MthSc 208: Introduction to Ordinary Differential Equations

SUMMER SESSION I, 2013

Martin Hall M-201, MTWRF 11:30-1:30pm

Instructor

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OFFICE HOURS: MRF 2:30–3:30, or by appointment.

WEBSITE: http://www.math.clemson.edu/~macaule/classes/m13_mthsc208/

Textbook

Differential Equations: An Introduction to Modern Methods and Applications by Brannan and Boyce.

Prerequisites

MthSc 206 (Vector Calculus).

Policies

- Attendance: I will take attendance. If you miss a class for some reason, it is your responsibility to get notes, etc. from someone in class. I will not repeat lectures during my office hours. I prefer to know in advance if you cannot make a lecture, and may give you an excused absense if you inform me at least 12 hours before class. Attendance will not factor into your final grade unless you are borderline (e.g., 89.7%) – in that case I may round up your grade if you have been attending regularly.
- If you get an A or B on the final exam, then your final grade in the course will be AT LEAST the grade you earned on the final exam, as long as you (*i*) attend class very regularly, AND (*ii*) maintain a passing grade on the homework.
- If you want to know your grade at any point during the semester, consult the grading rubric below.
- All drop/add procedures are your responsibility.
- Absent Professor Policy: If the instructor has not arrived within 15 minutes of the scheduled class time, you may assume that class has been canceled.
- All use of cell phones, laptops, and PDAs is prohibited during lecture. Calculators, cell phones, laptops, and PDAs will not allowed during exams.
- Cell phone policy: http://www.youtube.com/watch?v=FYwpxU_G4Z0

Learning Outcomes

By the end of the semester, students will be able to:

- Explicitly solve a variety of 1st and 2nd order ordinary differential equations (ODEs).
- Understand how ODEs arise in modeling in biology, physics, chemistry, engineering, and finance.
- Understand the connections between solutions to ODEs and direction fields.
- Have a basic understanding of linear algebra and its role in the study of ODEs, and how to solve systems of linear ODEs.
- Take a Laplace transform and use this to solve certain ODEs.
- Derive the Fourier series of a periodic function.
- Be able to solve partial differential equations (PDEs), and recognize the differences between the heat, wave, and Laplace equations, as well as different boundary conditions.

- Explain in simple terms, e.g. to grandparents or to younger siblings, how differential equations are relevant to several familiar settings in your major.
- Be *well-prepared* and *confident* to succeed in your upper-division math, science, and engineering couses.
- ... and much more!

Grading The final grade will be calculated as follows:

HOMEWORK:	25%
MIDTERM 1:	25%
MIDTERM 2:	25%
FINAL EXAM:	50%

Your lowest midterm grade OR half the weight of your final exam will be dropped. Make-up exams will be given ONLY with an official written excuse in advance, and will not necessarily be the same as the regular exam.

GRADING SCALE: $A \geq 90\% > B \geq 80\% > C \geq 70\% > D \geq 60\% > F$

Homework Homework assignments will accumulate from lecture to lecture and will be due roughly twice a week. Assignments will be posted on the course website, as I like to make all materials freely available to everybody (Warning: Websites such as *Course Hero* are a SCAM!). Students can collaborate on their homework problems, but they *must* write up and submit their homeworks separately. Late homeworks will **not** be accepted. You should keep all the graded homeworks in case of missing grades due to missing name or typo errors.

Key Dates

May 15 (Wed)	Classes begin; late enrollment fee applies
May 16 (Thu)	Last day to register or add a class
May 20 (Mon)	Last day to drop a class or withdraw from the University without a W grade
June 6 (Thu)	Last day to drop a class or withdraw from the University without final grades
June 19 (Wed)	Study / make-up day
June 20 (Thu)	Final Exam, 11:30–2:00pm.
August 9 (Fri)	Graduation

The official statement on Academic Integrity

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a *high seminary of learning.* Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.
When in the opinion of a faculty member, there is evidence that a student has committed an act of academic dishonesty, the faculty member shall make a formal written charge of academic dishonesty including a description of the misconduct, to the Dean of the Graduate School. At the same time, the faculty member may, but is not required to, inform each involved student privately of the nature of the alleged charge.