MATH 1823–Section 002   Calculus and Analytic Geometry I

This is the information sheet for Calculus I, MATH 1823–Section 002, for the Fall Semester 2010. It is your responsibility to acquaint yourself with all the information in this handout, and with any modifications to it that may be announced in class.

Instructor: Dr. Noel Brady. **E-mail:** nbrady@math.ou.edu
Office: 521 Physical Sciences Center [PHSC]. **Phone:** 325-0833
Web Page: http://math.ou.edu/~nbrady
Math Office: 423 PHSC. **Math Office Phone:** 325-6711

Course Web Page. http://math.ou.edu/~nbrady/teaching/f10-1823
Office Hours. Tue 1:30-2:30PM, Thu 2:30-3:30PM, Fri 1:00-2:00PM, or by appointment.
Although all students are welcome to visit my office at any of these hours, remember that I give priority to Topology students in the Tue office hour, priority to Calc students in the Thu office hour and equal priority to all students in the Fri office hour.

Text and Course Outline. We shall cover Chapters 1 through 4 of the textbook; *Calculus* (6th Edition), by James Stewart.

In this course we will start with a review of functions and their graphs. This is material that you will have covered in a precalculus class. Then we will consider two seemingly unrelated problems about functions and their graphs.

- The first is a geometric problem. It asks one to find the slope of a "tangent line" to the graph of a function at a given point.

- The second is an analytic problem. It asks one to find the rate of change of a function's output values with respect to its input values.

We will discuss at length a common solution to both problems: namely, one forms "difference quotients" of the function, and then takes a "limit" of a suitable collection of these difference quotients. This limit (if it exists) is called the *derivative* of the function. The two motivational problems now give us two interpretations of the derivative: a geometric interpretation as a slope of a tangent line, and an analytical interpretation as a rate of change.

We establish a set of rules which enables one to compute derivatives in a very mechanical way (without all the pain and stress that computing limits may entail!). Finally we explore some of the many applications of derivatives. From the analytic interpretation of the derivative we can discuss problems involving displacement, speed and acceleration, and can deal with many applications involving "related rates". From the geometric interpretation of the derivative we can talk about extremal points on graphs, maxima and minima, and can tackle many problems involving optimization and curve sketching. We can also understand the geometry behind a powerful method of approximating roots of functions, Newton's method.

Lectures. You are expected to attend all lectures, and are responsible for all information given out during them. In particular, this includes any changes to the quiz/midterm dates or content.

Your participation is important in lectures. I will call on people to present answers to problems at the board from time to time. You should try to participate in classroom discussions. As in any course, you will optimize your gain from the lectures if you try to read the relevant sections of the textbook **before** attending class.

Grading Scheme. Grades will be assigned by weighting your totals from Homeworks, Quizzes, Midterms, and a Final Examination as follows:

Homeworks	18%
Quizzes	3%
Midterm Total	54%
Final Examination	25%

The total number of points in the course is 100. Grades are assigned on the following scale:

$$A : 85 - 100, \quad B : 70 - 84, \quad C : 55 - 69, \quad D : 40 - 54, \quad F : 0 - 39.$$

Here is a detailed description of each of these components.

Homework. Homework is due in class at the **start** of class on Mondays and Fridays. You are responsible for ensuring that your homework gets turned in on time. Late homework will not be accepted; it upsets the grading process and is unfair to other students.

The homework assignments are there to provide you with a **minimum** level of exposure to the materials outside of class time. You will need to do many more problems before you feel comfortable with the concepts involved. Take it from experience (of generations of students!) that the way to succeed in a math course is to work (and understand) a large number of problems.

Quizzes. Six short Quizzes are held in class during regular lecture times. Here are the (approximate) quiz dates.

Quiz 1:	Monday	Aug. 30.		*Quiz 4:*	Monday	Nov. 01.
Quiz 2:	Monday	Sept. 13.		*Quiz 5:*	Monday	Nov. 15.
Quiz 3:	Monday	Oct. 11.		*Quiz 6:*	Friday	Dec. 03.

Midterms. There are three midterms, two of which are held during regular lecture times in the usual classroom, and the third is a set of extra homework. They are held/due on the following dates:

Midterm 1: Friday, Sept. 24.

Midterm 2: Friday, Oct. 22.

Midterm 3: Monday, Nov. 22. (the Monday of Thanksgiving week)

Final Examination. The final examination is cumulative. It is scheduled for Wednesday, December 15 from 8:00am until 10:00am, and is held in the usual classroom — PHSC 102.

The final examination schedule for all your classes is available online
http://www.ou.edu/enrollment/home/final_exams/fall_semester_final0.html

Taking Examinations. Here are a few notes on taking Examinations.

- I will hold extra Office Hours and/or schedule Review Sessions before the Midterms and Final Examinations. You are strongly encouraged to attend the Review Sessions, and to attend Office Hours regularly.

- You cannot use calculators/computers, books or any type of notes during the examinations.

- All examinations must be taken at scheduled times, except in *very extreme circumstances.* So be careful not to make travel arrangements that conflict with examination times. If you cannot take an examination at a scheduled time, you should contact me *well in advance of the test time.* Otherwise, an absence at an exam will result in a score of zero.

Policy on W/I Grades. You can find the Fall 2010 academic calendar at
http://www.ou.edu/enrollment/home/academic_calendar.html

Until Sept 3, there is no record of grade for dropped courses. From Sept 4 through Oct 1, you may withdraw and receive an automatic W grade, *no matter what scores you have so far achieved.* From Oct 2 onward, the grade for a dropped course is either W or F; you will need to see me about grades if you wish to withdraw. From Nov 1 on, University regulations specify that you may withdraw only with the permission of the College Dean.

Students who are failing the course should not expect to receive an "I" grade in place of a "W" grade. I will only consider assigning an "I" grade if the situation satisfies the following criteria.

1. the student is already maintaining a passing grade,

2. the student has completed most of the course work, and

3. the student can demonstrate that he/she is unable to complete the work at this time due to circumstances beyond his/her control.

Academic misconduct. You should be familiar with University policy regarding academic misconduct http://www.ou.edu/provost/integrity. More information can be found in the *Student Code* on the Student Conduct Office page http://studentconduct.ou.edu/.

Accommodation of Disabilities. The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. If you require special accommodation in this course you are requested to speak with me as early in the semester as possible(preferably by the end of the first week). Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone (405) 325-3852 or TDD only (405) 325-4173. Their website is at http://drc.ou.edu.

Religious Holidays. It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays.

Students who plan to observe a religious holiday which may conflict with a class time, should notify me as soon as possible (preferably within the first week of the semester), so we can make appropriate arrangements.

Mathematics Department student resource page. The Mathematics Department undergraduate information page is a good page to bookmark. It has links to the Math Help Center, the OU MathClub blog, and has information about obtaining a math minor or major.

The Math Help Center. The Mathematics Help Center (PHSC 425A) is open every weekday from at least 9:30 - 5:30. It is staffed by mathematics graduate students who can help with your Calculus I questions. You should definitely take advantage of this terrific resource!

Action Center Tutoring. University College offers free tutoring through UC Action. This is another great Calculus I resource!

The OU MathClub Blog. The OU MathClub blog is an excellent way of finding out what's going on math-wise at OU.