Departmental syllabus for MAT 295, Calculus I
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Course Supervisor
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Course Description

Mat 295 is the first course of a three-semester course in Calculus offered by the Department of Mathematics. This sequence is designed for science and engineering majors, and for students in other disciplines who intend to take upper level mathematics courses. The sequels to MAT 295 are MAT 296 and MAT 397. Each of these three courses carries 4 credits.

The course covers concepts of functions, limits, differentiation, integration, and includes applications of these concepts such as graph sketching, optimization, linearization, and the computation of areas.

MAT 284 and MAT 285 are other calculus courses covering similar topics and neither of these courses may be taken for credit after successful completion of MAT 295. Furthermore, MAT 295 may not be taken for credit after successful completion of MAT 286.

Catalog Description

MAT 295 Calculus I 4 S
Analytic Geometry, limits, derivatives, maxima-minima, related rates, graphs, differentials, exponential and logarithmic functions, mean-value theorem, integration. For science majors. MAT 295 may not be taken for credit after successful completion of MAT 286. Preq: C- or better in MAT 194 or equivalent.

Readiness

A C- or better in MAT 194 or its equivalent is required. A calculus readiness test, which will be administered on the first day of class, will also help to determine whether you are ready for MAT 295. If you do not do well on the calculus readiness test, you should consider taking a pre-calculus course such as MAT 194 instead of MAT 295.

MAT 295 and the Liberal Arts Core

Any student who receives a grade of C or better in MAT 295 is exempt from the Quantitative Skills requirement of the Liberal Arts Core. MAT 295 may also be used to partially satisfy the Divisional Perspectives requirement. It is included on the Natural Sciences and Mathematics List for the Natural Sciences and Mathematics Division. MAT 295-6 form a sequence in the Natural Sciences and Mathematics Division.

Text

Calculus: Early Transcendentals, by James Stewart, Edition 6e, Brooks/Cole,Thomson. Also required is a subscription to *Enhanced WebAssign*, an online homework system. Both text and WebAssign subscription can be purchased as a bundle from the bookstore. A subscription can also be obtained directly from WebAssign.

Calculators

A calculator is **not required** for this course. A scientific graphic calculator is recommended as a tool for checking homework problems. Your instructor may occasionally use it in class for this purpose or to efficiently illustrate certain fundamental ideas of calculus. A graphic calculator without symbolic algebra capability may even be used on quizzes, tests and the final exam. **However, the use of a symbolic calculator (such as TI-89 or TI-92) will not be allowed on quizzes or exams**

Course Format

You must be registered for both a section of the course and the recitation section that goes with it. Your primary instructor will introduce new material in lecture. Since the primary function of the lecture is to present new topics, usually there will not be enough time to answer questions on assigned homework problems in lecture. Your recitation instructor will work example problems and answer questions on assigned problems. Exams will be given in the recitation section. Quizzes (previously announced or not) and other graded work will be given in recitation. You are REQUIRED to attend ALL classes and recitations. A record of attendance will be kept. Additional student support is provided by the Calculus Help Center. The Help Center meets in the Reading Room on the second floor of Carnegie Hall. The hours it is open will be announced and posted on the wall outside the Reading Room. It is staffed by undergraduate graders and teaching assistants. You can get help on the course material and problems from the staff.

Required Work

The required work in this course consists of attendance in the lecture and recitation sessions, the assigned homework problems, quizzes, three hour tests, and the final examination. Quizzes or other graded work may be given in recitation. The three hour

tests will be given in recitation sessions at times to be announced by your instructors. The final examination covers the entire course. It is a **two-hour** exam and will be given on:

<h2 style="text-align:center">Wednesday, December 16, 2009</h2>

between the hours of **8:00 a.m. and 2:30 p.m.** The exact time and location of your final examination will be announced in lecture. The final examination is given at this announced time and at no other time. **Do not make plans to leave campus before 2:30 p.m. on Wednesday, December 16, 2009**

How to Get Help

Assigned homework problems and other problems will be discussed in recitation. These sessions give you an opportunity to ask questions on assigned problems and the underlying methods for solution. If you don't get answers to all your questions during the recitation section, take them to the Calculus Help Center staff or to your primary instructor or recitation instructor during office hours. If there are problems of any sort that you can not get resolved in this way, bring them to the attention of the Course Supervisor.

How to Succeed

1. If you are uncertain about the prerequisites see your instructor immediately.

2. Study and memorize new concepts as they are introduced. This applies to new vocabulary terms as well.

3. Every day, study the sections in the textbook covered in each lecture. Don't assume you can learn the material by rapidly scanning the text. Read very carefully, and work through all the examples in complete detail. To test your understanding of the text discussion, try to work an example on your own before reading the solution.

4. It is absolutely essential that you understand how to solve all the assigned problems. Since exam and quiz questions will be similar to these problems, it is crucial that you know how to work every one of them. Once you understand how to solve a problem, write your solution down neatly and in full detail with explanations that would make your reasoning clear to a friend who sees the problems for the first time. Save these solutions in a three ring binder for review when you prepare for exams.

5.   Ask questions either in lecture, recitation or the clinic about anything that is not completely clear. Don't hesitate to bring questions to your course instructor or recitation instructor during office hours.

6.   NEVER, EVER fall behind. 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 the problem will take of itself and disappear later. Contact your course instructor immediately and discuss the problem.

7.   We believe you can be successful in this course. You should expect to work hard. Don't get discouraged if you find some of the material difficult. Be persistent, but patient! If you follow the above suggestions your experience in this course will be a rewarding one.

Grades

Grades will be based on three in-class full-period examinations (60% total), a comprehensive final examination (20%), and quizzes and homework for the remaining (20%). For all sections the scores will be scaled to 100 points at the end of the semester

and the final grade will be given by the rule:

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= less than 60

Make-ups

No make-up examinations will be given. If you must miss an examination for a legitimate reason, discuss this, in advance, with your instructor.

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.

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.

Other

Please inform your instructor of any problems that you have with this course. Problems not satisfactorily resolved with your instructor should be brought to the attention of the course supervisor without delay.

Program Learning Outcomes (Mathematics Majors)

In all outcomes that call for mastery of some skill, such mastery is called for at the appropriate undergraduate level. Moreover, levels of mastery may well vary from student to student.

- Understanding the nature and role of deductive reasoning in mathematics
- Ability to use and understand the usage of mathematical notation
- Ability to follow proofs and other mathematical discourse
- Ability to write simple proofs in the major proof formats (direct, indirect, inductive), and, more generally, to engage in mathematical discourse
- Ability to select an appropriate mathematical model for a given real world problem
- Ability to apprehend and enunciate the limitations of conclusions drawn from mathematical models
- Ability to do hand calculations accurately and appropriately
- Ability to do calculations with the aid of appropriate hardware and/or software
- Having a basic knowledge of the contributions and significance of important historical figures in mathematics
- Having a basic knowledge of the major modern theories of analysis, abstract algebra, geometry, and applied mathematics
- Ability to effectively use mathematical word processing software
- Having a basic understanding of career options available to mathematics majors
- Ability to locate and use sources and tools that aid mathematical scholarship