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IBS 566 - Drug Development: from Proposal to Prescriptions
Piedmont VII
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Introduction to revised syllabus

The goal of this course is to introduce students to the process by which medications are developed, starting with identifying the pharmacological target through marketing and advertising the final product. I have directed this course for four years, drawing on my own area of expertise in pharmacology, but also taking full advantage of the wealth of experience of the faculty and colleagues both within and outside of Emory. While preparing the history of drug development lectures this past spring, it became apparent to me that pharmacognosy, the study of natural sources of medicine, was only going to receive a brief mention in the course. Before the advent of synthetic chemistry, medicines were derived primarily from plants. While many modern-day "blockbuster" drugs have arisen from laboratory processes, there is a resurgence of interest in investigating plants and animals as potential sources of therapeutic drugs. In future presentations of this course, I plan to include a lecture on this important component of the drug discovery process. In future iterations of the course, I would also like to include a "nature walk" on the campus or nearby in which we examine local plants that might have medicinal properties.

Instead of using a formal textbook for this course, I have assigned selected book chapters and readings to highlight the primary issues in each topic. The inclusion of new topics requires additional or substitutions of reading material. Some potential new readings that would incorporate environmental and sustainability themes into this course include:

- "Tales of a Shaman's Apprentice: An Ethnobotanist Searches for New Medicines in the Amazon Rain Forest" by Mark Plotkin
- "Medicine Quest: In Search of Nature's Healing Secrets" by Mark Plotkin
- "Ethnobotany - Evolution of a Discipline" by Richard E. Schultes and S. von Reis
- Koehn FE, Carter GT (2005) The evolving role of natural products in drug discovery. Nat Rev Drug Discov 4: 206-220.
- Newman, D and Cragg, G (2007) Natural products as drug over the past 25 years. J Nat Prod 70(3): 461-477.

This list is by no means comprehensive, but it would be a good start for those students interested in this particular aspect of drug discovery.

IBS 566 - Spring 2009 Syllabus

Drug Development: from Proposal to Prescriptions

The focus of this course is drug development, namely the process by which medications are brought from the identification of a condition to be treated to the distribution to patients. The objective of this course is to be able to describe the necessary steps required to develop a potential medication for treating a particular condition and to provide insights to alternative careers in science.

Instructors:
Heather L. Kimmel, Ph.D., Asst Professor, Dept of Pharmacology, Heather.Kimmel@emory.edu
Keith W. Easterling, Ph.D., Senior Lecturer, NBB Program, keaster@LearnLink.Emory.Edu
guest speakers from universities, pharmaceutical industry, and government agencies

General info: Class meets every Tu and Thursday from 11:30 to 12:45 in DS231

Readings: we will provide the readings necessary for the course on Blackboard

Grading:

25%	class attendance & participation
25%	midterm examination (multiple choice, short answer, essay format)
50%	final project

Date	Topic	Speaker
Th 1/15	Introductions & History	Dr. Easterling and Dr. Kimmel
Tu 1/20	Introduction to pharmacology, part 1	Dr. Kimmel
Th 1/22	Introduction to Pharmacology, part 2	Dr. Kimmel
Tu 1/27	Overview of drug development process	Dr. Dennis Choi, Exec. Dir, Emory NS Init.
Th 1/29	Patent considerations	Dr. Stephen MacDonald, King & Spalding
Tu 2/3	Drug delivery systems	Dr. Mark Prausnitz, Georgia Tech
Th 2/5	Identification of the pharmacophore	Dr. Jim Snyder, Dept. of Chemistry, Emory
Tu 2/10	Designing compounds	Dr. Jim Snyder, Dept. of Chemistry, Emory
Th 2/12	Pharmacognosy	Dr. Kimmel
Tu 2/17	Pre-clinical research - in vitro	Dr. Du Yuhong, Dept. of Pharmacology, Emory
Th 2/19	Pre-clinical research - in vivo	Easterling, Kimmel
Tu 2/24	Toxicology	Ms. Judy Buelke-Sam, Toxicology Services"
Th 2/26	Clinical trials - Investigator initiated	Dr. David Wright, Emory
Tu 3/3	Discussion: economic & environmental impact	
Th 3/5	midterm examination	
Spring break	**3/9-3/13**	**NO CLASSES**
Tu 3/17	Clinical trials - Industry	Dr. Cherie Lovelace, Pfizer
Th 3/19	Clinical trials – special populations	Dr. Joseph Dye, Mercer University
Tu 3/24	Ethics	Dr. John Banja, Emory Ethics center
Th 3/26	Government regulation	Mr. Doug Poucher, King & Spalding
Tu 3/31	Economics/funding	Dr. Easterling
Th 4/2	Technology Transfer	Dr. Jennifer Moore, Office of Tech Transfer,
Tu 4/7	Marketing and advertising	Ms. Tracy Goodridge, Novartis Oncology
Th 4/9	Discussion: final projects	
Tu 4/14	Making a leap to bridge the divide	Dr. Raymond Schinazi, Emory
Th 4/16	Student presentations	
Tu 4/21	Student presentations	
Th 4/23	Student presentations/course wrap-up	