

FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY PARK CAMPUS
MATHEMATICS DEPARTMENT

MAC 2233 CALCULUS FOR BUSINESS

Meeting times: **MWF 1:00pm–1:50pm**

Section 06

Meeting Place: **PC 426**

SYLLABUS AND COURSE OUTLINE

FALL 2009

INSTRUCTOR: Professor Orr

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WEBPAGE <http://faculty.mdc.edu/dorr>

OFFICE DM 416A

OFFICE HOURS MW 4:00pm–4:50pm

TEXTBOOK: *Calculus for Business, Economics, and the Social and Life Sciences*, 10th edition, by Laurence D. Hoffmann and Gerald L. Bradley, McGraw Hill publishers.

PREREQUISITE: MAC 1105 (College Algebra), with a grade of “C” or better.

COURSE DESCRIPTION:

This course is an applied introduction to calculus which provides real world applications of concepts needed to pursue careers in business, economics, and sciences.

COURSE OBJECTIVES:

You will learn applications of differential calculus such as rates, optimization problems, and curve sketching. The problems will include topics such as marginal analysis, production and manufacturing costs, inventory, exponential growth and decay, compound interest and population distribution. You will also see applications of integral calculus, partial derivatives, and optimization of functions of two variables.

ASSISTANCE:

In addition to my scheduled office hours, there is a wide variety of help available, including a solutions manual for even-numbered problems (ask me for the user name and password if you want to use it), online tutoring, and live one-on-one tutoring. For a complete description and full details, visit the Math Department’s website at <http://w3.fiu.edu/math>. Look for the sign that says “Help” in the upper right corner. Click on “Math Help”, then on “Business Calculus (without graphing calculators)”. If you have any questions beyond what is laid out on this webpage, call the Math Department at 305-348-2742.

HOMEWORK:

Homework will be assigned during each class meeting. (Problem numbers are in parentheses after the title of each section in the course outline below.) This work will be neither collected nor graded, and so it will not directly affect

your grade for the course. However, I strongly encourage you to complete the assigned homework on a regular basis, because the only way to learn the course material is through adequate drill and practice. The homework assignments constitute a list of the exercises you will be expected to know how to perform. Certainly the best way to ensure that you know *how* to do something is to actually *do* it, as thoroughly and as frequently as possible. In virtually all cases, the questions I select for your exams will be very similar to those you encounter in the homework.

EXAMS:

There will be a total of four 50-minute exams worth 100 points each, plus a 2-hour final exam worth 200 points. Thus your grade will be based on 600 points possible.

All tests will be of the “free response” variety. (No multiple choice, no matching, no true-false questions.) Although correct answers are certainly necessary to receive full credit, most of the credit awarded for each test question will be for the manner in which you *illustrate your thought process*. A correct answer with little or no supporting work is virtually worthless, while an incorrect answer with clear and sensible supporting work (but with some sort of minor error) may be worth almost full credit. Keep this in mind as you complete your homework assignments. The more thoroughly and carefully you work out the homework problems, the better you will do on your exams.

It is absolutely imperative that you sit for the final exam at the scheduled time. I will not consider any request to re-schedule the final exam, regardless of the reason offered. It is your responsibility to consult the final exam schedule prior to the end of the drop period (Aug. 29). You must make whatever arrangements are necessary to ensure that you are free of other obligations that might conflict with the final exam for this course. If you cannot attend the final exam as scheduled by the University, then you should drop the course with refund by August 29.

NO MAKE-UPS:

THERE WILL BE NO MAKE-UP TESTS under any circumstances. For any test that you do not take in class at the scheduled time, your score will be recorded as a **zero**. Please note, however, that at the end of the semester, the *single lowest score* among the first four unit-tests *will be replaced* by the percentage score that you earn on your final exam, provided this works to your advantage. (For example, suppose your first four test scores are 80, 35, 70, and 65, and suppose you score 140 points (out of 200) on your final exam. Since the final exam score is equivalent to 70%, and this is higher than the previous lowest score of 35, the 35 would be discarded, and replaced by a 70. Your final point total would then be $80 + 70 + 70 + 65 + 140 = 425$.)

