

Math 116 Fall 2023: Intuitive Calculus

Saiful Tamim

email: stamim@unc.edu

Course meeting: Phillips Hall 381, MWF 11:15 AM-12:05 PM

Office Hours: In person, PH 344, MF 1:30 PM-2:30 PM

COURSE OVERVIEW

Calculus is one of the biggest branches of mathematics that applies directly to solving real-life problems ranging from finding the area of a circle to predicting the motion of celestial bodies. In this class, we will aim to give an introduction to this beautiful and powerful subject in an intuitive and less traditional way.

Resources: The following resources will be used in this course:

- Course website: canvas.unc.edu. Lecture notes, solutions, exam grades, and all other course materials will be posted there. Students are responsible for keeping track of the posted items.
- Textbook: **Calculus Made Easy** by Thompson and Gardner. Online versions of this book can be found for free.
- Gradescope: Homework and assignments will be collected through gradescope. A guide to using the app can be found on canvas.

Prerequisites: No prior knowledge of calculus is required. A basic understanding of the following items will be useful:

- ▷ Solution of simple algebraic equations.
- ▷ Concept of function and plotting functions in a graph.
- ▷ Some familiarity with trigonometry.

ASSIGNMENTS AND GRADING

Quizzes: In-class quizzes will be given from time to time throughout the course. These will be used for keeping class attendance and graded based on effort rather than accuracy. *Only three unexcused absences will be allowed throughout the semester.*

Homework: Homeworks will be posted on Gradescope every Friday and will be due at the same time on the following Friday. Students will be responsible for keeping track of the submission deadline and there will be a 25% late penalty. There will be no exception unless extreme circumstances.

Term project: A portion of the course grade will be based on a term project that the students will submit at the end of the semester. The students can freely choose a topic or problem close to their field of interest. An example could be a detailed worked-out example of an application of calculus in the student's field of major. Another choice would be a literature review outlining the historical development of a particular topic in calculus, or the field in general. More ideas and details will be given throughout the semester.

Exams: There will be **2 midterm exams and 1 final exam**. Midterm exams will be in-class lasting the entire class period. The final exam will be 3 hours according to the UNC final exam schedule. Unless otherwise mentioned, all exams will be held in the class meeting room.

Midterm 1: Week 6, Date: Monday, Oct 2.

Midterm 2: Week 10, Date: TBD.

Final: Dec 15, Friday, 12:00 PM.

Note: There will be no make-up exams, except for religious and university-sponsored exceptions. Official approval will be required to reschedule the final exam.

Grade Calculation:

Written Homework	20%
Term project	15%
Attendance Quizzes	10%
Exam 1	15%
Exam 2	15%
Final Exam	25%

Course Grade:

95-100	A	77-79	C+
90-94	A-	73-76	C
87-89	B+	70-72	C-
83-87	B	67-69	D+
80-82	B-	60-66	D
		0-59	F

Grading schemes are subject to any changes such as curving without prior notice at the sole discretion of the instructor.

LECTURE TOPICS

The following topics will be covered at various depths in this class:

- Intro to functions and limits.
- Definition of differentiation, with basic rules and techniques.
- Finding maxima and minima of a function.
- Exponential and logarithmic function.
- Trigonometric functions.
- Integral and its basic rule.
- Finding area under a curve.
- Intro to differential equations.

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Syllabus Changes

The instructor reserves the right to make changes to the syllabus including project due dates and test dates. These changes will be announced as early as possible.

Attendance Policy

University Policy: As stated in the University's [Class Attendance Policy](#), no right or privilege exists that permits a student to be absent from any class meetings, except for these University Approved Absences:

1. Authorized University activities: [University Approved Absence Office \(UAAO\) website](#) provides information and [FAQs for students](#) and [FAQs for faculty](#) related to University Approved Absences
2. Disability/religious observance/pregnancy, as required by law and approved by [Accessibility Resources and Service](#) and/or the [Equal Opportunity and Compliance Office](#) (EOC)
3. Significant health condition and/or personal/family emergency as approved by the [Office of the Dean of Students](#), [Gender Violence Service Coordinators](#), and/or the [Equal Opportunity and Compliance Office](#) (EOC).

Instructors may work with students to meet attendance needs that do not fall within University approved absences. For situations when an absence is not University approved (e.g., a job interview, illness/ flu or club activity), instructors are encouraged to work directly with students to determine the best approach to missed classes and make-up assessment and assignments.

