**Math 105A Suggested Syllabus**

**Text:** *Numerical Analysis, Burden, Faires and Burden, 10th edition*

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| Lecture | Sections | Topics |
| 1 | 1.1/1.2 | Introduction |
| 2 | 1.2/1.3 | Roundoff errors & Computer algorithms |
| 3 | 2.1 | Bisection Method |
| 4 | 2.2 | Fixed point iteration |
| 5 | 2.2 | continued |
| 6 | 2.3 | Newton’s method |
| 7 | 2.4/2.5 | Error analysis |
| 8 | 2.6 | Zeros of polynomials |
| 9 | 6.1 | Linear systems |
| 10 | 6.2 | Pivoting strategies |
| 11 | 6.2 | continued |
| 12 | 6.3/6.4 | Matrix Inversion & Determinants |
| 13 | 6.4 | Determinants & Matrix Factorization |
| 14 | 6.5 | Matrix factorization |
| 15 | 6.5 | continued |
| 16 |  | Review |
| 17 |  | Midterm |
| 18 | 7.1 | Norms of vectors/matrices |
| 19 | 7.2/9.1 | Eigenvalues/eigenvectors |
| 20 | 7.3 | Jacobi & Gauss-Siedel iteration |
| 21 | 7.3 | continued |
| 22 | 7.4 | Relaxation methods for linear systems |
| 23 | 7.4 | continued  |
| 24 | 9.2 | Orthogonal matrices & Similarity transforms |
| 25 | 9.3 | Power method |
| 26 | 9.3 | continued |
| 27 | 9.5 | QR algorithm |
| 28 | 9.5 | continued |
| 29 |  | Review |