You should understand that the purpose behind this policy is *not* to allow you to discard a low test score (as in the example above), but rather to allow you to compensate for *missing* an exam without the need for a makeup. The feature of replacing a bad score is merely a bonus that you earn by *not* missing any exams. If you *do* miss an exam, then the resulting score of 0 becomes the lowest score and will be replaced by the final exam percentage score. One result of this policy is that it is always to your advantage to sit for an exam, even if you are under-prepared or not feeling well.

CALCULATORS:

Please note that no formula sheets will be allowed during exams. You are expected to memorize basic facts and formulas. Although use of a scientific calculator will sometimes be necessary in both the homework and the exams, **you may not use a graphing calculator** (or any other sort of device with the capability of storing formulas) during an exam.

GRADES:

You may exercise your option to drop the class with a “DR” grade, provided you initiate such action no later than Friday, October 16. (Note: This deadline is established through the Registrar's Office and is subject to change. You may wish to contact the Registrar in advance for confirmation of the drop deadline.) If you have not dropped the class by that date, then I will be required to assign you a grade at the end of the semester. The grade scale I will enforce is as follows:

A : 540–600	C : 420–443
A ⁻ : 522–539	C ⁻ : 402–419
B ⁺ : 504–521	D ⁺ : 384–401
B : 480–503	D : 360–383
B ⁻ : 462–479	D ⁻ : 342–359
C ⁺ : 444–461	F : 0–341.

INCOMPLETES:

The “IN” (Incomplete) grade is almost never given. Do not expect to be able to avoid a failing grade by requesting an “IN” grade at the last minute. In order to qualify for an “IN” grade, you must (a) have a reasonable expectation (in *my* judgment) of earning a “C” or better for the course, (b) be so near the end of the course that you require no further instruction, (c) have an excellent and documented reason for not being able to complete the course on schedule, and (d) obtain both my approval and the approval of the Mathematics Department. Even in those very rare instances when an “IN” grade is issued, it does *not* allow you to retake any exams already scored, nor does it allow you to sit in any class meetings during the following semester. It simply allows you to come back after the semester has ended to sit for the exam(s) missed at the very end of the term due to extenuating circumstances.

ATTENDANCE:

You are expected to attend and to be **on time** to all class meetings. You are responsible for all coursework, whether you are present or not. Your grade will be determined solely on the basis of your exam scores, as described above, and will *not* be directly affected by your attendance record, unless you are absent on the day of an exam.

CLASSROOM ETIQUETTE:

To create and preserve a classroom atmosphere that optimizes teaching and learning, you are expected to conduct yourself at all times in a manner that does not disrupt teaching or learning. You are expected to come prepared to the class, to be on time and to remain in the classroom for the duration of the lecture. Talking, eating, sleeping, checking e-mail, using a phone, reading a newspaper, preparing for another class, and/or packing up early is disruptive to others around you and to the instructor. Though classroom participation is always welcomed, questions and comments must be relevant to the topic at hand. If you have a question or comment, raise your hand to be recognized. Electronic devices such as cell phones, ipods, and computers must be turned off during class. Student conduct that disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class.

UNPAID STATUS:

Even if you are expecting financial aid, it is *your responsibility* to ensure that you are properly registered **with fees paid** by whatever deadline the University has established for you. If you are not yet registered for this class, please be advised that the last day to register is Monday, August 31. If the class has no open seats, please make other arrangements, because **I do not override the established seat limit at any time for any reason.**

CHEATING:

ACADEMIC MISCONDUCT includes (but is not limited to) giving or receiving assistance on a test or homework assignment for which such assistance is not permitted, falsifying a document to obtain an excusal from a test, and using unauthorized notes on a test. A more complete definition of Academic Misconduct is given on pp.120-121 of the Student Handbook. Penalties for Academic Misconduct range from an F in the course to expulsion from the university.

