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Office Hours   Hill 546     Thursday 1:30 – 2:30 or by appointment

Web page       www.math.rutgers.edu/courses/373/


Week 1          Bisection Method and Fixed Point Iteration
                 Sections 2.1, 2.2
                 Exercises page 53—3, 7a, 12, 17
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Week 2          Newton’s Method and Convergence
                 Sections 2.3, 2.4
                 Exercises page 75—5b, 14, 20, 23
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Week 3          Accelerating convergence and roots of polynomials
                 Sections 2.5, 2.6
                 Exercises page 90—1c, 8, 11, 12
                         99—1a, 2a, 4a, 5b, 10

Week 4          Interpolating polynomials and divided differences
                 Sections 3.1, 3.2
                 Exercises page 119—3c, 5, 7c, 29
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Week 5  
Hermite interpolation and splines  
Sections 3.3, 3.4  
Exercises  page 139—1a, 2a, 4, 7  
152—3a, 4a, 5a, 11, 24

Week 6  
Bezier curves  
Sections 3.5  
Exercises  page 162—1a, 4, 5

Midterm Exam  March 4 — covering fixed point methods, root finding, polynomial approximation, and interpolation.

Week 7  
Numerical Differentiation  
Sections 4.1, 4.2  
Exercises  page 175—1b, 2b, 19, 20  
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Week 8  
Numerical Integration  
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Week 9  
Romberg Integration, Adaptive and Gaussian Quadrature  
Sections 4.5, 4.6, 4.7  
Exercises  page 211—1b, 3b, 219—1f, 2f, 5  
226—1f, 2f, 5
Week 10  Differential equations and Euler’s method
Sections 5.1, 5.2

Exercises  page 255—1a, 2c, 6a
            263—1b, 2b, 5

Week 11  Higher order Taylor and Runge-Kutta methods
Sections 5.3, 5.4

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            280—1c, 2c, 3c, 10c, 14

Week 12  Multistep methods, variable step-sizes and extrapolation
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            300—1d
            306—1d, 5
            312—1d

Week 13  Systems of equations, stability and stiff systems
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Final Exam on Friday, May 7, 12:00 to 3:00 P.M. in SEC–206