Syllabus for Mathematics 1823-010 - Calculus I - Spring 2001

Please read this syllabus carefully. You will be responsible for all the information given here, and for any modifications to it that may be announced in class.

Text: The textbook for this course is *Calculus*, (4th edition), by James Stewart.

Lecturer and Instructor: Darryl McCullough, Professor of Mathematics

Classes:	MWF 10:30
Office:	804 Physical Sciences Center
Phone:	325-2743
Email:	dmccullough@math.ou.edu
URL:	www.math.ou.edu/~dmccullo
Office hours:	Mon 11:30-12:15, Mon 1:30-2:15, Wed 11:30-12:15, Wed 1:30-2:15, and by appointment.

Discussion Section Instructors:

Ms. Leslie Davidson-Rossier, Mathematics Graduate Student

Classes:	Wed 2:30-3:20, Thu 1:30-2:20
Office:	1022 Physical Sciences Center
Phone:	325-6711
Email:	ldavidso@math.ou.edu
Office hours:	Wed 9:00-10:00, Wed 3:30-4:30, Fri 11:30-12:20, and by appointment.

Ms. Andrea Stone, Mathematics Graduate Student

Classes:	Th 9:00-9:50, Th 10:30-11:20
Office:	509 Physical Science Center
Phone:	325-6711
Email:	adstone@ou.edu
URL:	http://students.ou.edu/S/Andrea.D.Stone-1/
Office hours:	Mon 2:30-3:30, Wed 8:30-9:30, Fri 11:30-12:30, and by appointment.

Ms. Ekaterina Yurasovskaya, Mathematics Graduate Student

Classes:	Wed 3:30-4:20, Thu 12:00-12:50
Office:	908 Physical Sciences Center
Phone:	325-6711
Email:	katyay@ou.edu
Office hours:	Tue 12:30-1:20, Wed 9:30-10:20, Thu 11:00-11:50, and by appointment.

Class Participation: Seat assignments are distributed on the first day of classes, and should be used for all lectures and tests. If you are unable to see or hear properly or are otherwise dissatisfied with your seat assignment, please consult the instructor to obtain a reassignment.

You are expected to participate fully in all lectures and all discussion classes, and are responsible for all information given out during them. As explained under "Grading System" later in this syllabus, excessive absences will result in points lost from your class participation grade, while superior attendance will add a few extra points to your total.

Class participation means being present for the entire class period and giving your complete attention to the instructor. Activities such as eating, sleeping, reading the newspaper, listening to headsets, conversing with other students, and so on do not constitute class participation. Students engaging in such behavior during classes may be counted as absent.

Homework: *It is absolutely essential to work a large number of problems on a regular basis.* Problem assignments are given in the Discussion Class Schedule and Homework Assignments page. To receive credit, homework must be turned in *at the start of the discussion class in which it is due.* The homework will be checked for completeness, and a few problems will be graded. This will constitute 15% of your grade.

The problems should be clearly numbered and in the order in which they appear in the book. It is recommended that you write out the statement of each problem, in abbreviated form if appropriate, followed by your solution. This will help you when reviewing for exams.

Although homework solutions need not be polished masterpieces of mathematical exposition, they should be legible, and the solutions *should clearly indicate the steps used to arrive at the solution.* If you can write a clear explanation of what you are doing, you will understand it. If you understand it, you will retain it.

You may consult with other students about the homework problems, indeed you are encouraged to do so. However, you should write up the solutions in your own words. It is a complete waste of time to just copy from a solutions manual or from someone else's work. If you decide to turn in work that is not your own, we cannot stop you, but you will not learn the material adequately and you will pay a heavy price on the exams which constitute 75% of your course grade.

Homework is collected and examined solely as a learning device to help you master the ideas and techniques of calculus. As a university level student, it is essential for you to allocate your time so as to learn the most with the least effort. For example, crossing out something you want to remove is much faster than erasing, even though the result might not be as pleasing to the eye. The homework assignments are designed to be the *bare minimum* that a strong student would need in order to achieve the course objectives; it is your responsibility to work extra problems for the topics that give you difficulty, until you have mastered them.

Answers to the odd-numbered problems appear at the end of the textbook. For help, you may go to the office hours *of any of the four instructors* of the course. If you cannot come during the regularly scheduled hours, make an appointment with Professor McCullough or with your discussion section instructor to come at another time. Discussion section instructors do not have office telephones, but you can call the Mathematics Department at 325-6711 and leave a message to have your instructor call you, or better yet you can send an email message directly to your instructor.

Testing: *The examinations will test understanding of some of the theoretical ideas and additional techniques presented in the lectures. These are part of the course and should be learned along with the basic problem-solving techniques used in the homework problems.* Examinations will be given during the regular lecture hour on the following dates, covering the listed sections.

Exam 1	Friday, February 16	Sections 1.1-1.3, 2.1-2.6, 3.1
Exam 2	Friday, March 16	Sections 3.2-3.9
Exam 3	Friday, April 20	Sections 4.1-4.5, 4.9

The final examination will be given in the usual lecture room on Monday, May 7, 8:00–10:00 a. m. Details on its content and emphasis will be given in class.

