Cedar Crest College
Mathematical Modeling - MAT 260
Spring 2010
MW 4:00 pm-5:15 pm CUR 206

Professor: Dr. Michael Sarver
Office: Curtis 219

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Office Hours
Monday, Wednesday, Friday 9:00 a.m. - 9:50 a.m.
Monday, Wednesday 1:00 p.m. - 3:00 p.m.
Additional office hours are available by appointment.

Required Text:
   Giordano, Fox, Horton and Weir, A first Course in Mathematical Modeling, 4th ed., Brooks/Cole 2009
Course Description:
   In this course we will be studying how physical/biological/finantial systems can be modeled.
Course Outcomes:
   Upon completion of the course a student will be able to

★ Understand how to model basic physical systems.

★ Understand how to construct probabilistic models (Markov Chains, HMM's , Stochastic Grammers).

★ Understand what type of model is 'best' in a given situation.

Assessment:
   There will be two exams (midterm and final) each accounting for $\frac{1}{3}$ of your final grade. The remaining $\frac{1}{3}$ will consist of Quizzes/'projects'.

   The grade scale that I will use to assign final grades is A [93,100], A- [90,93), B+ [87,90), B [83,87), B- [80,83), C+ [77,80), C [73,77), C- [70,73), D+ [67,70), D [60,67), F [0,60).

   Attendance in class is expected of all students and mandatory on exam days, but it will not be factored numerically into your grade. Make-up exams will be given only with prior notification and documentation of a legitimate excuse.

Notes
• I fully support the Cedar Crest College Honor Code and the Classroom Protocol code as stated in the Customs Book. Appropriate classroom behavior is implicit in the Cedar Crest College Honor Code. Such behavior is defined and guided by complete protection for the rights of all students and faculty to a courteous, respectful classroom environment. That environment is free from distractions such as late arrivals, early departures, inappropriate conversations and any other behaviors that might disrupt instruction and/or compromise students' access to their Cedar Crest College education.

• Students should not make any travel arrangements for the end of the semester until after the final exam schedule is published.

• Cell phones should be turned off for the duration of the class period.

• Collaboration on daily homework is expected and encouraged, but any work turned in for a grade should be your own. Violations of the college plagiarism policy will be reported to the dean and result in a grade of zero for the particular assignment / exam.

• It is vitally important for you to keep current with the work. Students who fall behind early quickly find themselves in a hole that is very difficult, if not impossible, to get out of. I'm more than willing to meet with you during my office hours or otherwise to help you succeed, but you must make the effort. Feel free to drop by my office, even if it's not my scheduled office hour.

• The format of the course will be lecture/discussion with much emphasis on homework discussion. In order for this to work it is vitally important for you to come to class prepared.

• It will be beneficial for you to have read the day's material before coming to class (if possible).

• Students with documented disabilities who may need academic accommodations should discuss these needs with me during the first two weeks of class. Any student who wishes to request accommodations should contact the Advising Center.

Tentative Schedule

Date	Day	Sections/Topic
Jan 20	Wednesday	1.1
Jan 25	Monday	1.2
Jan 27	Wednesday	1.3
Feb 01	Monday	1.4
Feb 03	Wednesday	*Quiz #1*
Feb 08	Monday	2.2
Feb 10	Wednesday	2.3
Feb 15	Monday	3.1,3.2
Feb 17	Wednesday	Matrix Operations, 3.3
Feb 22	Monday	3.4
Feb 24	Wednesday	*Quiz #2*
Mar 01	Monday	4.2
Mar 03	Wednesday	4.3
Mar 08	Monday	Spring Break
Mar 10	Wednesday	Spring Break
Mar 15	Monday	Review
Mar 17	Wednesday	**Midterm Exam**
Mar 22	Monday	Basic Probability theory
Mar 24	Wednesday	Basic Probability theory
Mar 29	Monday	Mathematica
Mar 31	Wednesday	5.1,5.3
Apr 05	Monday	No Class
Apr 06	Tuesday	*Quiz #3*
Apr 07	Wednesday	6.1, Markov Chains
Apr 12	Monday	Markov Chains
Apr 14	Wednesday	Hidden Markov Models
Apr 19	Monday	*Quiz #4*
Apr 21	Wednesday	Stochastic Grammers
Apr 26	Monday	Stochastic Grammers
Apr 28	Wednesday	RNA - Stochastic Modeling
May 03	Monday	Review
TBA		**Final Exam**