

## MAT 412 – Foundations of Calculus – Fall 2009

**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. For mathematics majors.

**Prerequisites:** MAT 275 or CIS 275, and MAT 397

**Instructor:** JT Cox, [jtcox@syr.edu](mailto:jtcox@syr.edu), 443-1488

**Class Time and Location:** TTh 9:30–10:50, Carnegie 306

**Office Hours:** held in **Carnegie 213B**

- Mon 9-10:30
- Wed 9-10:30
- At other times by appointment

**Texts:** (1) a calculus book, (2) *Introduction to Real Analysis (3rd ed.)* by Bartle and Sherbert, ISBN 978-0471321484. We will cover Chapters 1–4 of the textbook.

**Class webpage:** TBA

**Homework:** Problems will be assigned regularly, some of which will be submitted for grading. No late homework will be accepted. You are encouraged to discuss assigned problems with your classmates and work together. However, the solutions you submit for grading must be written (completely) by you, and not copied. You must write solutions neatly, literately, and in a logical coherent manner on standard 8.5x11 paper.

**Quizzes:** Short weekly quizzes will be given. They will consist of definitions and short problems.

**WeBWork:** We will use a web-based system called WeBWork for weekly calculus review problems.

**Exams:** There will be one midterm exam, *tentatively scheduled for the week of Oct 19-22*, and a final exam. No make-up exams will be given. The final exam is scheduled for Dec 16, 2:45-4:45pm. It will not be cumulative.

**Grading:** The following *approximate* grading scheme will be used. Homework/quizzes 25%, WeBWork 15%, midterm exam 30%, final exam 30%.

**Attendance and Participation:** You are expected to attend and participate in class. If you miss a class, you are responsible for obtaining notes for that class from a student who attended. It is also your responsibility to find out about any announcements made in class.

**Learning Goals:**

- understanding the nature and role of deductive reasoning in mathematics
- ability to use and understand the usage of mathematical notation
- ability to follow proofs and other mathematical discourse
- ability to write rigorous proofs of mathematical statements

**Disability-Related Accommodations.** If you believe that you need 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 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible. You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations.

**Academic Integrity Statement.** The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see <http://academicintegrity.syr.edu>