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

Math 2250 – Calculus I for Science and Engineering
Section 43013
Spring 2019

Course Instructor Information
Instructor: Daniel Mckenzie
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Office: Boyd 434K
Office Hours: TBD
Website: mckenzie.github.io
UGA MATH 2250 Website: http://www.math.uga.edu/2250

Course Meeting Information
MWF: Barrow Hall Rm 205, 8am
R: Boyd Rm 221, 8am

Communication Preferences
Please send emails to the UGA address listed above.

Office Hours
Office hours are times that I set aside especially for students to come and discuss math. When you come to office hours, you can arrive at any time that is convenient for your schedule (not just at the beginning). Be sure to allow yourself enough remaining time to ask questions. Here are some things we can do during office hours:

- go over problems you are stuck on
- talk about questions from class work
- discuss strategies for studying, taking exams, etc.
- talk about how you are doing in the class

If you want to speak privately during office hours (e.g. about your grades), let me know. If you want to meet with me individually outside of office hours, please make an appointment by email at least 24 hours in advance. If you receive a grade of D or F on any assignment, I expect you to schedule a meeting with me as soon as possible.

General 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 classroom, 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 https://docs.asee.org/public/LGBTQ/Diversity_Statement.pdf)

Classroom Expectations
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 listen attentively to your peers' thinking, even if you think you already have a full solution to the discussion problem. I expect you to respond respectfully and carefully to your peers' comments. When you are working in groups, I expect you to help your group members to all work at the same pace; it will be important for you to keep your peers informed about the choices you are making, and for you to check in with them to make sure they follow your thinking and are ready to move on.

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.

Course Prerequisite
MATH 1113 or permission of department

Assignments and Grading

Assignments
Students will be evaluated in the following areas:

Course Grade Your numeric grade will be calculated using the following percentages:

Midterm Exams	60% (Four midterms counting 15% each)
Final Exam (Mass Exam, Cumulative)	20%
In-class quizzes	10% (drop lowest score)
In-class activities	5%
WebWork Homework	5%

Midterm Exams
Our midterm exams will be traditional paper-and-pencil exams given during class time. Most questions will be free response, although we may occasionally have some multiple choice and/or true/false questions.

No makeup midterms will be given, and these exams may not be repeated. If you are absent from a scheduled midterm, and your absence is excused (generally, this requires a medical or legal explanation, with supporting documentation), the grade for the missing exam will be replaced with your final exam grade. If you know in advance that you cannot be in attendance for a particular midterm, discuss this with the instructor as early as possible.

Tentative midterm exam dates are listed below; any changes to the testing schedule will be announced by the instructor in class and/or by email.
Midterm 1: January 31st
Midterm 2: February 28th
Midterm 3: April 4th
Midterm 4: April 25th

Final Exam
In this course we have a mass final exam. The final exam is comprehensive, meaning that it covers everything from the whole semester. Students from all sections of MATH 2250 take the same exam at the same time, in a location determined by the registrar

(location TBD in April). This semester, the mass final exam for MATH 2250 is on Tuesday, May 7, from 7 p.m. to 10 p.m. 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 university exam conflict policy for details: https://curriculumsystems.uga.edu/curriculum/finalExamConflicts/

Quizzes
Quizzes are short (~15 minute), written, in class tests. I use them to gauge your progress, and to provide you with written feedback. We will have quizzes approximately once per week. After we cover a topic, you should be ready for a quiz on that topic on the second class day after that. (Get help ASAP if you need it.) I will drop your lowest in-class quiz grade. Make-up quizzes will not be given. If, on a quiz day, you have an excused absence with valid documentation, I will drop an additional quiz grade for that excused absence.

In-class Activities
In-class activities will typically be group work. These activities will help you deepen your understanding of course topics. These will usually be turned in or checked at the end of the class period. I will upload your In-class Activities grades to eLC approximately once per week.

Homework
This course has a free online homework system called WeBWorK. You can access the WeBWorK system at https://webwork.math.uga.edu/webwork2/Math2250_McKenzie_S19/ .Your username for WebWorK is your UGA myID, and your password is your nine digit 810 or 811 student number. For example, if your UGAMail address is xyz30602@uga.edu and your student number is 8114567890, then your username is xyz30602 and your password is 811456789. To access WeBWorK off campus, you will need a VPN; here is a link to information about using VPN with WeBWorK: http://www.math.uga.edu/webwork/VPN

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 Course Outline

The schedule and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better student learning.

