

Instructor: Dr. Laurie Battle
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Course dates: June 5 – June 29

Text: *A Course in Mathematical Modeling*, by Mooney and Swift

Course Content: A study of constructing and analyzing mathematical models for various applications, with a focus on difference equations and differential equations. Analysis techniques include theoretical, graphical, and computational tools. Models will be applied to population dynamics and additional growth and decay processes. We will cover material selected from chapters 1, 3, and 5 of the textbook.

Prerequisite: M 274 (may be waived with instructor permission)

Office hours: Mondays 1:00-2:00 pm
 Tuesdays 1:00-2:00 pm
 Wednesdays 2:00-3:00 pm
 Thursdays 2:00-3:00 pm
 Fridays 10:00-11:00 am

Course structure: The materials for each week will be posted before Monday, including recorded instruction, a homework assignment, a quiz, and a list of projects. I recommend that you begin by listening to the recordings and reading the corresponding sections in the text, pacing these so you complete them early enough in the week to allow time for completing the other assignments. There will be two discussion sessions offered each week, and you are expected to be in attendance for at least one of these sessions each week. You should select a project for each week from the provided list, and I suggest selecting the project as early as possible so you will have sufficient time to work on it. The homework assignment is due on Thursday of each week, and the quiz and the selected project are both due on Friday of each week.

Grading: The course grade will consist of the following:

Discussion sessions: 84 points (4 sessions at 21 points each)
 Homework: 200 points (4 assignments at 50 points each)
 Quizzes: 216 points (3 quizzes at 72 points each)
 Projects: 500 points (4 projects at 125 points each)

The grading scale is as follows:

	B+	880-900	C+	780-800	D+	680-700			
A	920-1000	B	820-880	C	720-780	D	620-680	F	0-600
A-	900-920	B-	800-820	C-	700-720	D-	600-620		

Discussion sessions: Two discussion sessions will be offered each week: Wednesdays from 3:00-4:00 pm and Thursdays from 1:00-2:00 pm. These will be an opportunity to ask questions to the instructor in a group setting and to work on practice problems to help you prepare for the quizzes. You are expected to attend one session per week, which will meet using WizIQ (instructions for setting up WizIQ are posted in Moodle). You are welcome to attend both sessions, although there may be some repeated content. The grade is based purely on attendance: you will earn 21 points for each week in which you attend at least one session. You must be present for the entire hour of each session to count towards the attendance grade.

Homework: Exercises will be assigned as homework for each section covered and will be posted in Moodle. Students may work together on homework, but each student must write up their own solution (no identical

solutions). You may type your homework or write it by hand and scan the document. The weekly homework assignments are due by 11:59 pm on Thursday of each week by submitting your work in Moodle.

Quizzes: A quiz will be posted in Moodle on Monday of each week and is due by 11:59 pm on Friday of the same week. There is a one hour time limit for completing each quiz, so do not open the quiz until you are prepared to complete it within one hour. You may use the textbook and notes for the quizzes, but you may not discuss the problems with anyone. You may type your quiz or write it by hand and scan the document.

Projects: You will be provided with a list of projects each week, in which you will apply course content to real-world scenarios. You should select one project from this list to work on during the week, and it is due by 11:59 pm on Friday of the same week. You may discuss the project with the instructor and classmates, but you must write up your own project summary. There is no required length for the project summaries, but they should completely address all of the questions and include detailed explanations for all of your work. You may type your summary or write it by hand and scan the document.

Late submissions: Late submissions for all graded work will have a 10% deduction for each late day, up to a maximum of three days late. No assignments will be accepted after this point.

Moodle: You should check Moodle at the beginning of each week for an announcement detailing the expectations for that week. All course materials for the week will also be posted in Moodle. You should check Moodle regularly throughout the week for additional announcements. You may also check your grades in the “Grades” section of Moodle.

Required technology:

- We will use spreadsheets to analyze many of our models and you will need to use spreadsheets for many of your assignments, so you must have access to a spreadsheet. Some instruction on spreadsheets will be provided, but you may want to read some tutorials if you do not have previous experience.
- You must set up an account in WizIQ to join in the discussion sessions. Instructions for doing this are posted in Moodle.

Expectations:

- Watch all recorded instruction. The notes that I make on screen will be posted in Moodle, but you may want to take additional notes for more detail.
- Read each section in the text before or immediately after watching the recording.
- Complete the homework exercises so that you have a complete understanding of each solution.
- Prepare for quizzes by reviewing the relevant material and **working problems from scratch**. The quiz problems will be similar to the homework, so your preparation could include reworking homework problems to make sure you completely understand how to solve them.
- Seek assistance from peers and/or the instructor if you encounter difficulties with the material.
- Academic integrity: All submissions should be your own work, and you may use only the aids that are approved by the instructor. You may discuss the homework and projects with the instructor and with other students, but you must write up your own solutions (no identical solutions should be submitted). You are not permitted to discuss the quizzes with anyone. Penalties for violating these policies range from receiving an F on that assignment to receiving an F for the course.