

PhD Course Programme 2024

Course, event	Description	Duration and credits	Responsible and contacts	Dates
Basic and Advanced Flow Cytometry	The course aims to give basic functional aspects of flow cytometer, and advanced learnings regarding study panel design, data analyses and flow cytometry data presentation. The course will discuss the following topics: Basic functional aspects of a flow cytometry, Morphological Parameters, Fluorescence and Fluorophores, False positive events (dead cell exclusion and doublets discrimination), Negative controls, Cell Staining Procedures for immunophenotyping, Signal Amplification, Machine Set Up, Reagents titration, Theory of fluorescence compensation and related procedures, Data analysis, Flow cytometry data presentation, Study design	4 hours 0.25 ECTS	IOR Prof. Arianna Calcinotto Dr. Jens Fleischer registration: phd.biomed@usi.ch	Dates TBD (as soon as the min. number of participants is reached)
Bioinformatics	Data mining algorithms and classification methods; structural bioinformatics	2 half days 1.5 ECTS	USI Prof. Vittorio Limongelli registration: phd.biomed@usi.ch	Dates TBD (as soon as the min. number of participants is reached)
Biomedical Sciences program	Detailed programme: https://content.usi.ch/sites/default/files/storage/attachments/biomed/biomed-phd-cardiovascular-sciences-a3_2022.pdf new programme available soon	10 per year 0.5 ECTS	lucio.barile@usi.ch	TBD
Cardiovascular Research Cluster Bern courses	e.g. Techniques in Cardiovascular Research, Heart Module, Cardiovascular Technology, Heart rate variability, Cellular and Translational Cardiac Electrophysiology, Vascular Cell Biology	Variable duration and ECTS	UNIBE Daniela Castillo daniela.castillorobles@unibe.ch https://www.cvrc.unibe.ch/phd_program/courses/	
Computational Biology and Drug design	The course provides knowledge to deal with calculations of biological interest. Principles of biology and chemistry are delivered together with a deep understanding of the methods used to	2 half days 2 ECTS	USI Prof. Vittorio Limongelli registration: phd.biomed@usi.ch	Dates TBD (as soon as the min. number of participants is reached)

	compute chemico/physical properties of molecules such as organic and peptidic ligands, proteins and nucleic acids. Standard and advanced computational techniques are described in details and many applications illustrated. Molecular dynamics, free-energy calculations are some examples. Great attention is dedicated to the application of these methods in drug design through rational approaches and more automated protocols. Prerequisites: Basic knowledge of chemistry, biology and pharmacology; good knowledge of structure-based drug design; good knowledge of molecular simulations in pharmacology (drug/molecular target interaction).			is reached)
Ethical issues in Biomedical Research	The objectives of this course are to increase this awareness of the ethical issues and of their potential impact in the selection and preclinical evaluation of new molecules, in the decision making process, in the care of patients and in the social environment.	1 day 0.5 ECTS	CTU-EOC Laura Di Petto Laura.DiPetto@eoc.ch registration: https://www.ctueoc.ch/formazione/	TBD
ExoDay	The workshop initiative aims to bring together experts and young investigators from different countries working in the field of extracellular vesicles. Structured around keynote presentations from selected speakers, flash presentations and posters from young investigators, the symposium will facilitate the exchange of views on the current and future technology solutions in the expansive field of Extracellular vesicles and their applications in the healthcare sector.	1 day 0.5 ECTS	Information and registration: https://marvel-fet.eu/marvel-project-symposium/	TBD
Extracellular vesicles and intercellular communication	Introduction in cell-to-cell communication mediated by extracellular vesicles. The course will cover the principles of their biogenesis, cell targeting, uptake, and cargo release required for functional paracrine activity.	3 hours (2x 90 min) 0.25 ECTS	Cardiocentro Carolina Balbi, Elena Vacchi registration: carolina.balbi@eoc.ch	Dates TBD (as soon as the min. number of participants is reached)
GCP 1st Level Investigator	Part 1 and 2	2 days 1 ECTS	CTU-EOC Laura Di Petto Laura.DiPetto@eoc.ch registration: https://www.ctueoc.ch/formazione/	12.03.2024 26.03.2024 (EN) 16.10.2024 23.10.2024 (IT)
Giornata della Ricerca	Il programma prevede una cerimonia di ringraziamento, delle Keynote Lectures, quattro sessioni parallele con le presentazioni orali dei risultati dei progetti di ricerca svolti in Ticino, e la consueta esposizione e discussione dei poster.	1 day 0.5 ECTS	CTU-EOC Laura Di Petto Laura.DiPetto@eoc.ch registration: https://www.ctueoc.ch/formazione/	27.09.2024
How to write and publish a scientific paper	NIH-based, practical course to learn and apply a structured method to write scientific papers, which consists in crafting the manuscript through a supervised peer-to-peer work over 6	7 days (7x 1.5h) 1.5 ECTS	USI Prof. Emiliano Albanese registration: phd.biomed@usi.ch	Dates TBD (as soon as the min. number of participants

