Advanced Calculus of One Variable: Spring 2026

Math 317

Last Updated: December 23, 2025

Course Details

Course Meetings.

Time:	M/W/F, 2:00pm -- 2:50pm
Place:	Eddy 200

Course Instructor.

Instructor:	Dr. Jeff Shriner
Email:	jeffrey.shriner@colostate.edu
Phone:	970.491.6695
Office:	Weber 236

Office Hours: M/W 1:00pm -- 1:50pm, or by appointment

Course Communication. E-mail is the best way to contact me for personal requests. You can expect a response within 24 hours on weekdays which either answers your question, or to set up a further meeting to discuss your request. You, in turn, are also expected to check your university email and our Canvas course regularly and respond in a timely manner.

Course Prerequisites. MATH 156 or MATH 161; CS 220 or MATH 230 or MATH 235

Course Materials.

Textbook   We will use the free open-source text **Introduction to Real Analysis** by Dana Ernst. It may be more accurate to say that this is our "workbook" for the course, as it is largely comprised of problems that you will work through with your classmates to deepen your understanding of calculus topics and ultimately make it your own. You are encouraged to download

a copy so that you have access without relying on internet.

Canvas   We will use **Canvas** to organize grades and resources and to send whole class announcements. Canvas can be accessed using your Colorado State University email, and should be checked for communications at least once each week day.

We are invested in making all course materials as accessible as possible, and are committed to the University's **accessibility statement**. If you experience any barriers to access, please communicate with me (email, call, or stop by in person) so that we can make improvements.

Course Content and Structure.

According to the course catalog, this course covers "Convergence of sequences, series: limits, continuity, differentiation, integration of one-variable functions.". These topics may sound familiar from previous calculus courses. This course will focus on helping you to better understand these concepts from Calculus I and II, specifically by creating proofs. While there are useful standards and techniques for proof writing, they are only useful when you make them your own. Our goal will be to

think more deeply and rigorously about familiar concepts by challenging ourselves to become more effective communicators of technical information (both written and oral).

Assignments, Assessments, and Grades

Portfolio Entries. Deep concepts take time and iterations to fully digest. Portfolio entries will be a vital component of how you learn course content, and mimic the process of how mathematicians solve problems. They will consist of your written solutions to all of the text exercises from a single chapter. Your final submissions should contain accurate proofs that are well-communicated *in your own style*. They are the end product of multiple iterations of thinking about the exercises, including at minimum

- your first attempt at solutions as preparation for class,

- your second attempt in class discussing solutions with your peers, and

- further attempts outside of class integrating what was discussed in class.

You will receive grades for both your class preparation and your final submissions. *You should expect to spend 30-60 minutes preparing for most class meetings.*

Quizzes.
We will have five bi-weekly in-class quizzes, occurring on Friday of most even weeks. The quizzes will contain questions that are similar to or related to the exercises that you have been working on for your portfolio entries. The tentative dates for in-class quizzes are

1. January 30

2. February 13

3. March 13

4. April 3

5. May 1

Your single lowest quiz grade will be dropped. In general, makeup quizzes cannot be accommodated, unless you have a University excused absence. We will also consider requests from student case management.

Midterms.
The first midterm is tentatively scheduled for Friday, February 27, in class. The second midterm is tentatively scheduled for Friday, April 17, in class.

In general, makeup midterms will be administered during the final exam, unless you have a University excused absence. We will also consider requests from student case management.

Final. The final exam is scheduled for Tuesday, May 12 from 7:30am -- 9:30am, in our normal classroom.

The final will be cumulative, split into three sections corresponding to content covered on the midterms and content not covered on the midterms. We know that it can take time to learn new concepts. Therefore, if your percentage score in each of the first two sections exceeds your score on the corresponding midterm, we will replace that midterm score with your section score from the final.

Grades. Overall grade percentages will be calculated based on the following weighting:

- Class preparation (5%)
- Portfolio Entries (20%)
- Quizzes (25%)
- Midterms (30%)
- Final Exam (20%)

Letter grades will be assigned according to a scale no stricter than the following:

$$\textbf{A} \quad [90, 100]$$

$$\textbf{B} \quad [80, 90)$$

$$\textbf{C} \quad [70, 80)$$

D	$[60, 70)$
F	$[0, 60)$

Tentative Schedule

Below is a tentative schedule for what topics will be covered when.

Week 1	Introduction and Expectations, Elements of Style for Proof
Week 2	Set Theory, Induction and Well-Ordering Principle
Week 3	Functions
Week 4	Field Axioms, Order Axioms, Absolute Value and Triangle Inequality
Week 5	Suprema/Infima, Completeness Axiom, Archimedean Property
Week 6	Open Sets, Review, Midterm 1
Week 7	Accumulation Points and Closed Sets, Compact and Connected Sets

Week 8	Sequences, Convergent Sequences, Monotone Convergence Theorem
Spring Recess **Week 9**	Subsequences, Continuity, Characterizations of Continuity
Week 10	Extreme Value Theorem, Intermediate Value Theorem, Uniform Continuity
Week 11	Limits, Limit Laws, Differentiation
Week 12	Derivative Rules, Review, Midterm 2
Week 13	Mean Value Theorem, Integration
Week 14	Integration, Properties of Integrals
Week 15	Fundamental Theorem of Calculus, Review
Finals Week	

Course and University Policies

Basic Needs Security. Any student who faces challenges securing their food or housing can receive support from the

Rams Against Hunger program. Services include a food pantry, a meal-swipe program, pocket pantries, and in-person assistance with navigating federal aid eligibility. The RAH page includes numerous resources as well as county, state and federal programs which are described and linked. Furthermore, please notify the instructor if you are comfortable in doing so.

