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Fall 9-1-2020

### M 440.01: Numerical Analysis

Johnathan M. Bardsley

*University of Montana, Missoula*, [bardsleyj@mso.umt.edu](mailto:bardsleyj@mso.umt.edu)

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#### Recommended Citation

Bardsley, Johnathan M., "M 440.01: Numerical Analysis" (2020). *University of Montana Course Syllabi*. 11373.

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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](http://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.