	<p>weeks.</p> <p>Prerequisites: You must already have the results of your study and must have 2/3 published papers (full text) on the subject of your study, one from your own Lab.</p>			is reached)
How to write a grant proposal	<p>This course presents the research funding landscape. You will learn how to apply for specific instruments, and how to prepare specific sections of your grant written application.</p>	<p>½ day</p> <p>0.25 ECTS</p>	<p>CTU-EOC Laura Di Petto Laura.DiPetto@eoc.ch</p> <p>registration: https://www.ctueoc.ch/formazione/</p>	27.03.2024
Immunology course	<p>The coursework consists of 10 lessons. Each lesson includes the presentation and discussion of two chapters of the book: "Cellular and Molecular Immunology", Abbas, Lichtman, Pillai (Elsevier Saunders) with the supervision of a principal investigator of the institute. Every student presents two chapters during the course and actively participates in the discussion of the other chapters.</p>	1 ECTS	<p>IRB Prof. Greta Guarda greta.guarda@irb.usi.ch</p>	TBD
Introduction to Biostatistics	<p>I principi di base della statistica applicata alle scienze biologiche e alla medicina. Relatore: Dr. Valter Torri, Responsabile Lab. Metodologia per la Ricerca Clinica, Mario Negri Milano.</p>	<p>2 half days</p> <p>0.5 ECTS</p>	<p>CTU-EOC Laura Di Petto Laura.DiPetto@eoc.ch</p> <p>registration: https://www.ctueoc.ch/formazione/</p>	<p>15.04.2024 22.04.2024 (EN)</p> <p>06.12.2024 13.12.2024 (IT)</p>
Introduction to mass spectrometry-based proteomics	<p>Basic principles of mass spectrometry and data analysis will be discussed as well as several applications of proteomics in biomedical research.</p>	<p>4 hours</p> <p>0.25 ECTS</p>	<p>Prof. Roger Geiger, Dr. Matteo Pecoraro matteo.pecoraro@irb.usi.ch</p>	Dates TBD (as soon as the min. number of participants is reached)
Introduction to Neuroscience: brain and behaviour	<p>The course focuses on the relationship between human behavior and brain, pointing out the neural basis of cognitive, affective and social processes. It will also have the aim of describing the most widely used methods in neuroscience research, e.g. functional magnetic resonance imaging (fMRI), magnetoencephalography (MEG), transcranial magnetic stimulation (TMS), electroencephalography (EEG).</p>	<p>4x 3 hours</p> <p>1.5 ECTS</p>	<p>USI Rosalba Morese phd.biomed@usi.ch</p>	Dates TBD (as soon as the min. number of participants is reached)
Ion channels and Channelopathies	<p>Ion channels background: structure-function relationship. The aim of the course is to focus on the physiological contribution of transmembrane ion channels with the particular attention to their role in the main pathological conditions.</p>	<p>3 hours (3x 60 mn)</p> <p>0.25 ECTS</p>	<p>Cardiocentro Claudia Altomare registration: claudia.altomare@eoc.ch</p>	Dates TBD (as soon as the min. number of participants is reached)
IOR internal lectures	<p>Detailed programme: https://content.usi.ch/sites/default/files/storage/attachments/biomed/biomed-international_phd_program_in_cancer_biology_and_oncology_2023-24.pdf</p>	<p>10 per year</p> <p>0.5 ECTS</p>	<p>IOR www.ior.usi.ch</p>	<p>07.09.2023 24.10.2023 15.12.2023 26.01.2023 23.02.2024 22.03.2024 23.04.2024</p>

