Math 2280-001: Introduction to Differential Equations, Spring 2018

Time and Location
MWF 8:05 - 9:25 AM, LCB 215.
T 8:35 - 9:25 AM, JTB 120

Instructor
Sam Carroll

Contact
Office: LCB 202
Email: carroll@math.utah.edu
Office Hours: TBD.

Course Website
Canvas will be used regularly for this course. I will regularly post announcements in Canvas and will hold you accountable for receiving that information. If you do not check Canvas regularly, you should have announcements forwarded to an email address that you do check regularly.

Textbook

Prerequisites
Calculus I and II (Math 1210 and 1220) and Linear Algebra (MATH 2270). Although it is not required, it will be helpful if you have taken Calculus III (MATH 2210); in particular, an understanding of partial derivatives will be useful.

Course Content
Existence and uniqueness of solutions, separable equations, first order linear equations, slope fields, numerical methods, equilibrium and stability, linear systems of first and second order equations, matrix exponentials, oscillations and resonance, phase-plane analysis, Fourier series, heat equation, wave equation, Laplace’s equation.

Calculators
Calculators, phones, or any other electronic devices are not permitted during quizzes and exams. Calculators may be useful for homework to check your work. However, I strongly recommend using Wolfram Alpha, as it is far better than most calculators and it’s free to use. It’s a browser-based computational tool - basically a simpler version of Mathematica - and it’s syntax free so it requires no programming knowledge. Phone apps for Wolfram Alpha are also available.

Grading
Grades for each student will be calculated using the following formula:

\[
\text{Homework (15\%) + Quizzes (15\%) + 2 Midterms (2 \times 20 = 40\%) + Final (30\%)}.
\]

1. **Homework:** Homework will be assigned and due weekly at the beginning of class every Monday.

2. **Quizzes:** There will be weekly quizzes every Monday at the beginning of class, covering material from the previous week and the homework due on that day.

3. **Midterm Exams:** There will be 2 in-class midterm exams. The content will be determined based on the pace of the course. The dates will be announced in class and on Canvas.

4. **Final Exam:** The final exam will be comprehensive and will be held on

   Monday, April 30, 2018, 8:00 - 10:00 AM.
**Letter Grades**

Semester letter grades will be converted from the numerical semester scores $N$ as follows:

- $93 \leq N \leq 100$ : A
- $90 \leq N < 93$ : A-
- $88 \leq N < 90$ : B+
- $83 \leq N < 88$ : B
- $80 \leq N < 83$ : B-
- $78 \leq N < 80$ : C+
- $73 \leq N < 78$ : C
- $70 \leq N < 73$ : C-
- $68 \leq N < 70$ : D+
- $63 \leq N < 68$ : D
- $60 \leq N < 63$ : D-
- $N < 60$ : E

**Cheating**

If a student is caught cheating on any quizzes or exams, they will automatically receive a “0” for that assignment. Depending on the severity of the cheating, they may fail the class. Please note that the use (or even just pulling it out of your pocket) of a cellphone or any other electronic device is considered cheating and cause for receiving an automatic zero on any exams. If you exhibit any other behaviors that are unethical, I will not hesitate to report your behavior to the Dean of Students.

**Additional Resources**

**Mathematics Tutoring Center**: The math department offers free drop-in tutoring for students, at the T. Benny Rushing Mathematics Student Center. The center is located underneath the walkway between LCB (LeRoy Cowles Building) and JWB (John Widtsoe Building), and can be accessed by entering either building.

**Opening hours**: Monday - Thursday 8AM-8PM and Friday 8AM-4PM.

**Website**: [http://www.math.utah.edu/ugrad/mathcenter.html](http://www.math.utah.edu/ugrad/mathcenter.html)

**ADA Statement**

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access (CDA), located at 162 Olpin Union Building. To do so, contact CDA at 801-581-5020 (V/TDD) to set up an appointment. CDA will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDA.

**Student Responsibilities**

All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. See [http://regulations.utah.edu/academics/6-400.php](http://regulations.utah.edu/academics/6-400.php)

**Disclaimer**

This syllabus is not a binding legal contract. I reserve the right to make changes as I see fit at any time, but all adjustments will be announced.