

CORSO DI DOTTORATO IN BIOLOGIA

Ph.D. COURSES

2023/2024

RESEARCH PROFESSIONAL SKILLS

Course coordinator: Alessandro Massolo (University of Pisa)

Schedule: June 1, 2024 –July 15, 2024

Duration: 32 hours

Description: The course focuses on core skills that are fundamental for a young researcher to achieve in early stages of her career. The course is organized in three blocks: one on scientific writing, one on literature search and management, and ethical aspect related to it, and the last in on general skills on communication and formal assessment of scientific contributions.

The course is hands-on based, and students will be asked to write up pieces of papers, projects, presentations and to run literature searches and organize their literature using specific software for literature management.

Prerequisites: None required.

Preliminary program:

- Specifically, the first block will be centered on the structure, content and style in scientific writing. This will include writing of projects, reports, PhD thesis, and scientific publications. It will be minimally focused on the use of the English language, just provide some basic suggestions on how to improve the writing style in scientific writing to ensure clarity and synthesis.
- The second block will deal on where and how to search for scientific literature, and on how to organize it. It will introduce to the three most used citations platforms (Scopus, Web of science, PubMed) and how to elaborate a search string. It will also include a component related to the ethical use of literature, editorial copyright and plagiarism.
- The third block is intended to be general in nature and will include lectures and activities related to how to prepare an efficient presentation of a scientific work, and on the statistics used in scientometry to estimate the impact and quality of scientific journals, publications and of the overall production of a researcher. It will also provide lectures on how to carry out and write up a literature review, starting from the various types of reviews and their structures to the way to actually run it using standard international protocols.

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ADVANCES IN BIOLOGY I

Course coordinator: Daniele Campa (University of Pisa)

Schedule: 2023/2024

Duration: 12 hours

Description: The course focuses on cutting edge topics in the field of Biology. The course will be structured as oral presentations that will be held online. The aim of the course is to give to young researchers an overview on what's new in Biology in order to help them to broaden their horizon and show how renown scientists overcome obstacles in the multidisciplinary landscape of Biology.

Prerequisites: None required.

BASIC AND ADVANCED MICROSCOPY COURSE

Course coordinator: Michela Ori (University of Pisa)

Schedule: February 2024

Duration: 12 hours

Description: The course focuses on basic and advanced microscopy techniques. From tissue/cell preparation to cell visualization in live imaging. The course is organized in 4 lectures (2 hours each) and 2 lessons (2 hours each) with the active participation of PhD students presenting the use of microscopy in their PhD project or possible application of microscopy techniques in their project.

Prerequisites: None required.

Preliminary program:

- Experts in confocal imaging, live imaging, high resolution microscopy, light sheet microscopy will present specific and multidisciplinary applications.
- We will dedicate a lesson to the presentation of CISUP instruments and their possible application in PhD projects in Biology. (Questa per ora è un'idea da verificare in base alla disponibilità che sarà data dal CISUP)

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EXPERIMENTAL AND SAMPLING STUDY DESIGN

Course coordinator: Fabio Bulleri (University of Pisa)

Schedule: September 2024

Duration: 12 hours

Description: The course focuses on the design of studies and experiments in biology, a fundamental skill for young researchers in biological sciences

The course is hands-on based and students will be asked to write up and present their experiments

Prerequisites: None required.

Preliminary program: The hypothetico-deductive approach; Hypothesis testing; Correlative versus experimental studies; Procedures for selecting observational units; Common pitfalls and mistakes underpinning confounded studies; Retrospective and prospective studies; Cohort studies.

During their doctoral programme, doctoral students may take advantage of courses offered within the Master's degree programmes at the University of Pisa, provided that such courses have not already been undertaken during their previous career, and that they are in line with the doctoral project.

Doctoral students may take advantage of courses without the need to obtain authorisation from the Collegio di Dottorato, but are required to discuss it with the Supervisor/s.