Syllabus for Mathematics 2350 - Calculus III - Fall 2008

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*, (5th edition), by Monty Strauss, Gerald L. Bradley and Karl J. Smith.

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Expected Learning Outcomes: The students should develop skills in differentiation and integration needed to solve problems in 3-dimensional space. In particular, the students shall master the concepts of

- tangent and normal vectors and their geometric and physical interpretations,

- partial derivatives, tangent planes, directional derivatives and gradients, and how to compute them,

- three-dimensional integration, and how to compute such integrals,

- vector fields, divergence and curl, and how to calculate them.

Methods for Assesment of the Learning Outcomes: The expected learning outcomes for the course will be assesed through:

Class Participation: You are expected to attend all lectures, 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.

This course requires your full effort, so it is expected that you will give your complete attention to the instructor for the full class period. Activities such as eating, sleeping, reading, listening to headsets, conversing with other students, and so on do not constitute class participation. Students engaging in such behavior during the lecture may be counted as absent.

Homework and Quizzes: *It is absolutely essential to work a large number of problems on a regular basis.* To receive full credit for your homework you must turn in hard copies of the solutions and enter the final answers in Webwork. Please make sure to turn it in on time and in the format indicated in the homework instruction sheet.

There will be a quiz on each non-exam week. Each quiz will contain two or three homework problems. Quizzes will be averaged into your grade as follows: each quiz is worth 6 points and the Homework worth 4 points. For a total of 10 points per assignment. We will average out the nine best quizzes and homework (out of 10) and this will give your Homework and Quizzes points as indicated in the Syllabus. For example, if your average is 9.2 then you will get (9.2)*(45/10)=41.4 Homework and Quizzes points.

Homework is collected and quizzed 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 look as pleasing to the eye. The homework assignments are the *bare minimum* for most students to gain basic familiarity with the material. As manager of your own education, it is up to you to work whatever additional problems may be necessary for you to achieve a good understanding of the subject.

You may consult with other students about the homework problems, indeed I encourage you to do so. However, you will need to 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, I 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. an Answers to the odd-numbered problems appear at the end of the textbook. For help, you should come to my office hours, or make an appointment with me to come at another time. Email is the best way to contact me.

Testing: *The exams 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	Thursday, Sep 25	Sections 10.2–10.5, 11.1,11.2,11.3
Exam 2	Thursday, Oct 23	Sections 11.4,11.5,11.6,11.7,11.8, 12.2
Exam 3	Thursday, Nov 20	Sections 12.3,12.4,12.5,12.7, 13.1–13.3

The final examination will be held on Tuesday, Dec 09, 10:30 a. m. to 1:00 p. m. University regulations require that you take it at that time. It will cover all sections listed in the class schedule.

All tests must be taken at the scheduled times, except in extraordinary circumstances. Please 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, you should contact me *in advance.* Check the grading of your exams carefully when they are returned; all grading errors should be brought to my attention as soon as possible.

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

Points:	Percent:	
30	10	Class participation
45	15	Homework and Quizzes
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 4 absences or less, you will receive the full 30 points of class participation credit, plus three bonus points for each class fewer than 4 missed (thus you can earn up to 12 bonus points for superior class participation). The 5th through 10th 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: The last day to drop a course is October 27. First-time freshmen entering fall 2004 or after can only have 4 W's during their academic college career. Transfer students can only have 3 W's.

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 use for calculators. A few 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 a few dollars. A basic scientific calculator can be used during exams, although it is not necessary to have one. However, since knowing the graphs of the standard functions from trigonometry and calculus is an essential skill, *use of graphing calculators during exams is prohibited.* Use of any calculator with the capability to store formulas or other information is also prohibited during exams.

Cell phones: Cell phones must be turned off before entering the classroom - there are no exceptions. Cell phone calculators cannot be used in 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: Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Student should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact Student Disability Services at 335 West Hall or 806-742-2405.

Observance of Religious Holiday:

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

Final Grades: Will be posted on Techsis as soon as they are available.

Internet Resources: On the Internet there are numerous websites that contain theory, tutorials, and problems with solutions, for calculus and in some cases more advanced material. Our course web page has a link to some of these sites, and if you follow it 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). Mathematics is best absorbed in small bits through repeated exposure, so it is 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 actually better, 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 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", 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 during exams, but you will only use good notation in a stressful exam situation if you have been using it habitually on your homework problems.

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 or arrange an appointment immediately; do not compound your difficulties by delaying.