ISPUP

INSTITUTO DE SAÚDE PÚBLICA
DA UNIVERSIDADE DO PORTO

INTENSIVE COURSE (ONLINE)

Geographic Information Systems for Public Health

18th November - 03th December 2022 (Fridays and Saturdays)

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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).

Teaching methodologies:

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: 200 euros (-25% for students and collaborators of ISPUP, public health internship medical doctors and for students and alumni from the University of Porto).

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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:

18/November (14h-18h); 19/November (9h-13h); 25/November (14h-18h); 26/November (9h-13h); 02/December (14h-18h); 03/December (9h-13h);

Contact:s

Instituto de Saúde Pública da Universidade do Porto
Rua das Taipas, nº 135, Porto (Portugal)
Tlf. + 351 222 8061 20 (Ext. 103)
Fax + 351 222 061 821

Registration

Registration can be made online at http://www.ispup.up.pt

Application deadline

15 October 2022

PROGRAM

DAY 1 – INTRODUCTION TO GIS

18th November 2022

14.00	Welcome and Introduction to the Course
14.15	Importance of GIS for Public Health: Applications and Examples
15.15	Basic Principles of GIS and Cartography
16.15	Coffee Break
16.30	Lab exercises: Getting to know the software; Managing and creating geographic data; Working with coordinate systems

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DAY 2 – SPATIAL DATA MANAGEMENT AND ACQUISITION

19th November 2022	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

25th November 2022	14.00	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

26th November 2022	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

02th December 2022

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

03th December 2022

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