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Fall 2018
Math 376: Differential Equations 1
Samuelson 117, 10:00 - 10:50 TuThF
(occasional Thursdays in Samuelson 138)

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Office Hours: M-F 11:00-11:50 and by appointment.

Course Goals: The goal of the course is to introduce you to the ideas of differential equations: how to use analytic, graphical and/or numerical methods to investigate the solutions of differential equations, as well as how to derive differential equations to describe phenomena in different sciences. More precisely, we will study first and second order equations. Topics for first order equations include slope fields, bifurcation diagrams and how they describe qualitative behavior. In addition, we will learn some analytic solution techniques including separation of variables and integrating factors. For second order equations, we shall look at the relation between the phase plane and qualitative behavior of solutions, as well as analytic techniques of solution such as the method of undetermined coefficients. In terms of our text, we will cover most of Chapters 1, 2, and 3.

Required Text: Noonburg, Virginia W.; Ordinary Differential Equations: From Calculus to Dynamical Systems; published by MAA

1   Grades/Exams/Homework

- Grades

  Grades will be calculated using the following weighting system:
  Exams: 55% total, broken up as follows: 15% for each mid-term and 25% for the final;
  Homework: 45%;
  and the following scale:

  $$
  \begin{array}{llll}
   & 87-89.9 : B+ & 77-79.9 : C+ & 67-69.9 : D+ \quad \text{below } 60 \ : F \\
  93-100 : A & 83-86.9 : B & 73-76.9 : C & 63-66.9 : D \\
  90-92.9 : A- & 80-82.9 : B- & 70-72.9 : C- & 60-62.9 : D-
  \end{array}
  $$

  I will use the following formula to calculate your overall score for the class:

  $$(.45) * \frac{\text{HW points earned}}{\text{HW points possible}} + (.15) * \frac{\text{Exam 1 score}}{\text{points possible on Exam 1}} + (.15) * \frac{\text{Exam 2 score}}{\text{points possible on Exam 2}}$$
  $$+ (.25) * \frac{\text{Final Exam score}}{\text{points possible on Final Exam}}.$$

- Exams

  There will be two exams during the course of the quarter, and a final exam. The exams during the quarter will be Tuesday, October 16 and Tuesday, November 6. The final exam will be cumulative. The Final Exam is Tuesday, December 4 from 10 until noon. (Note: this class uses the final exam time for TuTh classes!)

- Homework

  We will have weekly homework assignments. They will be handed out on Thursday, and be due the following Thursday at noon. There will be a homework due during the final week of class. To do some of the problems, you might need to use a computer. You may work with your classmates on homework (and in fact, I encourage you to do this!), but you should write your solutions using your own words. A really good way to make sure you are not copying is to only use scratch paper when working together, and then write your final solutions on the handout alone. Your homework must be neat and legible, and written using complete sentences where appropriate. **In addition, failure to staple or remove the fringes left when ripping paper out of a spiral notebook will cost you two points each.** Note also that notation is important: good notation can help you solve a problem, while poor notation can confuse you. As a result, use of poor or incorrect notation will result in failure to earn full credit on a problem! Finally, you may not be able to do every problem when the homework is assigned, but you should immediately attempt to do every problem that you can - **DO NOT PROCRASTINATE!**

- Late Policy

  Homework is due at noon on its due date. Homework handed in after that time on its due date will lose 5 points immediately, and 5 more points for every 24 hours after. That means: if you hand in homework at 12:30 pm on Thursday, you can earn at most 20 out of 25 on your homework. If you hand in your homework on Friday at 12:30 pm, you can earn at most 15 out of 25, since over 24 hours will have passed.

2 Important Dates

September 25 - Last Day for Add/Drop
October 16 - Mid-term Exam #1
November 2 - uncontested withdrawal deadline
November 6 - Mid-term Exam #2
December 4 - Final Exam

3 Disability Support

Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations. Student Disability Services is located in Hogue 126. Call (509) 963-2214 or email `ds@cwu.edu` for more information.