

MAT 337: Real Analysis I

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(Texts only please)	

Text: *Understanding Analysis*, Second Edition, by Stephen Abbott.

Class Meeting Times: 9-11 a.m. 1-3 p.m. daily

Course Outline and Objectives: We will rigorously examine the mathematical theories behind the calculus, paying special attention to functions, limits, and the properties of the real numbers. Special emphasis will be placed on reading and interpreting mathematics, communicating mathematics ideas, and writing rigorous proofs.

Our goal will be to cover the first four chapters of the text. This will probably mean skipping some sections. Announcements will be made as the term progresses.

This course supports the Educational Priorities and Outcomes of Cornell College with emphases on knowledge, communication, and intercultural literacy.

Grading:	HW Writeups	15%
	Class Participation	10%
	2 Tests	25% each
	Final Exam	25%

Grading Scale:	A	93-100	C	73-76.99
	A-	90-92.99	C-	70-72.99
	B+	87-89.99	D+	67-69.99
	B	83-86.99	D	63-66.99
	B-	80-82.99	D-	60-62.99
	C+	77-79.99	F	59.99 and below

Test #1	Wednesday, October 31
Test #2	Wednesday, November 7
Final Exam	Tuesday, November 14

Material to be covered on each test will be announced in class. Tests will officially begin at 9 a.m. and will last no later than 3 p.m. The final examination will be comprehensive.

Each test will have three sections:

Section 1: (20 pts.) *Examples and Counterexamples.* Each question will ask you for a particular example or counterexample, and require you to properly use a definition to explain the example or counterexample. No calculators, no book, no notes.

Section 2: (30 pts.) *Short Answer/True-False.* Short problems, usually calculations or very short proofs involving major theorems or definitions. True-False questions will also involve short proofs and/or counterexamples. Calculator¹ only.

Section 3: (50 pts.) *Proofs.* You must do five out of the seven or eight proofs in the list. Calculator allowed, in addition to open book/open notes.

Makeups: If unforeseen problems prevent you from taking a test, notify me as soon as possible (preferably before the test) so that a makeup test can be scheduled for you.

¹Under no circumstances will you be allowed to use your phone's calculator.

Participation: 30 points per week. At least 15 of these points must be earned in presentations of problems or proofs from the text. See the separate document outlining these points.

Outline of participation points

- (i) Presentation (P) Assigned HW Problems or Proofs from the text—1-5 pts.
- (ii) Questions (Q): Asking a “good” question of the presenter or the instructor—1-3 pts.
- (iii) Contribution (C): An oral contribution other than the two categories above—usually 1 point, but exceptions may be made.
- (iv) Insight (I): A mathematical “Aha!”—3 pts.

Participation may be augmented by **unannounced quizzes** (generally up to 5 points each). Consider this an incentive to read assigned material and attempt HW problems before coming to class. Quizzes may also be used to ascertain class understanding of particular concepts encountered in the course. Each quiz will increase the total participation points for the week by 5 points.

HW Writeups: HW problems presented in class are rough outlines of proofs. Each day, you will be given one (or possibly two) problems to write up problems more carefully and precisely, along with a due date for a first submission. The first submission must be finished—in LaTeX on Overleaf.com—by 7:00 p.m. on the due date.

First submissions will be examined and critiqued in class. After this, a due date will be assigned for a second and final submission.

Late Work: In any OCAAT course a failure to continually work on the material is a recipe for disaster. That effect will be magnified in this course. Full credit for late work cannot occur without instructor approval prior to the original due date. Specific penalties include the following:

- Late second submission of HW Problems:
 - Less than one day late—3 pts.
 - Less than two days late—6 pts.
 - More than two days late—No credit

Attendance: Class begins at 9:00 a.m. each morning. Be on time and be ready to participate. Afternoon sessions will begin at 1:00 p.m. Exceptions to these hours will be announced in class. Attendance—including excused and unexcused absences—will be recorded daily. If you have an excused absence, be sure to bring it to my attention.

15th Day Drops: These will be considered only for those students who:

1. Have no unexcused absences.
2. Have taken all tests and completed assigned HW writeups.
3. Have participated in class and made a determined effort to master the material presented.

Academic Honesty: Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College's requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Catalogue, under the heading "Academic Honesty."

Disabilities: Cornell College makes reasonable accommodations for persons with disabilities. Students should notify the Coordinator of Academic Support and Advising and their course instructor of any disability related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format. For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml.

If you have concerns about any condition (documented or not) you think will hamper your ability to succeed in this course, you should notify me within the first three days of class.

If you have questions about documentation, you can obtain more information at www.cornellcollege.edu/academic-support-and-advising/ or from Brooke Paulsen (309 Cole Library).