

Fall 2009 Math 266A: Applied ODEs

Instructor: Inwon Kim, Office MS 7620E. E-mail: ikim@math.ucla.edu.

Office Hours: MW 2-3:30pm.

Course Webpage: www.math.ucla.edu/~ikim/266a.1.09f

Lectures: MWF at 12 in MS 5127

Discussion section: Tuesdays at 12 in MS 6229

TA: Yao Yao. Office MS 6160. E-mail: yaoyao@math.ucla.edu

TA Office Hours: TBA

Textbook: *The qualitative theory of ordinary differential equations: An introduction*, by Fred Brower and John A. Nohel, Dover 1989.

Reference: *Theory of Ordinary differential equations*, by Earl Coddington and Norman Levinson, McGraw-Hill.

Grading: Homework 60%, Final exam 40%.

Exams:

The final exam will be take-home.

Homework: There will be weekly assigned homeworks, consisting of 5-7 problems. The problem sets and due dates will be posted on the course webpage. The lowest homework score will be dropped.

Material to be covered:

- Existence and Uniqueness theory (Chapter 3)
- Systems of linear equation (Chapter 2)
- Autonomous systems: phase portraits. Poincare-Bendixson theorem (Chapter 2 and Chapter 14-15 of Coddington-Levinson)
- Stability theorems (Chapter 4 and 5)
- One-dimensional boundary value problems: Self-adjoint operator, eigenvalues and Green's functions (Chapter 7-8 of Coddington-Levinson)