**Developing interactive simulations for chemical and biological engineering courses**

The objective is to design, program, and document an interactive simulation using JavaScript so that the simulation plays in the most common browsers. This means developing the equations, designing the figures, graphs, or animation, deciding on the variable and their ranges, and then programming the simulation in JavaScript. Sufficient explanation will need to be prepared so the simulation can be readily understood. A possible alternative would be to prepare simulations in Mathematica.

Developing at least one simulation (depending on the complexity of the simulation) would be a one-credit independent study project. Developing more than one simulation for additional credit might be possible. Independent study would be supervised by Professor Falconer and by Neil Hendren, who has programmed many of the simulations on LearnChemE.com.

Some simulations that were programmed in JavaScript are:

<http://www.learncheme.com/simulations/heat-transfer/melting-ice-simulation>

<http://www.learncheme.com/simulations/fluid-mechanics/vectors>

<http://www.learncheme.com/simulations/kinetics-reactor-design/selectivity-in-a-semibatch-reactor>

<http://www.learncheme.com/simulations/mass-energy-balances/visualvle>

Most of the other simulations on LearnChemE.com were prepared in Mathematica.

Interested students should send their resume and a description of their JavaScript programming experience to Professor Falconer (john.falconer@colorado.edu).