



Department of
Mathematics
Franklin College of Arts and Sciences
UNIVERSITY OF GEORGIA

**Math 2250 – Calculus I for Science and Engineering
(CRN 40717)
Fall 2022**

Course Instructor Information

Instructor: Ruiwen Shu
Email: ruiwen.shu@uga.edu

Course Meeting Information

Monday 3:00-3:50, Geography Geology 0155
TuTh 3:55-5:10, Boyd Grad Rsch Ctr 0323

Office Hours: Monday/Tuesday 1:30-2:30; Thursday 2:30-3:30
Instructor Office Location: Boyd Grad Rsch Ctr 541

Course Website for this Section: <https://shuruiwen.com/teaching/>
UGA MATH 2250 Website: <http://www.math.uga.edu/2250>

Course Prerequisite

MATH 1113 or permission of department

Financial Information

For this course, you will need to purchase WebAssign access for \$31.96. You are allowed to use a TI-30 XS Multiview calculator (approximately \$20) during quizzes and exams, although you may not need one. No other calculators are allowed.

Textbook

OpenStax Calculus 1 (free online: <https://openstax.org/details/books/calculus-volume-1>)

Homework

Homework is on WebAssign, around twice a week. Please pay attention to the due dates of homework. No late homework allowed except for documented emergency.

Here are two important links for tech support:

eLC Student Support : <https://help.elc.uga.edu/contact/>

WebAssign Student Support : <https://webassign.com/support/student-support>

Quizzes

There are quizzes on Tuesdays at the end of lecture (see the last page for schedule). There are 10 quizzes in total. TI-30 XS Multiview calculator is allowed during quizzes (not other models of calculators). You cannot work with your classmates on quizzes. You are not allowed to use any additional resources. If you are unable to take a quiz due to a documented emergency, I will excuse you from that quiz, and it will not count towards your course grade.

Exams

We will have 3 midterm exams and a final exam. Our exams will be closed-note and closed-book; you are allowed to use a TI-30XS Multiview calculator during the exam (not other models of calculators).

Midterm exams will be in-class, as listed below:

Exam 1: Tuesday, Sept. 20 (75 minutes)

Exam 2: Tuesday, Oct. 18 (75 minutes)

Exam 3: Tuesday, Nov. 29 (75 minutes)

Cumulative Mass Final Exam: Thursday, December 8, 2022, from 7 p.m. to 9 p.m.
Location determined by the registrar later in the semester (NOT regular classroom).

UGA Final Exam Schedule: <https://reg.uga.edu/general-information/calendars/final-exam-schedule/>

If you have three or more exams scheduled during a 24-hour period, you are eligible to request a rescheduled exam; mass exams are to be rescheduled first if possible. See the official UGA policy for details: <https://bulletin.uga.edu/bulletin/ind/finalexam.html>

Make-up exams will be given only in the case of excused absences due to documented emergency situations.

Course Grade

Your numeric grade will be calculated using the following percentages:

Midterm Exams (3)	$18\% * 3 = 54\%$
Final Exam	26%
WebAssign Homework	10%
Quizzes	10%
Total	100%

Letter Grades

Letter grades will be assigned using the following scale:

≥ 92	89-91	87-88	82-86	79-81	77-78	72-76	69-71	60-68	<60
A	A-	B+	B	B-	C+	C	C-	D	F

Tentative schedule (“Q” for quizzes)