UGA MATH 2250 Spring 2019 Schedule					
Wk	Month	Date	Day	Section	Topic
1			M		
	Jan	9	W		Course Intro

	Jan	10	R	2.1	Rates of Change and Tangents to Curves
	Jan	11	F	2.2	Limit of a function/limit laws
2	Jan	14	M	2.4	One-sided limits *drop-add ends Tuesday 9/15
	Jan	16	W	Flex	Limits (2.2/2.4)
	Jan	17	R	2.5	Continuity
	Jan	18	F	2.6	Limits Involving Infinity/Asymptotes
3	Jan	21	M		Holiday - Martin Luther King Jr. Day
	Jan	23	W	2.6	Limits Involving Infinity/Asymptotes
	Jan	24	R	3.1	Tangents and the Derivative at a Point
	Jan	25	F	3.2	The Derivative as a Function
4	Jan	28	M	3.3	Differentiation Rules
	Jan	30	W	Rev	Review (Catch up if needed)
	Jan	31	R	Exam	Exam 1: 2.1-3.2 (Approx)
	Feb	1	F	3.3	Differentiation Rules
5	Feb	4	M	3.4	Derivative as Rate of Change
	Feb	6	W	3.5	Derivatives of Trig Functions
	Feb	7	R	3.6	The Chain Rule
	Feb	8	F	Flex	Differentiation Rules (3.3-3.6)
6	Feb	11	M	3.7	Implicit Diff
	Feb	13	W	3.8	Derivatives of Inverse Functions, Logs
	Feb	14	R	3.8	Derivatives of Inverse Functions, Logs
	Feb	15	F	3.9	Derivatives of Inverse Trig Functions
7	Feb	18	M	3.ten	Related Rates
	Feb	20	W	3.ten	Related Rates
	Feb	21	R	3.ten	Related Rates
	Feb	22	F	3.11	Linearization and Differentials
8	Feb	25	M	4.1	Extreme Values
	Feb	27	W	Rev	Review (Catch up if needed)
	Feb	28	R	Exam	Exam 2: 3.3-3.11 (approx.)
	Mar	1	F	4.1	Extreme Values
9	Mar	4	M	4.2	Mean Value Theorem
	Mar	6	W	4.3	Monotonic Functions and the First Derivative Test
	Mar	7	R	4.3	Monotonic Functions and the First Derivative Test
	Mar	8	F	4.4	Concavity and Curve Sketching
10	Mar	11	M	Spring Break	
	Mar	13	W		
	Mar	14	R		
	Mar	15	F		
11	Mar	18	M	4.4	Concavity and Curve Sketching

	Mar	20	W	4.5	Indeterminate Forms and L'Hopital's Rule
	Mar	21	R	4.5	Indeterminate Forms and L'Hopital's Rule *withdrawal deadline Mar 21
	Mar	22	F	Flex	Curve Sketching (4.2-4.5)
12	Mar	25	M	4.6	Applied Optimization
	Mar	27	W	4.6	Applied Optimization
	Mar	28	R	4.6	Applied Optimization
	Mar	29	F	4.7	Flex - Newton's Method or Instructor choice
13	Apr	1	M	4.8	Antiderivatives
	Apr	3	W	Rev	Review
	Apr	4	R	Exam	Exam 3: 4.1-4.7 (approx.)
	Apr	5	F	4.8	Antiderivatives
14	Apr	8	M	5.1-5.2	Areas/Finite Sum Estimates, Sigma Notation, Limits of Finite Sums
	Apr	10	W	5.1-5.2	Areas/Finite Sum Estimates, Sigma Notation, Limits of Finite Sums
	Apr	11	R	5.3	The Definite Integral
	Apr	12	F	5.3	The Definite Integral
15	Apr	15	M	5.4	The Fundamental Theorem of Calculus
	Apr	17	W	5.4	The Fundamental Theorem of Calculus
	Apr	18	R	5.5	Indefinite Integrals and Substitution
	Apr	19	F	5.6	Substitution and Areas Between Curves
16	Apr	22	M	5.6	Substitution and Areas Between Curves
	Apr	24	W	Rev	Review
	Apr	25	R	Exam	Exam 4: 4.8, 5.1-5.6 (approx.)
	Apr	26	F		Flex/Review
17	Apr	29	M		Flex/Review
	Apr	30	T	Last class day - Tuesday classes meet	
	May	1	W		Reading Day
	May	2	R		Final Exams Start (end May 8)

