**Project A**

1. **The Solution of Nonlinear Equations f(x) = 0**
2. [Fixed Point Iteration](http://mathfaculty.fullerton.edu/mathews/n2003/FixedPointMod.html)
3. [Bisection Method](http://mathfaculty.fullerton.edu/mathews/n2003/BisectionMod.html)
4. [False Position or Regula Falsi Method](http://mathfaculty.fullerton.edu/mathews/n2003/RegulaFalsiMod.html)
5. [Newton-Raphson Method](http://mathfaculty.fullerton.edu/mathews/n2003/Newton'sMethodMod.html)
6. [Secant Method](http://mathfaculty.fullerton.edu/mathews/n2003/SecantMethodMod.html)
7. [Muller's Metho](http://mathfaculty.fullerton.edu/mathews/n2003/MullersMethodMod.html)d
8. **The Solution of Linear Systems AX = B**
9. [Triangular Systems and Back Substitution](http://mathfaculty.fullerton.edu/mathews/n2003/BackSubstitutionMod.html)
10. [Gauss-Jordan Elimination and Pivoting](http://mathfaculty.fullerton.edu/mathews/n2003/GaussianJordanMod.html)
11. [Tri-Diagonal Matrices](http://mathfaculty.fullerton.edu/mathews/n2003/Tri-DiagonalMod.html)
12. [Inverse Matrix](http://mathfaculty.fullerton.edu/mathews/n2003/InverseMatrixMod.html)
13. [LU Factorization](http://mathfaculty.fullerton.edu/mathews/n2003/LUFactorMod.html)
14. [Cholesky, Doolittle and Crout Factorizations](http://mathfaculty.fullerton.edu/mathews/n2003/CholeskyMod.html)
15. [Jacobi and Gauss-Seidel Iteration](http://mathfaculty.fullerton.edu/mathews/n2003/GaussSeidelMod.html)
16. [Successive Over Relaxation - SOR](http://mathfaculty.fullerton.edu/mathews/n2003/SORmethodMod.html)

**Project B**

1. **Interpolation and Polynomial Approximation**
2. [Maclaurin and Taylor Series](http://mathfaculty.fullerton.edu/mathews/n2003/TaylorPolyMod.html)
3. [Lagrange Polynomial Interpolation and Approximation](http://mathfaculty.fullerton.edu/mathews/n2003/LagrangePolyMod.html)
4. [Newton Interpolation Polynomial](http://mathfaculty.fullerton.edu/mathews/n2003/NewtonPolyMod.html)
5. [Hermite Polynomial Interpolation](http://mathfaculty.fullerton.edu/mathews/n2003/HermitePolyMod.html)
6. [Cubic Splines](http://mathfaculty.fullerton.edu/mathews/n2003/CubicSplinesMod.html)
7. [B-Splines](http://mathfaculty.fullerton.edu/mathews/n2003/B-SplinesMod.html)
8. [Bézier Curves](http://mathfaculty.fullerton.edu/mathews/n2003/BezierCurveMod.html) [B](http://mathfaculty.fullerton.edu/mathews/n2003/BezierCurveMod.html)

**Project C**

1. **Curve Fitting**
2. [Least Squares Lines](http://mathfaculty.fullerton.edu/mathews/n2003/LeastSqLineMod.html)
3. [Least Squares Polynomials](http://mathfaculty.fullerton.edu/mathews/n2003/LeastSqPolyMod.html)
4. [Nonlinear Curve Fitting](http://mathfaculty.fullerton.edu/mathews/n2003/NonLinearCurveFitMod.html)
5. **Numerical Differentiation**
6. [Numerical Differentiation](http://mathfaculty.fullerton.edu/mathews/n2003/NumericalDiffMod.html)
7. **Numerical Integration**
8. [Riemann Sums](http://mathfaculty.fullerton.edu/mathews/n2003/RiemannSumMod.html)
9. [Midpoint Rule](http://mathfaculty.fullerton.edu/mathews/n2003/MidpointRuleMod.html)
10. [Newton-Cotes Integration](http://mathfaculty.fullerton.edu/mathews/n2003/NewtonCotesMod.html)
11. [Trapezoidal Rule for Numerical Integration](http://mathfaculty.fullerton.edu/mathews/n2003/TrapezoidalRuleMod.html)
12. [Simpson's Rule for Numerical Integration](http://mathfaculty.fullerton.edu/mathews/n2003/SimpsonsRuleMod.html)
13. [Simpson's 3/8 Rule for Numerical Integration](http://mathfaculty.fullerton.edu/mathews/n2003/Simpson38RuleMod.html)

**Project D**

1. **Solution of Differential Equations**
2. [Euler's Method for ODE's](http://mathfaculty.fullerton.edu/mathews/n2003/Euler'sMethodMod.html)
3. [Taylor Series Method for ODE's](http://mathfaculty.fullerton.edu/mathews/n2003/TaylorDEMod.html)
4. [Runge-Kutta Method](http://mathfaculty.fullerton.edu/mathews/n2003/RungeKuttaMod.html)
5. [Runge-Kutta-Fehlberg Method](http://mathfaculty.fullerton.edu/mathews/n2003/RungeKuttaFehlbergMod.html)
6. [Adams-Bashforth-Moulton Method](http://mathfaculty.fullerton.edu/mathews/n2003/AdamsBashforthMod.html)
7. [Milne-Simpson's Method](http://mathfaculty.fullerton.edu/mathews/n2003/MilneSimpsonMod.html)
8. [Predictor-Corrector Methods](http://mathfaculty.fullerton.edu/mathews/n2003/PredictCorrectMod.html)
9. [Shooting Methods for ODE's](http://mathfaculty.fullerton.edu/mathews/n2003/ShootingMod.html)
10. [Finite Difference Method for ODE's](http://mathfaculty.fullerton.edu/mathews/n2003/FiniteDifferenceMod.html)

**Project E**

1. **Solution of Partial Differential Equations**
2. [Finite Difference Method](http://mathfaculty.fullerton.edu/mathews/n2003/FiniteDifferencePDEMod.html)
3. Any methods of your choice

**( IX) Eigenvalues and Eigenvectors**

1. [Eigenvalues and Eigenvectors](http://mathfaculty.fullerton.edu/mathews/n2003/EigenvaluesMod.html)
2. [Power method](http://mathfaculty.fullerton.edu/mathews/n2003/PowerMethodMod.html)
3. Any method of your choice

**Project D**

1. **Numerical Optimization**

Any three technique of your choice