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

in collaboration with

unisanté Centre universitaire de médecine générale et santé publique · Lausanne

Visualization and modeling for public health surveillance

Facilitator

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Department Epidemiology and Health Systems, Center for primary medicine and public health (Unisanté) – University of Lausanne

Description

Public health surveillance is the ongoing and systematic collection, analysis, and interpretation of health-related data, closely integrated with their timely dissemination and communication to those responsible for public health strategies and action on disease prevention and control. Methods and tools for surveillance and population health monitoring, initially developed for infectious diseases and outbreak control, are now applied to other health conditions like chronic diseases, mental health or occupational and environmental health.
With the advances in the field of data science and the growing access to multiple types and increasing volumes of data, the field of surveillance and health monitoring is going to adapt and evolve rapidly. This includes moving to a wider scope of applications, for example, surveillance may also include monitoring health care services, disease trends and risk factors associated with adverse health events. This also implies using new methods for modelling and visualizing data. These approaches not only provide innovative ways to interpret complex information but also offer powerful tools to communicate results to a broader audience.

Objectives

Our aim is to work with participants on concrete examples of public health surveillance and monitoring programs from the Swiss context, with the target to help them analyzing and inform decision-making associated with their implementation.

By the end of the course, participants should be familiar with modelling and visualization methods for public health surveillance. In particular, they should:

- Know and handle the development of surveillance indicators depending on the surveillance goals and data available (census

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and vital statistics, national health surveys, registries, but also medico-administrative data, data from social media or google)
- Know the utility, validity and limitations of health indicators
- Correctly analyze and interpret commonly used surveillance indicators
- Understand the basics of syndromic surveillance and epidemic forecasting
- Understand the basics of data visualization to support communication of public health findings

Dates

23 – 25 November 2026

Eligibility

SSPH+ PhD students, researchers and public heath staff with basic training in public health surveillance or population health monitoring.

Course Structure

Lectures, individual exercises and group work

The course consists of lectures and computer-based exercises using R, R Markdown, and R Shiny. Basic knowledge of R is therefore requested. A list of packages will be provided two weeks before the course.

Participants must bring their own laptop to the course.

Python may also be used for data preprocessing by participants who are more familiar with it. Examples of post-processing visualization design for infographics, using software such as Adobe Illustrator or Affinity Designer will be shown, although the core analyses and outputs will be generated within R.

Please note that this is an advanced course, and participants should already be familiar with the basic principles of public health surveillance.

Assessment

In-class assignments and personal work, to be handed in after the course.

Credits

1 ECTS

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Preliminary Work: 1 h; Contact time: 9 h; In-course work: 10 h; Wrap-Up Work: 10 h

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

Location

Center for primary medicine and public health (Unisanté) – University of Lausanne (Biopôle Campus)

Course Fees

	1 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	300 CHF
Others	800 CHF

Registration

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

Deadline for registration

23 October 2025

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