Math 105A; Fall 2017; Syllabus & Schedule

Instructor: Peter McHale

“Sections” refers to sections of Numerical Analysis, R.L. Burden and J.D. Faires, 9th Edition

Wk	Date	Lec	Sections	Topics
0	9/29	1	1.1	Review of calculus
1	10/2	2	1.2	Round-off errors and computer arithmetic
	10/4	3	2.1	Bisection Method
	10/6	4	2.2	Fixed-point iteration
2	10/9	5	2.3	Newton’s method
	10/11	6	2.4/2.5	Error analysis/Convergence
	10/13	7	2.6	Zeros of polynomials
3	10/16	8	6.1	Gaussian elimination
	10/18	9	6.1	Algorithm complexity
	10/20	10	6.2	Pivoting strategies
4	10/23	11	6.2	Pivoting strategies (continued)
	10/25	12	6.3-6.4	Matrix Inversion; Determinants
	10/27	13	6.5	LU factorization
5	10/30	14	6.6	Other factorizations
	11/1			Review of previous exams
	11/3		1, 2, 6	Midterm Exam
6	11/6	15	7.1	Norms of vectors and matrices
	11/8	16	7.2, 9.1	Spectral radius of a matrix
	11/10		No class	Veterans’ Day
7	11/13	17		Existence and speed of convergence
	11/15	18	7.3	Jacobi and Gauss-Siedel
	11/17	19	7.4	Accelerating convergence
8	11/20	20		Applications of Linear Systems
	11/22	21	9.1 - 9.3	Orthogonality (Gram Schmidt), Similarity, Power Method
	11/24		No class	Thanksgiving
9	11/27	22	9.3	Power method (continued)
	11/29	23	9.5	QR algorithm
	12/1	24	9.6	SVD
10	12/4	25	9.6	SVD (continued)
	12/6	26		Applications of SVD
	12/8	27		Review of previous exams
11	12/11		1, 2, 6, 7, 9	Final Exam 1.30pm – 3.30pm