MAT 397 - Calculus III   Fall 2009

Course Description: MAT 397 is the third course in a three-semester sequence in Calculus. This sequence is designed for Mathematics, Science and Engineering majors and for those students in other majors who intend to take advanced courses in mathematics. This course covers the concepts of vectors, vector valued functions, functions of several variables, partial derivatives and multiple integration.

Text: *Calculus* (Early Transcendentals version) 6th Edition, by James Stewart, Thomson Brooks/Cole, 2008. (The material we will cover appears in Chapters 12 through 16.)

Background for Course: Completing MAT 296 (Calculus II) with a grade of C- or better is a prerequisite for MAT 397 (Calculus III). **If you have not satisfied this prerequisite, you should drop MAT 397 and register for MAT 296.** Students who earned a C or less in MAT 296 are unlikely to be successful in MAT 397.

Calculators: The TI-83+ is the recommended graphics calculator for this course. Students who already own and know how to use another equivalent calculator are free to use it. Calculators may or may not be allowed on exams and quizzes but symbolic calculators (such as the TI-89 or the TI-92) may not be used. On exams and quizzes complete solutions, and not merely answers, must be presented to receive credit. For example a numerical computation of an integral by calculator is not acceptable.

Course Format: The course format is two or three lectures (depending on your section) and a recitation each week. New material will be introduced in lecture by your primary instructor. Your recitation instructor will answer questions on the course material and the assigned homework problems. Exams and quizzes will be given during recitation.

Class Attendance and Participation: You are expected to attend and participate in class. Missing class is the most common reason for poor performance in the course. *If you miss a class, you are responsible for obtaining notes for that class from a student who attended. It is also your responsibility to find out about any announcements made in class.*

Homework: Assignments for the entire semester are listed below. Each day's assignment should be completed before the next class meeting. Some variations from the list of homework exercises may be announced in class. Your instructor may elect to grade some homework assignments and to use these in determining your final grade. It is *essential* to do all the homework in a timely fashion!

Help: Your instructors will be available regularly during their office hours. You can also seek help at the Calculus Help Center in the Reading Room of Carnegie Hall. The Help Center hours are posted by 215 Carnegie Hall or you can obtain a copy of the schedule in the Math Department Office.

Examinations: There will be three examinations during the semester. They will be given in your recitation during the period listed below:

> **Exam 1**, Wednesday 9/30 – Tuesday 10/6, covers (approximately) Chapters 12 and 13.

> **Exam 2**, Monday 11/2 – Friday 11/6, covers (approximately) Chapter 14.

Exam 3, Monday 11/30 – Friday 12/4, covers (approximately) Chapter 15.

The exact date will depend on which day of the week your recitation meets. The material covered by each exam will be announced during lecture by your primary instructor.

There will be **NO MAKE-UP EXAMS**. A missed examination counts as a zero unless you present a valid excuse from a physician or the Dean's office. With the written excuse, you may use your score on the relevant portion of the final exam to replace the missed exam. Your instructor will announce their policy on missed quizzes.

Final Examination: The final examination covers the entire course. Final examination Period 05, 8:00 AM to 2:30 PM on **Wednesday, December 16th 2009,** is reserved for mathematics courses numbered below 400 (except Mat 275.) Your MAT 397 final examination will take place in a two-hour interval within this block. The time and location will be announced in class near the end of the semester. Students are obliged to take the final examination during the appointed examination block and, in the absence of a conflict, at the scheduled time. **You should not make plans to leave campus until after 2:30pm on December 16th.** The final will not be given at any other time.

Grades: Each of the semester examinations counts for 20% of your course grade. The final examination counts for 25%, with the remaining 15% coming from a recitation grade. This will involve some combination of quizzes, homework and attendance, as announced by your primary instructor. Your course grade will be assigned based on the following percentages:

A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D (60-69), F (00-59).

Course Supervisor: Professor D. Quinn, 229D Physics Building. Telephone 443-1484. E-mail dpquinn@syr.edu. Please inform your instructor first of any problems you have. Problems not satisfactorily resolved with your instructor should be brought to the attention of the course supervisor without delay.

Learning Goals:
- Having a basic knowledge and understanding of the analytic and geometric concepts taught, and of some of their classical applications to other sciences, such as physics
- Understanding the nature and role of deductive reasoning in mathematics
- Ability to use and understand the usage of mathematical notation
- Ability to do hand calculations accurately and appropriately
- Ability to follow proofs and other mathematical discourse

Academic Integrity:

The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic

dishonesty of any sort. For more information and the complete policy, see http://academicintegrity.syr.edu

Academic Accommodations for Students with Disabilities: If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), http://disabilityservices.syr.edu, located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

How to Succeed:

(1) It is absolutely essential that you understand how to solve the assigned problems. Quiz and exam questions will be similar to these problems. It is important to be able to use the skills and techniques presented in the course and not simply to be able to solve a specific set of problems.