				24.05.2024 14.06.2024
IOSI internal lectures	Detailed programme: https://content.usi.ch/sites/default/files/storage/attachments/biomed/biomed-conferenze_formative_iosi_2024_definitivo.pdf	10 per year 0.5 ECTS	IOSI ricerca.iosi@eoc.ch	24.01.2024 14.02.2024 27.03.2024 17.04.2024 15.05.2024 19.06.2024 18.09.2024 23.10.2024 20.11.2024
IRB internal lectures	Detailed programme: https://content.usi.ch/sites/default/files/storage/attachments/biomed/biomed-locandina-phd-a3_2023-24-web.pdf	10 per year 0.5 ECTS	IRB www.irb.usi.ch	26.10.2023 07.12.2023 16.01.2024 06.02.2024 07.03.2024 09.04.2024 14.05.2024 11.06.2024 25.06.2024
Legal and Ethical Aspects of Research	The course will create awareness towards academic integrity by presenting the legal and ethical issues in research and publication. The class will focus on different aspects of academic integrity such as plagiarism, co-authorship, conflict of interest and specific legal issues like freedom of research, access to information, copyright and data protection.	3 ECTS	USI Prof. Bertil Cottier, Prof. Peter Seele Registration: www.phdsubscription.lu.usi.ch (support: gestione-dottorato.com@usi.ch)	
Microscopy applications for immunological research	Physics light; practical instruction on microscopes; Fluorescence Microscopy Application; practical measurements with confocal and wide field microscopes; digital images, image analysis with ImageJ / Cell profiler; IHC; multi-photon microscopy	2 days 1.5 ECTS	IRB Diego Morone diego.morone@irb.usi.ch Prof. Marcus Thelen marcus.thelen@irb.usi.ch	Dates TBD
PhD Day	A special opportunity for USI PhD students not only to get to know each other, discuss with their peers and attend various lectures, but also to present their work to through posters or public presentations.	1 day 0.5 ECTS	USI phd.biomed@usi.ch	Date TBD
PhD program Biomedicine UZH-ETH	e.g. Introduction to human physiology (Sensory systems – how we hear and see, Membrane transport / signal transduction, Regulation of cardiovascular function), Molecular Biology Methods, Mouse physiology and patho-physiology	Variable duration and ECTS	ETH-UZH andrea.schmitz@uzh.ch https://www.phd-biomed.uzh.ch/en/BioMed_Training/BioMed_courses.html	
Planning and conducting Clinical Research	Planning and conducting Clinical Research	2 days 1 ECTS	CTU-EOC Laura Di Petto Laura.DiPetto@eoc.ch registration: https://www.ctueoc.ch/formazione/	Dates TBD
Practical aspects of Next Generation Sequencing and its applications	This course will introduce students to NGS techniques on practical point of view. We will discuss the use of NGS from research area (presenting the different approaches that were developed) to clinical practice (disease	6 hours (4x90min) 0.5 ECTS	IOR Dr. Andrea Rinaldi Prof. Davide Rossi andrea.rinaldi@ior.usi.ch	Dates TBD (as soon as the min. number of participants is reached)

	diagnosis, prognosis, therapeutic decision and follow up of patients).			
Regenerative Medicine & musculoskeletal sciences	This course will have a strong translational character to expose students to the bench-to-bedside translational path, being composed of two parts. The first will span the fundamentals in 3D in vitro & preclinical models (biomaterials, cells, biofabrication techniques), whilst the second part will deal with the clinical aspects of the application of regenerative medicine products and biologics to the patients (regulatory, ethics, etc.). At the end of the course, the students will perform an analysis of the state of the art within their field of research.	2 days + practical work 3 ECTS	RMT Lab/ Orthopedic and Trauma Service EOC	
Research policy and grant proposal writing	Course to introduce students to the research policy and funding landscape and to provide them with the competences needed for academic careers	9 days (9x 3h) 3 ECTS	USI Prof. Benedetto Lepori Registration: www.phdsubscription.lu.usi.ch (support: gestione-dottorato.com@usi.ch)	February-April 2024
Seminars in Biomedical Neurosciences	Detailed programme: https://content.usi.ch/sites/default/files/storage/attachments/biomed/biomed-phd-biomedical-neurosciences-a3_2024-primo-semester.pdf	10 per year 0.5 ECTS	Neurocentro salvatore.galati@eoc.ch	24.01.2024 21.02.2024 27.03.2024 24.04.2024 29.05.2024 05.06.2024 Via Zoom
SSPH+ Summer School – lecture series	Online lectures on public health questions	3 days 1 ECTS	SSPH+ Information and registration: https://www.ssph-lugano-summer-school.ch/	
Summer School in Social Science Methods	The Summer School in Social Science Methods has been conceived for those who feel the need to refresh, deepen and widen their methodological knowledge and skills, whatever their professional situation: student, researcher or practitioner.	10 days from 1.25 ECTS	https://www.usi.ch/en/education/lifelong-learning/summer-winter-school/ssm contact: methodssummerschool@usi.ch	

Notes

- Please see the list of mandatory and recommended courses for your PhD specialisation.
- For registration you have to contact the organiser of the course, unless otherwise specified.
- You will be informed by email of major changes and the programme will be regularly updated.
- Courses take place only when a minimum number of participants is reached.
- The list is not exhaustive. Other commonly chosen courses are SIB courses, LTK courses and generally all courses offered by other Swiss universities upon approval of the Thesis Director (see the “PhD Study Regulations”). Other events are BENEFRi workshops and Wolfsberg meetings.