Math 446 / OR 481 – Numerical Analysis I – Spring 2022

Dates/Times TR 9:00-10:15

Location Innovation 132

Textbook *Numerical Analysis* , Timothy Sauer, Third Edition

Instructor Matt Holzer, Exploratory Hall 4458

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Office Hours , T 11:00-12:00, F 2:30-3:30

Course Description This course is an introduction to the design and implementation of numerical methods to solve mathematical problems. We will discuss topics related to Chapters 0-4 in the textbook. This includes floating point arithmetic, solutions of nonlinear equations, solutions to systems of linear (and nonlinear equations), interpolation, polynomial approximation and least squares.

Attendance Attendance is not an explicit requirement for this course, but as you will see below it is an implicit requirement.

Recap/Reflection Assignments Each day a one page reflection is due. The point is to highlight the main concepts and examples studied during the previous lecture. The goal is not to regurgitate the lecture material, but to try and synthesize it and distill the main ideas. At the beginning of each lecture one student will be called on randomly to present their recap. The recaps are worth one point each and the presentation is worth four. Students may be called a maximum of two times per semester and each student may opt out of one presentation.

Weekly homework assignments Homework assignments will be assigned weekly. They will include a mix of conceptual and computation problems. The computational problems must be solved using matlab.

Final Exam There will be a comprehensive final exam.

All homework submissions will be done virtually via Blackboard. In the event of technical difficulties, I am not responsible for recoding and posting a second video.

Online Resources For most of the questions that I ask this semester, the solution can likely be found online with enough searching, or computer packages can be used to expedite your calculations. I request (a nice way to say that I require) that you not do either of these things (see Academic Integrity below).

Important Dates

Thursday March 3rd : Midterm #1
Thursday April 14th: Midterm #2
Thursday May 12th : Final Exam 7:30-10:15

Grade Each midterm is worth 15 percent of you grade. The Final is worth 20 percent. Homework will be worth 50 percent of the final grade. Grades will be determined according to the proportion of points earned throughout the semester. Final grades will be given according to the standard breakdown (94 for an A, 90 for an A-, 87 for a B+, etc). I reserve the right to shift these gradelines lower, but they will not be raised.

Recording of Lectures I plan to record all lectures and post them to Blackboard.

Academic Integrity You are bound by the Mason Honor Code and its policies related to Academic Integrity. Violations will be taken seriously.

Disability Services Students may be eligible for accommodations through the Office of Disability Services

Communication All email communication is to take place through your gmu email account.