

2020 - Principles and Practice of Drug Development

PPDD is one of the oldest and most highly regarded courses in the Boston area on drug development. It has been taught for many years by Harvard and MIT faculty working in concert with a distinguished team of industry and government-based scientists. The course aims for a highly interactive classroom environment involving students with a variety of interests and backgrounds. We are currently engaged in a substantial effort to update and reconfigure the course while keeping it true to the vision of the founding course directors.

Peter and Stan

Wednesdays 3-6pm, MIT Room 4-237

Course Website: In development

Prerequisite: Permission of instructor

Course Directors: Stan N. Finkelstein and Peter K. Sorger

Instructor: Nienke Moret

Course Founding Directors: Thomas J. Allen, Charles L. Cooney, G. K. Raju, Anthony Sinskey

Introduction to and critical assessment of the concepts, technologies and practical challenges of developing a new medicine and bringing it to market. Pharmacology fundamentals, preclinical drug discovery, clinical trials, manufacturing and regulatory issues, as well as financing and marketing are discussed for small molecule, biologic and cellular therapies. Faculty from MIT, Harvard and industry present introductory and topic-specific lectures (case studies) and students engage in weekly news updates and collaborative research projects. The course uses a medical, economic and societal issues associated with drug development now and in the future.

Preliminary class schedule

| Session date | Topic | Instructors |
|-----------------------|--|----------------------------------|
| Sept 2 nd | Biopharma industry structure In the news (by TAs) | Stan Finkelstein + TAs |
| Sept 9 th | Drug mechanisms at molecular level | Peter Sorger |
| Sept 16 th | High-throughput drug discovery (ICCB-L & LSP) | Peter Sorger |
| Sept 23 th | Target identification and validation | Nienke Moret |
| Sept 30 th | Drug mechanism at the organism level | Josh Apgar & Birgit Schoeberl |
| Oct 7 th | Incentives for drug discovery | Ariel Stern |
| Oct 14 th | Drug Manufacturing | Charles Cooney & GK Raju |
| Oct 21 st | Drug mechanism at the population level, clinical trial design | John Young & Brian Alexander |
| Oct 28 th | Case study clinical trials | Elliott Antman |
| Nov 4 th | Financing of drugs | Mike Rosenblatt & Sumit Khedakar |
| Nov 11 th | NO CLASS | |
| Nov 18 th | Future of personalized precision medicine | Nicole LeBoeuf & George Demetri |
| Nov 25 th | NO CLASS | |
| Dec 2 nd | Infectious diseases and pandemic response | Dan Barouch |
| Dec 9 th | Team debates | |