

# Engineering Analysis ENG 3420 Fall 2009

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Office hours: Tu-Th 11:00-12:00

# Lecture 22

- Attention: The last homework HW5 and the last project are due on Tuesday November 24!!
- Last time:
  - Linear regression
  - Exponential, power, and saturation non-linear models
  - Linear least squares regression
- Today
  - Linear regression versus sample mean. Coefficient of determination
  - Polynomial least squares fit
  - Multiple linear regression
  - General linear squares
  - More on non-linear models
  - Interpolation (Chapter 15)
    - Polynomial interpolation
    - Newton interpolating polynomials
    - Lagrange interpolating polynomials
- Next Time
  - Splines

# Quantification of Errors

- For a straight line the sum of the squares of the estimate residuals is:

$$S_r = \sum_{i=1}^n e_i^2 = \sum_{i=1}^n (y_i - a_0 - a_1 x_i)^2$$

- *The standard error of the estimate:*

$$s_{y/x} = \sqrt{\frac{S_r}{n-2}}$$

