

M119 Brief Survey of Calculus  
General Syllabus - Revised Fall 2009

**Textbook:** Calculus for Business, Economics, and the Social and Life Sciences  
by Hoffmann and Bradley, McGraw-Hill, 10th edition, 2010

Note: The bookstore will sell the Expanded Edition so that students taking M120 can use the same book. A student who will not be taking M120 could use the Brief Edition instead.

**Course Objectives:** By the end of this course, students should be able to:

- Analyze linear, quadratic, polynomial, rational, root, exponential and logarithmic functions using algebra and calculus
- Differentiate and integrate polynomial, rational, root, exponential and logarithmic functions
- Solve applications from business, economics, social and life sciences involving various meanings of the derivative and integral
- Use graphing calculator technology to compute, graph, model, and solve problems

**Comments:**

M119 is required for all business majors. The prerequisite is M122, College Algebra, or placement by exam. The course requires the use of a graphing calculator, preferably the TI-83 or 84. However, if a student is comfortable with a different graphing calculator, he/she should be allowed to use it, but should not expect the M119 instructor to know the details of its use. Use of the TI-83/84 overhead unit within the classroom is strongly encouraged to assist students by demonstrating the appropriate integration of calculus and technology.

<u>Chapter</u>	<u>Section</u>	<u>Comments</u>
1	1-4	Quickly review algebra topics emphasizing applications and graphing. In 1.3 minimize teaching the "write an equation for the line given..." Students should review on their own if needed. Focus on applications. Skip 1.5 and 1.6: Limits and continuity
2	1-5	<b><i>Section 2.1: the instructor should define the derivative and use the definition to demonstrate with a simple quadratic or cubic. However, finding a derivative by using the definition will not be on the final exam. The focus should be on sections 2.2 - 2.5 using derivative rules and applying the derivative.</i></b> In 2.2 Rectilinear Motion (Examples 2.2.9 & 2.2.10) is optional. Skip 2.6: Implicit differentiation and related rates
3	1, 2, 4, 5	Focus on polynomial functions in chapter 3. In 3.2, omit the 2nd derivative test. (Example 3.2.5)
Skip		3.3: Curve sketching In 3.4 omit Price Elasticity (Examples 3.4.6 & 3.4.7)

4	1-4	In 4.1 problems 35-37: either omit or use logarithms to solve. In 4.3 omit Examples 4.3.12 - 4.3.14
5	1, 3, 4	Skip 5.2: Integration by substitution; watch problem selection in 5.3, 5.4 In 5.3, omit Substitution and Net Change (Examples 5.3.7 - 5.3.10) In 5.4, cover pages 404-407 only (area between two curves)

**Grading:**

Individual instructors are free to choose the grading scheme that best fit his/her teaching style. The math department requires that the departmental final exam be weighted as at least 25% of the overall grade for the semester. Students who fail the final exam may not receive a grade higher than a "C" for the course (C+ is not an option). This should be clearly stated on your syllabus. Instructors are responsible for grading the exams for their own class; the completed exams, a summary sheet, and a printout of semester grades must be returned to the math department. Instructors may choose the grading scheme appropriate for his/her class. There is a review for the final exam at <http://homepages.ius.edu/pmiller/ReviewForFinals.htm>

## Tentative Schedule:

There is a possible schedule below. This is only a suggestion. As long as you cover the sections indicated above during the semester, you may structure the organization of the syllabus as you wish.

<u>Day</u>	<u>Sections</u>	<u>Topics</u>
1	1.1-1.2	Functions and The Graph of a Function
2	1.2-1.3	The Graph of a Function and Linear Functions
3	1.4	Functional Models
4	Review & Catch-up	
5	<b>Test Chapter 1 - Functions and Graphs</b>	
6	2.1-2.2	The Derivative and Techniques of Differentiation (focus on rules)
7	2.2	Techniques of Differentiation (focus on applications, <i>omit rectilinear motion</i> )
8	2.3	Product and Quotient Rules ; Higher-Order Derivatives
9	2.4	The Chain Rule
10	2.5	Marginal Analysis: Approximation by Increments
11.	Review & Catch-up	
12	<b>Test Chapter 2 - Differentiation: Basic Concepts</b>	
13	3.1	Increasing and Decreasing Functions; Relative extrema
14	3.2	Concavity and Points of inflection ( <i>omit 2nd Derivative Test</i> )
15 3.4		Optimization
16	3.5	Additional applied optimization
17	Review & Catch-up	
18	<b>Test Chapter 3 - Additional Applications of the Derivative</b>	
19	4.1	Exponential Functions
20	4.2	Logarithmic Functions
21	4.3	Differentiation of Logarithmic and Exponential Functions
22	4.4	Additional Exponential Models
23	Review & Catch-up	
24	<b>Test Chapter 4 - Exponential and Logarithmic Functions</b>	
25	5.1	Antidifferentiation: The Indefinite Integral
26	5.3	The Definite Integral
27	5.4	Area Between Curves ( <i>omit Average Value</i> )
28	Review for Final Exam	
29	Comprehensive Final Exam	

## M119 Brief Survey of Calculus

**Instructor:**

**Office:**

**Office Hours: E-mail:**

**Time & Location:**

**Voice Mail Number:**

**Prerequisites:** M122 or Placement into M119      **Calculator Requirements:** TI-83 or 84

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**Review for the Final Exam:** <http://homepages.ius.edu/pmiller/ReviewForFinals.htm>

**Math Lab Information:** located PS 015; 941-2670; Schedule posted on door and on web page.

: Web Address <http://www.ius.edu/MathLab>

**Students with Disabilities:** If you have specific physical, psychological or learning disabilities and require accommodations, please let me know early in the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Coordinator of Disability Services located in University Center South Room 006, 941-2243. Additional information about the Office of Services for Students with Disabilities may be obtained at: <http://www.ius.edu/ASC/DisabilityServices/>

**Grading Policy:** The final exam is at least 25% of the course grade. If a student fails the final exam, the maximum course grade possible is a C.

**Makeup Policy:**

**Homework Policy:**

**Attendance Policy:**