

16:155:549 Advanced Engineering Pharmaceutical Kinetics, Thermodynamics and Transport Processes (*Pharmaceutical Development, Administration and Absorption*)

Professor Benjamin Glasser

bglasser@rutgers.edu

Description

This stand-alone course discusses the application of engineering science principles to drug product development, drug administration to patients, and drug absorption and elimination in the body. The course discusses challenges in drug product development, pharmacokinetics, pharmacodynamics, pharmacologic activity, drug-target concepts and transport processes in the body. Concepts include routes of administration; fundamentals of drug delivery; kinetics of drug absorption, distribution, metabolism and excretion; clearance concepts; and compartmental and physiological models. Students learn how to apply engineering science principles to model pharmaceutical processes and interpret pharmaceutical experiments. Fundamental issues relevant to the design of drug products having immediate release, delayed release, sustained release, and extended release profiles are reviewed. Generation and fate of metabolites is discussed.

Grading

The course will have homeworks most weeks. There will also be a project.

Class Textbook and Reading

There will not be an assigned textbook for the class. Useful material for class reading will be put on the class website.