## Differential Equations: Math 307 K - Fall 2019

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**Office Hours:** Mondays 3:00 - 3:45pm in Padelford C-339 and Fridays 3:00-4:30pm in Communications B-006 (room next to the MSC). As well as MWF from 11:00-11:25am outside the Savery 260 classroom.

**Text/Webassign:** The book is by Boyce and Diprima, *Elementary Differential Equations and Boundary Value Problems* or *Elementary Differential Equations*. Any edition is fine. Older editions cost less. A paperback version called Introduction to Differential Equations is available at the bookstore. You will complete all your homework on Webassign. It costs about $25 for this course. To access, log-in here:

http://www.webassign.net/washington/login.html

**Objectives:** This course will introduce you to differential equations. There are three main topics:
• 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 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:** The weight for each part of the course is given below.

| Category | Weight |
|---|---|
| Test Prep (**Typically Fridays**) | 4 |
| Homework (**Due on Wednesdays**) | 10 |
| Midterm 1 (**Wed, Oct. 16**) | 25 |
| Midterm 2 (**Wed, Nov. 13**) | 25 |
| Final Exam (**Mon, Dec. 9**) | 36 |
| Total | 100 |

**Lecture:** Lecture is on Monday, Wednesday, and Friday. You will be held responsible for all information that is discussed during lecture.

**Homework:** Homework assignments will be assigned and collected via Webassign. Please log into webassign this week and add yourself to the course roster via the link: https://www.webassign.net/washington/login.html Homework will generally close at 11:00 pm on Wednesdays (see the course calendar for specific due dates).
• A good student will **complete the vast majority of each assignment at least two days before it officially closes**! After the due date, answers and full solutions become visible and you should definitely go back and review them.
• For all the reasons above, **I will __NOT__ grant homework extensions for any reason**. If you have an emergency the day the homework is due (internet down, sickness, family emergency, etc), you will NOT get an extension. So let me reiterate, you MUST be done with the vast majority of the homework at least two days before it is due.
• In order to account for any small issues of you forgetting a problem or incorrectly clicking on a multiple choice, at the end of the term I will round up everyone's homework grade by 5% (but no one gets a grade above 100%).

**Exams:** The midterms will be 50 minutes long and will be given at lecture. The first midterm will cover the first third of the course and the second midterm will cover the second third of the course. The Final Exam is cumulative.

**MATH 307 K FINAL EXAM**: Monday, December 9, 2:30pm to 4:20pm in CHL 015.

**Test Prep:** There will be a small number of test prep exercises (probably 4). A test prep exercise will consist of 1 or 2 short problems that use skills needed to do well on the exams. I will give you 5-10 minutes to complete them on your own and you will hand it in. I will primarily grade on participation (only a very small amount of the grade will be based on correctness). I will drop your lowest test prep score. These will give you practice for the exams. In addition, these exercises give your instructor (me) some helpful information on how well students are understanding the material.

**Calculators and notes:** You will need a scientific calculator for Math 307. It must have trigonometric functions, like Sin and Cos, as well as logarithms and exponentials (ln and exp). **GRAPHING CALCU-LATORS ARE NOT ALLOWED** on quizzes and exams in Math 307. A graphing calculator is any device with a multiline display that has the ability to graph mathematical functions. A single, **hand-written** 8.5 x 11 inch sheet of notes is allowed during exams. You may write on both sides.

**Make-Ups:** *Late homework will not be accepted for any reason, if you are going to be absent, plan to turn in your homework in advance of the due date.* In case of observance of religious holidays or participation in university sponsored activities, arrangements must be made at least 1 week in advance for exams. You will be required to provide documentation for your absence. *Make-up exams will not be given.* If you miss an exam due to **unavoidable, compelling, and well-documented** circumstances, your final exam will be weighted more heavily.

**Religious Accommodations:** Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UWs policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy (https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/). Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form (https://registrar.washington.edu/students/religious-accommodations-request/).

**Class Philosophy:** There are two vital rules for success in my classroom.
**1. THE HOMEWORK IS THE KEY:** In mathematics, breakthroughs in learning rarely occur while reading the text or attending lecture. Mathematics is truly learned when you completely solve a problem AND understand the underlying concepts and tools so as to be able to apply them to related problems. Treat each problem as an exam question and ask yourself, "Can I answer this question without any help and do I understand the underlying principles that this problem conveys?" If your answer is no to either of these question, then you need more studying and practice.
**2. ASK FOR HELP:** Most students will hit a wall at some point during the course. Some can't handle the large workload, while others find difficulty with specific concepts in the course. When these times arrive remember to ask for help. Come to me, ask your classmates for help, visit CLUE and/or visit the student counseling center. Please, please, please find help earlier rather than later. You are all smart enough to do well in this course, the question is whether or not you are determined enough.

**Resources:**
• A link to the class website can be found at: **http://www.math.washington.edu/~aloveles/** You will find homework assignments, review sheets, grade information, a calendar, past exams, and many other helpful postings.
• The Center for Learning and Undergraduate Enrichment (CLUE) holds drop-in tutoring sessions every week-day evening in Mary Gates Hall Commons. See
**http://depts.washington.edu/clue/** for more details.
• To request disability accommodation contact the Disability Services Office at least ten days in advance at: 206-543-6450/V, 206-543-6452/TTY, 206-685-7264(FAX), or dso@u.washington.edu.
• The Student Counseling Center provides academic skills workshop on a variety of topics including stress management test anxiety and time management to help you succeed at the University of Washington. If any of these is an issue for you, check out the schedule of workshops at
**http://depts.washington.edu/scc/studyskills.html** .