

MIAMI-DADE COLLEGE
KENDALL CAMPUS
MATHEMATICS DEPARTMENT

MAC 2311 CALCULUS WITH ANALYTIC GEOMETRY I
Meeting Times: MW 8:00am–8:50am; TR 8:25am–9:40am

Reference #525046
Meeting Place: Room 3332

SYLLABUS AND COURSE OUTLINE

FALL 2009

INSTRUCTOR: **Professor Orr**

OFFICE **Room 3238-2**

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OFFICE HOURS **MWF 6:30am–7:00am; 9:00am–10:00am**
TR 6:30am–8:25am; 11:15am–12:15pm; 2:05pm–3:30pm

TEXTBOOK: *Calculus (Early Transcendentals)*, 11th Edition, by Thomas, Weir, Hass, & Giordano; Addison Wesley Publishers

PREREQUISITE: MAC 1140 (Pre-calculus Algebra) and MAC 1114 (Trigonometry), or MAC 1147 (Pre-calculus Algebra & Trigonometry), with grades of “C” or better, or adequate score on a placement exam.

HOMEWORK:

Homework will be assigned at the end of each class meeting. (Problem numbers are in parentheses after the title of each section in the course outline below.) The assigned homework problems constitute a list of the things you will be expected to know how to do. The best way to ensure that you know how to do something is to actually *do* it on a regular basis. Although the homework assignments will not be collected or graded, you must complete these assignments in order to learn the course material and prepare yourself for the exams. Questions appearing on the exams will be similar to those encountered in the homework.

TESTS:

There will be eight unit-tests given throughout the semester, plus a comprehensive final exam. All tests except the final exam will carry equal “weight”, but the final exam score will count **double**. In order to be counted, **each test must be taken in class at the scheduled time**, unless alternate arrangements are made *in advance*. If you miss a test, a score of **zero** will be recorded. However, at the end of the semester, the *single lowest score* among the eight unit-tests *will be replaced* by your final exam score, provided this works to your advantage. (Note: When the final exam score replaces a lower test score, the result is that the final exam carries additional weight; it counts twice in its own behalf, and once again for the score it replaces.)

You should understand that the purpose behind this policy is *not* to allow you to discard a low test score, 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 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.

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.

FINAL EXAM:

A comprehensive final exam will be administered during final exam week. The final exam will be *mandatory*, and will thus determine at least one fifth of your grade for the course. It is absolutely imperative that all students take the final exam at the appointed time. Please do not make personal plans that will conflict with the final exam. If you do, you will receive no sympathy.

GRADES:

You may exercise your option to drop the class with a “W” grade, provided you initiate such action no later than Tuesday, November 3. (Note: This withdrawal 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 withdrawal deadline.) If you have not withdrawn from the class by that date, I will be required to assign you a grade at the end of the term. I will calculate the average of your test scores and translate the result into a letter grade. The most stringent grade scale I will enforce is as follows:

- A — 88% or better
- B — 76%–87%
- C — 64%–75%
- D — 52%–63%
- F — below 52%.

If you do not sit for the final exam, I reserve the right to assign you an “F” grade regardless of your semester average.

ATTENDANCE:

You are expected to attend all class meetings. Furthermore, you are expected to arrive on time and not to leave until class is dismissed. Your grade will *not* be directly affected by your attendance record, except in borderline cases, as noted below. However, there are certain conditions under which I have the right to purge you from my roll by assigning you a “WI” grade. (“WI” stands for instructor-initiated withdrawal.) Those conditions are defined in the next paragraph. Please note that these are conditions under which I have the *option* to purge you, but there is no guarantee that the option will be carried out. If you decide that you actually *desire* a “W” grade, you are responsible for *initiating* the withdrawal process by November 3. If you simply abandon the class without formally withdrawing, you run the risk of receiving an “F” instead of a “WI”.

There are three conditions under which you may be purged from my roll:

1. If you are absent from any two consecutive class meetings and one of those two meetings is an *exam*; or
2. If you are absent from three or more consecutive class meetings, even if one of them is *not* an exam; or
3. If at any point in the semester after the first exam, your cumulative rate of attendance drops below 70%.

