Miami Dade College
InterAmerican Campus
Mathematics Department

MAC 2233 Business Calculus Spring 2013-2

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Ref# 780645
Meeting Days: TR 7:00 – 8:15 am
Room: 1127

TEXT: Bittinger, Marvin L; Ellenbogen David J. Calculus and Its Applications, 10th Edition Pearson-Addison Wesley

PREREQUISITE: MAC 1105 with a grade of C or better or equivalent

COURSE DESCRIPTION:

This is a survey of differential and integral calculus. Topics include: limits, continuity, differentiation and integration of algebraic, logarithmic and exponential functions; applications to business, life sciences, and social sciences. Pre-requisite: MAC 1105 with a grade of C or better or equivalent.

CALCULATORS: You will need a scientific calculator. If you have a graphing calculator, you are encouraged to use it, although you will not be able to use it for tests.

TESTING AND GRADING POLICY: There will be five tests worth 100 points each, and a cumulative final exam. The lowest grade among the five tests will be dropped. The Final Exam is never dropped. **THERE ARE NO MAKEUPS**. See me if you know you are going to miss a test. I may assign the seating during any of the tests or the Final Exam. **Your Final Grade will be based on the average of your Final Exam and the best four scores on tests 1-5.**

COURSE GRADE FORMULA: (sum of 4 best test scores and Final Exam) / 5

GRADING SCALE: A: 90-100, **B**: 80-89, **C**: 70-79, **D**: 60-69, **F**: below 60

INCOMPLETES: Incompletes will be given in very limited situations. In order to qualify for an "I" grade, the student must be passing the course at the time the "I" grade is negotiated; be so near the end of the course that he/she requires no further instruction; and have a justifiable and documented reason for not being able to finish the course on schedule.

HOMEWORK: Homework will be posted online. HW is due the same day of the corresponding test. HW is worth up to 10 points added to the score on the test.

ATTENDANCE: Attendance is highly encouraged. Students are responsible for all material covered and/or distributed in class.

MATH LAB: Available on Campus**,** Room 1214

WIDTHDRAWAL POLICY: If you decide to withdraw from this course it is your responsibility to do so in order to receive a grade of "W". Drop/withdrawals should be conducted through the office of the registrar.

CLASSROOM BEHAVIOR:
Beepers, cellular phones and any electronic devices must be turned off before class.

Please, be prompt. Late arrivals are very disturbing for the instructor and disruptive to fellow students. You should plan to leave enough time to allow for traffic, parking, inclement weather, etc.

Cheating: Cheating will not be tolerated in this course. Any student caught will receive an automatic F in the course.

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Course Competencies:

Competency 1: The Student will demonstrate knowledge of limits of algebraic, logarithmic, and exponential functions by:

a. evaluating limits using table of approximating values.
b. evaluating limits using graphs.
c. determining where a function is continuous or discontinuous.
d. evaluating limits algebraically.

Competency 2: The Student will demonstrate knowledge of differentiation of algebraic, logarithmic, and exponential functions by:

a. applying the fundamental rules of differentiation.
b. using derivatives to find the equation of a tangent line.
d. applying the chain rule for differentiation.
e. using implicit differentiation.

Competency 3: The Student will demonstrate knowledge of curve sketching of algebraic, logarithmic, and exponential functions by:

a. using the first derivative to determine the interval of increase or decrease.
b. using the first derivative to determine the relative extrema of functions.
c. using the second derivative to determine the concavity of functions.
d. using the second derivative to determine points of inflection.
e. applying first or second derivative to determine the absolute maxima and minima.
f. finding asymptotes.
g. using calculus to draw the graphs of functions.

Competency 4: The Student will demonstrate knowledge of applications of derivatives to business, life sciences, and social sciences by:

a. solving rate of change problems.
b. solving optimization problems.
c. using differentials to approximate the change in functions.
d. solving problems involving marginal analysis.
e. using graph of real data to determine and interpret rates of change, maxima and minima.
f. interpreting numerical results.

Competency 5: The Student will demonstrate knowledge of integration of algebraic, logarithmic, and exponential functions by:

a. applying the fundamental rules of integration.
b. using substitution to find indefinite integrals.
c. evaluating definite integrals.
d. using definite integrals to find areas between curves.

I reserve the right to make changes in this syllabus as needed. Any changes will be announced in class as early as possible

Week	Date	Topics
1		Review, Chapter R Functions, Graphs
		1.1 Limits: A numerical and Graphical Approach
2		1.2 Algebraic Limits and Continuity
		1.3 Average rates of Change
3		1.4 Differentiations using Limits of Difference Quotients
		1.5, 1.6 Differentiation Techniques
4		1.5, 1.6 Differentiation Techniques
		Review, Test I (1.1 – 1.6)
5		1.7. 1.8 The Chain Rule. Higher-Order Derivatives
		1.7. 1.8 The Chain Rule. Higher-Order Derivatives
6		2.1 Using First Derivatives to Find Extreme Values and Sketch Graphs
		2.2 Using Second Derivatives to Find Extreme Values and Sketch Graphs
		2.3 Graph Sketching: Asymptotes and Rational Functions
7		2.3 Graph Sketching: Asymptotes and Rational Functions
		Review, Test II (1.7, 1.8, 2.1 – 2.3)
8		2.4 Using Derivatives to Find Absolute Maximum and Minimum Values
		2.5 Maximum – Minimum Problems
9		2.6, (2.7) Marginal and Differentials. (Implicit Differentiation)
		2.6, (2.7) Marginal and Differentials. (Implicit Differentiation)
10		**Review, Test III (2.4 – 2.7)**
		3.1 Exponential Functions
11		3.2 Logarithmic Functions
		3.2 Logarithmic Functions
12		3.3, 3.4 Applications
		3.3, 3.4 Applications
13		3.5 The derivatives of a^x and $\log_a x$
		Review, Test IV (3.1 – 3.5)
14		4.1 Antidifferentiation
		4.2 Antiderivatives as Areas
15		4.3 Area and Definite Integrals
		4.4 Properties of Definite Integrals
16		**Review, Test V (4.1 – 4.4)**
17		**Review, Final**

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How do the course objectives relate to the Miami-Dade Learning Outcomes?
What follows below is a list of the ten learning outcomes that have recently been prepared by Miami Dade faculty and administrators.
As graduates of Miami Dade College, students will be able to:

1. Communicate effectively using listening, speaking, reading, and writing skills.

2. Use quantitative analytical skills to evaluate and process numerical data.

3. Solve problems using critical and creative thinking and scientific reasoning.

4. Formulate strategies to locate, evaluate, and apply information.

5. Demonstrate knowledge of diverse cultures, including global and historical perspectives.

6. Create strategies that can be used to fulfill personal, civic, and social responsibilities.

7. Demonstrate knowledge of ethical thinking and its application to issues in society.

8. Use computer and emerging technologies effectively.

9. Demonstrate an appreciation for aesthetics and creative activities.

10. Describe how natural systems function and recognize the impact of humans on the environment.

Each course taken at the college addresses some of these learning outcomes. MAC2233 addresses outcomes 1, 2, 3, 4, 8, 9.