Mathematics 160  
Calculus for Business and Life Sciences

Textbook
Applied Calculus for the Managerial, Life, and Social Sciences: A Brief Approach  

Instructor
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Prerequisite
C or better in Math 140 or equivalent.

Catalog
Average and instantaneous rates. The derivative and its application to curve tracing and max-min theory. Antiderivative, area under a curve, fundamental theorem. Natural logarithm and its application to interest, growth, and decay.

General Education
The faculty of UT Martin have included this as a general education course with the following course goals and student learning outcomes.  
Curriculum Goals: The purpose of the Mathematics requirement is to teach students to organize, evaluate, and solve problems using both abstract and quantitative approaches. All learning outcomes must be satisfied by any course in this category.  
Student Learning Outcomes:

1. Students will build on (not replicate) the competencies gained through the study of high school mathematics.
2. Students will use mathematics in problem solving.
3. Students will use mathematics to solve real-world problems.
4. Students will connect mathematics to other disciplines.
5. Students will use technology for mathematical reasoning and problem solving.
6. Students will apply mathematical and/or basic statistical reasoning to data analysis and graphs.

Teaching Objectives
The student will:

1. Evaluate limits and understand concept of continuity of functions.
2. Differentiate sums, differences, products, quotients, and powers of functions; differentiate composite, logarithmic, and exponential functions; differentiate implicitly.
3. Find local maxima and minima, absolute maxima and minima, intervals of increase and decrease, concavity, and points of inflection.
4. Integrate sums, powers, and exponentials.
5. Integrate other functions using the basic techniques.
6. Apply derivatives and integrals in solving problems in business and the life sciences.
**Technology**

A graphing calculator is required for this course. The use of the calculator will not be taught in the course itself. However, the department will provide student assistance in learning how to use your graphing calculator. The department recommends one of the TI-83 or TI-84 series of calculators. If you already have a graphing calculator, check before you buy another one. You will not be allowed to use a calculator that performs symbolic computations on any of your tests in this course (e.g. TI-89 or TI-92). You may not bring cell phones, laptops, or any other electronic devices to class. This is especially true on exam days.

**Homework**

You will have homework in every section. It is extremely important to do this homework as it prepares you for the exams.

**Exams/Final**

You will have five exams based upon the five chapters we cover during the semester and two additional "mini-exams". There will also be a comprehensive final exam on Monday, December 11, in HU211 from 3:00 pm to 5:00 pm. **THERE WILL BE NO MAKEUP EXAMS.** If a student misses an exam, the student must notify me within two days with a reason. With a valid reason - determined by me - the grade on the final will replace the missing exam grade. After two missed exams, a student will receive zero for any additional exam that is missed. If a student must miss an exam for an excused University event, the student must notify me BEFORE the event and make arrangements to take the exam at another time. I generally return assignments/exams at the next class meeting.

**Acad. Honesty**

Students will conduct themselves with academic integrity and not resort to cheating. Students who cheat will at least fail the class and will be reported to Student Affairs.

**Grading Scale**

Partial credit will be given at the instructor’s discretion. You may use calculators but keep in mind that the mathematics is more important than numerical answers. Correct answers without mathematical justification will gain no points. Grades will be based upon 400 points (five 50 point exams, two 25 point "mini-exams", 100 point final) as follows: 400 – 360 - A, 359 – 320 - B, 319 – 280 - C, 279 – 240 - D, < 240 - F.

**Course Outline**

The (tentative) schedule is as follows:

- **Week 1** Aug 28: 2.4-2.6
- **Week 2** Sep 4: (Sep 4, Labor Day) 3.1, 3.2
- **Week 3** Sep 11: Review, Exam 1 (Wed Sep 13), 3.3
- **Week 4** Sep 18: 3.4-3.6
- **Week 5** Sep 25: 3.7, Review, Exam 2 (Fri Sep 29)
- **Week 6** Oct 2: 4.1-4.3
- **Week 7** Oct 9: 4.4-4.5
- **Week 8** Oct 16: Fall Break (Oct 16,17) Review, Exam 3 (Fri Oct 20)
- **Week 9** Oct 23: 5.1-5.3
- **Week 10** Oct 30: 5.3-5.5
- **Week 11** Nov 6: 5.6, Review, Exam 4 (Fri Nov 10)
- **Week 12** Nov 13: 6.1-6.3
- **Week 13** Nov 20: 6.3-6.6
- **Week 14** Nov 27: 6.6 (Thanksgiving Nov 22-24)
- **Week 15** Dec 4: Review, Exam 5(Wed Dec 6)

**Disabilities**

Any student eligible for and requesting reasonable accommodations due to a disability is required to provide a letter of accommodation from the Student Success Center within the first two weeks of the semester.

*The instructor reserves the right to change the syllabus as necessary to meet the class objectives.*