MISCELLANEOUS:

It is your responsibility to save all materials I distribute to you in class and to save all exam papers I return to you. If you have any dispute regarding the grade you receive in this class, you must raise the issue within 45 days of the date classes begin in the next term. Such questions should be addressed directly to me via telephone or email. Please do not bother the Mathematics Department with grade issues unless you have first discussed those issues with me.

COURSE OUTLINE

(Exam dates are identified for your convenience only. I reserve the right to make adjustments to this schedule as needed. Any changes will be announced in class as far in advance as possible.)

(Note: The numbers in parentheses following each section title are the homework assignments.)

<u>WEEK</u>	<u>CHAPTER/SECTION</u>	<u>TOPIC</u>
1	1.5	Limits (1–6, 7–37 odd)
	1.6	One-sided limits and continuity (1–4, 5–41 odd)
2	2.1	The derivative (1–31 odd)
	2.2	Techniques of differentiation (1–51 odd)
3 (Monday, Sept. 7)	HOLIDAY	<i>Labor Day</i>
	2.3	Product and Quotient Rules; higher-order derivatives (1–35 odd, 41–51 odd)
4 (Wednesday, Sept. 16)	2.4	The Chain Rule (21–67 odd)
	TEST	Test #1 (§1.5, 1.6, 2.1–2.3)
	2.4	The Chain Rule (21–67 odd)
	2.5	Marginal analysis and approximations using increments (1–25 odd)
5	2.5	Marginal analysis and approximations using increments (1–25 odd)
	3.1	Increasing and decreasing functions; relative extrema (1, 3, 9–47 odd, 53, 55)
6	3.2	Concavity and points of inflection (1–47 odd, 53, 55)
	3.3	Curve sketching (1–23 odd, 27–41 odd)
7 (Wednesday, Oct. 7)	3.4	Optimization (1–15 odd, 23–27 odd)
	TEST	Test #2 (§2.4, 2.5, 3.1–3.3)
	3.4	Optimization (1–15 odd, 23–27 odd)

Reminder: Friday, October 16 is the last day to drop with a “DR” grade

8	3.5	Additional applied optimization (5–11 odd, 17, 30–32)
	4.1	Exponential functions (1–27, 35–43 odd)
9	4.2	Logarithmic functions (1–49 odd)
	4.3	Differentiation of logarithmic and exponential functions (1–55 odd)
10 (Friday, Oct. 30)	4.4	Additional exponential models (5–17 odd, 21, 23)
	5.1	Antidifferentiation: the indefinite integral (1–41 odd, 45, 47)
	TEST	Test #3 (§3.4, 3.5, 4.1–4.4)
11	5.2	Integration by substitution (3–45 odd, 51, 55)
	5.3	The definite integral and the Fundamental Theorem of Calculus (1–47 odd, 53, 55)

12	5.3	The definite integral and the Fundamental Theorem of Calculus (1–47 odd, 53, 55)
(Wednesday, Nov. 11)	HOLIDAY	<i>Veteran's Day</i>
	5.4	Applying definite integration: area between curves and average value (1–27 odd, 35, 39 odd, 41a)
13	5.4	Applying definite integration: area between curves and average value (1–27 odd, 35, 39 odd, 41a)
	5.5	Additional applications to business and economics (1–19 odd, 20, 21)
14	7.1	Functions of several variables (1–21 odd)
(Wednesday, Nov. 25)	TEST	Test #4 (§5.1–5.5)
(Friday, Nov. 27)	HOLIDAY	<i>Thanksgiving</i>
15	7.2	Partial derivatives (1–33 odd)
	7.3	Optimizing functions of two variables (1–17 odd)
	----	Review/flex day (Last day of class is Fri., Dec. 4)
16 (See final exam schedule)	EXAM	Final Exam (Comprehensive, with slight emphasis on §6.1, 7.1–7.3)