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M 540.B01: Numerical Methods for Computational and Data Science

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SYLLABUS: MATH 440/540, Numerical Analysis

Professor: Dr. Johnathan Bardsley
Office: Math 210
Email: bardsleyj@mso.umt.edu
Time and Place: MWF 2pm, Math 103.
Course Web Page: see the course Moodle page.
Text: *Fundamental of Matrix Computations*, Davis S. Watkins, Wiley, 2010.
Office Hours: MWF at noon, but I am open to setting up meetings for other times.
Final Exam: 1:10-3:10, Tuesday, November 24.

LEARNING GOALS: By the end of the course you should:

1. be able to compute by hand, *and* using MATLAB, the LU, Cholesky, eigenvalue, SVD, and QR factorizations of a matrix;

2. be able to write your own MATLAB code for doing a variety of matrix computations;

3. be able to implement iterative methods for solving linear systems of equations and least squares problems;

4. understand some of the important applications of large-scale computations in applied mathematics.

ASSESSMENT: Your course grade will be determined by your performance on the bi-weekly homework, on the take-home final exam(s), and (perhaps) on a final project.

CORONA VIRUS: All students are expected to follow UMs face covering policy (see www.umt.edu/policies/browse/facilities-security/covid-19-face-covering-policy). See the Classroom Safety document on the course Moodle page for additional COVID-related safety information.

STUDENT CONDUCT: All students need to be familiar with the Student Conduct Code. You can find it in the "A to Z Index" on the UM home page. All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

FOR ANY STUDENT WITH A DISABILITY: If you have a disability that has, or might have, an effect on your performance in this class, please let me know. I will do my best to accommodate you.