

June 25-26, 2014

FROM DRUG TO PRODUCT : A SHORT COURSE ON PHARMACEUTICAL DEVELOPMENT AND SCIENTIFIC ENTREPRENEURSHIP



Mark Prausnitz, PhD

Adjunct Professor, KAIST / Regents' Professor, Georgia Institute of Technology

Course Summary

✓ Intended outcomes

Students in this course will learn technical aspects of the drug development process by which a drug candidate molecule becomes a drug product and will learn about the financial and other business considerations that influence that process. Students will also experience working in teams of students from different majors to solve interdisciplinary problems.

✓ Target audience

Advanced undergraduate (junior or senior year) and graduate students interested in pharmaceuticals and scientific entrepreneurship. The course is intended for students with science and engineering backgrounds, but those from social sciences, business and other backgrounds are welcome if they have an interest in pharmaceutical science and engineering.

✓ General structure and length

The course will take place for two days. The class will be divided into small, interdisciplinary teams of students, each of which will be responsible for developing a technical and business plan for development and commercialization of a drug candidate. The classes will be half lectures and half independent work by each team to develop their technical and business plans. The teams will give final presentations at the end of the second day.

Course Syllabus

Day 1 (June 25th) - *Scientific aspects of drug*

The morning of the first day will be devoted to lectures and discussion of scientific aspects of drug development, including pharmacology, drug delivery, drug manufacturing and clinical trials. During the afternoon of the first day, each team will work independently to develop technical plans for their drug candidates with guidance from the instructor.

09:30 – 11:30 Lecture

11:30 – 14:00 Student team work

14:00 – 15:00 Lecture

15:00 – 16:00 Student team work

Day 2 (June 26th) - *Entrepreneurial aspects of drug*

The morning of the second day will be devoted to lectures and discussion of entrepreneurial aspects of drug development, including patents, funding, start-up company formation, large pharma business structure, commercialization and competition. During the early afternoon of the second day, each team will work independently to develop business plans for their drug candidates and prepare their final presentation with guidance from the instructor. In the late afternoon of the second day, each team will present their technical and business plans as mock presentations to raise venture capital funding for development of their drug product.

09:30 – 11:30 Lecture

11:30 – 14:00 Student team work

14:00 – 16:00 Student presentations

Brief Bio

Mark Prausnitz

Adjunct Professor of Chemical and Biomolecular Engineering, KAIST, Daejeon, Korea

Regents' Professor and Love Family Professor in Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA USA

Dr. Mark Prausnitz earned his BS from Stanford University and his PhD from the Massachusetts Institute of Technology. Dr. Prausnitz teaches an introductory course on engineering calculations, as well as two advanced courses on pharmaceuticals and technical communication, both of which he developed. He also serves the broader scientific and business communities as a frequent consultant, advisory board member and expert witness.

Dr. Prausnitz and his colleagues carry out research on biophysical methods of drug delivery, which employ microneedles, ultrasound, lasers, electric fields, heat, convective forces and other physical means to control the transport of drugs, proteins, genes and vaccines into and within the body. A major area of focus involves the use of microneedle patches to apply vaccines to the skin in a painless, minimally invasive manner. In collaboration with Emory University, the Centers for Disease Control and Prevention and other organizations, Dr. Prausnitz's group is advancing microneedles from device design and fabrication through pharmaceutical formulation and pre-clinical animal studies to studies in human subjects and clinical trials.

If you are interested in this course, please contact professor Yeu-Chun Kim

(dohnanyi@kaist.ac.kr and Cell : 010-6401-2651).

Class may be limited to 20-25 students.