

MATH 2250: CALCULUS FOR SCIENCE AND ENGINEERING SYLLABUS

Instructor: Prof. Michael Usher (usher@math.uga.edu)

Scheduled class meetings:

- For 71-944: MWF 10:10-11:00 in Life Sciences C130, Th. 11-11:50 in Life Sciences C130.
- For 61-949: MWF 12:20-1:10 in Boyd 322, Th. 12:30-1:20 in Poultry Science 238.

Office Hours (tentative): W 2:30-3:30 and Th. 4:45-6 in Boyd 321C, or by appointment.

Required Textbook: *University Calculus* by Hass, Weir, and Thomas (2007), ISBN 0321350146

Homework (10% of your grade): The homework will be assigned via WeBWorK, which can be found at <https://webwork.math.uga.edu> (login instructions will be given in class when the system is set up for this course). From time to time I may (or may not) assign written problems to be handed in in class; these will go into greater depth than the WeBWorK problems.

Quizzes (10% of your grade): Most Fridays, there will be a short (approximately 15 minute) quiz covering the material of that week.

Midterms ($3 \times 15\% = 45\%$ of your grade): There will be three in-class midterms. **Tentative** dates are February 9, March 25 (updated), and April 24.

Final (35% of your grade): The final will be comprehensive and will be scheduled later.

Calculators: You may use calculators on your homeworks, but not on quizzes or exams. Quiz and exam questions will be written in such a way that someone who understands the material will have no need for a calculator in order to answer them.

Schedule (subject to change, but we will cover the material in almost exactly this order, and you may find it very helpful to look at the relevant sections of the book shortly before the classes in which they are covered):

- January 8-9: Review of some basic facts about functions (Chapter 1)
- January 12-16: Average and instantaneous rates of change (2.1), intro to limits (2.2),
- January 21-23: One-sided limits and limits at infinity (2.4), Infinite limits (2.5), continuity (2.6).
- January 26-30: More about continuity (2.6), intro to derivatives (2.7, 3.1),
- February 2-6: Basic differentiation rules (3.2), interpretations and applications of the derivative (3.3, 3.10).
- February 9: Midterm
- February 11-13: Derivatives of trig functions (3.4), the chain rule (3.5)
- February 16-20: Implicit differentiation (3.6), Derivatives of inverse functions (3.7, 3.8)
- February 23-27: Related rates (3.9), Extrema (4.1),

- March 2-6: Rolle's theorem and the mean value theorem (4.2), increasing and decreasing functions (4.3), applications of extrema (4.5)
- March 9-13: Spring Break
- March 16-20: Concavity (4.4), L'Hôpital's rule (4.6), Newton's Method (4.7)
- March 23: Midterm
- March 25-27: Antiderivatives (4.8), estimating areas with sums (5.1)
- March 30-April 3: Riemann sums (5.2), the definite integral (5.3)
- April 7-10: The Fundamental Theorem of Calculus (5.4), u -substitution (5.5)
- April 13-17: Substitution and areas (5.6), hyperbolic functions (3.11)
- April 20-23: The logarithm via integration (5.7)
- April 24: Midterm
- April 25-30: Review.