IEMS 443 Health Policy Modeling

Fall 2012   Professor Benjamin Armbruster

Description   Phd level course on applying operations research tools to problems in healthcare with a particular emphasis on applications in health policy. This course has less of an emphasis on hospital operations than IEMS 444. This course will likely not be offered next year.

Areas covered include disease spread and treatment; organ allocation policies; and capacity planning. The policy issues studied will encompass a variety of diseases and health conditions including HIV/AIDS, influenza, small pox, diabetes, and cancer. The analyses will encompass a variety of modeling techniques including simple cost analysis; cost-effectiveness analysis; decision analysis; optimization, contract design, simulation, and dynamical systems.

Class website   http://users.iems.northwestern.edu/~armbruster/2012iems443/

Prerequisites   Bachelor's level understanding of basic concepts in probability, differential equations, and optimization. *Interested first year PhD students are encouraged to enroll*.

Class Times   Monday, Wednesday, Fridays 11:00am – 11:50am, Tech LG72

Exams: No in-class exams (not even for the final)

Instructor   Professor Benjamin Armbruster, Tech M237
                           armbruster@northwestern.edu

Office Hours   Monday and Wednesdays after class and by appointment

Textbook   none

Readings   All readings will be posted online and should be read in advance of the session in which they are discussed.

Term Paper   Each student must write a term paper going into more depth on one subject. The paper could be 1) a critique of an existing study and extend its analysis; 2) a critique of several studies addressing the same policy question; or 3) a new policy study.

Learning Objectives I hope this course will help students 1) get an overview of the variety of healthcare applications for operations research tools; 2) appreciate the scarcity and importance of clinical data; 3) be able to review papers; and 4) acquire decent writing, modeling, and coding skills.