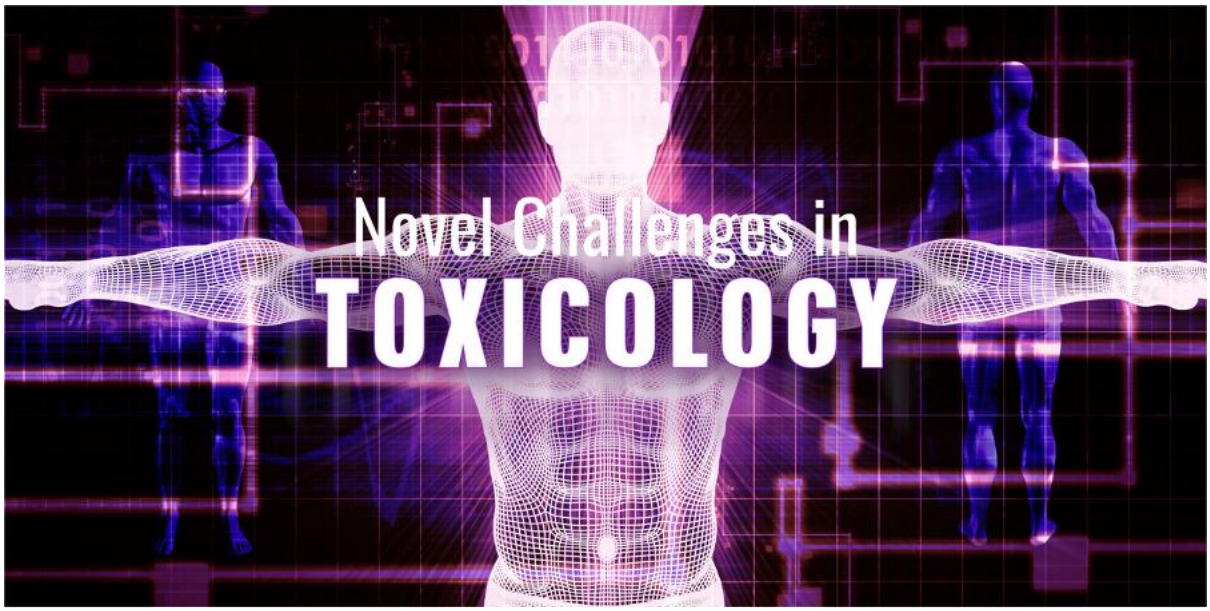
Novel Challenges in Toxicology

PhD Advanced Course

September 27-30, 2022

Course Coordinators: Joana Miranda and Nuno Oliveira **ECTS:** 6 | **Classes:** 22.5 hours



The course will be held at FFUL in a hybrid-mode, with both in-person and virtual lectures (zoom platform).

Location: Main building, Amphitheater B

ZOOM link: (to be announced)

PROGRAMME

TUESDAY – 27th September

9h30-10h| ***Opening Session***

Nuno Oliveira and Joana Miranda

Module 1: Toxicology concepts and challenges

1. *Overview of key concepts, applications, and challenges of toxicology*

10h-11h| *Nuno Oliveira, FFUL, PT*

11-11h30| ***Coffee Break***

2. *Mechanisms of target and non-target organ toxicology*

11h30-12h30| Drug-Induced liver injury: towards precision medicine

Isabel Lucena, Univ. Malaga, ES

12h30-13h30| Cytochrome P450 enzymes in xenobiotic metabolism and their role in chemical genotoxicity.

Michel Kranendonk, NOVA Medical School/UNL, PT

13h30-15h| ***Lunch break***

3. *Applied toxicology in pharmaceutical sciences*

15h-16h| Redox toxicology

Ana S. Fernandes, Univ. Lusófona, PT

16h-17h| Food and environmental toxicology: from xenobiotics exposure to cancer.

António Sebastião Rodrigues, NOVA Medical School/UNL, PT

WEDNESDAY – 28th September

Module 2: Emerging technologies in toxicology

1. *Advanced models in toxicology*

9-10h| 3D liver models for drug metabolism and toxicology studies
Joana Miranda, FFUL, PT

10-11h| Development of Zebrafish Models for studying DILI
Ozlen Konu, Bilkent University, TK

11-11h30| ***Coffee Break***

2. *Stem cell toxicology*

11h30-12h30| Generation of functional liver cells from human induced pluripotent stem cells for toxicological applications
Pau Sancho-Bru, FCRB-CERCA, ES

12h30-13h30| Eye-on-chip in vitro platforms for drug development
Madalena Cipriano, Faculty of Medicine, Univ. Tübingen, DE

13h30-14h30| ***Lunch break***

3. *Systems toxicology: the "omics" era*

14h30-15h30| Systems toxicology: Cellular stress responses and prediction of adverse drug responses
Bob Van Der Water, Leiden University, NL

15h30-16h30| Omics-technologies applied to exosomes and body fluids for biomarkers identification in toxicology.
Juan M. Falcon-Perez, CIBERehd, ES

16h30-17h30| Advances in predictive toxicology
Christopher Goldring, Univ. of Liverpool, UK

THURSDAY – 29th September

Module 3: Impact of Toxicology in the new era

1. *Safety issues in novel medicines*

9-10h| Toxicological issues in advanced therapies
Isabel Vieira, Infarmed, PT

10-11h| Regulatory acceptance of 3R methods for non-clinical testing of human medicinal products: challenges and opportunities.
Sonja Beken, FAMHP, BE

11-11h30| ***Coffee Break***

11h30-12h30| Regulatory toxicology
Beatriz S. Lima, FFUL, PT

12h30-14h| ***Lunch break***

2. *Milestones of toxicology and contemporary issues*

14h-15h| New insights on the bioavailability of xenobiotics
Fernando Remião, FFUP, PT

15h-16h| Occupational exposure and human biomonitoring
João P. Teixeira, INSA, PT

16h-17h| Impact of toxicology in modern society
Félix Carvalho, EUROTOX & FFUP, PT

17h-17h30| Guidelines for learning assessment & closing session
Nuno Oliveira and Joana Miranda

FRIDAY – 30th September

9-13h| Autonomous work

13-14h| ***Lunch break***

14h-17h| *Student Oral Presentations of the Research Project Assignments*

17h-17h30| ***Closing Session***
Joana Miranda and Nuno Oliveira

ASSESSMENT: *Student Oral Presentations and Written Document of the Research Project Assignments*

Although the course is open, assessment of the course is valid only for students registered in the PhD programme in Pharmacy from FFUL and for participants who chose the "Registration with evaluation" modality. It consists in the preparation and submission of a research project (6 pages limit) in a topic relevant within the framework of the course. Students are to be grouped in interdisciplinary groups of 2 or 3 students.

The research project should be structured to address an innovative research question as follows: *i*) Title; *ii*) The problem and the innovative approach; *iii*) Plan and methodology; *iv*) Expected results and impact.

The project will be evaluated according to the following criteria and weighting: a) Novelty and relevance (20%); b) Clarity and credibility of the approach to the theme/problem (20%); c) Multidisciplinary aspects of the research plan (30%). Peer (15%) and self-assessment (15%) will also be considered.