

MATH 4513 Numerical Analysis

Xu Zhang

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Department of Mathematics
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Text Book: Numerical Analysis (10th edition)
R. L. Burden, D. J. Faires, A. M. Burden

Fall 2020 Class Meetings and Office Hours

Class Meetings

- **Class Format:** face-to-face class
- **Date and Time:** Tu&Th: 10:30am-11:45am.
- **Classroom:** MSCS 514.

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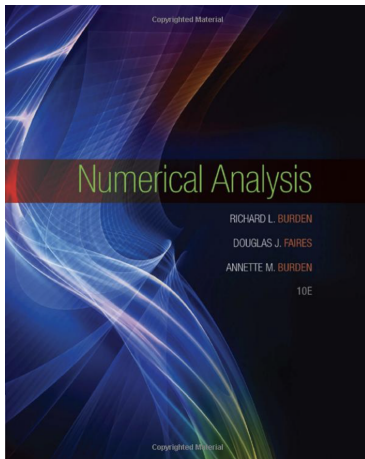
Office Hours (hold virtually using Zoom)

- Wednesday: 2pm-3:30pm
- Friday: 10:30am-12pm
- or by appointment (xzhang@okstate.edu)
- Zoom links will be sent before each office hour session.

Text Book

Numerical Analysis

R. L. Burden, D. J. Faires, A. M. Burden (10th edition)



Content

Prerequisite:

- MATH-2233 (Differential Equations)
- MATH-3013 (Linear Algebra)
- some knowledge of programming

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- Ch1. Mathematical Preliminaries
- Ch2. Solutions of Equations in One Variable
- Ch3. Interpolation and Polynomial Approximation
- Ch4. Numerical Differentiation and Integration
- Ch5. Initial-Value Problems for Ordinary Differential Equations
- Ch6. Direction Methods for Solving Linear Systems
- Ch7*. Iterative Techniques in Matrix Analysis (*if time allows)

Grading: four portions

1. Homework Assignments : 45%

- About five homework assignments.

2. Midterm Test: 15%

- In-class test, the tentative date is 9/22 Tuesday.

3. Computational Project: 15%

- Group project: 2-3 students form a group and will work together.
- A 10-15 min oral presentation for each group.

4. Final Exam: 25%

- Online Exam, 12/10 Thursday, 10-11:50am.

85% will guarantee an A; 70% a B; 60% a C; 50% a D.

Programing

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- Programing is **important**.
You cannot really understand a numerical algorithm unless you program it.
- Recommended Programing Language: **MATLAB**.
If you have never used Matlab, check on <http://math.okstate.edu/people/xzhang/F20Math4513.html> for some tutorials.
- I will provide guided coding during lectures. Sample Matlab codes will be posted on the course webpage.

Face Mask Requirement

- The instructor and students **MUST** wear a facial covering (mask) during the entire period of the class.
- You will be asked to leave the classroom if you do not wear a facial covering.
- Wearing a clear face shield alone (without a cloth or disposable face mask) is inadequate and will not be allowed to enter the classroom.



Attendance

- The attendance will be taken for contact tracing purpose, should a positive COVID-19 case be reported.
- To maintain the social distancing, please do not move the chair. Please using the same seat throughout the semester.
- The attendance will not be counted toward any part of the grading.

Any Questions?