

# GIS for Public Health

## Facilitator

**Dr. Danielle Vienneau**, Swiss TPH, University of Basel  
**Dr. Kees de Hoogh**, Swiss TPH, University of Basel

## Description

The physical and social environment that surrounds us plays an important part in our health and wellbeing. The geography concept of 'place' thus cannot be ignored in public health. Whether investigating the level of environmental pollution, access to recreation or health services, or the patterns or spread of disease, Geographic Information Systems (GIS) provide the standard platform for exploring spatial attributes and relationships between our environment and health.

This course offers an introduction to GIS and how it is used in public health and epidemiological research, with a focus on building a GIS project workflow and exposure assessment. It will introduce students to the basics including: developing a coherent GIS database; working with and integrating spatial and non-spatial data; geographic scale and spatial precision; projections; geocoding; understanding spatial relationships and basic analyses; visualization; thematic mapping; and map design. Specific skills and tools will also be introduced in relation to methods for exposure assessment including route analysis, and for spatial linkage of exposure, contextual and confounder information for epidemiological or health risk assessment studies. Students will apply their new skills in a case study based either on their own data or on available datasets for defined topics.

This course includes plenty of practical time for hands-on data analysis in **open source GIS (specifically QGIS and R)**, interspersed with a mix of short lectures and demonstrations.

No prior knowledge of GIS is required, though completion of pre-course work is essential preparation for this intensive course.

## Objectives

Students will gain knowledge in the fundamentals of GIS for spatial data handling and analysis. By the end of the course, students will

- Understand how GIS can be used to enhance public health and research;

- Be able to create a GIS database (acquire, incorporate spatial data);
- Be able to utilise a GIS and perform basic spatial analyses (manipulate, analyse spatial data);
- Be able to appropriately generate and communicate results (visualize, map spatial data).

### Dates

**11 – 15 November 2024**

### Eligibility

Open to PhD students of SSPH+ public health program; other students and external participants are welcome to apply for limited spaces.

### Course Structure

5-days hands on experience on GIS software, interspersed with lectures. The course includes pre-course and in-class assignments and will culminate in group presentations on practical case studies.

### Assessment

Final group presentation

### Credits

**2 ECTS**

Preparation/homework 8 h, Contact 45 h  
(1 ECTS corresponds to appr. 25-30 hours workload)

### Location

Basel (Swiss TPH, Kreuzstrasse 2, 4123 Allschwil), Seminar Room 6

### Course Fees

	<b>2 ECTS</b>
SSPH+IGC Students	30 CHF
Postdocs from SSPH+ partner institutes	30 CHF
External PhD students and MD students	600 CHF
Others	1'600 CHF

### Registration

<https://www.conftool.com/ssph-phd-courses2024/>

### Deadline for Registration

**11 October 2024**