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

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.
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:
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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