328 Class Schedule

All sections in our primary textbook unless otherwise noted.

Primary Text:
A First Course in Numerical Methods *by Uri M. Ascher and Chen Greif, SIAM 2011.*

Secondary Texts:
Calculus in Context (CC) *by James Callahan et al. free download.*

Computational Physics (CP) *by Mark Newman free download chapters 2-5.*

Class	Topic(s)	Sections
1	Python programming for physicists	Chapter 2 (CP)
2	Spread of Disease	1.1, 1.2 (CC)
3	Making Approximations	2.1 (CC)
4	Euler's Method	2.2 (CC)
5	Graphics, Accuracy, Speed	Chapters 3, 4, (CP)
6	Euler's Method	Arthur Mattuck video MIT
7	Numerical Algorithms	Chapter 1
8	Rounding Errors; Bisection Method	2.1, 3.1, 3.2
9	Fixed point iteration	3.3
10	**Midterm 1**	
11	Newton's Method and variants	3.4
12	Linear Algebra Background	4.1, 4.2
13	Linear Algebra Background	4.3, 4.4
14	Gaussian Elimination	5.1, 5.2
15	Pivoting; Cholesky	5.3, 5.5
16	Sparse matrices; errors and the condition number	5.6, 5.8
17	Least Squares and QR	6.1, 6.2
18	Householder and Gram-Schmidt	6.3
19	Iterative Methods	7.1, 7.2
20	**Midterm 2**	
21	Convergence of stationary methods; the power method	7.3, 8.1
22	SVD; Newton's method	8.2, 9.1
23	Interpolation	10.1, 10.2, 10.3
24	Interpolation	10.4, 10.5
25	Numerical Differentiation	14.1, 14.2, 14.3
26	Numerical Integration	15.1, 15.2, 15.5
27	Differential Equations	16.1, 16.2, 16.3
28	Review	