Do not arrange travel plans that prevent you from taking any of the exams at the scheduled time. If you cannot take a test at the scheduled time due to illness or a family emergency, contact Professor McCullough *in advance of the test time.* If you have a valid reason for not being able to take the exam, you will be allowed to take the make-up exam on April 30 and use its score to replace the missing exam grade. *The make-up exam will cover the entire course, not just the material from the test that was missed.*

Check the grading of your exams carefully when they are returned; all grading errors should be brought to the instructors' attention as soon as possible.

Grading system: There will be 300 points possible as follows:

Points:	Percent:	
30	10	Class participation
45	15	Homework
50	16.67	Exam 1
50	16.67	Exam 2
50	16.67	Exam 3
75	25	Final exam
300	100	Total possible

The class participation grade will be determined as follows. If you have 5 absences or less, you will receive the full 30 points of class participation credit, plus two bonus points for each class fewer than 5 missed (thus you can earn up to 10 bonus points

for superior class participation). The 6th through 11th absences will each subtract 5 points from the 30 points of class participation grade.

Course grades will be determined according to the following scale:

Total points:	Percent:	Grade:
$262.5-300.0$	$87.50-100.00$	A
$232.5-262.0$	$77.50-\ 87.34$	B
$202.5-232.0$	$67.50-\ 77.34$	C
$165.0-202.0$	$55.00-\ 67.34$	D
$0.0-164.5$	$0.00-\ 54.84$	F

Grades are calculated by computer but errors in recording or entering scores can occur. Please keep your tests and homework so that you can verify the posted totals at the end of the semester, if you think that an error may have occurred.

Withdrawal Policy: Until January 29, there is no record of a grade for dropped courses. From January 30 through March 30, you may withdraw and receive a "W" grade, *no matter what scores you have so far achieved.* After March 30, University regulations specify that you may withdraw only in "very unusual circumstances," and only with the permission of the Dean. *Avoidance of a low grade is not sufficient reason to obtain permission to withdraw after March 30.*

Grade of Incomplete: The grade of "I" is a special-purpose grade given when a specific task needs to be completed to finish the coursework. This is typically a term paper or other special assignment, so rarely makes sense in a mathematics course. An "I" cannot be given to avoid receiving a low grade.

Calculators: This is a course of mathematical concepts and techniques, not a course of mechanical computation, so we will have little need for calculators. Some of the homework problems may require the use of a basic scientific calculator, which can perform numerical calculations, and can give values of the trigonometric, inverse trigonometric, exponential, and logarithm functions. Such a calculator can be purchased at discount stores for $10 or less. A few homework problems may require a calculator with graphing capability. If you have such a calculator, you can try these problems and see if you find them helpful. If not, just skip those problems.

A basic scientific calculator may be used during exams, although it is not necessary to have one. However, since complete mastery of the graphs of the standard functions from trigonometry and calculus is essential, *use of graphing calculators during exams is prohibited.* Use of any device with the capability to store formulas or other information is prohibited during exams.

Academic Misconduct: Cases of academic misconduct are inexcusable and will be punished to the maximum extent possible under University regulations. *Don't do it.*

Students with Disabilities: If you have a disability that may interfere with the demonstration of your abilities, please contact Professor McCullough as soon as possible to arrange accomodations necessary to ensure your full participation in the course.

Final Grades: Final grades will be posted on the course website as soon as they are available. You may pick up your graded final exam from Professor McCullough at any time before the end of the Fall, 2001 semester.

Internet Resources: On the Internet there are numerous websites that contain calculus theory, tutorials, and problems with solutions. From our course website, you can access a page of links to some calculus sites, and if you follow the link to the UC Davis Calculus Page, there is a much longer list there.

Advice: It is important to think about the subject daily or almost daily (you will learn much more in two hours a day for seven days than in seven hours a day for two days). People learn best in small bits through repeated exposure, so it is much more effective to work the homework problems from one section a few at a time over a period of days, rather than all at once in an extended session. This means you may be working problems from several sections of the book at the same time— this is fine, since they will reinforce each other. If you approach the homework in this way, you will spend no more total time or effort, and will learn much more. Occasional work sessions with fellow students can be very productive, as long as one avoids the pitfall of becoming dependent on others.

Working problems is your most important learning technique, but the exams will also draw on the ideas and key examples given in class. Take careful notes during the lectures, or if this does not work well for you, obtain them from someone else. The lectures provide your road map to learning the subject.

Always use correct mathematical notation. (Example 1: write the "=" sign only between two mathematical objects that really are equal— some students just seem to use it as a random space filler. Example 2: always write "$\sin(x)$" and "$\cos(x)$", never just "sin" and "cos", which makes "sin cos" ambiguous— does it mean the product "$\sin(x)\cos(x)$" or the composition "$\sin(\cos(x))$"?) Good notation will help keep you on the right track, but you will only use correct notation in a stressful exam situation if you have been using it habitually on your homework problems.

It is essential to master the definitions and the graphs of the basic functions of trigonometry and calculus. Rules of algebraic computation, differentiation (especially the chain rule), and integration must be practiced until they are completely routine. Students in Calculus III and IV often seem to lose as many points due to poor algebra and calculus fundamentals as they lose from failure to grasp the more advanced ideas they are learning in those courses.

Nothing is more important than staying completely caught up; cramming is even less effective in mathematics than in other courses. If you need help, go to office hours (remember, you can go to the office hours of *any of the four instructors*), or arrange an appointment immediately; do not compound your difficulties by delaying.