

MASTER DEGREE IN MICROBIOLOGY



BIOENGINEERING AND MARKET – Instituto Superior Técnico

Objectives:

The development of industries associated to the Life Sciences (Pharmaceutical, Biotechnology, Medical Devices, etc.) follows a path from early stage discovery and scientific idea, through licensing, financing and valuation, clinical trials, manufacturing, regulation, marketing and sales. The goal of this course is to provide the students with an understanding of each of the steps in this value chain, and hence of the dynamics and commercial potential of the Life Sciences, while simultaneously stimulating creativity, innovation and entrepreneurship. The knowledge acquired will constitute a first basis for all those who wish to work on the Life Science Industry, not only as technical specialists, but also as managers, analysts, consultants or investors.

Program:

The topics to be covered in the context of the course include: the characteristics of the Biotechnology industry, biopiracy and tissue ownership, intellectual property, patenting in the Life Sciences, licensing models, value propositions, clinical trials and regulation, bioethics, development of new products, business models, blue ocean strategies, evaluation of technologies and marketing planning, funding strategies (venture capital, business angels), networking and pitching, social entrepreneurship and career development.

Evaluation methodology

This class is about learning by doing and discussing. Illustrative case studies are analyzed and discussed whereby students share opinions and defend their points of view. At the end, the issues discussed are contextualized by the lecturer. Students are urged to work in the classroom in specific exercises related to the topic covered. Short projects are assigned to student teams during the semester. The students present the outcomes of these projects in the classroom. Students are urged to interact with invited speakers. Role playing is used in one class. The web-based course managing tool Lore is used to foster communication. With Lore, students access information posted by the lecturer (e.g. assignments, grades, class summary, slides), share and post information (web-sites, videos, photos) and embark in discussions of class topics.

Grading is based on: i) individual reports on case studies (20%), ii) team presentations (45%), iii) class participation (25%), overall appreciation (10%).

Recommended bibliography:

The Business of Healthcare Innovation., Burns, L.R. (ed), 2005, Cambridge University Press, Cambridge