

DIFFERENTIAL EQUATIONS 10:00-10:50AM SPRING 2008 STUART 306

Instructor:	Jonathan White
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Office:	Stuart 316
Office Hours:	11:00-11:25 MWF, 2:00-2:50 T, 3:00-3:50 W, and by appointment
Office Phone:	399-8280
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Text:	<i>Differential Equations</i> , 3 rd Edition, Blanchard, Devaney, and Hall
Problem Sets and Labs:	There will be occasional problem sets, as well as lab assignments on designated class days, and together these will total 200 points (about 27% of the final grade).
Math Culture Points:	Math Culture Points will constitute 50 points (about 7% of the final grade). These will be earned through participation in various activities outside of class, as detailed on page 3 of this syllabus.
Exams:	There will be three in-class exams administered during class time. The dates of these are indicated in the schedule on the back side of this sheet. These exams will be worth 100 points (about 13% of the final grade) each. The final exam will be held during the finals week at the date and time indicated on the back side of this sheet. The final will be worth 200 points (about 27% of the final grade).
Grading:	Grading will approximately follow a 90% A, 80% B, 70% C, 60% D scale.
Makeups:	Makeups for exams will generally be allowed only under extenuating circumstances, with documentation and advance notice when humanly possible. Late problem sets and labs will generally not be accepted, and if accepted due to extenuating circumstances will generally be subject to a penalty of 20% of the possible points for each day past due.

This class is intended to give a solid modern introduction to differential equations. This means that graphical and numerical approaches will be taken as seriously as conventional analytic methods, and that qualitative statements will be as important as quantitative solutions.

The use of technology, particularly computer software, will be an important component of the course. Ability to compute with pencil and paper will also be important, as will conceptual understanding of the topics treated.

This combination of approaches is likely to prove challenging, partly because few people will find that all of these aspects play to personal strengths. Don't let that be overwhelming, though, and remember that I'm around to help. It might be unsettling at first. Give it some time, and feel free to take advantage of my office hours to help past the rough spots.

Tentative Schedule

		Friday, January 11 th §1.1 Modeling via Diff. Equations
Monday, January 14 th §1.2 Separation of Variables	Wednesday, January 16 th §1.3 Slope Fields	Friday, January 18 th §1.4 Euler's Method
Monday, January 21 st §1.5 Existence and Uniqueness	Wednesday, January 23 rd §1.6 Equilibria	Friday, January 25 th §1.7 Bifurcations
Monday, January 28 th §1.8 Linear Differential Equations	Wednesday, January 30 th §1.9 Integrating Factors	Friday, February 1 st Lab
Monday, February 4 th Series Solutions	Wednesday, February 6 th Review	Friday, February 8 th Exam 1
Monday, February 11 th §2.1 Modeling via Systems	Wednesday, February 13 th §2.2 The Geometry of Systems	Friday, February 15 th §2.3 Analytic Methods
Monday, February 18 th §2.3 Analytic Methods	Wednesday, February 20 th §2.4 Euler's Method for Systems	Friday, February 22 nd §2.5 The Lorenz Equations
Monday, February 25 th §6.1 Laplace Transforms	Wednesday, February 27 th §6.1 Laplace Transforms	Friday, February 29 th Lab
Monday, March 3 rd §6.2 Discontinuous Functions	Wednesday, March 5 th Review	Friday, March 7 th Exam 2
Spring Break		
Monday, March 17 th §3.1 Linear Systems	Wednesday, March 19 th §3.2 Straight-Line Solutions	Friday, March 21 st §3.3 Phase Plane & Real Eigenvalues
Monday, March 24 th §3.4 Complex Eigenvalues	Wednesday, March 26 th §3.5 Repeated and Zero Eigenvalues	Friday, March 28 th §3.6 Second-Order Linear Equations
Monday, March 31 st §3.7 The Trace-Determinant Plane	Wednesday, April 2 nd Student Research Symposium	Friday, April 4 th Lab
Monday, April 7 th §3.8 Linear Systems in 3D	Wednesday, April 9 th §4.1 Forced Harmonic Oscillators	Friday, April 11 th §4.2 Sinusoidal Forcing
Monday, April 14 th §4.3 Undamped Forcing	Wednesday, April 16 th Review	Friday, April 18 th Exam 3
Monday, April 21 st §5.1 Equilibrium Point Analysis	Wednesday, April 23 rd Review	
Final Exam – 8am on Tuesday, April 29 th		

Any students with disabilities which might affect their performance in this class should contact me as soon as possible to arrange accommodations.

Coe's faculty has adopted an academic integrity policy. It is your responsibility to understand and follow it.

Diversity, in all its forms, is valuable.

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Math Culture Points

A portion of the grade for this course will take the form of Math Culture Points. These will be earned through activities outside of class including, but not necessarily limited to, those listed below:

Activity	Points	Maximum
Colloquium Attendance	5	–
Colloquium Presentation	10	2
Meeting Attendance Iowa Section of the MAA (April 25-26 th) Midwest Undergraduate Mathematics Symposium (April 4-5 th) Nebraska Conference for Undergraduate Women in Mathematics (Feb. 8-10 th)	15	2
Mathematics Competition Participation Iowa Collegiate Mathematics Competition (March 8 th) Mathematical Contest in Modeling (Feb. 14-16 th)	10	2
Math Culture Reading Some weeks specific readings will be posted on the course web page With approval, any relevant column on MAA.org With approval, any relevant article from <i>Math Horizons</i> , <i>CMJ</i> , etc.	5	– 5 5
Math Club Activities (when appropriate) Winter Break Book, Movies, Pi Day celebration, Speakers, etc.	5	5

Generally Math Culture Points can be earned for at most two activities in any given week, so you should plan to spread your participation throughout the semester. In each case above, credit assumes both full participation and posting a brief summary/response on Moodle. These reflections should generally be between 100 and 300 words, and include both a brief summary and your personal thoughts on the event.