

SYLLABUS: MATH 471
NUMERICAL ANALYSIS

John Bardsley

308, Math Building, 243-5328

bardsleyj@mso.umt.edu

<http://web.math.umt.edu/bardsley/courses/471/471.html>

Time and Place: MTWF 11:10-12am, Math Building, Room 305.

Text: David Kincaid and Ward Cheney, *Numerical Analysis: Mathematics of Scientific Computing*, Brooks/Cole, 2002.

Prerequisites: Math 221 (Linear Algebra), Math 251 (Calc III) and 311 (ODE) are recommended, but not necessarily required. Talk to me if you have questions.

Office Hours: My office hours at this point are Monday 9-10am and 3-4pm and Tuesday 9-10am, though these may change depending on my yet-to-be-determined meeting schedule. However, I have an open door policy, so you can stop by anytime, though I may say, "Sorry, now doesn't work," if I'm busy.

GRADING: The course grade will be determined by your score on one or two **exams** (likely take-home), each worth 100 points, by your performance on the **homework**, worth a total of 200 points, and by your performance on a **final project** worth 100 points. To summarize, *if two mid-term exams are given*, the course grade will be determined as follows:

	Total Points
Exams	200
Homework	200
Final Project	100

$$\text{percent} = (\text{Exams} + \text{Homework} + \text{Final Project}) / 5$$

I will use +/- grading.

OUTCOMES AND ASSESSMENT: The learning goals for this course are as follows:

1. Become proficient in MATLAB programming.
2. Learn the basic methods for solving nonlinear equations: Newton's method, the bisection method, the secant method.
3. Learn the basic techniques from numerical linear algebra: Gaussian elimination, Cholesky factorization, singular value decomposition, conjugate gradient method, least squares problems, the discrete Fourier transform.
4. Learn the basic methods for solving ODEs numerically: Euler and Runge-Kutta methods.

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.

IMPORTANT DATES:

Sep. 15:	Last day to drop/add via Cyberbear
Oct. 6:	Last day to drop classes/change sections
Nov. 12:	Veteran's Day Holiday - no classes
Nov. 21-23:	Thanksgiving - no classes
Dec. 9:	Last Day for Drop Petitions
Dec. 12:	Final Project Presentations, 8-10am.