

## MATH. 285

BRUCE BERNDT

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Exams: There will be three hour exams. Each will be worth 100 points; letter grades will be assigned. The hour exams are tentatively scheduled for February 20, April 1, and May 1. If the instructor and the class mutually agree to change the date of an exam, at least one week's notice will be given.

Homework: Assigned daily. If the number of a problem is encircled on the blackboard, then this problem should be turned in for grading on the following Friday. At the end of the semester, each student will receive a scaled score of 0–60 as the final numerical score for the homework. A letter grade will also be given. Solutions to all graded problems will be made available at the course web-site, and solutions to many other problems will also be made available at the course web-site. Homework solutions will be graded by one of our department's graduate students.

Final Exam: The final exam will cover the entire course and will be worth 240 points. Letter grades will be given on the final exam. The final exam will be given on Thursday morning, May 14 from 8:00 to 11:00 a.m. If a student does better on the final exam than on the hour exams, extra points will be given. The number of extra points = final exam percentage – hour exam average. For example, if a student has an average of 60 points for the 3 hour exams and her final exam score is 200 or 83%, then she gets an extra 23 points.

Final grade: Add the total points for the 3 hour exams, final exam, scaled homework, and the extra credit (if any) from the final exam. Thus, the maximum total score is 600. The course grade grading scale will be determined by adding the grading scales for the hour exams, final exam, and homework.

Important requirement: **The final exam must be passed to obtain a passing grade in the course.**

Final exam grades and scores will be available by email. In order to receive this information by email, the student should provide his/her email address on

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the final exam. No grades will be given by phone, because of the possible lack of confidentiality. Each student will have the opportunity to examine his/her written final exam after grading has been completed.

Calculators are not allowed on any exam. Those wearing baseball caps must have them turned backward during exams. All cell phones must be turned off during all classes and exams. No headphones will be allowed. Attendance at all exams will be taken, and identification may be required. All books and all paper of all types must be set aside before exams are distributed. Scratch paper will be provided, if needed.

Good luck to all of you. I hope to give a final grade of A to each of you. (I must confess that this has never before happened, but it is not impossible!)

### **Syllabus**

The amount of time given to each chapter is only an approximation.

Chapter 1: First order differential equations (5 lectures).

Sections 1.1 and 1.2 will be covered in part. Sections 1.4, 1.5, and 1.6 will be covered completely. The existence and uniqueness theorem in Section 1.3 will be stated and discussed, but no further material from that section will be covered.

Chapter 3: Linear Equations of Higher Order (9 lectures)

Sections 3.1–3.3, 3.5 These sections constitute one of the main topics of the course. Section 3.8 is very important for the last part of the course on partial differential equations. Additional material on Euler's differential equation will be given.

Chapter 8: Power Series Methods (9 lectures)

The first five sections will be covered. The method of power series is, by far, the most general and useful method we have for solving ordinary differential equations of degree at least 2.

Chapter 9: Fourier Series Methods (11 lectures)

The entire chapter will be covered.

Chapter 10: Eigenvalues and Boundary Value Problems (5 lectures)

We will concentrate on applications, instead of the theoretical aspects, and cover only portions of some of the five sections.