Welcome to Math 475 Mathematical Modeling – Fall 2018
2:00 - 2:50 M-Th in SAMU 138

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and by appointment

The best ways to contact me are email, Canvas message, and office hours. If there's something I need to remember for later PLEASE put it in email or Canvas message! If I don't reply within 24 hours over a business day, please contact me again. While I strive to be responsive and prompt, sometimes things get put off for later and unintentionally forgotten.

This syllabus is subject to modification. Students will be notified of changes in class and on Canvas.

Text: No textbook. Come to class.

Computer: You will want to have the use of a reliable computer for the duration of this course, with your course files backed up daily to Google Drive, Dropbox or another reliable repository. You will likely want to have this with you in class daily. Install

- Anaconda for Python ; see http://www.anaconda.com/download.
- LaTeX; see https://www.latex-project.org/get/. There are also online LaTeX services, such as https://www.overleaf.com/.
- Dropbox, Google Drive, or a similar product to back up your files. Be sure you know how to make sure that your work is in the right spot on the file system so that one of these services is backup up your work daily (if not hourly).

Course Goals: This course is an introduction to mathematical modeling using examples from physical, chemical, biological, economic, and social systems. The use of software, critical thinking, and technical communication will be emphasized. In short, mathematical modeling is one course where we connect your mathematical studies to the *real world*.

Learning outcomes:

I. Students will select mathematical models to best describe the process of mathematical modeling.
II. Students will judge what to include and what to leave out of a mathematical model, and defend their choices based on results and constraints.
III. Students will appraise the requirements of a problem to make modeling decisions.
IV. Students will evaluate which mathematical model performs best in a modeling situation.
V. Students will predict modeling results.
VI. Students will assess mathematical models by obtaining numerical results.

Grades: Your final grade is based on

Writing	40%	Finished writing products. One of these is the Final Portfolio for the class, due during finals week.
Computation	25%	Computer code, possibly also hand calculations or descriptions of computational work.
Exams	15%	Two in-class exams expected.
Presentation(s)	10%	Presentation(s) on modeling projects or aspects of modeling
Homework	10%	Daily work and regular assignments

You will be given opportunities to get feedback on, rewrite and revise most of the writing assignments. Take advantage of this.

Since the final portfolio is due during finals week, your opportunities to rewrite, revise and get feedback are **before it is due.**

The three most valuable marketable skills you will hone in this course are the ability to communicate clearly in writing, knowing how to program a computer to solve a problem for you, and the ability to communicate clearly in a presentation.

You will have opportunities to practice and polish your presentations. Take advantage of this.

Late work: A penalty of 5% will be assessed for the first 24 hours an assignment is late, and 10% for each 24 hour period thereafter. Professionalism is expected. As a professional you may occasionally ask, 24 hours before an assignment is due, for an extension on a deadline. Extensions are generally for 24 hours, but may be longer with my advance permission. These requests will generally be granted if the privilege is used **rarely** and if there are at least 24 hours between the request and the due date for the assignment. You are each given one "free pass" to hand in one assignment, except for a presentation, 24 hours late no questions asked.

If you have a documented excuse of an accident or emergency, contact me by email (preferred) or phone message **as soon as possible**, and certainly within within 2 business days of the event, and bring documentation of the excuse, and I will accept your late work at an agreed upon reasonable time given the circumstances.

Getting Help: We have all needed help with something. Working with students on math is one of the best parts of my job. If you find yourself feeling uncertain, wanting a deeper understanding, wanting to get better marks, or struggling to learn and succeed, please ask questions in class, post questions on Canvas, and/or come see me in office hours. Please give me a chance to help.

In particular, computer issues and errors can drive a student crazy in this class. Start your assignments well ahead of time so that when something isn't working, you can take 30 minutes to try to solve it yourself, and then have time to ask me for help if you are not successful. If you are working on something right before it is due, you may run into small issues that take you hours at best to resolve on your own. I can often get you back on track in 10 minutes. I am always willing to troubleshoot computer problems if you send me your LaTeX or Python code via email.

Plagiarism: This is a writing course. Plagiarism is a major issue that occasionally comes up. You cannot use others work and present it as your own. This includes copying directly or paraphrasing from any source without a citation and quote marks as appropriate. Do not look at or listen to original source material as you are trying to write things in your own words unless you are planning to cite it. If you ever feel uncertain about how to use a source or what to do, **please ask**. Plagiarism will at minimum result in reduced credit on the assignment – possibly no credit, and possibly a failing grade in the class. I do not want this to happen to you; ask me questions so I can help you to do things right. I will not get mad and you will not get into trouble if you ask me how to handle a situation **BEFORE** you hand your work in.

Plagiarism of computer code is also not allowed. If you create computer code with another person, both people should get a copy afterwards, and that segment of code should be commented for joint authorship. You should never give someone else your computer code if they did not participate in the effort to create it. Never take computer code from another student. Ask me, your instructor, before you use code available on the web, and if you do, you must **always** cite your source (provide a link and a note). If you use another person's code as a resource while writing your own, you **must** cite your source.

Students with Disabilities:

I am happy to work with students with disabilities. To set up academic adjustments in this class, you should give me or email me a copy of your *Confirmation of Eligibility for Academic Adjustments* from the Disability Support Services Office. **You must also come see me in office hours or make an appointment to come see me as soon as possible so we can discuss how the approved adjustments will be implemented in this class.** Students without this form should contact the Disability Support Services Office, Bouillon 140 or dssrecept@cwu.edu or (509) 963-2171. **Testing requests with testing services must be submitted at least 48 hours before an exam is given, or you will have to take the exam with the rest of the class.**

Important Dates

Sept 19	classes begin
Sept 25	change of schedule period ends
Oct 25	in class exam
Nov 2	uncontested withdrawal period deadline
Nov 12	Veteran's Day (no class)
Nov 21-23	Thanksgiving Holiday (no classes)
Nov 28	poster session (presentations) 4 pm SAMU 252
Nov 29	in class exam
Dec 4	12 - 2 pm culminating experience
Dec 5	11:59 pm final portfolios due