SSPH+ INTER-UNIVERSITY GRADUATE CAMPUS SWISS SCHOOL OF PUBLIC HEALTH

in collaboration with

University of Applied Sciences and Arts of Southern Switzerland
SUPSI

Artificial Intelligence, Deep Learning & Healthcare

Facilitators

- **Dr. Francesca Faraci, PhD,** GroupLeader, (SUPSI/DTI/MeDiTech/BSP)
- **Dr. Luigi Fiorillo, PhD** (SUPSI/DTI/MeDiTech/BSP)
- **Dr. Davide Marzorati, PhD** (SUPSI/DTI/MeDiTech/BSP)

Other research assistants will support during the practical exercises.

Description

This course will give a broad overview of the potentials and limitations of machine learning and deep learning applications in healthcare, with a focus on clinical data exploitation. After providing an overview of the pros and cons of different approaches, and a list of examples of their application, the student will learn the basics of using Python for data analysis, machine learning and deep learning. Data management and ethical issues will shortly be presented from different perspectives. Application in Healthcare domain, including public health, will be presented and discussed. Throughout the course, the theoretical insights acquired from the lectures will be applied to a specific use case, starting with descriptive statistics, followed by regression analysis and explainable machine learning models using clinical features, up to a deep learning model.
The course is meant for a generic audience that includes both data scientists, biomedical engineers and clinicians, physicians that are interested in expanding their knowledge.

Objectives

By the end of the course, students will be able to run a typical Python project: import data from text or Excel files, perform data manipulation (including use of labels), save manipulated data, perform statistical analysis, graphical representation of the data. Students will also be able to execute a script with basic examples of type of data classification.

Dates

2/3/4 and 7/8 September 2026

Eligibility

SSPH+ IGC students, external PhD students and other participants are welcome for limited places.

Ann Walser
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Course Structure

Lectures, case study analysis and practical exercises. Students will be given continuous support, during practical exercises, accordingly on their programming skills.
Students will receive predefined scripts and data to practice with, and are encouraged to present their own research problem/possible application.

The course is divided equally in theoretical and practical work. The theoretical part, will be supported by videos and SoA publications analysis, whilst during the practical part supervised laboratory activities are foreseen.

Assessment

Continuous self-assessment with short surveys and interactive-quizzes. At the end of the course a short exam needs to be completed. The results will be openly discussed.

Credits

2 ECTS

Preliminary Work: 2-6 h; Contact time: 38 h; In-course work: 20 h; Wrap-Up Work: 1 h

(1 ECTS corresponds to appr. 25-30 hours workload)

Location

ONLINE

Course Fees

IGC Course Fees	**2 ECTS**
SSPH+ IGC PhD and MD Students	30 CHF
Postdocs from SSPH+ partner institutes with a SSPH+ Faculty Member as line manager	30 CHF
External PhD students, external MD Students, postdocs from SSPH+ partner institutes without a SSPH+ Faculty Member as line manager and Swiss Public Health Doctors in training	600 CHF
Others	1'600 CHF

Registration

https://www.conftool.com/ssph-phd-courses2026/

2 August 2026

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Deadline for registration

SSPH+ Inter-university Graduate Campus

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