Instructor: Prof. Han-Wei Shen, Dreese Lab 789

Class: MWF 9:30-10:18 AM, Dreese Lab 369

- Office Hours: MW 10:30-11:30 AM
- Phone: 292-0060
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- Course Summary: Survey of basic numerical methods; number systems and errors of finite representation, solution of a single non-linear equation, interpolation, numerical integration, and solution of linear systems.

- Prerequisite: CIS 221 or CIS 230 and Math 153.

- Topics:
  1. Computer arithmetic; rounding errors, machine precision, machine representation, Chapter 1.1, 2;
  2. Taylor series, Chapter 1.2
  3. Root finding, Chapter 3;
  4. Polynomial interpolation, Chapter 4;
  5. Differentiation, Chapter 4;
  6. Integration, Chapters 5 & 6;
  7. Systems of linear equations, Chapters 7 & 8;
  8. Monte Carlo Integration, Chapter 13;
  9. Smoothing of data and least squares method, Chapter 12;

- Grading: Homework & Labs 30%, Midterm 35%, Final 35%.
- Policies:
  - Late homework will NOT receive credit.
  - All labs are to be done individually. You may discuss the labs with other students but DO NOT LOOK AT OR COPY other’s code.