
MATH 160 CALCULUS FOR PHYSICAL SCIENTISTS I

INSTRUCTOR INFORMATION

Course Coordinator: Ms. Hilary Freeman, hilary.tanner.freeman@colostate.edu

Assistant Course Coordinator: Ian Jorquera

INSTRUCTORS:

Section	Time	Building	Room	Instructor
1	MTWF 08:00 AM - 08:50 AM	ENGRG	E 103	Connor Price
3	MTWF 10:00 AM - 10:50 AM	ENGRG	E 103	Hilary Freeman
4	MTWF 11:00 AM - 11:50 AM	ENGRG	E 205	Joel Barraza
5	MTWF 12:00 PM - 12:50 PM	ENGRG	E 105	Francisco De Jesus Pagan
6	MW 06 - 07:15 PM, T 6-6:50PM	STADM	1214	Ross Flaxman
8	MTWF 03:00 PM - 03:50 PM	ENGRG	E 204	Chris Rocheleau
9	MTWF 04:00 PM - 04:50 PM	ENGRG	E 103	Nathaniel Collins

PREREQUISITES FOR COURSE

MATH 124 (Logarithmic and Exponential Functions) with a B or better) AND MATH 126 (Analytic Trigonometry) with a B or better OR MATH 127 Precalculus with a B or better.

COURSE DESCRIPTION & OBJECTIVES

Limits, continuity, differentiation, and integration of trigonometric and transcendental functions with applications.

The course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. Connections among representations are also emphasized.

Upon the completion of this course, students will be able to:

- Evaluate limits using appropriate analytical, numerical, or graphical techniques.
- Analyze the continuity of functions.
- Apply the definition and techniques of differentiation to find derivatives including derivatives of transcendental functions.
- Analyze functions represented by an equation or a graph using derivatives and limits.
- Create graphs of functions using properties of derivatives, limits and integrals.



- Apply techniques of integration to find antiderivatives of a function.
- Evaluate definite integrals using Riemann sums, the Fundamental Theorem of Calculus, geometry, and technology.
- Utilize calculus techniques to solve application problems.
- Apply mathematical definitions and construct logical arguments.

TEXTBOOK / COURSE READINGS

Active Calculus, <https://activecalculus.org/> and specifically <https://activecalculus.org/single/book-1.html>

COURSE MATERIALS & EQUIPMENT

For Online homework practice will use WeBWork. Your account login will be your NetID and your initial password will be your CSU ID NUMBER. Please change your password after logging in.

Course activities/makeup lectures will be through student.desmos.com. It is strongly recommended that you create an account with Desmos if you do not have one already.

Links to Desmos and WeBWork will be available in Canvas.

PARTICIPATION/BEHAVIORAL EXPECTATIONS

Doing the online homework and participating in class is preparation for assessments but will not be sufficient alone. Plan time to visit the Calculus Center for additional assistance. Get help early and often! Learning, especially calculus, is an iterative, collaborative struggle! Schedule weekly time to reflect on your learning and mistakes- revising mathematics is a crucial aspect of learning, especially as future content depends on understanding of previous topics. Expect to spend 12-16 hours each week on this class. Use a calendar, either paper or on your smart phone/computer, to schedule time to attend class, do the practice problems (WeBWork/class-work), prepare for written quizzes and exams, visit the calculus center, and prepare for reassessments. Learning how to manage a busy schedule is a skill that will pay off later in life! Start NOW by putting the exam dates in your calendar:

Thursdays 2/8, 3/7 and 4/11 from 5-6:50pm.

Also consider scheduling at least 3 hours each week when you will go to the Calculus Center!!

SUCCESS IN CALCULUS

In this course you should expect to ask (and be asked) lots of questions, explain your thought processes and ideas through discussion and writing, and be stretched to think about problems you may have not seen before. Research shows that people learn mathematics best when they are actively engaged in the material with their peers. In other words, doing and interacting, rather than watching, is a more efficient way to learn. Therefore, our course is not comprised solely of lecture content, but instead provides opportunities for individual and group work in which you will be actively engaged, solving problems, making discoveries, and understanding connections.

Success in this class means that you must be responsible for your learning and work to develop your understanding of calculus. You must be ready to work hard. Frustration and failure are normal, and often a necessary part, of learning. As you progress through the course, you must master the content and then demonstrate that mastery to your instructor. You are not alone in this journey- you must ask for help and utilize the resources made available. Resources include: your classmates, your instructor, the Calculus Center, the textbook, online videos, practice problems and homework, etc.

I have high expectations, but the class is set up so that you can succeed!

GRADING POLICY

MATH 160 uses Standards Based Grading. This grading system might feel very different from other classes and will take some time to get used to. Some reasons for grading in this way are to shift the emphasis to becoming fluent with content rather than focusing on partial credit and to reduce the stress of missing a question on a quiz or exam. A huge benefit is that assessments can (and should be) revised or reassessed. Drafting and revising is an integral part of doing Mathematics and succeeding in MATH 160.

