Math 333: Differential Equations  
Spring Semester 2019  
M 8:30-9:20 am, TTh 10-11:15 am

Instructor: Alanna Hoyer-Leitzel  
Office: 403 Clapp Lab  
Phone: x2720  
Email: ahoyerle (I don’t often check my email between the hours of 8pm-8am or on weekends, so please don’t expect a response until the next day.)  
Course Website: [https://www.mtholyoke.edu/~ahoyerle/math333/](https://www.mtholyoke.edu/~ahoyerle/math333/)  
Office Hours: I will have two types of office hours this semester.

- Drop-in office hours: I like to use these as open sessions where there may be multiple students getting help at the same time. They are posted on [this calendar](#).
- Office Hours by appointment, where you can [sign up for an individual time via google calendar](#).

If you are unable to make the drop in office hours or an appointment time, I’d still love to meet with you. Just send an email to see when I’m free. (You don’t want to come all the way up to top floor of Clapp just to find out I’m busy or not there!)

Prerequisites: Math 211, Linear algebra, or equivalent


The textbook is on reserve in the library. Call number QA371 .B63 2011

_I know the textbook is expensive, so if you are having trouble getting a copy, please let me know. I can help._

Learning goals: This course introduces differential equations and analytical, numerical, and graphical techniques for the analysis of their solutions. First and second order differential equations and linear systems are studied. Applications are selected from areas such as biology, chemistry, economics, ecology, and physics. Computers will be used extensively to calculate and visualize results.

The core of the course is chapters 1-3, and part of chapter 5. Additional topics in Chapters 4 and 5 as well as topics in chapters 6-8 are great ideas for the group project.

Parts of the course: Details of these items are given below in the syllabus.

- Classes MTTh
- Homework (at least once weekly) which will contain both written problems and computer labs
- Two-four short quizzes for review
- Two midsemester exams with in-class and take-home portions.
- Group Project Presentation
• Take-home final exam

Class Expectations: You’ll be expected to come to every class prepared to do mathematics. You should bring paper, pens, and pencils, and other equipment you may need. You should be prepared by doing assigned reading and homework ahead of time.

You’re expected to be respectful and supportive of your classmates and the instructor. This extends to the use of electronic devices used in class. Use them appropriately (to take notes, perform calculations, etc), but using them for email or facebook during class is disrespectful of your time and everyone else’s.

The instructor is expected to come to every class prepared to do mathematics. The instructor should bring the necessary materials for the day’s activities, and should be prepared to cover the topics of the class by planning ahead of time.

The instructor is expected to be respectful and supportive of her students.

Technology:

• Course website: course organization, schedule, and handouts.
• Email: Use your email to contact your professor at any point! Email will be occasionally used for course announcements.
• Matlab: Mount Holyoke has a Matlab license that allows you to download a copy of Matlab onto your own computer (instructions on course website). Matlab is also available on any campus computer.
• Recording/Taking photos in class: Some students find it helpful to take photos of the board or computer projection as a supplement to or instead of taking notes. This is allowed, but please do not post the photos publicly online. Please do not record any video in class without prior permission from the instructor.
• Gradescope: A website where you upload your homework to be graded. Exams and quizzes will also be graded on gradescope.

Written Homework:

• Philosophy: Homework is an opportunity to learn math the best way possible - by doing it. You should start the homework on your own, and then seek help from classmates, tutors, or from me in office hours.
• Acknowledgements and Plagarism:
  − Homework is a great time to practice Academic Integrity. Acknowledge where you received help from written sources (textbooks, internet), other people, or computers. This can be done by simply writing “Help from ...” at the top of the assignment.
  − Write only things that you understand. If there is a step you don’t understand or it is fuzzy why or how to do it, acknowledge this so that the grader can give you feedback.
  − If you are unsure if you need to acknowledge a source on your homework, please look at https://sites.google.com/a/mtholyoke.edu/proper-use-of-sources-mhc/plagiarism
    Be aware that another source could mean a solutions manual...
• **Grading:** Homework is graded so that you can practice writing mathematics and receive feedback on your progress. (And as motivation to do it!) A low score on a homework assignment indicates that in order to stay on track you should get help from your instructor.

• **Due dates and late work:** Homework will be due once weekly, however you should work on it regularly throughout the week. Occasionally there will be an extra Matlab or reflection assignment. You may turn in one late homework without penalty. Late work will not be accepted more than one week late except in extreme circumstances. (This policy is strongly worded because I really really want you to turn your homework in on time - it provides the best and promptest feedback for you and is less stressful for me.)

• **Content:** Homework assignments will include problems from the book, finishing worksheets from class, reflective short essays (one to two paragraphs), computer labs, or exploratory assignments.

**Quizzes:** There will be a few in-class quizzes during the semester to keep everyone up to date and studying the material between exams. These dates for these will be announced in advance.

**Midsemester Exams:** There will be two midsemester exams. Both will have an in-class portion and a take home portion. The first exam will cover Chapter 1. The second exam will cover Chapter 2 and approximately half of Chapter 3.

  Tentative Exam Dates:
  - Exam 1: Tuesday February 26
  - Exam 2: Tuesday April 2

Any changes to these dates will be announced in class and via email.

**Group Project:** During the last full week of classes, you as part of a group of 2 or 3 people will present a differential equations topic in class. The topics are usually expository. The presentation will be 15-20 minutes. More details, including a list of possible topics, will be provided later in the semester.

**Final Exam:** The final exam is a third exam for the class with only a take-home portion. The final will be handed out during the last week of class. It will be due at the end of finals week.

**Participation:** You'll be expected to talk about math in class. This might be in small groups, in discussions with the whole class, or informal presentations at the board. Other activities in which you may participate include worksheets or computer exploration.

**Attendance:** No homework, quizzes or exams missed due to unexcused absences maybe made up. Excused absences are granted only in extreme circumstances.
**Grading Philosophy:** Grades are a reflection of your mastery of the material and your ability to communicate through the graded assignments. Grades are not a reflection of your self-worth.

**Grading:**

- Homework 15%
- Quizzes 15%
- Exam 1 20%
- Exam 2 20%
- Group Project 10%
- Final 20%

**Extra help:** Learning math is hard and often frustrating! There is no need to despair - everyone goes through this. These are places to access more help:

- Ask classmates! Form a study group!
- Office hours with your instructor
- Talk to your instructor about getting personalized help from a tutor

**Academic Integrity:** It is very important for you to follow the Honor Code in all of your work for this course. Collaboration on homework assignments is encouraged. However, it is important that you only write what you understand, and that it is in your own words. If you have any questions about what constitutes an Honor Code violation in this class, please ask your instructor. Honor Code violations will be brought to the dean. The penalty for violating the Honor Code on any assignment, quiz or exam will be a score of 0 on it.

**Accessibility:** If you have a disability for which you require accommodations, please make an appointment to see your instructor within the first two weeks of classes so that you can make a appropriate arrangements. You will need documentation from the AccessAbility Services Office.

**Ask for what you need - I can’t read your mind:** Some policies in this syllabus are strongly worded (late homework and excused absences, for example). However, I strongly believe that a rigid academic system can hinder learning, and that flexibility on the part of the educator creates the best learning for students. If you find that you are struggling and you need something, please ask. I am very willing to compromise to reasonable requests.