

COURSE TITLE:

Advanced Pharmacokinetics

INSTRUCTORS:

Dr. Chun-Jung Lin, National Taiwan University

Dr. Oliver YP Hu, National Defense University

Dr. Hsiu-Ying Yu, National Taiwan University

PREREQUISITES:

Mathematics. Students should be familiar with the principles and methods of elementary algebra and introductory calculus. In particular, you should be able to use logarithms and exponentials and understand the basic principle of the derivative and the integral.

Biopharmaceutics and Pharmacokinetics. Students should be familiar with basic concepts of biopharmaceutics and pharmacokinetics (i.e., the meanings of ADME and related applications)

RECOMMENDED READINGS:

Gibaldi and Perrier, Pharmacokinetics, 1982

Wagner, Fundamental of clinical pharmacokinetics, 1975

Rowland and Tozer, Clinical pharmacokinetics, 1995

Guterman and Nitecki, Differential equations, 1992

In addition to the recommended texts above, readings from other books, review articles or the primary scientific literature may be assigned or recommended by each instructor. Some of the faculty may also provide handout notes as a guide or supplement to their lectures.

COURSE DESCRIPTION:

Advance Pharmacokinetics is a continued course for Biopharmaceutics and Pharmacokinetics. The major purpose of this course is to teach students how to solve pharmacokinetic or pharmacodynamic problems using mathematical approaches. Some of the information and concepts from mathematics and elementary pharmacokinetics will be reviewed or developed as needed, but the balance of prerequisite material will be the student's responsibility. Readings and homework will

be assigned, or may be suggested to improve the learning efficiency of students. As a result, it is important to develop an independent ability to construct pharmacokinetic (PK) and/or pharmacodynamic (PD) models corresponding to situations encountered in research and clinical study.

To date, several topics will be introduced and elaborated in this course: Compartment Models; Pharmacokinetic / Pharmacodynamic (PK/PD) models; Physiological models; Nonlinear Pharmacokinetics; Absorption kinetics; Noncompartmental analysis;

Population pharmacokinetics.

EXAMS AND GRADING

The exams are designed to allow you and the faculty to assess your unaided ability to solve or approach the solution of PK and/or PD problems as well as to measure your retention of related essential information. Questions will include a variety of formats, including essay, and problems. The exams are open-book while may not be consulted during exams. Make-up exams are not normally given, except in extraordinary circumstances as determined by the course coordinator. The interim exam and final exam each represent 40% of the total score and take-home problems represent 20% of the total score.