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M 540.01: Numerical Methods for Computational & Data Science

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Recommended Citation

M440 - Numerical Analysis
M540 - Numerical Methods for Computational & Data Science

Instructor Information:

Instructor: Javier Pérez Álvaro
Office: M205A
Email: javier.perez-alvaro@mso.umt.edu
Office hours: See http://www.umt.edu/people/perezalvaro for up-to-date OH.
Time and place**:** Monday, Wednesday, Friday 2:00-2:50 p.m., Math 306.

Learning Goals: By the end of the course you should:

1. be able to compute by hand, and using the computer, the LU, Cholesky, eigenvalue, SVD, and QR factorizations of a matrix, where applicable;
2. be able to write your own MATLAB code for doing matrix computations;
3. be able to implement iterative methods for solving linear systems of equations, least squares problems, and nonlinear equations;
4. understand some of the important applications large-scale computations in applied mathematics.**;**

Textbook: Fundamental of Matrix Computations, Davis S. Watkins

Homework: Homework exercises emphasizing applications of the algorithms and/or theory will be assigned weekly.

Final Project: In lieu of a final, students will be graded on their final project. Students must work on projects in groups of one, two or three individuals. The final meeting time (for presentation of projects) is Friday, December 14. Students are responsible for a written paper (75% of the project grade) and oral presentation (25% of the project grade).

Grading policy: Your course grade will be based on homework and the final project

Item	Percentage
Homework	75%
Final project	25%

Student Conduct: All students need to be familiar with the Student Conduct Code. You can find in the 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.

Accommodation: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and Disability Services for Students (DSS). If you think that you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommasson Center 154 or call 406.243.2243. I will work with you and DSS to provide an appropriate accommodation.

Important note: Announcements made in class are considered addenda to this syllabus. Make sure you stay informed as the progress of the class.