Math 238 Ordinary Differential Equations Spring 2018 #1539

Instructor: Chuck Stevens **Office:** L-201V **email**: chuck.stevens@skagit.edu
Office Hours: 10:45 – 12:00 Mon - Thur **Phone:** 416-7803 **Website**: google: "svcmath"

Course Description An introductory course in differential equations including first order equations, second order and higher order equations, homogeneous and non-homogeneous differential equations, numerical methods, Series Solutions, Laplace transforms, and applications to physical and other systems. Pre-req Math 153.

Text Elementary Differential Equations (And Boundary Value Problems) 9th ed., Boyce, DiPrima
Math 238 covers selected sections from chapters 1, 2, 3, 6, 7, and 8.

Calculator A scientific and/or graphing calculator will be useful throughout the course. We will also be using *Mathematica* which is available in the math center and also available for free on your home computer.

Course Objectives After completing the course the student will be able to:

1. Solve first and second order linear differential equations
2. Solve ODEs using reduction of order, method of undetermined coefficients.
3. Set up and solve physical motion problems, orthogonal trajectories, and mixture problems.
4. Solve second order linear equations with constant coefficients, complimentary and particular solutions, apply method of undetermined coefficients.
5. Solve separable and exact equations.
6. Apply second order linear equations to spring and electrical circuits.
7. Use Laplace Transforms, and numerical methods.
8. Solve the Wronskian determinant to test for linear independence or linear dependence.

Coursework

Reading You will be expected to read the text for each section covered. We will cover the main topics of each section, but there is usually a substantial amount we wont be able to cover in class that you will need to cover on your own. Plan on spending an hour reading the text **before** working on the recommended exercises.

Worksheets/Homework is the most important part of any math course and is the course component where you actually learn the material presented in class. Homework is generally not collected, however we will spend a small amount of time going over the previous days exercises if needed before looking at new material. There will be several worksheets (seven) throughout the quarter worth 15 points each. These worksheets will be a mixture of exercises from the text and small projects requiring the use of *Mathematica.* The worksheets are worth 20% of the final grade.

Exams There are four 50-point end-of-chapter exams. Exams must be taken on the scheduled day (see calendar). Make-up Exams are NOT given except for exceptional circumstances. Please contact me a week prior to a test if an alternative testing time is needed. The chapter exams account for approximately 50% of the overall grade. *Anyone found cheating on an exam will receive a 0 for that exam. Caught a second time will result in failing the course.*

Final Project/Twenty Questions A final project involving compiling twenty questions that encapsulates the entire course is worth 50 points and can be used to replace your lowest exam score.

Final Exam There is a comprehensive final exam worth 100 points covering material from the entire course. The final accounts for approximately 30% of your overall grade. You must receive at least a 60% on the final to pass the course.

Grading Scale Letter grades are determined by the following scale:

	B+ 87%	C+ 77%	D+ 63%
A 93%	B 83%	C 70%	D 60%
A- 90%	B- 80%	C- 67%	E < 60%

Daily Schedule (Very Tentative)

Monday	Tuesday	Wednesday	Thursday	Friday
4/2	4/3 1.1	4/4 1.1	4/5 1.2	4/7 1.3-1.4
4/9 2.1	4/10 2.2	4/11 2.3	4/12	4/13 2.5
4/16 2.6	4/17 2.7	4/18 2.9 (?)	4/19	4/20 **Exam 1**
4/23 3.1	4/24 3.2	4/25 3.3	4/26 3.4	4/27
4/30 3.5	5/1 3.6	5/2 3.7	5/4	5/5 3.8
5/7	5/8 **Exam 2**	5/9 6.1	5/10 6.2	5/12 6.2
5/14 6.3	5/15 6.3	5/16 6.4	5/17 6.4	5/18 **No Class**
5/21 6.5	5/22 6.5	5/23	5/24 **Exam 3**	5/25 7.1
5/28 **Memorial Day**	5/29 7.2/7.3	5/30 7.4	5/31 7.5	6/1 7.6
6/4 7.8	6/5	6/6 **Exam 4**	6/7	6/8 **20 Questions**
6/11	6/12 **Final Exam** 7:30	6/13	6/14	6/15

Other Important Information

- Arrive to class on time. Arriving consistently late is an inconsiderate disruption to the entire class.
- **Turn off AND put away all cell phones**. You should be able to concentrate for 50 minutes without glancing at text messages.
- Please do not eat meals in class. Drinks are okay.
- Be considerate to others during class.
- Take advantage of tutoring help in L-203, as well as the Math Center in L-221.
- Don't get behind!!!! Come see me immediately if you are struggling with material. Don't wait until the day before a test to tell me you're lost.
- Keep up on your homework DAILY. Math is exactly like music, sports, cooking, learning a foreign language, etc.; to be good you need to practice, practice, practice.
- Read the text. Actually, read the text a few times. And work the examples with paper and pencil. Most concepts you may have questions on from the homework probably have examples in the text to help explain the concept. Read the text!!
- Take good in-class notes and review those notes immediately after class as well as that evening. Fine-tune them when necessary.
- Be sure to use my office hours if you have questions, and email me if you get stuck at home.

DISABILITY AND SPECIAL NEEDS If you are a student with a disability and need academic accommodations, please contact Disability Access Services in the Counseling and Career Services center or call 360-416-7654.