Honor Code

All students are expected to follow the guidelines of the UNC Honor Code. In particular, students are expected to refrain from "lying, cheating, or stealing" in the academic context. If you are unsure about which actions violate the Honor Code, please see me or consult studentconduct.unc.edu.

Acceptable Use Policy

By attending the University of North Carolina at Chapel Hill, you agree to abide by the University of North Carolina at Chapel Hill policies related to the acceptable use of IT systems and services. The Acceptable Use Policy (AUP) sets the expectation that you will use the University's technology resources responsibly, consistent with the University's mission. In the context of a class, it's quite likely you will participate in online activities that could include personal information about you or your peers, and the AUP addresses your obligations to protect the privacy of class participants. In addition, the AUP addresses matters of others' intellectual property, including copyright. These are only a couple of typical examples, so you should consult the full [Information Technology Acceptable Use Policy](#), which covers topics related to using digital resources, such as privacy, confidentiality, and intellectual property.

Additionally, consult the [Safe Computing at UNC](#) website for information about data security policies, updates, and tips on keeping your identity, information, and devices safe.

Accessibility Resources and Service

[Accessibility Resources and Service](#) (ARS – ars@unc.edu) receives requests for accommodations, and through the Student and Applicant Accommodations Policy determines eligibility and identifies reasonable accommodations for students with disabilities and/or chronic medical conditions to mitigate or remove the barriers experienced in accessing University courses, programs and activities.

ARS also offers its Testing Center resources to students and instructors to facilitate the implementation of testing accommodations.

Faculty and instructors with any concerns or questions about accommodations and/or their implementation, are invited to [reach out to ARS](#) to discuss.

Counseling and Psychological Services

UNC-Chapel Hill is strongly committed to addressing the mental health needs of a diverse student body. The [Heels Care Network](#) website is a place to access the many mental health resources at Carolina. CAPS is the primary mental health provider for students, offering timely access to consultation and connection to clinically appropriate services. Go to their website <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health building for an initial evaluation to learn more. Students can also call CAPS 24/7 at 919-966-3658 for immediate assistance.

Title IX and Related Resources

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Reports can be made online to the EOC at <https://eoc.unc.edu/report-an-incident/> or by contacting the University's Title IX Coordinator (Elizabeth Hall, titleixcoordinator@unc.edu) or the Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu). Confidential resources include Counseling and Psychological Services and the Gender Violence Services Coordinators (gvsc@unc.edu). Additional resources are available at safe.unc.edu.

Policy on Non-Discrimination

The University is committed to providing an inclusive and welcoming environment for all members of our community and to ensuring that educational and employment decisions are based on individuals' abilities and qualifications. Consistent with this principle and applicable laws, the University's [Policy Statement on Non-Discrimination](#) offers access to its educational programs and activities as well as employment terms and conditions without respect to race, color, gender, national origin, age, religion, genetic information, disability, veteran's status, sexual orientation, gender identity or gender expression. Such a policy ensures that only relevant factors are considered, and that equitable and consistent standards of conduct and performance are applied.

If you are experiencing harassment or discrimination, you can seek assistance and file a report through the Report and Response Coordinators (email reportandresponse@unc.edu or see additional contact info at safe.unc.edu) or the Equal Opportunity and Compliance Office at <https://eoc.unc.edu/report-an-incident/>.

Undergraduate Testing Center

The College of Arts and Sciences provides a secure, proctored environment in which exams can be taken. The center works with instructors to proctor exams for their undergraduate students who are not registered with ARS and who do not need testing accommodations as provided by ARS. In other words, the Center provides a proctored testing environment for students who are unable to take an exam at the normally scheduled time (with pre-arrangement by your instructor). For more information, visit <http://testingcenter.web.unc.edu/>.

Learning Center

Want to get the most out of this course or others this semester? Visit UNC's Learning Center at <http://learningcenter.unc.edu> to make an appointment or register for an event. Their free, popular programs will help you optimize your academic performance. Try academic coaching, peer tutoring, STEM support, ADHD/LD services, workshops and study camps, or review tips and tools available on the website.

Writing Center

For free feedback on any course writing projects, check out UNC's Writing Center. Writing Center coaches can assist with any writing project, including multimedia projects and application essays, at any stage of the writing process. You don't even need a draft to come visit. To schedule a 45-minute appointment, review quick tips, or request written feedback online, visit <http://writingcenter.unc.edu>.