I may take attendance as early as the very beginning of each class period; if you are not present when your name is called, then you may be considered absent, even if you enter the classroom later on during that same class meeting. Moreover, if you leave before class is dismissed, you may also be considered absent for that day. If you are so unfortunate as to become eligible for purge at any time, it will be up to my sole discretion whether to actually purge you immediately or to exercise some leniency. My decision will generally be based on my impression of your attitude and your level of effort, which may in turn be influenced by your academic performance. However, **the primary reason for purging any student will always be poor attendance, not poor performance.** As long as you continue to meet my attendance requirements, you will never be purged from my roll, regardless of your exam performance. Note that I am

not allowed to purge any student after Friday, November 13.

It is also worth noting that a good attendance record can have a positive effect on your final grade in certain borderline cases. That is, if your average is very close to what's needed for a certain grade, but just below the borderline, a good attendance record is one of the criteria that may persuade me to boost you to the higher grade. This is especially true if your final class average is below 52%. Frequently a student with a low average who has attended class regularly and shown evidence of making a sincere effort may be rewarded with a "D" instead of an "F", even if the student's average is lower than that of some others who received "F" grades.

CLASSROOM DECORUM:

You should not talk to other students when class is in session. Frequently I will address Math-related questions to the class at large, and I encourage you to respond to those questions freely, without raising your hand for permission. However, if you have any other sort of comment or question, I expect you to raise your hand and wait until you are called upon before speaking.

CELL PHONES:

I expect you to **TURN OFF YOUR CELL PHONE AND PUT IT AWAY** before class begins. Please note that "off" means **OFF**—not "vibrate" mode. You may not use your cell phone as a calculator. You may not have your cell phone on your desk, in your hand, or in your lap while class is in session. Your cell phone should be completely invisible and inaudible to me at all times. Violators of this policy may be asked to leave the room and not to return until the next class meeting.

CALCULATORS:

You will need to have a scientific calculator for use on homework and exams. However, **GRAPHING CALCULATORS ARE NOT ALLOWED ON EXAMS**. If I see a graphing calculator on your desk or anywhere within arm's reach during an exam, I reserve the right to confiscate your exam paper and assign it a zero grade. You are also prohibited from using any calculator that performs calculus operations (differentiation and/or integration).

INCOMPLETES:

The so-called "I" (i.e., Incomplete) grade is almost never given. Do NOT expect to avoid a low grade by requesting an Incomplete grade at the last minute. In order to qualify for an "I" grade, you must be (a) passing the course at the time the "I" grade is negotiated; (b) be so near the end of the course that you require no further instruction; and (c) have an excellent and documented reason for not being able to finish the course on schedule. Even in those very rare instances when an "I" grade is issued, it does *not* allow you retake any exams that have already been scored, nor does it allow you to attend 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.

UNPAID STATUS:

If you are not yet registered for this class, please be advised that the last day to register is Friday, August 28. If you have not registered by that date, then you absolutely, positively, will not be able to register at all, because **I do not sign override cards at any time for any reason.**

If you see that you will be unable to pay your fees by your payment deadline, or if you fear that your financial aid may not be in place, then you should go to the Dean of Students' Office to request an extension of your deadline. If your fees are not paid by the deadline, you will be voided from the roster and I will have to ask you to stop attending the class. Even if you are expecting some form of financial aid, **payment of your fees is your responsibility**. If you are voided from my roster for non-payment at any time after August 28, then you absolutely, positively, will not be reinstated, because **I do not sign override cards at any time for any reason.**

COURSE OUTLINE

Please note: Test dates are given for your convenience only. I reserve the right to make changes in the test dates as needed. Any changes will be announced in class as far in advance as possible.

The numbers in parentheses represent the homework assignment for each section.

