1. Numerical methods
   1. Techniques by which mathematical problems are formulated so that they can be solved with arithmetic and logical operations
   2. AKA Computer mathematics
      1. Digital computers best at performing numerical methods
   3. More practical with computers
2. Why study numerical methods
   1. Expand types of problems can address
      1. Capable of handling large systems of equations, nonlinearities, complicated geometries
      2. Enhance problem-solving skills
   2. Use “canned” software with insight
      1. Use commercially available prepackaged computer programs that involve numerical methods
      2. Intelligent use of programs enhanced by understanding basic theory under methods
      3. Critical insight into inner workings or validity of results
   3. Most problems cannot be approached using canned programs
      1. Design own programs to solve problems
   4. Numerical methods are efficient for learning to use computers
      1. Illustrate power and limitations of computers
      2. Apply numerical methods to solve problems
      3. Acknowledge and control errors of approximation
   5. Reinforce understanding of mathematics
      1. Get at nuts and bolts of obscure topics
      2. Enhanced understanding and insight