Math 5410 - 1  Introduction to Ordinary Differential Equations  Nov. 4, 2014

Homepage:       http://www.math.utah.edu/~treiberg/M5410.html

Instructor:     A. Treibergs, JWB 224, 581 - 8350.
Office Hours: M, T, F 12:45 - 1:45 PM (tent.) & by appt.
E-mail: treiberg@math.utah.edu

Prerequisites:  "C" or better in (MATH 2250 OR MATH 2280). Experience with
higher level courses and computation is recommended.

Texts:          Morris Hirsch, Stephen Smale & Robert Devaney, Differential Equations,
Dynamical Systems, and an Introduction to Chaos 3rd. ed., Academic Press,

Grading
Homework:   To be assigned weekly. Homework will be due Fridays and will be collected
in class. Papers turned into my mailbox in the math mail room (JWB 228) by
4:00 PM Fridays before I leave will be regarded as being turned in on
time. Homework that is late will receive half credit.

Term Project:   Students will write a short mathematical paper on an approved topic of
their choice. This paper will allow students to explore in some detail a
mathematical theory or a model from science or engineering beyond what's
covered by lectures. Students will meet individually with the instructor
to discuss an outline of their proposed project. Project outlines must be
approved by Oct. 24. Completed projects are due the last day, Dec. 12.

Exams:   Exams will be closed book except that you will be allowed
to bring a "cheat sheet," an 8.5" x 11" piece of paper with
notes on both sides. Your text, notes, homework papers,
calculators laptops, tablets, phones, text messaging devices,
and other books will not be allowed.

Midterms:   There will be two in-class one-hour midterm exams on Wednesdays
Sept. 24 and Nov. 5.

Final Exam: Wed., Dec. 17, 1:00 - 3:00 PM. Half of the final will be devoted to
material covered after the second midterm exam. The other half will be
comprehensive. Students must take the final to pass the course.

Course grade: Two midterms 40% + Project 10% + HW 20% + final 30%.

Withdrawals: Last day to register is Sept. 8. Last day to drop class is Sept. 19. Until
Oct. 24 you can withdraw from class with no approval at all. After that
date you must petition your dean's office to be allowed to withdraw.

ADA:            The Americans with Disability Act requires that reasonable accommodations
be provided for students with cognitive, systemic, learning and
psychiatric disabilities. Please contact me at the beginning of the
quarter to discuss any such accommodations you may require for thiscourse.

*      *      *

Objectives:     Cover the theory of linear and nonlinear ordinary differential
equations and dynamical systems, introduce initial-value problems
and behavior of solutions, discusses existence-uniqueness-
perturbations-continuous dependence of solution on initial
conditions, and introduce nonlinear dynamical systems with
applications.
Tentative Course Schedule:

Part I: Linear systems: Chapters 2 - 6
Part II: Fundamentals: Chapters 7, 8, 17
Part III: Nonlinear equations and dynamical systems: Chapters 9 -15