**Instructor:**   Fernando Liu Lopez
**Email:**   `fcl2@rice.edu`

Course Times: MWF 9:00-9:50am, HBH 423
Office Hours: TuThu 5:00-6:00pm, HBH 042
1-1 Meetings: Contact me via email to set a time and date.

1   About this Course

What is Calculus? In this course, we will study how a function's values change as we change the inputs (limits). We will use these to describe how functions change over time (derivatives), how to compute areas under curves (integrals), and how these concepts are related by a beautiful result we call the Fundamental Theorem of Calculus. We will also learn how to use these concepts to solve real-life problems in Physics, Chemistry, Biology, and Economics! If you would like a more detailed breakdown of the topics we will cover (as well as a schedule), please refer to course Canvas page.
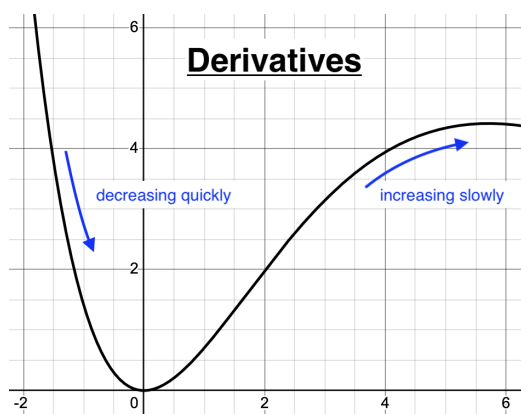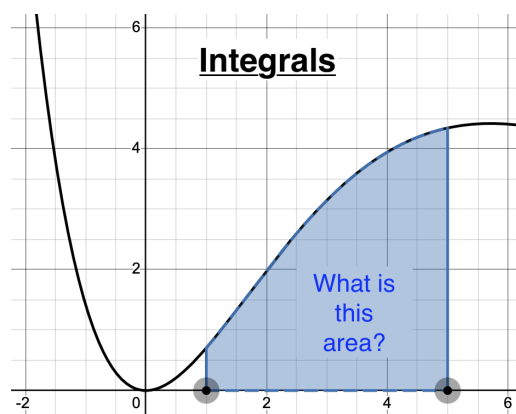
(a) Derivatives	(b) Integrals

Learning Outcomes: Throughout the course, you will learn to:

- compute limits of functions,

- compute the derivatives and integrals of polynomial, rational, trigonometric, exponential, and logarithmic functions,

- apply these concepts to learn how to sketch functions, find their maximum and minimum values, or approximate the function's values,

- translate real-life problems into mathematical models which we can solve using techniques we'll learn.

Prerequisites: There are no prerequisites for this course, meaning you can be successful without having taken any other college-level courses beforehand. However, previous exposure and familiarity with algebra and trigonometry will be required to perform necessary computations. If you wish to gauge your comfort-level with the required algebra and trigonometry, you can find a short "Algebra/Trig Diagnostic Quiz" (along with solutions and a rubric to interpret your results) in the course materials. If you wish to review and strengthen your abilities in these areas, you can also find "Algebra/Trig Review and Extra Practice" in the course materials.

Textbook: You are not required to purchase a textbook for this class. All necessary material will be covered in class, and all assignments will be available electronically. However, the following textbook is available for you for free electronically:

<div align="center">Calculus, Volume 1, OpenStax.</div>

Accessing a copy of the textbook should not be a source of stress or strain. If you have any sort of trouble accessing a copy of the textbook, would prefer a physical copy of the textbook, or would like to discuss additional references you can use, contact me personally via email.

2   Course Logistics

Class Meetings: Class time will be dedicated to introducing new concepts, going through example problems in detail, and working through practice problems and worksheets in small groups. Class meetings are also the easiest way to find me and talk to me about any questions you have concerning class materials, announcements, or upcoming assessments.

Technology: Make sure you have access to the course's Canvas, Webwork, and Gradescope pages. The Canvas page contains course material, including the syllabus, lecture notes, upcoming deadlines, and homework. Webwork is a free online homework system where I will post homework and practice problems pertaining to topics recently covered in class. It is a vital part of our course since it offers immediate feedback for you to gauge your understanding of new concepts. You can log in to Webwork using your Net ID as your username and your Rice ID as your password. You should log in to both of these as soon as possible and let me know if you have any issues accessing either.

Office Hours: Office hours are your built-in time to get personal support from me. They're times each week when you can drop in to ask questions, check your understanding, talk through homework, review for exams, or just chat about how the class is going. Office hours are designated times for me to further *support you*, so don't feel nervous about coming by for any reason!

Help Sessions: Our undergraduate teaching assistants are an invaluable resource for you to get extra help from your peers and find classmates to work with. These are available for you to take advantage of *daily*! Times and locations can be found on Canvas.

Additional Technology: Technology is a valuable tool to enhance your understanding and check your work. Our course Canvas page contains links and basic instructions to online graphing software and computer algebra systems you may use.

3   Assessments and Expectations

General Expectations: To keep you on track to success in this course, I expect you to attend lectures, complete assignments in a timely manner, and stay up to date with class announcements. In return, I will carefully prepare lectures, lecture notes, assignments, review material, and opportunities for more individualized help outside the classroom.

