

SySc 610SD2: System Dynamics II
Winter 2010

This course will be build on the foundation provided in SySc 514, and will use the same text (J. Sterman, Business Dynamics). For the earlier chapters (in particular 5 & 6) that were assigned as 514 readings, we will consider some the many “Challenges” provided by Sterman, such as “The Oil Crisis” and “Traffic Conjestion.” We will also look closely at Sterman’s material on the application of SD to other societal challenges such as Global Warming and The War on Drugs (7.2-7.4). We’ll also study the dynamics of growth, the spread of disease, and the diffusion of innovation. And, we’ll dig deeper regarding the modeling of delays, co-flows, aging chains, non-linear relationships, decision-making, human behavior, forecasting, supply chains, and business cycles.

As is appropriate for an advanced topics course, a seminar-type approach will be employed, where individual students or small teams of students will prepare and present portions of the content. As the topical list above indicates, application areas emphasize economics and business, but certainly not to the exclusion of other important and interesting subjects. Additional methodological topics will also be considered, such as model testing and the use of models for prediction and policy evaluation. Student interests will strongly influence the degree of emphasis placed on specific topics and discussions.

Deliverables will include seminar contributions and reports/papers regarding modeling-related research project results. No exams are anticipated. Course grade will be based mostly on the deliverables, with participation factored in as appropriate.

Prerequisites: SySc514