



MAC 2233/ Extended Calculus for Business (graphing calculator version)

Departmental Syllabus revised summer 2009 by Mike Rosenthal

This course meets for twice as many hours per week as our standard Calculus for Business course and includes some review of College Algebra topics. The extra time will also allow you to teach the material more slowly and include reviews before each test. Despite the review material, the prerequisite for this course is a C or higher in College Algebra or Precalculus, or a 72 or higher on the State of Florida's College Level Math Placement Exam.

Textbook: Calculus Concepts, 4th edition, by Latorre, Kenelly, Reed, et al.

Required technology: One section of this course will use FIU-supplied TI-92 calculators. In the other sections students must supply their own graphing calculator. Students should be encouraged to purchase a TI-83, TI-83 plus, or TI-84 plus (all essentially the same calculator). Students who own other models should not expect the instructor to provide instruction on how to use the calculator.

Required topics

Sections 1.1-1.5: You may omit discussion of inverse functions and logarithmic models from 1.3. Since we omit logarithmic regression, be careful not to assign problems later in the text that require this type of regression. Many life science applications appear in this chapter. Non-business applications should be omitted here and later in the course as well. We are required to teach limits of exponential functions. You can do this by asking students to find the limits as $x \rightarrow \infty$ and $x \rightarrow -\infty$ for problems 1-4 in section 1.3. Cover the limit notion quickly. Hopefully it will help students when they revisit the concept during the introduction of the derivative. As an alternative, you may assign the limit problems posted at <http://www.fiu.edu/~rosentha/MAC2233/2233Limits.pdf>

Chapter 2: Cover sections 2.1-2.4. Before starting section 2.4, review how to calculate powers of $(x + h)$, combining like terms, and dividing polynomials by h . In section 2.4, the only mandatory topic is the limit definition of a derivative.

Chapter 3: Cover sections 3.2-3.5. Review adding and subtracting functions prior to teaching section 3.5. Review composition of functions before teaching the chain rule in 3.4. Review products and quotients of functions before teaching 3.5.

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Chapter 4: Cover sections 4.1- 4.3.

Chapter 5: Cover sections 5.1-5.5. Section 5.1 is a good place to introduce piecewise functions if not previously covered. In section 5.5, only average value of a function is mandatory.

Chapter 6: Cover the non-biology applications in section 6.2. The non-TI-92 classes can omit the discrete streams. Also cover section 6.3.

Sections 9.1, 9.2, 9.3, and 10.2: Cover just enough multivariable material to be able to do some optimization problems in section 10.2. You do not have to cover contour curves in section 9.1 or finding critical points using matrices in section 10.2. Review systems of equations before teaching 10.2. You may teach this material the same way they do in the non-graphing calculator version of this course. If you wish, you may assign homework problems from a non-graphing calculator text. **THIS MATERIAL IS NOT OPTIONAL AND YOU MUST GET THROUGH MULTIVARIABLE OPTIMIZATION!** You may wish to cover chapters 9-10 before chapter 6 so as to guarantee that it is covered in its entirety.

Remember that students can store formulas in their calculators so we cannot test memorization.

Here is a suggested pacing for 48 75-minute lectures that will allow for six tests (not counting the final exam) in all but summer semesters. Those teaching in a 50-minute lecture format can multiply the numbers below by 1.5.

Chapter 1 7 lectures

Test #1

Chapter 2 7 lectures

Test #2

Chapter 3 7 lectures

Test #3

Chapter 4 4 lectures

Test #4 (this test can be given after section 5.2 if you wish)

Chapter 5 8 lectures

Test #5

Chapter 6 4 lectures

Chapter 9 3 lectures

Chapter 10 2 lectures

Test #6 (this test may be given after chapter 9 if you wish)

Cumulative Final Exam (must count a minimum of 25% of the final grade)