- To earn a D, complete at least 17 standards and score at least a 60% on WeBWork and participation.
- To earn a C, complete at least 19 standards and score at least a 70% on WeBWork and participation.
- To earn a B, complete at least 22 standards and score at least a 70% on WeBWork WeBWork and participation.
- To earn an A, complete at least 25 standards and score at least a 70% on WeBWork WeBWork and participation.



A standard is "complete" if you have earned "satisfactory" the required number of times for that standard, usually 2 or 3 times. See the Standards Tracking Document for more details. Use Canvas Grades (especially Learning Mastery View as seen on a desktop web-browser) to see your progress on standards. You will need to track your grades using the Standards Tracking Document, which is available on Canvas.

Written take-home quizzes, quizzes and exams are opportunities to demonstrate competency of specific standards. Each attempt of a standard will be graded as Satisfactory, Minor Revision, New Attempt or Not Gradable. Students must get "satisfactory" on a standard 1 to 3 times total before it is considered complete. Only completed standards count toward your final grade! Standards marked "Minor Revision", "New Attempt" or "Not Gradable" must be revised or reassessed for another chance to meet expectations. See the Standards Tracking Document for more details and for a template for tracking your progress.

Webwork is an online homework platform. Webwork assignments will be organized by standard. These assignments will give you a place to practice the standards with instantaneous feedback. Use them to prepare for quizzes and exams. If you are going to reassess a standard, you will be required to have a score of 90% on the corresponding Webwork assignment before you can take a reassessment quiz.

Participation will be assigned in class and will be described by your instructor. It may take the form of participating in class discussions and group work, answering exit surveys, doing Desmos lessons, filling out the standards tracking document, or other activities. Committing to actively engaging in class and attending every day will help you be successful in this class.

Revisions and Reassessments: Any standards not marked "satisfactory" on a take-home quiz assignment should be revised and resubmitted. Standards missed on quizzes and exams will have limited reassessment opportunities. You must take advantage of revisions and reassessments to be successful in this course. We will discuss the details in class and on Canvas. Be sure to learn how this process works during weeks 2 and 3 of the semester. Any standard graded as "Minor Revision", "New Attempt" or "Not Gradable" will NOT count toward your final standard count until you successfully revise or reassess.

As a student enrolled in this course, one of your responsibilities is to submit course work by the due dates listed in Canvas. With that said, I take my role as your instructor very seriously, and, in fact, I care about how well you do in this course and that you have a satisfying, rewarding experience. To that end, it is my commitment to you to respond individually to the work you submit in this class and to return your work in a timely manner. Written Homework, quizzes and



exams will be graded soon enough to allow time to do the reassessments. Webwork is graded immediately, although scores do not automatically post to Canvas. (If, however, due to unforeseeable circumstances, the grading of your work takes longer than the times listed here, I will keep you informed of my progress and make every effort to return your work with feedback as soon as I can and adjust revision deadlines as needed.)

*Keep a copy of all work created for the course, including work submitted through Canvas course learning management system.

* Because we are using Standards Based Grading, Canvas is not able to automatically compute your grade, so any averages you see in Canvas will not necessarily be an accurate reflection of your final grade.

COURSE POLICIES (LATE ASSIGNMENTS, MAKE-UP EXAMS, ETC.)

It is my goal that you learn the content in this class. To get the most out of the course, assignments need to be completed on time so that you can take advantage of feedback, correct any mistakes, improve understanding, and reassess to demonstrate your competence. Unfortunately, we do not have an infinite amount of time to complete this course, so deadlines do apply.

– Missing the due date for take-home quizzes: When you submit take-home quizzes on time you will get feedback and have the opportunity to revise and resubmit any missed standards. Take-home quizzes submitted after the due date but before the revision due date may be graded, but if any standards are marked as progressing or not gradable, you will be at a disadvantage for getting the grade you want in the class as you will not be eligible to revise these standards. Take-home quizzes will not be accepted after the revision due date.

– Missing a quiz or exam: These assessments are not graded for points, so instead of counting against your grade, you have simply lost an opportunity to demonstrate competency. There are, however, a finite number of assessment opportunities in the semester so we expect that you make every effort to take advantage of scheduled assessments. If you are going to miss a quiz/exam for a University Approved Event or become ill, notify your instructor **prior** to the assessment, or on the day of the assessment. Requests received after the assessment may not be considered. Make-up assessments must be completed within 1.5 weeks of the original due date.



– Webwork: Webwork will be assigned weekly and due on Wednesdays. See Canvas for details. Additionally, to unlock a reassessment quiz you may have to revisit a Webwork assignment and get your average above 90%. Do the Webwork early to avoid any chance of a technical difficulty. **Note: If you have a final Webwork score below 70%, the highest grade you can get in the class is a D.**

CANVAS INFORMATION & TECHNICAL SUPPORT

Canvas is the location where course content, grades, and communication will reside for this course.