Classroom Behavior, Respect for Diversity and Inclusion.

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior and the student code at **the catalog** and at **the SRC**.

We acknowledge that many students have had experiences that have left them feeling excluded from the field of mathematics. We also acknowledge that students from minority groups have been disproportionately impacted. We are making this explicit statement because this unfortunate reality is inconsistent with the truth that you can be successful in mathematics, regardless of your race, ethnicity, gender, or sexual orientation. We are committed to decolonizing mathematics into a field where every student feels supported in accomplishing the hard work necessary to become better problem solvers. We learn more by listening to diverse perspectives, and we hope you will be ready and willing to share yours in this course.

Here are several resources that highlight the past and current contributions to the mathematics community from underrepresented groups:

1. **Meet A Mathematician**

2. **Mathematically Gifted and Black**

3. **Lathisms**

4. **Indigenous Mathematicians**

5. **Spectra**

6. **Association for Women in Mathematics**

7. **Mathematicians of the African Diaspora**

Accommodation for Disabilities. If you are a student who will need accommodations in this class due to a disability or chronic health condition, I will need an accommodation letter from the Student Disability Center (SDC) before they are implemented. Please meet with me during my office hours to give me the letter and/or to further discuss your needs.

If you do not already have these letters, please contact the SDC as soon as possible to initiate the accommodation process. The SDC is located in room 121 of the TILT building. Contact them at 970-491-6385 or visit **the SDC website**.

Student Parents/Guardians/Caregivers. I realize that student parents/guardians and caregivers face distinctive challenges in succeeding academically, and I'm committed to supporting those of you who are parents to achieve our course's learning outcomes. If you encounter challenges in meeting course expectations, please contact me as soon as possible. We'll develop a plan together so you can be successful in the course.

Student Case Management. **Student case management** is available to help students with extenuating life circumstances and connect them with resources. In some cases, after you and I discuss your situation, I may

request verifiable documentation for class absences from the SCM office if you request considerations for absences or missed coursework.

Mental Health and Wellness. CSU is a community that cares. You are not alone. CSU Health Network Counseling Services has trained professionals who can help. Your student fees provide access to a wide range of support services. Call Counseling Services at (970) 491-6053, and they will work together with you to find out which services are right for you. Visit **counseling services** to learn more and **mental health resources** for additional student mental health and well-being resources. If you are concerned about a friend or peer, use Tell Someone by c alling (970) 491-1350 or visiting **Tell Someone** to share your concerns with a professional who can discreetly connect the distressed individual with the proper resources. Rams Take Care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.

Religious Observances and Class Attendance. CSU has a legal obligation to accommodate students' absences due to religious observances. For such an accommodation, it is the student's responsibility to complete the Religious Accommodation Request Form at the beginning of each semester and submit the request via the Office of the Vice

President for Student Affairs website. The Dean of Students will communicate with the instructor regarding the student's absence and the student is instructed to discuss how best to ensure an accommodation related to class conflicts. For religious observances that cannot reasonably be anticipated at the beginning of the semester, students must follow the procedure above as soon as possible after the course conflict is identified. If a student knows that a particular course or section of the course will have multiple conflicts with his or her religious obligations, the student is advised to locate another course section or defer taking the course to a different semester. In the event of a conflict in regards to this policy, individuals may appeal using established CSU procedures. Instructors are advised to provide reasonable accommodations to ensure compliance with CSU's obligations. See more details regarding attendance policies at **the catalog**.

Discrimination and Harassment.

CSU is committed to providing an environment that respects the dignity and worth of every member of its community. CSU strives to create and maintain a work and study environment that is fair, inclusive, and responsible so that each member of the CSU community is treated with dignity and respect and is rewarded for relevant considerations such as ability and performance. CSU has adopted a comprehensive policy to

define the types of conduct that are prohibited and to prevent harm arising from discrimination, harassment, sexual harassment, sexual misconduct, domestic violence, dating violence, stalking, and retaliation. Conduct that is discriminatory or harmful under the policy inhibits the achievement of the stated goals. All students, faculty, staff, and other persons having business with CSU are expected to know and follow this policy.

Details regarding what is involved in bringing a complaint and the procedures for informal and formal resolution are available from the Office of Support and Safety Assessment for student-to-student behavior and the Office of Equal Opportunity for matters involving non-students such as faculty, staff, affiliates, or visitors and matters involving a student and non-student person. See more details at **the catalog**.

Academic Integrity and the Honor Code.

We learn best together, which is why there is a large amount of collaboration built into our course structure. However, there is a difference between learning together and using someone else's work. If you are wondering if you crossed the line, ask yourself "Could I start over and redo this on my own, and would it basically look like this?" If not, then you are submitting someone else's work (plagiarism). Copying solutions or statements from the internet without citing

your source also constitutes plagiarism. We take academic integrity seriously, so all cases of plagiarized work or cheating will receive a 0 and will be submitted to the SRC.

This course will adhere to the CSU Academic Integrity Policy as found in the Colorado State University General Catalog and the Student Conduct Code. At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services. See more details at **the catalog** and **TILT**.

Syllabus Disclaimer. Please be aware that this syllabus is a guideline and is subject to change. The instructor reserves the right to make adjustments to the course schedule, assignments, and grading policies as deemed necessary. Students will be notified of any changes in a timely manner.