Numerical Analysis I

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1. Introduction	15. Polynomial Interpolation Error Analysis
2. MATLAB Tutorial, Part 1	16. Osculatory Interpolation
3. MATLAB Tutorial, Part 2	17. Numerical Differentiation
4. MATLAB Tutorial, Part 3	18. Numerical Differentiation, cont'd
5. MATLAB Tutorial, Part 4	19. Numerical Integration; Newton-Cotes
6. Error Analysis	Rules
7. Convergence	20. Composite Quadrature Rules
8. Computer Arithmetic	21. Richardson Extrapolation; Romberg
9. Issues with Floating-Point Arithmetic	Integration
10. Lagrange Interpolation	22. Gauss Quadrature
11. Newton Interpolation	23. Solution of Nonlinear Equations by
12. Experimentally Determining Rate of	Iteration; Bisection
Convergence	24. Fixed-Point Iteration
13. Midterm Review	25. Newton's Method; Secant Method
14. Review of Midterm	26. Final Exam Review

Numerical Analysis II

- 1. Gaussian Elimination
- 2. Gaussian Elimination, cont'd
- 3. LU Decomposition
- 4. LU Decomposition, cont'd
- 5. LU Decomposition, cont'd
- 6. Banded Matrices
- 7. Symmetric Matrices
- 8. Estimating and Improving Accuracy
- 9. Stationary Iterative Methods
- 10. Midterm Exam Review
- 11. Review of Fixed-Point Iteration

- 12. Review of Newton's & Secant Method
- 13. Systems of Nonlinear Equations
- 14. Basics of Numerical Solution of IVPs
- 15. Runge-Kutta Methods
- 16. Multistep Methods
- 17. Convergence Analysis
- 18. Convergence Analysis, cont'd
- 19. Shooting Method
- 20. Finite Difference Methods
- 21. Final Coding Project Discussion

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