

**MAT 412-M002**  
**Introduction to Real Analysis I**  
**Fall 2018**

**Instructor:** Jeffrey L. Meyer; 206F Carnegie, 443-1479, 443-1473,  
jlmeye01@syr.edu

**Office Hours:** TTh 11:30 – 12:15 and by appointment.

**Text:** *An Introduction to Analysis*, by W.R. Wade, Prentice Hall, 4<sup>th</sup> edition.

**Class Time and Room:** TTh 12:30 – 1:50 pm, Room 120 Carnegie.

**Special calendar note:** No class on Tuesday, October 9 (This class only)

**Course Description:** Introduction to the foundations of calculus covering topics from the following: the real number system, functions, limits, sequences, infinite series, continuity, and uniform continuity. Enrollment limited to mathematics majors. PREREQ: ([MAT 375](#) OR [CIS 375](#)) AND [MAT 397](#).

**Course Content:** Chapters 1-4: Real numbers, sequences, functions, differentiability.

An approximate order of events is:

- **Chapter 1** Some of this is material from MAT 375. What is new is the real numbers as a complete ordered field (Sections 1.2 and 1.3). You are responsible for learning or recalling the rest of the material in Chapter 1.
- **Chapter 2** Sequences, Bolzano-Weierstrass theorem, Cauchy sequences (Sections 2.1-2.4).
- **Chapter 3** Limits of functions, Continuity, Uniform Continuity (Sections 3.1-3.4).
- **Chapter 4** Derivatives, Mean Value Theorem (Sections 4.1 – 4.3).

**Learning Goals:**

- Understand the nature and role of deductive reasoning in mathematics.
- Use and understand the usage of mathematical notation.
- Follow proofs and other mathematical discourse.
- Write rigorous proofs of mathematical statements.

**Course Grade:** Your grade will be based on the following.

<u>Source</u>	<u>Percentage of grade</u>
Exam 1	25%
Exam 2	25%
Final exam (cumulative)	30%
Homework	20%

**Exams:**

Exam 1 - Thursday, October 4, 2018

Exam 2 – Thursday, November 29, 2018

**Final Exam – Thursday, December 13, 2018, 3:00 – 5:00 pm**

There will be no makeup exams. In case of a missed exam with a valid and verifiable reason, the relevant portion of the comprehensive final is used to determine the missing exam score.

**STUDENTS MUST TAKE THE FINAL EXAM AT THE LISTED TIME. DO NOT PLAN TO LEAVE CAMPUS BEFORE 5:00 PM ON THURSDAY, DECEMBER 13, 2018. THERE ARE NO PROVISIONS FOR TAKING THE FINAL EXAM AT ANY OTHER TIME!**

**Homework:** There will be several problem sets assigned during the semester. You may work with others on the homework, but you must write up your own solutions and you are responsible for your solutions. Submitting solutions found online as your own is a violation of academic integrity. You must acknowledge the source of any solution not your own. **Homework is due at the beginning of class. Homework is not accepted late.**

**Phone, Laptop, Tablet in class policy:** Phones, laptops, and tablets are not allowed to be out during class. Students who repeatedly violate this policy will be asked to leave the room.

**Students with Disabilities:** If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

**Academic Integrity:** Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any

established violation in this course may result in course failure regardless of violation level. *The use of or availability of any electronic device during a midterm exam or final exam is a violation of the Academic Integrity Policy.* For more information about the policy, see <http://academicintegrity.syr.edu>.

**Religious Observances Policy:** Syracuse University's Religious Observances Policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors no later than the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.