PhD Advanced Course: Advanced Topics in Medicinal Chemistry and Chemical Biology
2022-2023
ECTS: 6
Classes: 22.5 hours

Course Coordinator: Rui Moreira
Teaching staff: To be confirmed

Short Introduction
The advanced specialization course in Medicinal Chemistry and Chemistry Biology is intended to frame the training of students who have been admitted to the PhD program in Pharmacy. It is a highly flexible programme covering a wide range of courses taught by chemists, pharmacists, biologists and industrial medicinal chemists. It provides a strong foundation in core chemistry, supplemented by specialist knowledge of medicinal chemistry and chemical biology.

Goals and Learning Outcomes
The course on Advanced Topics on Medicinal Chemistry and Chemical Biology covers the critical aspects of drug discovery ranging from target identification to lead identification and lead optimization strategies. Hands-on training using state-of-the-art molecular simulation software is included. In addition, a unique overview of the drug discovery process in the pharmaceutical industry is also provided. The training program is aimed at PhD students and has slots allocated to seminars and practical workshops, including discussions with lecturers.

Programme
The program is organized around four major topics:
Tools
Diseases

(i) Tools for medicinal chemistry & chemical biology
(ii) Artificial intelligence and computer-assisted drug discovery
(iii) Drug discovery to tackle complex diseases
(iv) Drug discovery in Pharmaceutical Industry and Biotechs

Preliminary timetable
To be defined according to invited speakers. Preferred dates are 12-16 or 26-30 September 2022

Assessment
Assessment of the course consists in the preparation and submission of a research project, 10 000 characters long (including spaces). Students are grouped to build multidisciplinary teams. Each group works throughout the week on a research project that should reflect the topic of the course, including methodologies and strategies to solve an innovative research question. The project is expected to adhere to the following general structure: a) Title; b) Conceptual hurdle and innovative idea to be tested; c) Plan and methods: d) Relevance of the project (scientific and social impact).
The students will select a broad topic of research in Medicinal Chemistry/Chemical Biology and are expected to propose a specific project. This project will be evaluated according to the following criteria and weight: a) Novelty and relevance (30%); b) approach to the problem (40%); c) multidisciplinarity of the research plan (30%).