University of Montana

ScholarWorks at University of Montana

University of Montana Course Syllabi

Open Educational Resources (OER)

Fall 9-1-2020

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

Johnathan M. Bardsley University of Montana, Missoula, bardsleyj@mso.umt.edu

Follow this and additional works at: https://scholarworks.umt.edu/syllabi

Let us know how access to this document benefits you.

Recommended Citation

Bardsley, Johnathan M., "M 540.B01: Numerical Methods for Computational and Data Science" (2020). *University of Montana Course Syllabi*. 11372. https://scholarworks.umt.edu/syllabi/11372

This Syllabus is brought to you for free and open access by the Open Educational Resources (OER) at ScholarWorks at University of Montana. It has been accepted for inclusion in University of Montana Course Syllabi by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

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 biweekly 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.