MA/CS/EGR 537 – Numerical Analysis

Section 002, Spring 2020

MWF 11:00 am – 11:50 am, CB 347

Department of Mathematics, University of Kentucky

Instructor

Dr. **Ding Lu**
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Office hours: MWF 10:00 am – 10:50 am (or by appointment).

Syllabus & info: check on Canvas (`https://www.uky.edu/canvas/`)

Textbook

Numerical Analysis by **Walter Gautschi**, Birkhäuser, 2nd ed, 2012. Free ebook available for UKy students. You can search through university library `http://libraries.uky.edu/`.

Course objective

The main objective of *Numerical Analysis* is to develop algorithms for solving mathematical problems in numerical form, and to study their performance characteristics. The topics of this course include

- Machine arithmetic and condition number (Chapter 1)

- Polynomial interpolation and approximation (Chapter 2)

- Numerical differentiation and integration (Chapter 3)

- Root finding for nonlinear equations (Chapter 4)

- Initial value problems for ordinary differential equations (Chapter 5,6)

Prerequisites

A good knowledge in calculus and advanced calculus are required. Some parts of the course will also touch on linear algebra and differential equations.

Organization & grading

We will have weekly homework (50%), a midterm exam (20%) and a final exam (30%). Homework will consist of two parts: written and programming (MATLAB/Octave).