Week 1	Aug 17 - 19	Chapter 1, 2.1
Week 2	Aug 22 - 26	Chapter 1, 2.1-2.2
Week 3 (Q)	Aug 29 - Sept 2	2.3-2.4
Week 4 (Q)	Sept 5 - 9 (Labor day)	3.1-3.3
Week 5 (Q)	Sept 12 -16	3.4-3.5
Week 6	Sept 19 - 23	Exam 1 , 3.6, 3.8
Week 7 (Q)	Sept 26 - 30	3.7, 3.9, 4.1
Week 8 (Q)	Oct 3 - Oct 7	4.1-4.3
Week 9 (Q)	Oct 10 - 14	4.4-4.5
Week 10	Oct 17 - 21	Exam 2 , 4.6
Week 11 (Q)	Oct 24 - 28	4.7.
Week 12 (Q)	Oct 31 - Nov 4	4.8, 4.10, 5.1/5.2
Week 13 (Q)	Nov 7 - 11	5.1/5.2, 5.3
Week 14 (Q)	Nov 14 - 18	5.4-5.7
Week 15	Nov 21-25(Thanksgiving)	5.4-5.7
Week 16	Nov 28 - Dec 2	Exam 3 , 6.1
Week 17	Dec 5 - 9	Course Review

Exam 1 content: Chapter 1, 2.1-2.4, 3.1-3.5

Exam 2 content: 3.6-3.9, 4.1-4.5

Exam 3 content: 4.6-4.8, 4.10, 5.1-5.7

Final exam content: Chapter 1, 2.1-2.4, 3.1-3.9, 4.1-4.8, 4.10, 5.1-5.7, 6.1

Further Class Information

Course Description

In this course we will work to develop your critical thinking skills. This course focuses on using the derivative to better understand the behavior of functions. We will discuss the limit, the derivative, and the antiderivative, both conceptually and computationally.

Throughout the semester, we will use calculus concepts to model and solve various problems in science and engineering, with particular emphasis on graphs, optimization problems, and basic integration problems. In these science and engineering problems, we will focus on how to transfer course knowledge to specific applied scenarios.

Diversity and Inclusion Statement

In this course, ***you will be treated with respect***, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class. (Source: modified from a statement provided by the American Society of Engineering Education)

Expectations for Class Discussions

We will discuss mathematics together on a daily basis. These discussions are important because they provide for a richer classroom discussion, and they ensure that we all encounter different ways – correct and/or incorrect – of thinking about the material. It will be important for you to consider your peers' thinking, even if you believe you already have a full solution to the discussion problem. I expect you to respond respectfully and carefully to your peers' comments.

Program-Level Learning Outcomes

At the end of the degree program, a successful student will be able to apply the methods of calculus to set up and solve real world problems in science and engineering.

Student Learning Outcomes

At the end of the semester, a successful student will be able to:

1. Calculate and interpret basic trends, rate, and accumulation using the limit, the derivative, and the integral, respectively.
2. Use a function's graph to:
 - a. Identify increasing/decreasing behavior and critical numbers of the first or second derivative of the function
 - b. Identify extrema
 - c. Determine limits
 - d. Identify points of continuity/discontinuity
 - e. Identify asymptotes
 - f. Identify points where function is/is not differentiable

3. Use information (a formula or table and/or first or second derivative, etc.) about a function to predict:
 - a. Behavior of the function and/or its first or second derivative
 - b. Extrema
 - c. Limits
 - d. Points of continuity/discontinuity
 - e. Asymptotes
 - f. Identify points where function is/is not differentiable
4. Apply calculus to solve an application problem by selecting an appropriate model, identifying an appropriate calculus technique, using the calculus technique on the model to solve the problem, and interpreting the solution in context.
5. Effectively communicate mathematics, in writing and orally, with their peers and with the course instructor.

Exams

Make-up exams will be given only in the case of excused absences due to documented emergency situations. (The instructor decides what constitutes an emergency.) Generally, documented emergency situations require a medical or legal explanation, with supporting documentation. It is the student's responsibility to contact the instructor as soon as possible and definitely within 24 hours to discuss arrangements for making up a missed exam. If you know in advance that you cannot be in attendance for a particular midterm, discuss this with the instructor as early as possible.

WebAssign Homework

You will complete your homework on WebAssign. You are allowed to work with other students on homework, but please adhere to the academic honesty guidelines posted later in this syllabus for my expectations on how you will collaborate on homework.

You will have five submissions per answer box for each open-ended homework problem. (Multiple choice and true/false will have 1 or 2 submissions.) There is no penalty for incorrect submissions for homework assignments.

