

MATH 191: Calculus I
Andrews University, Spring 2021
MTuWTh 12:30 - 1:20 PM

Syllabus subject to change at any point in the semester at instructor's discretion.

Instructor: Anthony Bosman, PhD, earned his bachelor's degree from Stanford University and doctorate in mathematics from Rice University. His research focuses on low-dimensional topology; particularly knot theory and its connections with 3- and 4-manifolds. He is also interested in effective teaching, innovation in higher education, and the relationship between faith and reason. <http://www.anthonbosman.com>

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Learning Platform: (required) Hawkes Learning, *Calculus with Early Transcendentals* by Sisson and Szarvas.

You will purchase lifetime access to the Hawkes online Calculus learning platform that will be used for practice, review, and online problem sets. Also included is a digital copy of the textbook. This learning platform will also be used in MATH 192 and MATH 240; you will not need to purchase access to it again.

Prerequisites: P5 on Math Placement Exam; or MATH 167 or MATH 168 with grade no lower than C.

Classroom: HYH 111. Remote learners can join via Zoom

<https://us02web.zoom.us/j/84741615681>, Passcode: **calculus**

Office Hours: Schedule a one-on-one meeting via course LearningHub page.

Math Center: Peer tutoring, SuMTuWTh 5-7p (Eastern), join via Zoom

<https://andrews.zoom.us/j/96574573133?pwd=VExReWpLWldXaU52bGt3WEN4ZHE1QT09>

Attend regularly!

Course Description: MATH191 and 192 together comprise a standard introduction to single-variable calculus. MATH 191 includes limits, continuity, derivatives, applications and integration up through substitution and integration by parts. Formal definitions of limit, derivative, and Riemann integral. Proofs of standard theorems, including the Fundamental Theorem of Calculus. *This course fulfills the general education Mathematics Reasoning requirement.*

Course Design: This is a hybrid, flexible learning course. Rather than meet four times a week, as in a typical 4-credit course, two days a week you will watch recorded lectures online and the other two days we will meet together for problem solving sessions where you will work in small groups. Research shows that this blended learning style can maximize student success and satisfaction, but it will require you to exercise discipline in keeping up with the course content. You will be required to watch the online lectures and completed the associated short quiz before attending the associated problem solving sessions. You will join the problem solving sessions in-person or, if needed, remotely (in which case, you will be required to have a strong internet connection and webcam turned on). The intent of this flexible design is to best serve you in case of any disruptions that may prevent you from regularly attending in-person.

Course Goals: Students will...

- demonstrate an understanding of the course content and appreciate the progression and interconnectedness of ideas.
- develop their analytical reasoning and problem solving skills.
- understand the significance of the Calculus for solving problems in a wide range of disciplines.
- develop a growth mindset that interprets failures as opportunities for continued learning, rather than a fixed mindset that interprets failures as indicators of one's inability.

Grade Policy:

Course grades will be computed as follows:

60% Exams + 25% Hawkes Problem Sets + 15% Engagement (Quizzes & Attendance)

And awarded as follows: A (93-100%), A- (90-92%), B+ (87-89%), B (83-86%), B- (80-82%), C+ (77-79%), C (73-76%), C- (70-72%), D (60-69%), F(\leq 59%).

Problem Sets: Problem sets will be assigned regularly through the online Hawkes learning platform. I encourage you to form study groups with your peers and regularly attend the Math Center and my office hours, but you should submit your own solutions and understand each step fully. This is one of the best ways for you to gauge your understanding of the material and prepare for the exams. The learning system uses a mastery based grading approach that is evidenced to improve learning. As the course content rapidly builds on itself, it is important that you complete assignments on time; full credit will be awarded for achieving mastery by the due date and points will be deducted for every day late.

Exams: There will be four online, timed exams that will each be worth 10% of your total grade. You will be required to submit a scanned copy of your work and are expected to exhibit academic honesty on these exams. There will be a final, proctored exam worth 20% of your final grade – the final exam may also replace your lowest exam grade, making it worth 30% of your total grade. For students not on campus, we will work together to arrange proctoring for the final exam, either remotely through Zoom or utilizing a local teacher.

Academic Honesty: Honesty in all academic matters is a vital component of personal integrity. Breaches in academic integrity principles are taken seriously. Acts of academic dishonesty as described in the University Bulletin are subject to incremental disciplinary penalties with redemptive intent. Such acts are tracked in the office of the Provost. Repeated and/or serious offenses will be referred to the Committee on Academic Integrity for further recommendations on penalties, including dismissal. Knowledge of Calculus is a dangerous thing apart from the development of your character.

Diverse Learning Needs: It is my intention that all students receive fair and equal treatment in this course. I design the course to respect a diverse class of learners, but often there are additional steps one can take to aid an individual's unique learning needs. Please don't hesitate to speak with me during the first week of class about any concerns you may have. If you have a documented disability that requires academic adjustments or accommodations, immediately contact the Student Success office at Nethery Hall 100 or disabilities@andrews.edu. Together we will work to ensure a fair and accessible learning environment.

COVID-19 Accomodations: I will make every reasonable effort to accommodate your needs in this particular time. The hybrid design of the course will allow you to continue joining remotely if quarantined. I ask you keep me updated of any significant disruptions to your participation due to health or other reasons. Those attending in-person will be required to wear a face mask that covers both face and nose for the full duration of class, observe physical distancing, and clean areas they interact with. No recordings or other class material are to be shared on social media or any other platform without explicit permission of the instructor. Especially now, I encourage you to prioritize your physical, mental, and spiritual wellness, taking advantage of the several campus resources. In particular, the *Counseling and Testing Center* has qualified staff who are able to help you navigate social, emotional, and other concerns. Getting proper sleep, eating well, exercising regularly, enjoying Sabbath rest, and reaching out for help when needed are important habits to cultivate that will help you thrive in this course and life.

Course Outline and Tenative Exam Dates:

Functions & Limits.....	Midterm 1, TBD (10% of total grade)
Differentiation	Midterm 2, TBD (10% of total grade)
Applications of Differentiation.....	Midterm 3, TBD (10% of total grade)
Fund. Theorem of Calculus	Midterm 4, TBD (10% of total grade)
Final.....	Cumulative (20% - 30% of total grade)