Math 454 Spring 2013 Syllabus  
Ivan Ventura  
January 9, 2013

About the Instructor:  
My name is Ivan Ventura and I will be the instructor for the course. I got my PhD at UC Berkeley in May 2012. You can most easily contact me in my office hours (see below) or at iventura@math.arizona.edu

Office Hours: My office is Mathematics 315 and my office hours are tentatively scheduled as follows:  
Tuesday: 2:00-5:00 pm  
By appointment.

About the Course: The class will meet T/Th 2:-2:50 in Social Sciences 312.  
In this course we will learn about various aspects of the study of ordinary differential equations (ODEs). ODEs appear in many different applications of calculus to the real world. In general it is impossible to solve an ODE. However this does not prevent us from studying the solutions. In this course we will learn various analytical methods to establish the behavior of solutions without an explicit solution.  
The formal prerequisite for the course are MATH 355; or MATH 215 and either MATH 254 or MATH 250B. I plan to review as the need arises, but ultimately it falls on the students to be comfortable with the previous material.  
Textbook: We will be using Strogatz’s *Nonlinear Dynamics and Chaos*. The book is available at the bookstore.

Grading: There are three basic components for determining your grade.

- **Homework:** There will be homework assigned every Wednesday due the following Wednesday at the start of class. The course will move quickly and there will be a lot of material on each problem set. Thus it is a bad idea to put off working on the homework until a couple days before it is due. Some of these problems will require you to submit a proof, either neatly hand written or typed using complete sentences. Symbols such as \( \in \), \( \Rightarrow \), \( \forall \), and \( \exists \) are perfectly acceptable, but these symbols stand for words which must fit into a complete sentence. I will grade a handful of homework problems each week. I have the right to not grade/take off points for any homeworks which do not fit her standard for neatness. Thus make sure your homeworks are legible and stapled. Each homework will be weighed equally, your lowest score dropped and together the remaining assignments will make up one part of the grade.

- **Midterm:** There will be one midterm given in class on Friday March 8th. It will be based off the homework assignments and examples that I covered in class. I will allot the full hour to take the exam. You are allowed to make a page of notes limited to one side of one sheet of 8.5” by 11” paper.  
The midterm date is:  
Midterm: Friday March 8th.

- **Final Exam:** The final exam will be cumulative but will emphasize the material covered after the midterm. You will be allowed to use both sides of one sheet of 8.5” by 11” paper for the exam.  
The final grade will be calculated as follows:
Homework and participation: 200 points.

Midterm exam: 100 points.

Final exam: 200 points.

A 90% is at least an A, an 80% is at least a B, and a 70% is at least a C but these boundaries are likely to be relaxed depending on how the exams go. There will be no curve that negatively affects your grade.

Make Up Exams: Due to the fast pace of the course, there will be no make up exams given under any circumstances. Keep in mind that your lowest quiz score is dropped. In the unfortunate event that you must miss the midterm the half grade on the final will replace that midterm’s grade in the calculation of the class grade. In this case the final counts an additional 20% so missing the midterm is not recommended. Missing the final without an extremely good reason will result in the automatic grade of an E.

Collaboration: You are allowed (in fact encouraged) to work on the homework problems together and form study groups for the class; however, you must write up your own homework solutions and there is no collaboration allowed on the quizzes or exams.

Incomplete: The grade of I will be awarded if all of the following conditions are met:

- The student has completed all but a small portion of the required work.
- The student has scored at least 50% on the work completed.
- The student has a valid reason for not completing the course on time.
- The student agrees to make up the material in a short period of time.
- The student asks for the incomplete before grades are due, 48 hours after the Final exam.

Special Arrangements: If you have special testing arrangements talk to me as soon as possible. I will need at least a week in order to set up different arrangements for testing.

Some General Advice: Math is not a spectator sport. While it is important to come to lecture and try to absorb the material, there is simply no substitute for rolling up your sleeves and working through some problems. While most of the course material is in the book, it is not my job to simply regurgitate what is in the textbook so I highly recommend keeping up with the lecture as well as reading the textbook.

If you do not understand something said in class or want an alternative prospective on the material come to office hours or drop me an e-mail PLEASE!