

Department of Mathematics, UAB
Intermediate Differential Equations
MA454/554-2C, Spring 2026

Instructor: Dr. Junfang Li, Room 4006, University Hall.

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Office Hours: By appointment/by email/dropping in.

Class Meetings: TTh: 11:00am – 12:15pm, Room UH 4004.

Text Book: *A Second Course in Elementary Differential Equations*, by Paul Waltman.

Learning Outcomes: We will study three basic topics on elementary ordinary differential equations, and cover the first three chapters of the textbook. In the first chapter we shall systematically study the general solution to systems of linear equations, including formulas for the general solution. The second topic, Chapter Two, is on asymptotic behavior of solutions of two-dimensional systems, including some elementary stability theory. In Chapter Three, we learn some basic existence theory of solutions to initial value problems. We may also (if time permits) study some linear boundary value problems (e.g., the Sturm-Liouville problems, eigenvalue expansions) from Chapter Four. We will review some basic linear algebra (matrix theory) which will be used throughout.

Mid-term: There will be two mid-terms.

Final Exam: Tuesday, April 28 10:45 AM - 1:15 PM

Homework: Regular homework assignments are given throughout the semester and each assignment is due one week after given.

Grading Policy: Mid-term: 20% each; Homework assignments: 20%; Final: 40%.

MA554: Students at the 554-level have additional assignments.