

MATH-4513 (CS-4513): Numerical Analysis

Fall 2019 TuTh: 10:30-11:45am, Mathematical Sciences Building 514

Contact Information

- **Instructor:** Dr. Xu Zhang
- **Course Webpage:** <http://math.okstate.edu/people/xzhang/F19Math4513.html>
- **Office Hour:**
 - TuTh: 1-2pm at my office Mathematical Sciences Building (MSCS) 416
 - W: 9-10am at Mathematics Learning Success Center (MLSC) Room #5
 - or by appointment (Email: xzhang@okstate.edu)

Course Description

- **Prerequisite:** MATH-2233 (Differential Equations), MATH-3013 (Linear Algebra), and knowledge of programming.
- **Text:** *Numerical Analysis*, by *R. Burden, J. Faires, and A. Burden*, 10th Edition.
- **Recommended Programming Language:** Matlab.
- **Tentative List of Topics to be Covered:**
 - Chapter 1. Mathematical Preliminaries and Error Analysis
 - Chapter 2. Solutions of Equations in One Variable
 - Chapter 3. Interpolation and Polynomial Approximation
 - Chapter 4. Numerical Differentiation and Integration
 - Chapter 5. Initial-Value Problems for Ordinary Differential Equations
 - Chapter 6. Direction Methods for Solving Linear Systems
 - Chapter 7*. Iterative Techniques in Matrix Analysis

* if time allows.

Grading

Your grade consists of three portions:

- **Homework Assignments:** 45%
- **Midterm Tests:** 30% (15% each)
- **Final Exam:** 25%

A 90% will guarantee an A; 80% a B; 70% a C; 60% a D.

Homework Assignments

There will be about five homework assignments. A homework will be assigned after finishing each chapter. Homework assignments usually contain some programming problems. Students are allowed to discuss the homework problems together, however each student must write or type his/her own answers separately.

Midterm Tests

There will be two in-class midterm tests. Tentative dates of these tests are

Test#1. September 24, Tuesday **Test#2. November 5, Tuesday**

These dates are subject to change according to the progress of lectures. There will be no makeup tests in general. If a student has a verified time conflict with the test schedule, the instructor must be notified in advance in order to schedule an alternative test time. If a student misses a test for reasons that are serious, unavoidable, and beyond the student's control, the situation will be handled on an individual basis.

Final Exam

The comprehensive final exam is scheduled on

December 10, 2019, Tuesday, 10:00am-11:50am

Classroom Courtesy

You and your classmates are entitled to learn in an atmosphere of mutual respect, and freedom from distractions and disturbances. The following guidelines are in effect for this class: Students are expected to arrive on time and stay until class is dismissed. If you know ahead of time that you will be late or must leave early, please let me know in advance, sit as near the exit as possible, and enter or leave quietly. Talking to classmates during class, aside from group assignments, is disruptive to those around you. If you engage in such behavior, I can and may ask you to leave. Laptops used as a tablet PC are permitted provided they are used in the flat-on-the-desk position. Open laptops are not allowed. Reading magazines and newspapers while class is in session is inappropriate. Cell phones must be turned to vibration before you enter the classroom. Please be patient with and respectful of others when they ask a question, even if the answer seems obvious to you.

Academic Honesty

Oklahoma State University is committed to the maintenance of the highest standards of integrity and ethical conduct of its members. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity

(e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and fraudulently altering academic records) will result in your being sanctioned. Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript, and being suspended from the University. You have the right to appeal the charge. For a brief overview of the policy you can watch the video or contact the Office of Academic Affairs, 101 Whitehurst, 405-744-5627, academicintegrity.okstate.edu.