Late Work Policy

If you are unable to submit work on time due to a documented emergency, I will work with you on the deadline. Any work missed for any non-emergency reason will result in a grade of zero for that assignment. I will use my discretion to decide whether your documented situation is a valid reason for being unable to submit work on time.

Academic Honesty

UGA Student Honor Code

"I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others."

Academic Honesty Statement

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code, which can be found at <https://honesty.uga.edu>. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Specific Academic Honesty Guidelines for This Course

All students are responsible for knowing the University's policy on academic honesty. All academic work submitted in this course must be your own unless you have received my permission to collaborate. It is my responsibility to uphold the University's academic honesty policy and to report any potential academic dishonesty to the Office of the Vice President for Instruction.

You are encouraged to discuss homework with other students. However, your discussion is meant to be a sharing of ideas and techniques; when you write up your solutions, you should write them up independently. Here are some, but not all, instances of academic dishonesty pertinent to this course:

- getting an answer by finding a solution to a similar problem and changing the numbers to your own numbers without thinking through (and working through) the steps on your own
- reading another person's solution and using it to write your solution
- copying a solution
- showing your solution to someone else
- getting someone (or an app or website) to work the problem for you and submitting the work as your own
- using unauthorized materials during a quiz or test situation, including cheat sheets, the internet, another person's test paper, an unauthorized calculator, etc.
- having a cell phone or smart watch accessible during a testing situation, even if you are not using it to find problem solutions

This is not an exhaustive list; rather it is meant to give you an idea of the kinds of activities that are prohibited. Review the full academic honesty policy at <https://honesty.uga.edu>.

Technology Requirements

Software Requirements

- **WebAssign Access.** Most of our assignments are hosted on WebAssign. You will be required to purchase an access code from WebAssign. This access code is a lifetime edition purchase, which means you will be allowed to keep this access code in the event that you have to retake this course. We have a handshake agreement with the publisher to reduce the cost to \$30.36 per student. To receive WebAssign at the discounted rate, you must select that option in the order drop-down menu. WebAssign allows a 14-day trial period from the first day of class, so please use this time period to decide whether or not to

purchase access. Please contact your instructor if you experience any difficulty purchasing WebAssign Access.

- **No WebAssign Class Key.** We will **not** be using a class key for this course. Please access WebAssign through eLC.

Here are two important links for tech support:

- eLC Student Support : <https://help.elc.uga.edu/contact/>
- WebAssign Student Support : <https://webassign.com/support/student-support>

General Information

Copyright Policy

This course may contain copyright protected materials such as audio or video clips, images, text materials, etc. These items are being used with regard to the Fair Use doctrine in order to enhance the learning environment. Please do not copy, duplicate, download or distribute these items. The use of these materials is strictly reserved for this course and your use only. All copyright materials are credited to the copyright holder.

Mental Health and Wellness Resources

- If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit <https://sco.uga.edu>. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.
- UGA has several resources for a student seeking mental health services (<https://www.uhs.uga.edu/bewelluga/bewelluga>) or crisis support (<https://www.uhs.uga.edu/info/emergencies>).
- If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (<https://www.uhs.uga.edu/bewelluga/bewelluga>) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center.

Additional resources can be accessed through the UGA App.

Accessibility Statement

If you anticipate issues related to the format or requirements of this course, please contact me. I would like to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with the Disability Resource Center (DRC) located in Clark Howell Hall (Voice: 706-542-8719 or TTY: 706-542-8778 or Web: <https://drc.uga.edu>) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations. If you have a documented disability, I strongly encourage you to register now with the DRC so you have access to any accommodations that you may need throughout the semester.

Course Evaluations

Please complete the online evaluation near the end of the semester. Student evaluations are used by the university to evaluate instructional faculty.

Disclaimer The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. It is the responsibility of the student to seek clarification of the grading policy and/or course requirements and procedures from the instructor.