Math 252: Calculus II

The University of Oregon

CRN 24030

Winter 2022

Class Meetings: MW, 6:00–7:50

Instructor: Cruz Godar

Email: cgodar@uoregon.edu

Office Hours: over Zoom — schedule TBD

Learning Outcomes

A successful student can:

- Set up and evaluate formulas for Riemann sums, given the function, interval, and number of rectangles
- State and use the funamental theorem of calculus
- Evaluate integrals of polynomial and exponential functions, as well as sine and cosine.

- Evaluate integrals using substitution and integration by parts
- Use standard trig identities where appropriate as part of integral computations for some trig functions
- Interpret the area between two graphs as an integral
- Set up one-variable integrals that represent the solutions to a variety of modeling problems.
- Evaluate improper integrals
- Compute volumes of surfaces of revolution using both the disk and shell methods and recognize which method is most appropriate to a given problem
- Compute average values of functions over a closed interval
- Determine if a given function is a solution to a given differential equation
- Write down a linear differential equation that models a given situation that is described in words, typically where the rate of growth is a linear function of the amount
- Find general and particular solutions to basic separable differential equations
- Evaluate integrals using appropriate trigonometric substitutions?—if time
- Evaluate integrals using partial fraction decomposition?—if time

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Materials

Textbook: *Calculus Volume 2* by Herman and Strang. This is a free textbook which you can access online at the following link: https://openstax.org/details/books/calculus-volume-2 I recommend downloading the pdf file so that you have offline access to the textbook. You are also welcome to purchase a physical copy (they're around $30), but this is unnecessary. We will also briefly use *Calculus Volume 1* by Herman and Strang, which you can find at https://openstax.org/details/books/calculus-volume-1.

Calculator: A scientific calculator will save you time doing simple computations. You will only be allowed to use one of the following calculators on quizzes and exams: Casio fx-260, Casio fx-300MS (or Plus), Casio fx-300ES (or Plus), TI-30X (a, S, or IIS), TI-34. **No graphing calculators will be allowed**. The Casio fx-300MS is available from the UO Bookstore for about $13.

Logistical Stuff

Class is in person. Let's keep it that way. Face coverings are required at all times in the classroom, as described in the Provost's resource rubric. If anyone is not wearing a mask, I'll follow the procedure outlined there: remind the whole class about the mask requirement, then the student in question, then present that student with a mask. If that doesn't work, class will be immediately canceled for the day. Please remember that **eating and drinking is prohibited in the classroom**.

Make a friend **tonight** and keep in touch. If you need to quarantine during the quarter, they'll be your first resource to keep up with class notes. If both of you need to quarantine, we'll handle that situation as necessary. If *I* need to quarantine, we'll follow the guidelines in the Provost's resource rubric, which is to get a substitute for both weeks. If that doesn't work, we'll transition to Zoom until it's safe to be back in person.

Assignments and Grading

Your total grade in the class is determined by your attendance and participation, and your scores on the homework, quizzes, midterm exams, and the final exam, weighted in the following manner:

Written Homework: 10%

WebWork: 10%

Weekly Quizzes: 10%

Midterm Exams: 20% each (40% total)

Final Exam: 30%

Your total grade at the end of the quarter will be rounded up to the nearest whole number. For example, a total grade of 88.2% will be rounded up to 89% and awarded a B+.

Homework: The homework is graded out of 16 points. You'll be given a handful of textbook problems to write up careful solutions to, and you'll be graded on two criteria: 8 points for thoroughly attempting all the problems, whether or not your solution is correct, and another 8 for the correctness of your solution on one of the problems, chosen randomly.

Homework will be assigned every Wednesday and due at the start of class the following Wednesday. Working with others is strongly encouraged, but the final work you submit must be your own. Your lowest homework score will be dropped. **No late work will be accepted unless there is a documented, excusable circumstance.** Such circumstances include sports events in which you are involved in an official capacity (competing or playing in the band, for example), or illnesses with doctor's notes. If this is the case and you are given a make-up opportunity, the late work must be submitted no more than one week after its original due date.

All homework will be submitted via Canvas. You have two options:

- Handwrite your homework as usual and scan it, via a scanner or your smartphone. A series of pictures will **not** be accepted — only a single pdf file may be submitted. To use your smartphone for this, use the built-in document scanner in iOS (accessible through the Files app by tapping the ... menu and selecting *Scan Documents*), or the Adobe Scan app for Android.

- Typeset your homework. All the course documents (like this syllabus) are written in a language called LaTeX which compiles to the clean-looking pdf file you see. Although it takes an hour or two to become comfortable with, LaTeX is used by people in nearly every STEM-related field, and learning it now will give you a major headstart. To get started, make an account

at Overleaf and create a new project. You can type as usual, and to render math expressions, surround them in dollar signs — for example, $\frac{1}{2}$ will render as $\frac{1}{2}$. I'm more than happy to help with any difficulties you run into here.

Quizzes: We'll have a quiz every week on Wednesday, during the last 20 minutes of class. Your lowest two quiz scores will be dropped. The purpose of these is to practice working in a timed environment before the exams, and serve more as a barometer for how well you're prepared for the exams than an evaluation of your ability at the time. If you aren't getting the scores you'd like on the quizzes, **reach out for help** before the exam. As with the homework, **no late work will be accepted unless there is a documented, excusable circumstance.** Such circumstances include sports events in which you are involved in an official capacity (competing or playing in the band, for example), or illnesses with doctor's notes.

