

Math 354: Mathematical Modeling
Instructor: Dr. Fred Park
Fall 2019

Course Description

This is a semester long course in mathematical modeling. Topics vary semester to semester but can include: population dynamics, traffic flow including traveling shock waves in this media, phase plane analysis, and the calculus of variations with applications. Topics can also include mathematical models for big data, mathematical image processing, computer vision, and machine learning. Prerequisite is completion of Math 242 and 345A with a passing grade of C- or better.

Instructor Information

Instructor: Dr. Fred Park
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Office: SLC 216
Phone: 562-907-4200, ext. 4880
OH's: TBA

1 Course Information

Times and Location: MW 12:00-1:20pm in SLC 416
Textbook: *Mathematical Models* by Richard Haberman
Additional course readings will be placed on my webpage: www.fredpark.com

2 Course Breakdown

Scheme #1:

- HW/Projects 30%
- MT 30%
- Final 40%

Scheme #2 (Emergencies Only!!):

- HW/Projects 30%
- Final 70%

No makeup exams whatsoever. I highly recommend you taking the midterm exam since scheme #2 is only for emergencies. I will automatically take the higher of both schemes at the end of the course when determining your final grade.

Grading Scale

In this course, I will utilize an A-F scale with +/- grading. The percentage breakdowns based on the highest average from scheme #1 and #2 above are as follows:

- 90-100% A Range
- 80-89.9% B Range

- 68-79.9% C Range
- 58-67.9% D Range

The minimum grading guidelines in terms of percentage of the class are as follows:

- 20% of the class will be in the A Range
- 30% of the class will be in the B Range
- 35% of the class will be in the C Range
- 15% of the class will be in the D/F range

To obtain an “A” grade in my course, you will have to work very hard. In general, there are no easy “A’s” in my courses or in any of the courses in the Math Department.

3 Final Course Evaluations

Final Evaluations: 1% total bump in course grade. For example if your final total course average from the higher of scheme #1 and #2 is an 89% total (B+ grade), your final average gets bumped to 90% (Now an A- grade). I highly recommend that everyone does the final course evaluations.

4 Exam Dates

The exam dates are set in stone and will not change. Please write these down in your scheduler ASAP.

- Midterm: Weds Oct 23rd (Take home).
Distributed in class on Oct 23rd. Due in SLC 216 Friday Oct 25th by 5pm.
- Final: Take Home Exam TBA.

5 Homework

HW is due at the beginning of class alternating Weds no later than 12:05 PM. No HW will be accepted after the 12:05 PM deadline. Please do not walk up and attempt to turn your assignment into the front of class after the deadline since it will not be accepted. Moreover, such action would be deemed as disruptive to the class.

You are allowed to drop 1 of the assignments. Please make sure to keep up with the homework after each lecture.

Class Attendance

Class attendance is mandatory. If you will miss more than 2 total lectures throughout the course, you will be asked to drop the course. If you miss any lectures during the first week of class, you will be automatically dropped from the course. No make-up lectures in office hours as that is not appropriate and fair to other students during that time. If a student misses a lecture, it is their responsibility to obtain the materials from their fellow students.

6 Study Time and Class Expectations

For every 1 hour of lecture you should be studying 3+ hours outside of class. That is at least 12 hours a week outside of class of studying and HW. Math is a difficult and time consuming subject. Please keep up with the work and do not ‘Cram’ for any exams or HW deadlines since this usually results in very poor results. I recommend at least 15+ hours a week of study outside the classroom for this course.

Computational Nature of the Course

This course will involve some computational work with Matlab and/or Python, both high level programming languages and industry standards in science and engineering. We will basic tutorials throughout the semester as needed for coding.

Cheating

Cheating will absolutely not be tolerated in any way, shape, or form in this course!! I have not had any issues in the past and do not plan on starting. Cheating in any form will result in an automatic failing grade in the course (an 'F' grade) and further disciplinary action from the College. Cheating has far reaching consequences that can affect your future career path. Quite simply put: Don't Do It!

Group Work

I encourage group work and you may work together. But you must have your own write ups of your work and your own code and *only* if you completely understand the problem being solved. Please note that if you simply copy a solution from another student, this falls into the category of cheating and will result in disciplinary action. Code that is identical to another student will be deemed as plagiarism and will also involve disciplinary action.

Accommodations

Students desiring accommodations on the basis of physical, learning, or psychological disability for this class are to contact Disability Services. Disability Services is located on the ground floor of the Library, room G003, and can be reached by calling extension 562-907-4825.

Disruptive Behavior

Disruptive behavior will absolutely not be tolerated in any way, shape, or form in this class. This includes cell phone use (talking, texting, email, etc), non authorized computer use, talking, chatting, or any other general disruptions. If you are being disruptive in the class to the instructor and your fellow students, you will be asked to leave the class.