Math 446 : Numerical Analysis I : Spring 2020

- **Instructor:** Tyrus Berry, tberry@gmu.edu, http://math.gmu.edu/~berry/
- **Office:** Exploratory Hall, room 4452
- **Office hours:** Monday and Tuesday 1:30pm-3:00pm.
- **Course Website:** Blackboard, https://mymasonportal.gmu.edu/
- **Book:** Timothy Sauer, Numerical Analysis (3rd Edition)
- **Topics:** The course will cover portions of Chapters 1-5 of the text.
- **Classroom:** Lecture Hall 3

Grading

One midterm exam and a final exam will account for 60% of the final grade; the remainder will depend on homework projects to be submitted online via Blackboard.

Grades in the course will be based on your INDIVIDUAL effort on the exams and projects. Discussion of course topics with others is helpful and encouraged; however, all work toward the solution of homework projects submitted for credit, including computer code and written summaries, must be done SOLELY by you.

Course Goals

Design and implementation of algorithms for the solution of scientific and engineering problems. Emphasis will be placed on the written and graphical presentation of solutions. The course will cover the following topics

- Floating point arithmetic
- The solution of nonlinear equations in one variable
- The solution of systems of linear equations
- The solution of nonlinear systems
- Interpolation and polynomial approximation
- Curve-fitting; cubic and Bezier splines
- Least squares problems

Test Dates (tentative)

- Midterm Exam : Monday, March 2, 2020, 4:30 pm - 5:45 pm
- Final Exam: Wednesday, May 6, 2020, 4:30 pm - 7:15 pm

Computers

The software package Matlab will be used for analysis and presentation of data. Matlab is a computing environment with programming capability, good graphics, and powerful library functions. It is available on campus in the computer labs. Alternatively, a PC version can be purchased. Matlab tutorials can be found readily on the internet. There is a pretty good one at Mathworks, and another one in the textbook's appendix.

Honor Code

The University Honor Code is to be followed. Sharing information of any kind about exams or Matlab assignments will result in a grade of zero. Any violations will be submitted to the University Honor Committee.