Course Syllabus/Policy: Topics: Real Analysis

McCoy College of Science, Mathematics & Engineering
Math 4933 Section 101 Fall 2025

Contact Information

Instructor: Dr. Dawn Slavens
Office: Bolin Science Hall - 122P
Office Hours:

- **Mondays:** 2:00 – 4:00 PM
- **Tuesdays:** 10:30 – 11:30 AM and 2:00 – 3:00 PM
- **Thursdays:** 10:30 – 11:30 AM

Students may schedule an appointment by:

- **Stopping by my office** (when I am not in class or in a meeting, I may be available to meet on the spot), or
- **Emailing me** to arrange a specific time.

Office phone: (940) 397-4013
E-mail: dawn.slavens@msutexas.edu

Meeting Days, Times, Location

Wednesdays 1:00-2:20 PM and Fridays 2:00 – 3:20 PM in BO 248

Monthly exceptions to the above are:

Wednesday, Sept. 17, 1:00 – 2:50 PM and Friday, Sept. 19, 2:00-2:50 PM
Wednesday, Oct. 15, 1:00 – 2:50 PM and Friday, Oct. 17, 2:00-2:50 PM
Wednesday, Nov.19, 1:00 – 2:50 PM and Friday, Nov. 21, 2:00-2:50 PM
Wednesday, Dec. 5, 1:00 – 2:50 PM and Friday, Dec. 7, 2:00-2:50 PM

With advanced warning, the monthly exceptions may change to a different week during the month to accommodate a monthly meeting Dr. Slavens has committed to as part of Faculty Senate responsibilities.

Course Description

Description: Topics included are those in the text Understanding Analysis by Stephen Abbott. Topics will come from the following: The Axiom of Completeness and its Consequences, Cardinality, Cantor's Theorem, Convergence and Divergence of Sequences, Bolzano-Weierstrass Theorem, Convergence and Divergence of Infinite Series, Basic Topology of $\mathbb{R}$, Functional Limits and Continuity, The Derivative
Prerequisite: Consent of the instructor

Textbook & Instructional Materials

Understanding Analysis, Second Edition, by Stephen Abbott
Publisher: Springer

Expectations and Grading

As an independent study course, my expectation is that you independently learn course content from the textbook and that I provide support to you for your learning.

The active process of your independent learning is, to carefully and critically read the textbook, learn statements of all definitions and develop understanding of the definitions, apply concepts (definitions and theorems) to the examples within the textbook, and working through, for the purpose of understanding, the proofs of theorems and corollaries.

As you read the textbook you should prepare to present solutions to examples and proofs of theorems. Before presenting a proof you should have a good written copy of the proof you are presenting, which you may reference, as needed, during your presentation. In addition, at times you may decide to present a proof that is slightly different from the one in the book, such a proof by contradiction in place of a contrapositive proof. You should always work to understand the proof in the book, but maybe you would like to approach the proof differently. Some examples will need the same level of presentation as proofs of theorems, others may only need a verbal explanation. We may, at times, agree that we all understand an example in the text and therefore do not need to present or have a detailed discussion of the example.

There are also exercises in the text that will be assigned for you to work and others that will be suggested for you to carefully consider. If there are exercises I do not ask you to work or consider, but that you think look interesting, you may work on those as well, possibly in place of an exercise or exercises that I have asked you to work.

For some exercises, you will present your solutions during class. For other exercises, I will ask you to turn in your solutions.

Many exercises ask you to prove or show something is true. Showing something is true is the same as proving it is true. When you turn in a solution it is to be complete, with sufficient detail that a knowledgeable person can follow your reasoning, with the reasoning supported by the mathematical rules of logic. If you do not feel your solution to an exercise meets the above criteria, you should not turn it in yet, but instead should continue to work towards a solid argument that provides a solution to the exercise. You may seek help from by coming to my office. Exercises you present in class should have the same level of preparation as those submitted in class.

As for using outside sources, this should be done as a last resort, and when it is done, you should let us know what outside resource you used to construct the argument you are presenting. When learning to write proofs, it is important to write as many (at least as many as you can) on your own proof. There is a time investment in learning to write proofs. When struggling to complete an exercise (prove something), before going to outside resources you should have spent significant time trying to construct your own proof, and you should have had a one-on-one meeting with Dr. Slavens to see if she could support you in writing your own proof.

To determine grades at the end of the semester, I will base my assessment from the following:

- Student preparation and presentations of textbook content (definitions, examples, theorems, corollaries, etc.): 25%
- Student submissions or presentations of exercises from the text or otherwise assigned: 25%
- My assessment of your knowledge and understanding of definitions of mathematical terms and special notations, related to the study of real analysis. Exams and student presentations, as well as possibly quizzes, will be the basis for my assessment: 10%
- Midterm Exam: 20%
- Final Exam: 20%

Table 1: Total percentage points needed for final course grade

Grade	Overall Percentage	AND	Exam Average of
A	at least 90%	AND	at least 80%
B	at least 80%	AND	at least 70%
C	at least 70%	AND	at least 60%
D	at least 60%	AND	at least 50%
F	Less than 60%		

For continued enrollment in the course the student must meet the expectations outlined.

Since this is a 3-credit hour course, students are expected to spend a minimum, of six hours per week- outside of class meeting times - working to independently learn course content. Students should also be willing to spend up to nine hours in a week working to learn the course content.

The instructor will support the student's learning by meeting with the student in her office, as requested by the student, or as requested by the instructor. Office time should not count to fulfill the six hour per week minimum mentioned above.

Attendance Expectations

As an independent study course you are expected to attend all meeting sessions. When an absence is unavoidable, it is essential to communicate, in advance of the absence whenever possible, with Dr. Slavens. In some cases, Dr. Slavens my require scheduling an appointment with her as a result of an absence to ensure that the absence does not slow the progress the student is to make with learning in this independent study course. For continued enrollment in the course the student must meet attendance expectations.

Desire-to-Learn (D2L)

Use of the MSU D2L program is part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication.

Notice
Changes to the course syllabus/policy may be made at the discretion of the instructor.