

## Pharmacy Participation in the Chemistry-Biology Interface Program

### Courses offered:

#### **PCOL 7297: Selected Topics in Medicinal Chemistry**

This course will provide in-depth coverage of select medicinal chemistry topics chosen by the medicinal chemistry faculty. A variety of topics will be covered, including the role of natural products in antibiotic and anti-cancer therapies, NSAIDs for the treatment of inflammation and cardiovascular diseases, protein kinases as therapeutic targets, and new approaches for the treatment of diabetes and drug/alcohol additions. Emphasis will be placed on current research strategies being pursued in these areas, including a survey of the current research literature.

#### **PCOL 6340: Medicinal Chemistry 2**

The class will consist of a combination of self-study based upon detailed lecture outlines, attendance at selected lectures in PHAR 5203 Medicinal Chemistry 2, and weekly discussion sessions led by course faculty.

#### **PCOL 6397: Drug Design and Discovery**

The course will cover a variety of topics important to the practice of medicinal chemistry. A number of foundational topics will initially be presented, include a survey of molecular targets, compound molecular-target interactions, physical-chemical properties, ADME (absorption, distribution, metabolism, and excretion) properties, basic formulations, pharmacokinetic data interpretation and toxicity. Then the subjects of lead compound discovery and lead optimization strategies, including case studies, will be presented. Finally, the generation of mechanistic probe molecules and a survey of several other drug development related topics will be briefly covered.

#### **6341: Advanced Pharmacokinetics**

A study of the kinetic processes of drug absorption, distribution, metabolism, and excretion and the application of these concepts to the interpretation of data. Mathematical derivations of the mass balanced relationships involving rate processes and their physiological importance in a biological system are correlated.

#### **6342: Advanced Pharmaceutics I**

A systematic study of the current development of innovative delivery systems. Topics include preformulation, design of solid dosage forms, dispersed systems, dermatopharmaceutics, controlled release dosage forms, liposomes, drug targeting delivery and biotechnology-derived products.

#### **6345: Advanced Pharmaceutics II**

Impact of drug disposition process on drug design, development and delivery. Primary topics include drug absorption/transport, drug metabolism, mechanisms of drug-drug interactions, regulation of drug disposition, and prodrug approaches that target drug disposition pathways.

#### **PCOL 7350: Cellular Pharmacology**

Drug-receptor theory and analysis, membrane receptors and transporters; their structure, function and regulation as it relates to drug action.

### Participating Faculty:

Malavosklish (Liz) Bikram, Department of Pharmacological and Pharmaceutical Sciences

Diana Chow, Department of Pharmacological and Pharmaceutical Sciences

Gregory Cuny, Department of Pharmacological and Pharmaceutical Sciences

Joydip Das, Department of Pharmacological and Pharmaceutical Sciences

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