

# Engineering Analysis – Fall 2009

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# Lecture 2

- **Last time**
  - Software packages for numerical simulation.
  - Modeling
  - Analytical and Numerical Methods for Model Solving
  - Example – the bungee jumper
- **Today:**
  - More on Analytical and Numerical Methods for Model Solving
  - Laplace Transform
- **Next Time**
  - Overview of Matlab

# Transform Methods

- Basic idea: find a convenient representation of the equations describing a physical phenomena.
- For example, in signal analysis rather than analyzing a function of time,  $s(t)$ , study the spectrum of the signal  $S(f)$ , in other words carry out the analysis in the frequency domain rather than the time domain.
- Advantage of Fourier (spectral analysis):
  - More intuitive physical representation
  - Instead of correlation (an intensive numerically problem) use multiplication.