

Calculus II, Lecture AAA
22m:26, Spring 2006

Instructor: Fred Goodman
Office: 325G McLean Hall
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Office Hours: To be arranged.

Detailed course information, including assignments and information about exams, will be regularly posted on my web page at

www.math.uiowa.edu/~goodman

Course goals: This is a standard 2nd semester calculus course. The goals are to gain a *thorough and usable* knowledge of further topics in calculus, and to increase your confidence and self reliance in problem solving and calculation.

Textbook:

Required: Stewart, *Single Variable Calculus, Early Transcendentals*, Brooks-Cole, 5th ed.

You are expected to read the textbook and to go over examples presented in the textbook. Not everything you need to understand can be presented in the lectures and discussions. The classes and textbook are complimentary: neither is optional.

Course plan:

1. Chapter 7: Techniques of integration: integration by parts; trigonometric integrals; trig substitutions; partial fractions; computer algebra systems; approximate (numerical) techniques; improper integrals.
2. Chapter 8: Further applications of integration: arclength; area of surface of revolution; hydrostatic pressure; centers of mass; probability.
3. Chapter 9: Differential equations: modeling; direction fields and Euler's method; separable equations; exponential growth and decay; logistic equations; linear equations; predator-prey models.
4. Chapter 10: Parametric equations and polar coordinates: parametric representation of curves; tangents and areas; arclength and surface area; polar coordinates.
5. Chapter 11: Infinite sequences and series: convergence and limits of sequences; series (= infinite sums) convergence and limits; integral test; comparison test; ratio and root tests; absolute versus conditional convergence of series; power series; Taylor series.

Homework, exams, grading: Homework will be assigned weekly; many problems will be assigned, and among them two will be singled out as "presentation

problems.” These two are to be written out carefully and completely, with the logical steps explained. A model to strive for is a solved example in the textbook. Another way to think about what you want to achieve is that a person who is studying calculus (in another city from a different textbook) should be able to understand the problem and its solution completely from reading your paper. In particular, what you hand in will not be the scratch paper on which you first figure out the problem; it should be an edited, well-written presentation. One or both of these problems will be graded and evaluated both for correctness and for presentation. The remainder of your homework will be spot-checked. The homework will be due each week on Thursday.

There will frequent, pre-announced quizzes in your discussion sections (on Tuesday or Thursday). There will be two midterm exams on dates to be arranged. There will be a comprehensive final exam at the time determined by the registrar.

Grading: 25% discussion section (homework and quizzes), 25% each midterm, 25% final exam.

Time commitment:

I think the most important consideration for your success in this course is the time you put into it. You should be prepared to spend about 2 hours outside of class for each hour in class, and additional time for exam preparation.

Attendance and absences:

Regular attendance will be expected, both at lectures and discussion sections. The professor and teaching assistant do not intend to waste any class time: something important for your understanding will take place in each class hour. However, if you must miss class, you will still be responsible for the material discussed in class. You are responsible for announcements made in class, which may concern changes in the assignments, syllabus, exams, etc. Absence from exams will require a compelling reason, and must be arranged in advance.

Mathematics Tutorial Lab:

The Math Lab is a drop-in tutorial service (no charge) staffed by Teaching Assistants from the Department of Mathematics. The Lab provides one of the best ways of getting personalized help. From time to time tutorials on special topics may be offered as well. You are urged to make use of this service.

Complaint procedure:

I hope and expect that you will have a good time, work a lot and learn a lot in this course. However, if you have concerns or complaints about any aspect of the course, you are welcome to discuss these with me. If we are not able to resolve the difficulty, please contact the Chair of the Department of Mathematics, 14 Maclean Hall.

Accommodations for students with special needs:

Students with disabilities are entitled to special arrangements; please contact me in order to arrange appropriate accommodations. (Requests for modifications

of class requirements or testing must be made through the Student Disability Services office, 3100 Burge Hall.)

Notice about cross college enrollments:

This course is given in the College of Liberal Arts and Sciences. This means that class policies on matters such as requirements, grading, and sanctions for academic dishonesty are governed by the College of Liberal Arts and Sciences. Students wishing to add or drop this course after the official deadline must receive the approval of the Dean of the College of Liberal Arts and Sciences.