

**MATH 307A - Introduction to Differential Equations
Winter 2019**

Time: MWF 8:30am-9:20am

Location: CDH 110A

Instructor: David Clancy

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Office: Padelford C-020

Office Hours: TBD (Wednesday 9:30 - 11:30 Tentatively)

Text: The recommended text will be *Elementary Differential Equations and Boundary Value Problems* by Boyce and DiPrima. Any edition of this text will work, and older editions usually cost less. There is also a version of this text, *Introduction to Differential Equations*, that is available in the bookstore.

Course Objectives: This course is an introduction to differential equations. Most of this course will cover the applications of the theory of differential equations. That does NOT mean we will entirely avoid the theory. The theory will be covered from time to time. There are three main topics that are covered.

- First order differential equations: Autonomous, separable, and linear equations which arise in physics (e.g. motion, mixing problems) and biology (population dynamics).
- Second order differential equations. Second order constant coefficient differential equations which come up in the study of mechanical and electrical vibrations.
- Laplace Transform. A technique which enables us to solve constant coefficient differential equations by converting them into an algebraic problem.

Grading Policy: The course grade will be made up of homework, midterms and a final exam. The breakdown is as follows:

Category	Weight
Homework	10%
Midterm 1	25%
Midterm 2	25%
Final Exam	40%

Since the Autumn quarter of 2017, the math department mandates that the median course grade for each section of 307 during the regular academic school year has to be between 2.8 and 3.2.

Homework: Homework will be assigned, submitted, and graded online via WebAssign, and will become available one week before it is due. You'll need to purchase a WebAssign access code to use this system, available [here](#). The price should be around \$23. The homework assignments will mostly be due on Tuesdays at 11:59pm. Under appropriate circumstances (see the make-up policy), homework extensions will be granted with a 20% total point deduction for all questions completed after the due date.

I know that WebAssign is not perfect. In order to compensate for minor technical glitches and accidentally selecting the wrong answer, an inflation of +5% will be applied to the homework scores at the end of the quarter. However, no homework score will be more than 100%, and so any homework grade between 95% and 100% will only be rounded to 100%.

I encourage you to talk with other students, tutors, and instructors about the homework. That being said, I also want to be sure that you work through and understand each of the problems, even after talking with others about it. The goal of the homework is to gain understanding, not just get the right answer. Understanding the homework and extra problems will be the most important part of the course. Working with others to get the correct answers and not improve your understanding will likely improve your homework score, but impact your ability to do well on the in-class work.

Exams: There are two midterms and one final exam for this course. Both of the midterms will be held during the scheduled class times, and will last for 50 minutes. Midterm 1 will be held **Friday, February 1st** and will cover material for the first third of the course. Midterm 2 will be held **Wednesday, February 27th** (and Monday, Feb 25 is holiday) and will cover material for the middle third of the course. The final exam will be held **8:30am - 10:20am on Tuesday, March 19th in CDH 110A**. The final exam is cumulative.

Calculator and Notes Policy: The recommend calculator is the TI-30X IIS calculator, which is the same one used in the MATH 124/5/6 sequence. The main use of the calculators is to evaluate trigonometric functions, logarithms and exponentials (e.g. sin, cos, ln, exp). **Graphing Calculators are NOT allowed.** On the exams, you are allowed to have an 8.5×11 sheet of **handwritten** notes, and are allowed to use both sides.

Make-up Policy: In the case of observation of religious holidays or in participation of school-sponsored activities (e.g. athletics or class trips), I must be notified at least one week prior to the event. This includes providing proper documentation.

Make-up exams will not be given. If you miss an exam due to an **unavoidable, compelling and well-documented** problem (e.g. a sudden illness), I will do my best to assess the situation and come to a fair conclusion. This is done on a case-by-case basis, and may include altering the grade breakdown above.

Test-prep questions: On non-exam weeks, prior to the second midterm, I will post a problem that would be a good candidate for an exam question. These will be posted online, and will not be collected, nor graded. The following Wednesday, a solution will be posted.

Additional Resources: These links may be of some use.

- 307 Course Outline: <https://sites.math.washington.edu/~m307/>
- Midterm 1 archives: <https://sites.math.washington.edu/~m307/midterm1.php>
- Midterm 2 archives: <https://sites.math.washington.edu/~m307/midterm2.php>
- Final Exam archives: <https://sites.math.washington.edu/~m307/final.php>