

Math Sciences Building 307

Tuesday, Thursday 11:00 – 12:15

This syllabus contains the policies and expectations that the instructor has established for this course. Please read the entire syllabus carefully before continuing in this course. These policies and expectations are intended to create a productive learning atmosphere for all students. Unless you are prepared to abide by these policies and expectations, you risk losing the opportunity to participate further in the course.

Instructor: Dr. Matthew Badger (matthew.badger@uconn.edu)

Office: Math Sciences Building 204

Office Hours: Tuesday 2:00-3:00, Wednesday 10:00-11:00 and by appointment

Course Description

The purpose of this course is to give students a firm grounding in point-set topology of metric spaces and analysis of a functions of one real variable. Topics will include construction of the real numbers, elementary metric space theory (including point-set topology), compactness and connectedness of sets in \mathbb{R}^n , convergence of sequences and series, limits and continuity of real-valued functions, differentiation and Riemann integration of functions $f : A \rightarrow \mathbb{R}$ ($A \subseteq \mathbb{R}$) and the Fundamental Theorem of Calculus, the Arzela-Ascoli Theorem, and the Stone-Weierstrass Theorem. Students who master this material will be prepared to take Math 5111 (Measure Theory & Integration) or Math 5120 (Complex Analysis) in the spring semester.

Required Resources

- **Course Webpage:** www.math.uconn.edu/~badger/ → Link to Math 4110/5110
- **Textbook:** Walter Rudin, *Principles of Mathematical Analysis*, 3rd Edition, McGraw-Hill.

About Attendance

Students are expected to regularly attend lectures, which may include material that cannot found in the textbook.

Graded Components

- **Homework**
Weekly homework assignments will be due in class on most Thursdays, starting on Thursday, September 3. The homework assignments will be posted on the course webpage.
- **Midterm Exam**
There will be one or two closed book, closed notes midterm exams in class. Dates to be announced in class.
- **Special Semester Colloquium Reports (Math 5110 Only)**
Students enrolled in Math 5110 are required to attend at least two Special Semester Colloquium talks, which will take place this semester as part of the Special Semester on Nonsmooth Analysis. There are six talks from which to choose taking place from 4–5pm on Thursday: October 1, October 8, October 22, October 29, November 12, and November 19. Students must submit a short written summary for each attended talk. Additional details will be provided in advance of the first talk.
- **Final Exam**
There will be one closed book, closed notes final exam as scheduled by the university on Tuesday, December 15th from 10:30 am - 12:30 pm (based on preliminary final exam schedule).

The *final grade* for the class will be based on your course average (see below) and participation. Grades will not be curved. Certain averages will guarantee the following grades:

$\geq 90\%$ guarantees an ‘A’ and $\geq 70\%$ guarantees a ‘B’.

Your *course average* will be determined by the highest of the following two calculations (different formulas for Math 4110 students and Math 5110 students):

MATH 4110:

- Calculation 1: 30% Homework + 30% Midterms + 40% Final Exam
- Calculation 2: 30% Homework + 70% Final Exam

MATH 5110:

- Calculation 1: 5% Colloquium Reports + 25% Homework + 30% Midterms + 40% Final Exam
- Calculation 2: 5% Colloquium Reports + 25% Homework + 70% Final Exam

Disability Support Services

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Center for Students with Disability:

`<http://www.csd.uconn.edu/>.`

They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Academic Integrity

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instance of academic dishonesty to Community Standards. For more comprehensive information on academic integrity, please refer to the Undergraduate Academic Integrity Policy:

`<http://community.uconn.edu/the-student-code-appendix-a/>`

and to the Graduate Student Integrity Policy:

`<http://policy.uconn.edu/2014/04/11/policy-on-scholarly-integrity-in-graduate-education-and-research/>`

Syllabus Revision

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by announcement in class and changes to this syllabus will be posted on the course website.