

Big Data in Public Health

Facilitators

(to be confirmed)

Oliver Gruebner Christian Baumgartner	University of Lucerne, Switzerland
Vasileios Nittas Nico Pfiffner Milo Puhan Markus Wolf Viktor von Wyl	University of Zurich, Switzerland
John Naslund	Harvard Medical School, USA
Suzanne Elayan Martin Sykora	Loughborough University, UK
Marta Fadda	Università della Svizzera italiana, Switzerland
Steve Mooney	University of Washington, USA
Ketan Shankardass	Wilfrid Laurier University, Canada

Description

Big data approaches raise high hopes, promising that this new form of data mining and analysis will significantly improve public health research and action. **The proposed course will give a broad overview of potentials and limitations of big data from multiple public health disciplines.** Definitions and concepts particularly from epidemiology, geography, and psychology are introduced and discussed in keynote lectures to evaluate the public health relevance of big data. We will also examine key legal and ethical challenges from a broader public health perspective. Subsequently, **we will explore emerging methods in big data analysis and their application for advancing public health research, with a particular focus on mental health** in mini projects working on perspective papers (i.e., group assignments extending on the keynote lectures) during and in the aftermath of the course.

Objectives

By the end of the course, the participants are familiar with public health relevant definitions and challenges of big data approaches from major public health disciplines. They can address key issues in research and the broader public health discourse. **Specifically, participants will:**

- 1. Discuss the relevance and potential for big data to advance public health research**

2. Review novel methods in big data analysis towards addressing important public health challenges
3. Write a position paper highlighting the impact for real-world public health challenges using big data approaches.

Dates

May 19-23, 2025

Eligibility

Priority is given to PhD students registered at Swiss School of Public Health + (SSPH+). Other students and external participants equipped with master's degrees in the (various) fields of public health and related areas are welcome to apply for limited space. The maximum number of students is 20.

Course Structure

The course is conducted at **University of Lucerne** and consists of keynote lectures that will introduce into the wider topic and that will provide ample room for questions and discussions. We will further discuss specific questions such as ethical and legal aspects in big data for public health. In break out groups, participants will work in teams to review specific questions around applying big data in public health as a mini project. The preliminary outcomes of the mini projects will be presented and discussed in the plenum at the end of the course.

Assignment

- 1) Read the papers received **before Monday May 19th**.
- 2) Mini project group work (3-4 persons), Monday to Thursday May 19th-22nd: Evaluate the discussed big data approaches in the light of a given real-world public health challenge and sketch a position paper in this context.
- 3) Mini project group work presentation, Friday May 23rd: Present the outline of this position paper in a (e.g., Power Point) presentation and discuss the presentations of the other groups.
- 4) Mini project group work after the course, **due Friday, June 20th**: Write a position paper (minimum 2 pages) based on your outline presented in class that highlights the impact of big data methods for a given real-world public health challenge.

Assessment | Participants will be evaluated by their active participation during the course and by their presentation of group assignments (mini projects) at the end of the course. Furthermore, participants will write a position paper (minimum 2 pages) highlighting the outcomes of their mini projects due 4 weeks after the course (June 20th, 2025).

Credits | 2 ECTS: Preparation work: 30 h; teaching: 30 h.
(1 ECTS corresponds to appr. 25-30 hours workload)

Location | University of Lucerne
Frohburgstrasse 3
6002 Lucerne
Room: E.508

Course Fees

	2 ECTS
SSPH+ IGC PhD Students	30 CHF
SSPH+ IGC MD Students	30 CHF
External PhD students, external MD Students and Swiss Public Health Doctors in training	600 CHF
Others	1'600 CHF

Registration | <https://www.conftool.com/ssph-phd-courses2025/>

Deadline for Registration | 19. April 2025