

## 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 for 1330 and 1332:** Calculus for the Life Sciences: Modelling the Dynamics of Life  
by Frederick Adler and Miroslav Lovric.  
(If you have a copy of the older book by Adler, you can still use it.)

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

**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 11)

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 8pm. 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. 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 11 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, Monday through Thursday: 10:00-7:00, Fridays 10:00-3:00. During the Study Break: 10:00-3:00. The help centre is open to all students in MAT1330.

**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 <http://www.uottawa.ca/plagiarism.pdf>. Any students caught cheating will be asked to leave and will have their cases referred to the Faculty.

**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:** Please also note the university policies on harassment and assault available online at <http://www.uottawa.ca/services/sex-har/eng/>. If you have experienced harassment (sexual, racist, homophobic etc) by faculty, staff or other students, you can report the harassment to the sexual harassment officer, Diane Roller (562-5222). You might also wish to contact a resource such as the Ottawa Rape Crisis Center (613 562-2333, <http://www.orcc.net>) or the Sexual Assault Support Centre of Ottawa (613 234-2266).

### **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 5 practice problems a day.
2. Please check the course website frequently as it will be updated regularly.
3. There are many worked examples in this and other textbook, 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.