Classroom Policies

Course Materials

The textbook is Hass, Weir, Thomas, *University Calculus, Early Transcendentals*, Third Edition, ISBN 9780321999580. You are not required to purchase the textbook, although it may be valuable to you because I will recommend textbook problems for additional practice. You may use a TI-30XS Multiview in class. No other calculators will be allowed, and sharing of calculators is not permitted. I recommend having a three-ring binder, a pencil, and notebook paper for use in class. (*See the Electronics Policy below.)

Announcements Policy
I will make most announcements in class; I will send others to your UGA email. You are responsible for the content of all announcements, even if you miss class or fail to check your UGA email.

Email Policy
I welcome emails from students; please give me at least 24 hours to respond. (For weekend emails, that means 24 business-day hours, which means Tuesday.) Be sure to work on assignments in advance so that you have enough time to get your questions answered.

Electronics Policy
Laptops*, cell phones, tablets*, smart watches, etc., may not be used in class. You may not have a smart watch or other personal electronic device on your person during a quiz or exam; these devices must be stored in a backpack or purse. Your personal electronic devices must be in “silent” mode during class; a ringing or vibrating device disrupts the classroom experience. I understand that there may be times when you need to be connected (childcare issues, family emergencies, etc.). If such a situation arises, please step outside and address these as needed. If you repeatedly violate this policy, you will be asked to leave the room immediately. No exceptions.

* I will make one possible exception to this policy. If you are legitimately using one of these devices for note taking purposes, you must request permission from me in person. If granted, you may be required to email your notes to me at the end of every class. I reserve the right to revoke permission if I feel this policy is being abused or becomes disruptive to others.

Participation Policy
A student who is not fully engaged in class activities is considered absent for the day. Students are allowed no more than 3 unexcused absences. On the fourth unexcused absence, a student may be withdrawn from the course with a grade of W before midpoint, F after midpoint. Do not regard these 3 allowed absences as "personal free days". These are only to be used in cases of personal or family emergencies. In some cases, verification may be required. I will work with any student who has a documented emergency, so please let me know as soon as possible if something is going on. Social functions, work, weddings, etc. do not count as excused absences, but documented medical emergencies and active duty military service are excused absences. Let me know if you will miss class for an excused absence; if so, I may allow you to complete in-class assignments early. In the event that the university cancels our class, any assignments scheduled to be due that class day will be due the next time the class meets.

Deadline Policy
Any work that is not submitted on time will receive a grade of zero. You are responsible for submitting assignments on time, even following an absence (excused or

unexcused).

Academic Honesty Policy
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. All academic work must meet the standards described in "A Culture of Honesty" found at: https://ovpi.uga.edu/academic-honesty/academic-honesty-policy. 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
You may not discuss a graded assignment with other students until that assignment has been graded and returned to you, unless you have been given explicit permission to do so. You are encouraged to discuss homework with others. The following are examples of academic dishonesty and are prohibited in 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
- getting someone (or an app) to work a problem for you and submitting the work as your own
- using unauthorized materials during a testing situation (e.g. midterms) 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; it is meant to give you an idea of prohibited activities.

General Operating Policies and Procedures

FERPA Notice
The Federal Family Educational Rights and Privacy Act (FERPA) grants students certain information privacy rights. See the registrar's explanation at http://apps.reg.uga.edu/FERPA/

Course Evaluations
I encourage you to complete the online evaluation near the end of the semester. Student evaluations of teaching are used by university administrators to evaluate instructional faculty. I also take your feedback seriously; note that it is delivered anonymously and is not visible to me until after I have submitted all final course grades.

Office of Student Care and Outreach
If you have a personal crisis during the semester, you will want to contact the Office of Student Care and Outreach so that they can support you:
http://sco.uga.edu/sco/services-students

Accessibility Statement

If you anticipate issues related to the format or requirements of this course, please meet with me. I would like us 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 located in Clark Howell Hall (Voice: 706-542-8719 or TTY: 706-542-8778 or Web: http://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.

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.