Course Pages: All course materials will be made available on Moodle.

Office Hours: Up to date office hours will be posted on Moodle.


Homework: Homework is a key part of this class. As such, weekly problem sets will be assigned. Collaboration is encouraged, but the final draft of your work should be in your own words, see the Honor Code section of this syllabus. Late homework will be accepted only with prior approval.

Course Description: An introduction to the theory of ordinary differential equations (ODEs) including algebraic techniques for solving a single ODE or a linear system of ODEs, numerical techniques for generating approximate solutions, geometric techniques for displaying solutions to understand their behavior, and some key theorems (such as existence and uniqueness of solutions). The focus of this course will be on applications of the methods and solving real systems. Topics include first and second order equations, Laplace Transform, first and second order systems, nonlinear systems, Fourier series methods. The last part of the course will be an introduction to partial differential equations (PDEs).

Prerequisites: Math 121 and Math 215, or Math 216.

Modeling Projects: There will be two modeling projects assigned during the semester. You will work in groups of two on these assignments. You will solve a mathematical problem and/or develop a mathematical model and then write a 2-3 page paper explaining and justifying your solution. Details for each assignment will be posted on Moodle.

Grades: Homework (20%), Two modeling projects (2.5% each), Exam 1 (25%), Exam 2 (25%), Exam 3 (25%).

Honor Code: For homework problems, discussion with other students in the class or with me is highly encouraged, e.g., in Math Question Center, my office, or elsewhere. Please indicate on your homework who your collaborators were. Note: *The actual writing of the assignments should be done individually, without using detailed notes from your collaborative discussions, so that it represents your personal understanding of the problems. For the tests, no collaboration is allowed. You may ask me for clarification of the questions on tests, but I will not give suggestions about the actual solutions. Please see here as well https://www.haverford.edu/academics/honor-code.*

Class Policy:

- Regular attendance is essential and expected.
Resources: Haverford College is committed to supporting the learning process for all students. Please contact your instructor as soon as possible if you are having difficulties in the course. There are also many resources on campus available to you as a student, including the Office of Academic Resources (https://www.haverford.edu/oar/) and the Office of Access and Disability Services (https://www.haverford.edu/ads/). If you think you may need accommodations because of a disability, you should contact Access and Disability Services at hc-ads@haverford.edu. If you have already been approved to receive academic accommodations and would like to request accommodations in this course because of a disability, please meet with your instructor privately at the beginning of the semester (ideally within the first two weeks) with your verification letter.