Instructor: Slobodan Simić
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Prerequisite: Math 133A (with a grade C– or better) or instructor consent.

Office hours: MW 10-12, M 3-4 (subject to change)

Homework: Weekly homework assignments will be collected and graded.

It is essential that you do every homework exercise. My late homework policy is: one class late – 50% penalty, two classes late – no credit.

Tests: There will be two midterms and a final exam.

Midterm 1: October 1
Midterm 2: November 5
Final exam: December 18, 9:45-12

There will be no make-up exams.

Grading policy: Homework 20%, Midterms 40%, Final 40%

Course outline: First-order equations refresher (Ch. 1). Planar linear systems (Ch. 2): second-order ODEs and planar systems, preliminaries from algebra, planar linear systems, eigenvalues and eigenvectors, solving linear systems, linearity principle. Phase portraits depending on the eigenvalues (Ch. 3). Classification of planar systems (Ch. 4). Nonlinear systems (Ch. 7): dynamical systems, existence and uniqueness theorem, continuous dependence of solutions. Equilibria in nonlinear systems (Ch. 8): examples, sinks, sources, saddles, stability, bifurcations. Closed orbits and limit sets (parts of Ch. 10). Applications: RLC circuit (parts of Ch. 12), Newtonian mechanics (parts of Ch. 13), predator/prey systems (parts of Ch. 11, time permitting). Basics of discrete dynamical systems (parts of Ch. 15, time permitting).
Main goals: Our main goal will be to understand geometric and qualitative properties of dynamical systems, mostly those defined by differential equations. We will accomplish this by studying numerous examples, many of which will come from applications. More generally, my goal will be to help you to further develop the ability for logical, exact, and clear reasoning.

Calculator policy: I will not require you to have calculators or to use them in class. Calculators are not permitted on exams. However, the use of mathematical software packages like Matlab, Mathematica or Maple is encouraged.

Participation: During class please feel free to stop me at any time and ask questions. I encourage and greatly appreciate students’ participation.

Feedback: I appreciate constructive feedback which you can give me via the anonymous feedback form on the class web page, by email, or in person.

Academic integrity: From the Office of Student Conduct and Ethical Development: Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University's Academic Integrity Policy, require you to be honest in all your academic course work. Faculty are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at http://sa.sjsu.edu/student-conduct.

Campus policy in compliance with the Americans with Disabilities Act: If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with your instructors as soon as possible, or see them during office hours. Presidential Directive 97-03 requires that students with disabilities register with DRC to establish a record of their disability.

Class attendance: According to University policy F69-24, Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.