Instructor: Andrew Wray
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Phone: 541-346-4711 (strongly not preferred)

Office Hours:
Tues, 3-5pm
Fri, 11am-12pm,
and by appointment

Class Meetings: 2-2:50 pm, MTWF, Peterson 103

Course Goals: A student successfully completing this course should, in a general sense, have...

- facility with the computation of antiderivatives and the interpretation thereof,
- an understanding of the Fundamental Theorem of Calculus and its interpretation,
- familiarity with the construction and solving of one or two differential equations
- repeated exposure to applications in population, reproduction, drug concentration, selection, neuronal potential, and predation using all the learning outcomes.

The student can model the mathematical topics described among the learning outcomes in words, then solve or simplify the relevant equations and/or expressions, and finally write a summary statement of the solution.

Learning Outcomes: A successful student can...

- find the family of antiderivatives (if possible) for a continuous function,
- approximate the definite integrals using Riemann sums
- use substitution and integration by parts to compute indefinite and definite integrals,
- compute and interpret definite integrals with finite and infinite limits of integration,
- set up single and coupled differential equations based on written descriptions or modifications of templates including predator/prey models, population ecology, competitive selection, and chemical exchange across a membrane,
- solve certain pute-time, autonomous, and non-autonomous differential equations using integration and separation of variables,
- find and determine the stability of equilibria in autonomous differential equations; draw relevant phase-line diagrams
- sketch solutions to single and coupled differential equations from an initial condition,
- verify solutions to, and use Euler's method with, differential equations in two dependent variables,
- use nullclines and find equilibria of systems of differential equations in two dependent variables,
- sketch phase-plane trajectories for systems of differential equations.

Most importantly, the student can model the mathematical topics described among the learning outcomes in words, then solve or simplify the relevant equations and/or expressions, and finally write a summary statement of the solution.

Text: *Modeling the Dynamics of Life: Calculus and Probability for Life Scientists,* 3rd edition, by Frederick Adler.

Recommended: A scientific calculator. (Graphing calculators are allowed, but you must show all relevant work. Example: no magic integrators.)

Homework: Homework will consist of written turn-in homework. These assignments will usually be due in class on Tuesdays. My expectations are:

- neat handwriting,
- clear steps shown in your solution,
- *complete* sentences explaining your solution
- a staple, should it go more than one page,
- no frilly edges or scribbles. (Frilly edges are what you get when you rip it out of a spiral notebook.)

Points will be deducted for not following these rules.
At the end of the term I may give bonus points to your homework score to cover life's little misfortunes that might cause to you miss an assignment or two. I encourage working together on homework, but you *must* be able to answer the questions on your own.
A note on late homework: If you need an extension for homework, come see me during office hours before the assignment is due and I may give you an extension. However, I reserve the right to revoke this if I notice it becomes a habit for you. I will not accept late work after it is due except for outstanding circumstances.

Quizzes: There will be a short quiz each week during the last 20 minutes of class. These are progress indicators for both you and I, and they will mostly consist of homework problems from the previous week.

Exams:

Exam 1:	Friday, April 28 (End of week 4)
Exam 2:	Friday, May 26 (End of week 8)
Cumulative Final Exam:	Wednesday, June 14, 2:45 pm (Week 11)

A note on exams: unless there are documented, extreme circumstances, no late work will be accepted, nor make-up exams given.
The final exam will be on Wednesday, June 14th. If you cannot make this time for any reason, you must arrange a different time to take it by the end of week 2.

Grading: Course grades[1] are weighted according to the following scheme.

Homework	20%
Quizzes	20%
Midterm Exams (2)	30% (15% each)
Final Exam	30%

Standard grade assignments will be made (e.g. grades in the 80% to 90% range will be B's, those in the 70% to 80% range are C's, etc.)
Plus and minus grades will be awarded in the upper and lower 3% of a bracket. (e.g. A grade of B+ is awarded between 88% and 90%; B- between 80% and 82%). I reserve the right to apply a course adjustment to grades at the end of the term.

[1] A student who achieves adjusted grades of D or F on *all* of the exams may be eligible for a maximum grade of D.

Lectures: I don't take attendance, but I assure you that coming to lectures and participating will only benefit your learning. I encourage you to participate in lectures by asking questions and working on the handouts I give you. I also ask that you turn off your phones and keep laptops put away.

Accessibility: For those of you who are currently registered with Accessible Education Center for a documented disability, please present your paperwork to me during the first week of the term (or earlier) so that we can design a plan for you. Those of you with a disability (or who might) but are not registered with AEC should contact them as soon as possible. It is much more likely that measures can be taken to provide adequate special accommodation if the organization is done through AEC. I have attempted to provide documents that are accessible. Please let me know if you need additional accommodations.

Sexual Violence: The UO is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic and dating violence and gender-based stalking. If you (or someone you know) has experienced or experiences gender-based violence (intimate partner violence, attempted or completed sexual assault, harassment, coercion, stalking, etc.), know that you are not alone. UO has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

Please be aware that all UO employees are required reporters. This means that if you tell me about a situation, I may have to report the information to my supervisor or the Office of Affirmative Action and Equal Opportunity. Although I have to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

If you wish to speak to someone confidentially, you can call 541-346-SAFE, UO's 24- hour hotline, to be connected to a confidential counselor to discuss your options. You can also visit the SAFE website at safe.uoregon.edu.

Student Conduct: I plan to treat every student with respect and, as such, expect my students to show respect for me and for the class as a whole. Violations of the student conduct code results in the incident being included on your student conduct record as well as academic sanctions such as a failing grade on any coursework related to the violation or simply a failing grade in the course. The University of Oregon requires all instances of cheating be reported, no matter how small. Cheating includes, but is not limited to:

- Looking at another student's exam during a test
- Copying the work of another person (student or otherwise) and submitting it as your own
- Using any materials except those explicitly approved during a test-taking situation
- Resubmitting graded work that was altered after being returned

Any kind of cheating will result in a grade of 0 on the assignment. For a list of other descriptions of cheating, see the Student Conduct Code.

Suggestions for Successful Study:

- Don't get behind in your reading, homework, etc.
- Participate in class, ask questions, and make use of my office hours.
- Form a study group with others in the class. Work together on homework - but everyone must join in and submit their own work.
- Read ahead in the book. Even reading the first few pages of each lesson will help the material sink in quicker during lecture and allow you to ask meaningful questions.
- Keep all your old exams, worksheets and quizzes. You'll find them useful when youre studying for tests.
- If you think you'll need extra help, establish a tutoring plan right away. Check with the Teaching and Learning Center (Room 68 in the Basement of PLC) for free or private tutoring.

Important Dates:

Monday of week 2 (April 10)	Last day to drop without a "W"
Wednesday of week 2 (April 12)	Last day to add a class
Sunday of week 7 (May 21)	Last day to change to P/NP or withdraw
Monday of week 9 (May 29)	Memorial Day (No Classes)
Last Day of Class (June 9)	

See the calendar on Registrars website for other deadlines

Getting Help From...

Me: You should make use of my office time whenever possible. Tutors: The Teaching and Learning Center (Room 68 in the Basement of PLC) has both free and private tutors available during most business hours. Free tutoring is also available in the Math Library Reading Room (across the hall from the math office in Fenton Hall) on weekdays and Sundays.