

# CEE 5390 - Modeling and Simulation in CEE

## Homework 1

*The formula “Two and two make five” is not without its attractions*

Fyodor Dostoyevsky

January 17, 2008

### Question 1

Choose your favorite “formula” from your engineering classes and do the following:

- List and justify all assumptions made in deriving the formula
- Define the abstraction of/observations from the real system that are used to build the fundamental relationships
- Derive the formula from the above relationships
- Discuss the conditions under which the formula works and classify the model that the formula represents

Typical equations that you can use are: beam deflection equation, Navier-Stokes equation, boundary layer equations etc.