(2) Ask questions in lecture, in recitation and at the clinic about anything that is not completely clear. Don't hesitate to bring questions to your instructors during office hours.

(3) Every day, read and study the sections in the textbook covered in the lecture. Learning mathematics takes time! Read carefully and work through all the examples in complete detail. It can be helpful to try to work through an example on your own before reading the solution.

(4) Stay caught up. Calculus concepts build on each other cumulatively and you need to stay on top of the material at every stage. If you are having difficulty, don't expect that the problem will take care of itself and disappear later. Contact your course instructor or your recitation instructor immediately and discuss the problem!

(5) Form a study group. Many students benefit from a study group to work through challenging problems and to review for exams. You should attempt the problems ahead of time by yourself and then work through any difficulties with your study partners. Explaining your reasoning to another student can help to clarify your own understanding.

(6) You should expect to work hard. Don't get discouraged if you find some of the material very difficult. Be persistent and patient! If you follow the above suggestions, your experience in this course will be a rewarding one.

Section	Assignment
12.1	3, 4, 7, 8, 9, 11, 13, 15, 17, 19, 22, 28, 30, 40
12.2	1-5, 7, 9, 13, 15, 18, 19, 21, 23, 29, 31, 34, 43
12.3	1, 3, 5, 6, 8, 9, 11, 23, 27, 31, 37, 40, 41, 47, 49
12.4	1, 5, 7, 9, 13, 19, 23, 27, 31, 33, 37, 39, 43, 45, 49
12.5	1, 3, 5, 9, 11, 12, 13, 14, 15, 16, 17, 19, 21, 26, 27, 30, 33, 35, 37, 39, 43, 45, 49,

	53, 55, 59, 67, 73
12.6	1, 3, 5, 9, 13, 19, 21-28, 33, 41, 43
13.1	1, 3, 4, 5, 7, 11, 15, 19-24, 35, 37, 41
13.2	1, 3, 5, 9, 11, 13, 16, 17, 19, 21, 23, 25, 33, 35, 37, 39, 42, 47, 49
13.3	1, 3, 4, 43, 45
13.4	3, 5, 9, 11, 14, 15, 19, 22, 23, 24, 25, 27
14.1	1, 6, 7, 9, 11, 15, 19, 23, 27, 30, 31, 32, 31, 41, 49, 55, 60
14.2	1, 3, 5, 7, 9, 11, 15, 19, 27, 29, 31, 33, 37, 39
14.3	1, 11, 15, 21, 23, 25, 27, 35, 39, 45, 50, 51, 53, 57, 62, 65, 72, 83, 85
14.4	1, 3, 5, 11, 16, 19, 33, 35
14.5	1, 3, 5, 7, 11, 15, 17, 21, 25, 27, 29, 36, 38, 39, 49
14.6	7, 9, 11, 13, 15, 19, 23, 25, 27, 29, 31, 33, 39, 41
14.7	3, 5, 7, 9, 11, 13, 29, 31, 35, 39, 41, 51, 53
14.8	3, 5, 7, 11, 18, 19, 25, 27, 29, 31
15.1	1, 3, 11, 12, 13
15.2	1, 3, 7, 11, 13, 15, 17, 19, 21, 29, 33, 35
15.3	1, 3, 5, 7-11, 13, 14, 15, 17, 18, 19, 20, 21, 23, 25, 31, 39, 41, 43, 49, 51, 58
15.4	1-11, 14, 15, 17, 18, 20, 21, 29, 31, 33, 35
15.5	1, 3, 5, 7, 15, 17, 19
15.6	1, 3, 5, 9, 11, 13, 15, 19, 21, 27, 33, 37, 39, 43
15.7	1, 2, 3, 5, 7, 9, 15, 17, 19, 23, 26, 27, 28
15.8	1, 3, 4, 5, 7, 9, 11, 13, 15, 17-19, 21, 23, 26, 27, 29, 35, 39, 40
15.9	1, 3, 7, 9, 11, 13, 15, 19, 21
16.1	1, 3, 7, 9, 11, 13, 17
16.2	1, 2, 3, 5, 19
16.3	3-9 (odd), 13, 19
16.4	1, 3, 7, 9, 11, 13, 17

Final Exam: Wednesday, December 16th. Time to be announced in class. It will end by 2:30 PM - Do not make plans to leave campus before then.