

Numerical Analysis
(MATH 4043)
Spring 2004

Professor: Paul Bailey

Office: WIL 228

Office Hours: MTWRF 10am to 11am; MTWR 1pm to 2pm

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Book: *Numerical Mathematics and Computing*, 5th edition, by Cheney and Kincaid

Course Description

In this class, we will study mathematical algorithms which can be executed through the use of software. We will use the C programming language to implement the algorithms. Some mathematical concepts will lend themselves to becoming classes we will develop in C++.

Grading

There will probably be four problem sets, consisting of producing and applying programs written in C and C++, evaluated approximately as follows:

Problem Set A: 20%
Problem Set B: 20%
Problem Set C: 20%
Final Problem Set: 40%

Approximate Syllabus

Week	Beginning	Topic	Sections
Week 1	Jan 19	Integers	—
Week 2	Jan 26	Numeric Representation	2.1, 2.2
Week 3	Feb 2	Power Series	1.2
Week 4	Feb 9	Locating Roots	3.1, 3.2, 3.3
Week 5	Feb 16	Polynomials	—
Week 6	Feb 23	Interpolation	4.1, 4.2
Week 7	Mar 2	Differentiation	4.3
Week 8	Mar 9	Integration	5.1, 5.2
	Mar 16	SPRING BREAK	
Week 9	Mar 22	Matrices	—
Week 10	Mar 29	Gaussian Elimination	7.1
Week 11	Apr 5	Determinants and Eigenvectors	8.1, 8.3
Week 12	Apr 12	Splines	9.1
Week 13	Apr 19	Cubic Splines	9.2
Week 14	Apr 26	Data Smoothing	12.1
Week 15	May 3	Data Smoothing	12.2