Exams: Our class will have two midterms on the Wednesdays of weeks 4 and 8, taking up 50 minutes of class time. Each midterm will cover multiple sections of material, and the final exam will cover all of the sections covered in the course. **No make-up or early exams will be offered, except in the case of a documented, excusable circumstance.** If this is the case, the exam must be taken as soon as possible, and no more than a week after it was originally given.

- Midterm 1: Wednesday, January 26
- Midterm 2: Wednesday, February 23
- Final: check the schedule

A note on grading: the vast majority of problems in this class are graded on a four-point scale that is curved to an eight-point one:

8: Work that shows command of the material and has only a few small mistakes, if any.

7: Work that shows a strong understanding of the relevant material, but contains enough errors that they get in the way of the demonstration of that understanding.

5: Work that shows elements of understanding, but is too clouded with mistakes to be considered on the right track.

3: Work that demonstrates a very small amount of understanding — but still some.

0: No work shown for any problem where work is required or work that demonstrates no understanding at all of the relevant material.

Course Schedule

This schedule is tentative, and may change slightly throughout the quarter.

Week	**Material**
1	1.1, 1.2
2	1.3, 4.10*, 1.4
3	1.5, 1.6
4	1.7, 2.1, 2.2
5	2.2, 2.3
6	2.4, 2.5
7	2.6, 3.1
8	3.1–3.3
9	3.4, 3.7
10	4.1–4.4

*From *Calculus Volume I.*

Other Things

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 think they might have one, 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. Please let me know if you need additional accommodations.

Prohibited Discrimination and Harassment Reporting: I am a student-directed employee. For information about my reporting obligations as an employee, please see Employee Reporting Obligations. Students experiencing any form of prohibited discrimination or harassment, including sex or gender based violence, may seek information on safe.uoregon.edu, respect.uoregon.edu, titleix.uoregon.edu, or aaeo.uoregon.edu or contact the non-confidential Title IX office (541-346-8136), AAEO office (541-346-3123), or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help. I am also a mandatory reporter of child abuse. Please find more information at Mandatory Reporting of Child Abuse and Neglect.

Conduct: This university exists for your benefit. If you believe something is not as it should be, don't hesitate to let me know.

And as you should hold the university to a high standard, I will hold all of you to one in return. Academic dishonesty, including looking at other students' quizzes or tests or using any materials other than those allowed during a testing period, submitting others' work as your own, or altering returned work and resubmitting it, will be met with the strictest disciplinary action possible.

A word on learning: Math is not a subject that is learned passively. It is one thing to understand examples from lecture and another thing entirely to work through problems by yourself. Students who come to lecture expecting it to be enough on its own to pass the tests — and therefore don't put much or any effort into the homework — typically end up with very poor class grades. For

your own benefit, it's crucial to stay on top of the homework, to follow along with lecture, and to seek help — from a friend, from my office hours, from the textbook, or from a tutor — when that becomes difficult. In the same vein, it's critical that if you're struggling, you reach out before large assignments, not after. I want to help however I can, but if a test has already been graded and handed back, there's usually nothing I can do.

The official COVID policy

Academic Disruption: In the event of a campus emergency that disrupts academic activities, course requirements, deadlines, and grading percentages are subject to change. Information about changes in this course will be communicated as soon as possible by email, and on Canvas. If we are not able to meet face-to-face, students should immediately log onto Canvas and read any announcements and/or access alternative assignments. Students are also expected to continue coursework as outlined in this syllabus or other instructions on Canvas. In the event that the instructor of this course has to quarantine, this course may be taught online during that time.

COVID Containment Plan for Classes: As the University of Oregon returns to in-person instruction, the key to keeping our community healthy and safe involves prevention, containment, and support. Here is information critical to how the UO is responding to COVID-19.

Prevention: To prevent or reduce the spread of COVID-19 in classrooms and on campus, all students and employees must:

Comply with vaccination policy

Wear face coverings in all indoor spaces on UO campus

Complete weekly testing if not fully vaccinated or exempted

Wash hands frequently and practice social distancing when possible

Complete daily self-checks

Say home/do not come to campus if feeling symptomatic

If you have mild viral symptoms that do not require medical attention and you have not tested positive for COVID in the previous 90 days, students can drop by UHS to get a free COVID-19 self-test kit to more quickly determine if you have Covid

Complete the UO COVID-19 case and contact reporting form if you test positive or have been in

close contact with a confirmed or presumptive case.

Containment: If a student in class tests positive for COVID-19:

Instructors should follow the guidance in the Instructor Notification email

Follow guidance in classroom notification email if sent to an entire class

If notified by a student that they have tested positive for Covid or believe they have Covid, both instructors and the student should complete the UO COVID-19 case and contact reporting form

Answer the call if contact by the Corona Corps (541-356-2292)

Isolate if you test positive or are symptomatic

Quarantine if you are an unvaccinated close contact or a vaccinated close contact with symptoms

Test weekly if you are unvaccinated or partially vaccinated

Stay home if symptomatic and complete the UO COVID-19 case and contact reporting form

Support: The following resources are available to you as a student. University Health Services or call (541) 346-2770

University Counseling Center or call (541) 346-3277 or (541) 346-3227 (after hrs.)

MAP Covid-19 Testing

Corona Corps or call (541) 346-2292

Academic Advising or call (541) 346-3211

Dean of Students or call (541) 346-3216