integral to life sciences.

Assessment: Assignments (10%) (see below)
Midterm (20%) (October 5)
Midterm (20%) (November 16)
Final Exam (50%)

Late assignments will not be accepted. There will be no makeup tests. Any student who scores less than 40% on the final exam will receive an automatic F, regardless of their marks in assignments or midterms. Any student who scores less than 45% on the final exam cannot receive a higher grade than an E.

Assignments: Assignments will be posted on the course website at least one week before their respective due date. Assignments will be submitted in a drop box in the Department of Mathematics and Statistics, 585 King Edward Ave. Drop time will be Thursdays at 7pm. Late assignments will not be marked. The problems in the assignments give you a good idea of the type of problems in the tests. Please start working on these assignments early. You will NOT be able to do an assignment properly in a single afternoon or night.

Assignments will be submitted in TEAMS of 2 or 3. Please use this opportunity to work together as a team but not between teams. (Please see plagiarism rules below.) Please note that the result for the team may not correctly reflect your own standing in the course.

Not all of the assigned problems may be marked due to lack of resources. Assignments can be picked up in DGDs.

Midterms: The midterms are on October 5 and November 16 in class. There will be no make-up tests. If you miss the test and you bring a doctor's note, the weight of the test will be carried to the final exam.

Calculators: Only the faculty-approved calculators (TI-30X, TI-34X, Casio FX-260X and Casio FX-300X, where X can be replaced by any letters) are permitted on midterms and the final. No other calculator will be permitted.

Help Centre: Marion 021, Mondays through Wednesdays: 10-7, Thursdays 10-5, Fridays 10-3. For opening hours during study break and before final exams, please see <http://science.uottawa.ca/mathstat/en/help-centre>. At any point in time, only one member of a team (see: assignments) may be in the Help Centre to ask questions. The Help Centre is NOT the place to meet as a team and work together!

Class Etiquette and Respect: In a large class, we all depend on a climate of mutual respect and engagement to make this a productive and exciting intellectual environment. Please respect these basic guidelines.

Grade changes: If you feel there is a problem with your grade on an assignment or midterm, you must write one paragraph explaining each error. Then, please hand in your paragraph of explanation in addition to the original assignment or midterm for grade reconsideration. Please allow at least one week for grade reconsideration. Please do not approach the TAs to discuss grade changes. Grade changes cannot be discussed over email.

Plagiarism: Please note that the University of Ottawa has a very strict policy on plagiarism and academic fraud. If you are found guilty of either, the University can give you an F for the course, assign additional credit hours on top of your degree requirements, and/or expel you from the University and note the reason on your transcript. Please read the University policy on academic fraud included with the course material and ask me if there is anything you do not understand or consult <https://sass.uottawa.ca/en/writing/plagiarism>.

Electronic devices: Students are required to turn off all electronic devices such as cell phones, ipods, and blackberrys. If you need your cell phone for emergency contact (children, medical emergency) please inform the professor at the beginning of the class and use vibration mode.

University Policies on Harassment and Assault: The University of Ottawa will not tolerate any act of sexual violence. This includes acts such as rape and sexual harassment, as well as misconduct that take place without consent, which includes cyberbullying. The University, as well as various employee and student groups, offers a variety of services and resources to ensure that all uOttawa community members have access to confidential support and information, and to procedures for reporting an incident or filing a complaint. For more information, please visit <http://www.uOttawa.ca/sexual-violence-support-and-prevention/>.

General comments

1. Success in this calculus course stems from practice. Start early and keep working at it, and you have a very high chance to succeed. Do 10 practice problems a day.
2. Please check the course website frequently as it will be updated regularly.
3. There are many worked examples in our and other textbooks, we will use different ones in class. Please take advantage of this wide variety of exercises.
4. Learning mathematics requires solitary work and group efforts. Think about each problem alone first. Then get together in small groups to discuss the material. Finally, write your assignments on your own! This will pay off in the end.
5. Copying or allowing to copy homework is plagiarism. Neither of the two pay off.
6. If you have suggestions for me to improve my teaching, please tell me right away. Do not wait until the course evaluation at the end of the term, because then only the students after you will benefit from your suggestion.

7. I am available during office hours (see above) as well as just before and right after class. Please make use of that, come talk to us about the material, about any questions related to this course. Please do not expect us to answer emails or phone calls on a weekend.
8. It is a sign of strength (not weakness) to ask for help if you need it: Identify your difficulty, identify who can help you, go and ask for help.
9. Start working on the material right away. Check your understanding after every class. It will pay off later.