UMBC CMSC455/655, Numerical Computations, Fall 2024

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Course Syllabus

The following schedule outlines the material to be covered during the semester and specifies the corresponding sections in the readings. The topic schedule is approximate and is subject to change.

			Homework		Reading
Date	Topic	Tests	Assigned	Due	Reading
Thurs 08/29	Intro to Numerical Modeling				Ch. 1
Tues 09/03	Error Analysis				Ch. 2
Thurs 09/05	Floating Point and IEEE 754				Ch. 2
Tues 09/10	Solving Nonlinear Equations		HW1		Ch. 3
Thurs 09/12	Nonlinear Equations				Ch. 3
Tues 09/17	Systems of Linear Equations				Ch 4,5
Thurs 09/19	Solving Systems of Linear Equations		HW2	HW1	Ch. 4,5
Tues 09/24	Interpolation				Ch. 10
Thurs 09/26	Interpolation 2				Ch. 11
Tues 10/01	Regression				Ch 12
Thurs 10/03	Integration			HW2	Ch 15
Tues 10/08		Proposals Due	HW3		N/A
Thurs 10/10		Midterm 1			
Tues 10/15	Differentiation				Ch. 14
Thurs 10/17	HPC Software and Libraries				Notes
Tues 10/22	Eigenvalues, PageRank			HW3	Ch. 8
Thurs 10/24	Random Numbers				Notes
Tues 10/29	Monte Carlo Methods		HW4		Notes
Thurs 10/31	Fourier Series and FFT				Ch 13
Tues 11/05	GnuRadio and GMP				Notes
Thurs 11/07		Midterm2			N/A

Date	Topic	Tests	Homework Assigned	Homework Due	Reading Reading
Tues 11/12	Differential Equations 1 (ODE's)		HW5	HW4	Ch 16
Thurs 11/14	Differential Equations 2 (PDE's)				Ch 16
Tues 11/19	Finite Element Methods				
Thurs 11/21	**Thanksgiving**				Notes
Tues 11/26	Optimization			HW5	Ch 9
Thurs 11/28	Special Topic				N/A
Tues 12/03	Project Presentations				
Thurs 12/05	Project Presentations				N/A
Tues 12/10	Exam Review			HW 6	Notes
Thurs 12/12	**Final Exam: 06:00-8:00 PM**				