- Login for Canvas
- Canvas Support
- For passwords or any other computer-related technical support, contact the [Central IT Technical Support Help Desk](#).
 - (970) 491-7276
 - help@colostate.edu

If you are new to Canvas quickly review [the Canvas Student Orientation](#) materials.

ACADEMIC INTEGRITY & CSU HONOR PLEDGE

This course will adhere to the CSU [Academic Integrity/Misconduct](#) policy as found in the General Catalog and the [Student Conduct Code](#).

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.

Further information about Academic Integrity is available at CSU's [Academic Integrity - Student Resources](#).

UNIVERSAL DESIGN FOR LEARNING/ACCOMMODATION OF NEEDS

I am committed to the principle of universal learning. This means that our classroom, our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning.

If you are a student who will need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner. A verifying memo from [The Student Disability Center](#) may be required before any accommodation is provided.



The Student Disability Center (SDC) has the authority to verify and confirm the eligibility of students with disabilities for the majority of accommodations. While some accommodations may be provided by other departments, a student is not automatically eligible for those accommodations unless their disability can be verified and the need for the accommodation confirmed, either through SDC or through acceptable means defined by the particular department. Faculty and staff may consult with the SDC staff whenever there is doubt as to the appropriateness of an accommodative request by a student with a disability.

The goal of SDC is to normalize disability as part of the culture of diversity at Colorado State University. The characteristic of having a disability simply provides the basis of the support that is available to students. The goal is to ensure students with disabilities have the opportunity to be as successful as they have the capability to be.

Support and services are offered to student with functional limitations due to visual, hearing, learning, or mobility disabilities as well as to students who have specific physical or mental health conditions due to epilepsy, diabetes, asthma, AIDS, psychiatric diagnoses, etc. Students who are temporarily disabled are also eligible for support and assistance.

Any student who is enrolled at CSU, and who self-identifies with SDC as having a disability, is eligible for support from SDC. Specific accommodations are determined individually for each student and must be supported by appropriate documentation and/or evaluation of needs consistent with a particular type of disability. SDC reserves the right to ask for any appropriate documentation of disability in order to determine a student's eligibility for accommodations as well as in support for specific accommodative requests. The accommodative process begins once a student meets with an accommodations specialist in the SDC.

THIRD-PARTY TOOLS/PRIVACY

Please note that this course may require you to use third-party tools (tools outside of the Canvas learning management system), such as Skype and others. Some of these tools may collect and share information about their users. Because your privacy is important, you are encouraged to consult the privacy policies for any third-party tools in this course so that you are aware of how your personal information is collected, used and shared.

UNDOCUMENTED STUDENT SUPPORT

Any CSU student who faces challenges or hardships due to their legal status in the United States and believes that it may impact their academic performance in this course is encouraged to visit



[Student Support Services for Undocumented, DACA & ASSET](#) for resources and support. Additionally, only if you feel comfortable, please notify your professor so they may pass along any additional resources they may possess.

TITLE IX/INTERPERSONAL VIOLENCE

For the full statement regarding role and responsibilities about reporting harassment, sexual harassment, sexual misconduct, domestic violence, dating violence, stalking, and the retaliation policy please go to: [Title IX – Sexual Assault, Sexual Violence, Sexual Harassment](#).

If you feel that your rights have been compromised at CSU, several resources are available to assist:

- Student Resolution Center, 200 Lory Student Center, 491-7165
- Office of Equal Opportunity, 101 Student Services, 491-5836

A note about interpersonal violence: If you or someone you know has experienced sexual assault, relationship violence and/or stalking, know that you are not alone. As instructors, we are required by law to notify university officials about disclosures related to interpersonal violence. Confidential victim advocates are available 24 hours a day, 365 days a year to provide support related to the emotional, physical, physiological and legal aftermath of interpersonal violence. Contact the Victim Assistance Team at: 970-492-4242.

RELIGIOUS OBSERVANCES

CSU does not discriminate on the basis of religion. Reasonable accommodation should be made to allow individuals to observe their established religious holidays. Students seeking an exemption from attending class or completing assigned course work for a religious holiday will need to fill out the [Religious Accommodation Request Form](#) and turn it in to the Division of Student Affairs, located on the second level of the Administration building.

Once turned in, the Division of Student Affairs will review the request and contact the student accordingly. If approved, the student will receive a memo from the Dean of Students to give to their professor or course instructor.

Students are asked to turn in the request forms as soon as the conflict is noticed. Similarly, unanticipated conflicts requiring a religious observance, such as a death in the family, can also be reviewed.



CSU PRINCIPLES OF COMMUNITY

Inclusion: We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

Integrity: We are accountable for our actions and will act ethically and honestly in all our interactions.

Respect: We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

DIVERSITY AND INCLUSION

The [Mission, Vision, and Focus](#) webpage of the Vice President for Diversity includes a comprehensive statement of CSU's commitment to diversity and inclusion.