<u>WEEK</u>	<u>CHAPTER/SECTION</u>	<u>TOPIC</u>
1	2.1	Rates of change and limits (1–4, 9, 10, 21–28)
	2.2	Calculating limits using the limit laws (1–42, 49, 50, 51a, 52a)
	2.3	The precise definition of “limit” (no assignment)
	2.4	One-sided limits and limits at infinity (1–4, 7–18, 21–42, 51–66)
2 (Thursday, Sept. 3)	2.4	One-sided limits and limits at infinity (1–4, 7–18, 21–42, 51–66)
	2.5	Infinite limits and vertical asymptotes (1–42)
	2.6	Continuity (1–40)
	TEST	Test #1 (§2.1, 2.2, 2.4, 2.5)
3 (Monday, Sept. 7)	HOLIDAY	<i>Labor Day</i>
	2.6	Continuity (1–40)
	2.7	Tangents and derivatives (5–30)
	3.1	The derivative as a function (1–22, 39–44)
4 (Thursday, Sept. 17)	3.2	Differentiation rules for polynomials, exponentials, products, and quotients (1–42)
	3.3	The derivative as a rate of change (1–13)
	TEST	Test #2 (§2.6, 2.7, 3.1, 3.2)
5	3.4	Derivatives of trigonometric functions (1–30, 39–46)
	3.5	The Chain Rule and parametric equations (23–66, 81–92, 93, 95, 96, 101–108 tangent line only)
6 (Thursday, Oct. 1)	3.6	Implicit differentiation (1–57)
	3.7	Derivatives of inverse functions and logarithms (11–96)
	TEST	Test #3 (§3.3–3.6)
7	3.8	Inverse trigonometric functions (1–70, 75, 76)
	3.9	Related rates (1–24, 30, 32)
	3.10	Linearization and differentials (1–14, 19–38, 51–55, 61, 63)
8 (Tuesday, Oct. 13)	----	Review
	TEST	Test #4 (§3.7–3.10)
	4.1	Extreme values of functions (1–10, 15–58. In 39–58 find critical points, but do <i>not</i> attempt to identify extrema.)
9	4.2	The Mean Value Theorem (1–9, 15–18, 23–26)
	4.3	Monotonic functions and the First Derivative Test (1–40)
	4.6	Indeterminate forms and L’Hôpital’s Rule (1–56)

WEEK	CHAPTER/SECTION	TOPIC
10 (Tuesday, Oct. 27)	---- TEST 4.4	Review Test #5 (§4.1–4.3, 4.6) Concavity and curve sketching (1–28, 33–42)
<i>Reminder: Tuesday, November 3 is the last day to drop with a “W” grade.</i>		
11	4.5 4.8 5.1	Applied optimization problems (1–9 odd, 15, 19, 27, 31, 37, 39) Antiderivatives (1–82, 87–112) Estimating with finite sums (1–8)
12 (Tuesday, Nov. 10) (Wednesday, Nov. 11)	5.2 TEST HOLIDAY 5.3	Sigma notation and limits of finite sums (1–29, 33, 35–40) Test #6 (§4.4, 4.5, 4.8, 5.1) <i>Veteran’s Day</i> The definite integral (1–62)
13	5.4 5.5 5.6	The Fundamental Theorem of Calculus (1–32, 35–60) Indefinite integrals and the Substitution Rule (1–64, 67, 68) Substitution and area between curves (1–92)
14 (Tuesday, Nov. 24) (Thursday, Nov. 26)	6.1 TEST 6.1 HOLIDAY	Volumes by slicing and rotation about an axis (1–12, 15–54) Test #7 (§5.2–5.6) Volumes by slicing and rotation about an axis (1–12, 15–54) <i>Thanksgiving Day</i>
15	6.2 7.2	Volumes by cylindrical shells (1–12, 15–36) Exponential growth and decay (1–11, 13, 14, 17, 18, 21–24)
16 (Thursday, Dec. 10)	7.3 7.4 ---- TEST	Relative rates of growth (1–8, 19, 21a) Hyperbolic functions (1–24, 41–60) Review Test #8 (§6.1, 6.2, 7.2–7.4)
17 (Wednesday, Dec. 16)	FINAL	Final Exam (Comprehensive)