



INTENSIVE COURSE

Geographic Information Systems for Public Health

E-learning format

08th November – 23rd November 2024

Intensive Course

Geographic Information Systems for Public Health

– 5th Edition

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Course description

Geographic Information Systems (GIS) are increasingly used in public health to explore the associations between population health, places, and the social and physical environment.

In this course we will cover the most relevant methods and GIS tools utilized in public health and epidemiology for mapping and analyzing geographic patterns of health events, investigate health inequalities, human-environment interactions, and environmental risk factors.

Learning objectives

It is expected that at the end of the course the students will be able to:

- Understand the importance of GIS and geographic thinking in the understanding of public health problems;
- Comprehend key concepts of cartography, thematic mapping, and distinguish different types of spatial data;
- Collect, georeference, and manage geographic data for public health practice and research;
- Integrate health and geographical data for epidemiological studies and health risk assessment;
- Measure geographical accessibility to healthcare and other facilities;
- Visualize and characterize geographical patterns of health events, population, and environmental data.

Responsible

Dr. Ana Isabel Ribeiro, Bs Geography, MPH, PhD (ana.isabel.ribeiro@ispup.up.pt)

Audience

The course is targeted to researchers, post-graduation students, physicians, public health practitioners, environmental health specialists, geographers, and any person who wants to use GIS in the understanding of human-environment interactions.

Requirements

No prior knowledge of GIS is required

Software

ArcGIS, QGIS and specialized spatial statistics software (GeoDA and SaTScan).

Language

English (in Portuguese, if all the participants speak Portuguese).

Classes will be synchronous and online. They will start with a brief theoretical introduction followed by lab exercises using a Geographic Information System.

In each session students will receive: 1) Slides, 2) General and specialized bibliographic references, and 3) Spatial data and lab tutorials.

Besides, the students will have access to a platform where, in addition to the class materials, they will have access to supplementary asynchronous online sessions and for autonomous learning.

Selection of participants

No limits.

Fee: 275 euros (195€ for students and collaborators of ISPUP, public health internship medical doctors and for students and alumni from the University of Porto, upon presentation of the respective proof).

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Certificate

A certificate of participation will be given to the participants who attend at least 75% of the course.

ECTS: Not applicable

Venue

E-learning format, through the Platform Zoom.

Duration and Schedule:

08/November (14h-18h); 09/November (9h-13h);

15/November (14h-18h); 16/November (9h-13h);

22/November (14h-18h); 23/November (9h-13h);

Contacts:

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Email: cursos@ispup.up.pt

Program

DAY 1 – INTRODUCTION TO GIS

08th

November

2024

14.00 Welcome and Introduction to the Course

Importance of GIS for Public Health: Applications and

14.15 Examples

15.15 Basic Principles of GIS and Cartography

16.15 Coffee Break

Lab exercises: Getting to know the software;

16.30 Managing and creating geographic data; Working with coordinate systems

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DAY 2 – SPATIAL DATA MANAGEMENT AND ACQUISITION

09th November 2024	09.00	Spatial Data for Public Health: Types and Sources. Integration of Health, Population and Environmental Data
	11.00	Coffee Break
	11.15	Lab exercises: Georeferencing using GIS, web services, and global navigation satellite systems

DAY 3 – MAPPING HEALTH INFORMATION

15th November 2024	14.30	Data Visualization and Thematic Mapping
	15.30	Coffee Break
	15.45	Lab exercises: Transforming tabular data into maps; Symbolizing area and point maps; Layout preparation

DAY 4 – GEOPROCESSING

16th November 2024	09.00	Geoprocessing Tools for Data Transformation and Risk Assessment
	10.30	Coffee Break
	10.45	Lab exercises: Overlay operations; Dissolve; Merge; Buffer; Queries

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DAY 5 – NETWORK ANALYSIS

22nd November 2024	14.00	Network and location analysis
	15.20	Coffee Break
	15.45	Lab exercises: Measuring geographical accessibility to services using Euclidian and street-based distances

DAY 6 – SPATIAL CLUSTERING OF HEALTH EVENTS

23rd November 2024	09.00	Analyzing Spatial Clustering of Health Events
	10.30	Coffee Break
	10.45	Lab exercises: Creating smoothed maps; Spatial pattern analysis and cluster detection
	12.45	Concluding Remarks
