

## Fluid Mechanics 12 September 2005

Class -

Unfortunately, I will not be able to meet with you during our regular class time today.

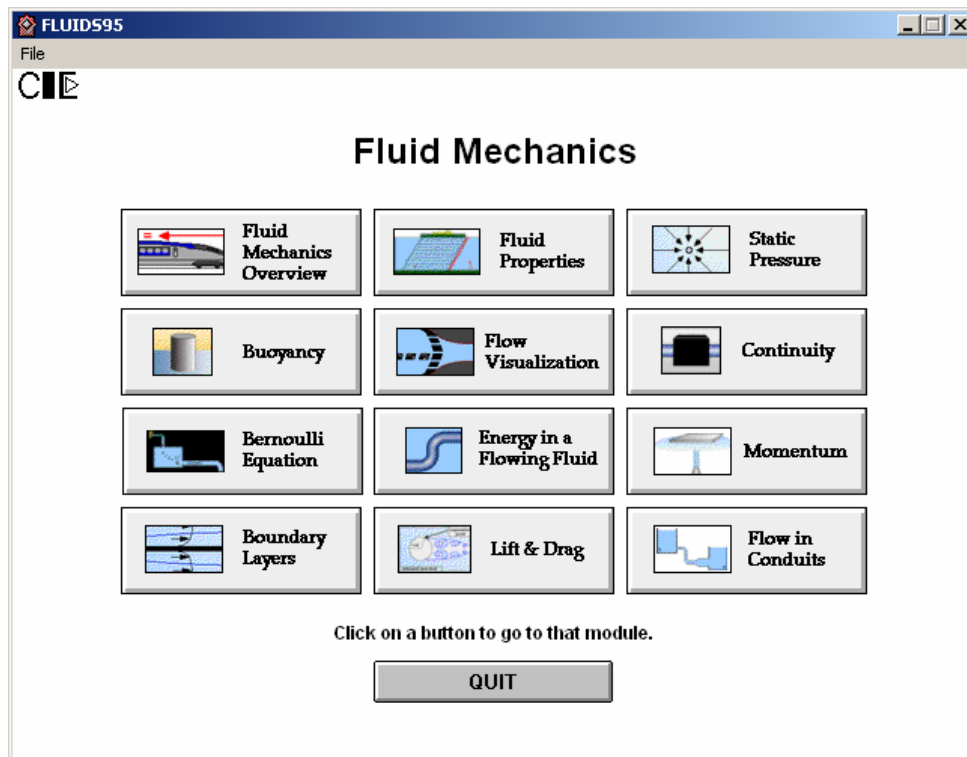
**Please sign the course attendance sheet in the Civil and Environmental Engineering office by the start of class.** Ms. Newland (the CEE Department Secretary) has been deputized to apply The Binder Clip of Doom.

### Self-study assignment:

1. There are self-study tutorials on the College of Engineering computer network, accessible in the 1<sup>st</sup> and 3<sup>rd</sup> floor computer labs. To access these, go:

Start → Network Applications → Class Applications → Engineering → Civil → Fluids95

When the program starts, you should see a screen like this:



Do the tutorial modules on Fluid Properties, Static Pressure, Buoyancy and Flow Visualization.

2. Do the self-study quizzes on Surface Tension, Buoyancy, and Static Pressure located online at <http://www.ce.umn.edu/%7Evoller/ce-tel/quiz/quiz.html>

**Homework (due Monday, Sep 19, 2005):**

Do some buoyancy and flow visualization experiments on your own, and answer the following questions:

1. Look at the stream on campus.
  - a. How could you measure the velocity of the stream, using an orange, a stopwatch, and a tape measure?
  - b. Could you use something beside an orange, such as a piece of paper?
  - c. Would you find the same results, using a single large piece of paper, or many small ones?
  - d. What sort of device (or technology) could be used to automate this process?
  - e. What are the pros and cons of measuring the stream velocity this way?
  
2. Look at the pond behind Rowan Hall.
  - a. How could you map out the entire flow field on the surface of the pond?
  - b. Would the same techniques you used for the stream work for the pond?
  - c. What sort of device (or technology) could be used to automate the process of measuring the surface flow field?
  - d. Would this technology also work for measuring flow velocities at the bottom of the pond?
  - e. Why (or why not)?

In addition, please pick up your graded homework and quizzes outside my office door.

Thanks!

- Joe Orlins