It is important that we maintain a good level of communication throughout the semester, so we can afford each other extra flexibility and understanding if anything comes up that impedes learning or a good learning environment. To this end, you can feel free to email me, chat with me before or after class, talk to me during office hours, or use this anonymous feedback form.

Homework: There are two components to the homework: Written HWs and Webwork. You are encouraged to collaborate with other students in the class, but must submit your own solutions to assignments. Using solutions manuals, the internet, or other mathematical software is prohibited.You may refer to section 1 of the Honor System Handbook's Standard Definitions and Policies document for more details.

1. Webwork assignments will be announced in class and on Canvas. These are short assignments that give you some practice with the material covered in class that day, along with immediate feedback. In general, these will be assigned after each class, and will be due an hour before the next class meeting.

2. Written HW will be posted on Canvas once a week, and due a week after they are assigned. These should be uploaded to Gradescope to be graded. Written HWs are split into Practice Problems and Advanced Problems. Practice problems give you more computational practice of previously covered material. Think of these problems as a way to provide spaced repetition and practice, to cement concepts into your memory. Advanced problems included harder problems and more interesting applications to deepen your understanding of concepts.

Your two lowest WebWork scores will be dropped. Additionally, your lowest Written HW score will be dropped, provided you score more than 40% on it. Late assignments in general will not be accepted, but feel free to email me if anything comes up.

Exams: There are two midterm exams and a comprehensive final exam. Books, notes, and calculators are not allowed on exams.

Midterm 1	Tuesday, February 13, 7-9PM
Midterm 2	Wednesday, March 20, 7-9PM
Final Exam	TBD by Registrar's Office

If an exam conflicts with a class, holiday, or event you can't reschedule, please let me know before the end of the second week of classes. For other conflicts not preempted here, please let me know at least a week before the exam. Makeup exams will be scheduled at the instructor's discretion.

Grades: Grades are based on attendance (5%), homework (15%), quizzes (5%), and exams (75%).

The attendance grade exists mainly to (1) maintain consistent numbers for any class activities despite the early 9am time slot, and (2) allow you more chances to be exposed to the class material.

The homework grade (7.5% for Written HW and 7.5% for electronic assignments) exists as a basic tool to ensure you get consistent practice with problems at an consistent rate (and avoid cramming before exams). You will get immediate feedback and unlimited tries for your electronic assignments. Written HWs will be graded by an undergraduate grader, generally about one week after submission.

Quizzes exist mainly to get you practice and familiarity with midterm problems, so you can gauge how to best prepare for midterms. Quizzes will be posted on Gradescope once a week. They will consist of one or two timed exam-like problems, which you can complete on your own time. You will be allowed to do corrections on all quizzes to recover any lost points.

The exam score is distributed among your midterms and final in one of the three possible ways:

Midterm 1 :	20%		Midterm 1 :	25%		Midterm 1 :	25%		Midterm 1 :	15%
Midterm 2 :	20%	or	Midterm 2 :	15%	or	Midterm 2 :	15%	or	Midterm 2 :	15%
Final :	35%		Final :	35%		Final :	35%.		Final :	45%.

The **highest** of the three distributions above will be used to calculate your final grade. To assign your final letter grade, your exam scores will be normalized with the scores from the different sections of this course.

The 75% exam score is a policy of the Math department. To the best of my knowledge, it exists as a quantifiable measure of consistency. All sections of this course take the same exams and are graded by the same graders, with the hope of obtaining consistent coverage of material and consistent grading across all sections.

4   Classroom Policies

Statement of Conduct: My wish is to support an inclusive learning environment. Your individual background, history, and experiences matter to me and inform the ways in which we learn from each other and respect each other. At the most basic level, all participants in this course should treat each other and their instructor with courtesy and respect, and adhere to the Rice Student Code of Conduct. **Discrimination, harassment, and bullying will not be tolerated.**

If you experience or witness unprofessional or antagonistic behavior and are unsure what to do, feel free to talk to me so I can help resolve the issue. If you'd prefer to remain anonymous, an anonymous feedback form is on available on Canvas or hyperlinked here. In general, these matter should be brought to my attention and/or the department chair. The Ombudsperson is also available as an intermediate, informal option, and contacting them will not necessarily trigger a formal inquiry.

Accessibility Support: If you use academic, accessibility, or learning supports (or think you might benefit from them) you should:

1. Check out the university's Student Disability Resource Center's (DRC) website, and fill out their preliminary notification of disability-related needs.

2. Make sure your disability is on file with the Disability Resource Center to determine recommended accommodations. You can find details of the process of establishing eligibility as a student with a disability here.

3. Email me with an attached copy of your accommodation letter to discuss your accommodation needs.

If you are new or unfamiliar with how Rice offers these accommodations, contact me so I can give you further information about what steps to take.

<u>Title IX Statement:</u> Your wellbeing and safety in this course are important. I encourage any student who has experienced an incident of harassment, pregnancy discrimination, gender discrimination, sexual discrimination, or other forms of interpersonal violence to seek support through the SAFE Office. Students should be aware when seeking support on campus that most employees, including myself, are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. For more information, please visit safe.rice.edu, email titleixsupport@rice.edu, or call (713) 348-3311.