The University of Georgia

Syllabus for MATH 2250: Calculus I, Spring 2017 (Section 24968)

Administrative: This class meets on M from 10:10 – 11:00am in Geography/Geology Room 155 and on TR 9:30 – 10:45 in Geography/Geology Room 154. Your instructor is Daniel Mckenzie and he can be reached via email at danmac29@uga.edu. Office hours are to be determined, but will be held in Boyd 643.

Textbook: Hass, Weir, Thomas; *University Calculus, Early Transcendentals*, 3rd Ed, Addison/Wesley. You need to own or share a copy of this book.

Course Objectives: The student will understand the limit and the derivative both conceptually and operationally. The student will learn how to use calculus concepts to model and solve various typical problems in science and engineering, with particular emphasis on graphs, optimization problems, and basic integration problems. The student will learn to set up word problems clearly and concisely and to provide clear solutions. The ability to work together with colleagues and communicate technical concepts efficiently will be developed through in-class group work and a presentation.

Topical Outline: (Sections 2.1-2.6, 3.1-3.11, 4.1-4.8, 5.1-5.6)
The content of this course falls into three and a half units, to be examined in three tests and a final.

  Unit one: Functions (linear, quadratic, logs and exponentials, trigonometric) and graphs (domain and range, vertical and horizontal asymptotes, sketching and interpreting graphs). Limits and rules for computing them. Continuity and the intermediate Value Theorem (IVT). The definition of the derivative using Newton quotients.

  Unit two: Differentiation of polynomials and transcendental functions (logs, exponentials and trigonometric). Differentiation rules (sum, product, quotient and chain rules. Implicit and logarithmic differentiation. Differentiation of inverse functions). Applications of differentiation (Newton's method, related rates). Linearization and finding equation of tangent line. The Mean Value Theorem.

  Unit three: L'Hospital's rule. Optimization. Ordinary Differential Equations. Curve sketching. Integral and summation notation. The definition of the integral using Riemann sums. Computing definite and indefinite integrals. The integral Mean Value Theorem. The Fundamental theorem of calculus.

  Unit three-and-a-half: Area between curves, some techniques of integration (u-substitution)

Requirements: There is a prerequisite of Math 1113 or placement. Prompt, complete attendance is expected at all classes. You are expected to attend the ENTIRE class; students who leave class early or arrive late may be counted as absent and may forfeit all points for the class period. After four absences you may be withdrawn form the class at the instructors discretion. Students will be expected to work in groups and contribute to group discussions.

Tests and Quizzes: There will be three tests, tentatively scheduled for 1/31, 3/2 and 4/14. There will be approximately 10 quizzes given throughout the semester, both group and individual work. There is also a comprehensive common final during finals week (date TBA).

Makeups: Exams may be made up in the event of University of Georgia athletics (arrangements in advance only) or *documented* illness (not for HW or quizzes). Otherwise, there are no makeups for tests and quizzes.

Online resources: This class will make extensive use of online resources. Homework will be done online using the WebWork platform (go to https://webwork2.math.uga.edu/webwork2/ and log in to our class homework). Questions about

homework, content covered in class or administrative details such as dates of tests etc. are to be posted in Piazza https://piazza.com/

Technology in the classroom: Calculators may be used in class. The TI-30X is recommended, and it is the ONLY calculator allowed in the final exam. All other electronic devices (cell phones, tablets, MP3 players, laptops etc.) are to be put away and on silent for the entire duration of class, unless your instructor has granted you permission to use your laptop for an in-class activity.

Grading: Your final grade will computed according to the following formula:
1) 30% for your final exam
2) 15% for each of the three tests
3) 2% each for your top eight quiz scores.
4) 5% for WebWork HW
5) 2% for your presentation.
6) 2% for participation

The following grading scale will apply: 91 – 100 A, 89 – 90 A -, 87 – 88 B+, 81 – 86 B, 79 – 80 B -, 77 – 78 C+, 71 – 76 C, 69 —70 C -, 60 – 68 D, and below 60 is an F.

Participation: Asking and answering questions, and participating in classroom discussions, is crucial to developing a thorough understanding of calculus. As such, I will award participation credit for answering questions on Piazza, presenting a homework question to the class, or attending a review session, up to a maximum of 10 points. Participation will make up 2% of your final grade, which may not sound like a lot but can be the difference between a C- and a C, or a B+ and an A-.

Academic Honesty Policy: All academic work must meet the standards contained in *A Culture of Honesty.* (http://www.uga.edu/honesty/ and there is a link to read the document) Students are responsible for informing themselves about those standards before performing any academic work. This policy defends the academic integrity of all student work, and will be uniformly applied to all students in the class.

Academic Accommodation: If you have a documented (learning) disability, you should contact the Disability Resource Center (http://www.drc.uga.edu/about/welcomeletter.php)

Disclaimer: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. It is the responsibility of the student to seek clarification of the grading policy and/or course requirements and procedures from the instructor.