Dana-Farber Cancer Institute | Center for Global Health

Geospatial Data Science for Cancer Control and Prevention

The **Geospatial Data Science for Cancer Control and Prevention (GIS) Course**, developed by the **Zhu Family Center for Global Cancer Prevention at the Harvard T.H. Chan School of Public Health** and **Rutgers Global Health Institute** provides asynchronous, web-based training n the essential concepts and analytic tool needed to integrate geospatial data science into global cancer control.

Students will learn about different geospatial data types, where to acquire geographic data, and how to analyze these data using open-source software and coding platforms. In addition, students will learn from experts at the forefront of this new field, who are applying geospatial data science approaches in their research to understand how geographic features and accessibility influence cancer risk and survival.

Who Should Apply?

This course is designed for medical and public health professionals who wish to incorporate geospatial data science into their work. We assume familiarity with basic training in epidemiology and biostatistics. Prior programming experience will be helpful but is not required.

Course Goals

1. Learn vocabulary and concepts related to geographic data analysis
2. Learn how to search for and acquire geographic data
3. Apply publicly available geospatial analytic software to perform the following tasks:
    - Make maps using geographic data
    - Link spatial factors to tabular datasets
    - Test for spatial autocorrelation
4. Learn about applications of geospatial data science for cancer control and prevention
    - Environmental exposures (e.g. air pollution)
    - Neighborhood contextual exposures (e.g. deprivation, segregation, green space, light at night)
    - Geographic accessibility to cancer services (e.g. estimating geographic accessibility in low-resource settings)

Course Structure

- This online course will be asynchronous. If students choose, they can just engage with practical exercises and lectures that are most relevant to their work.
- Short lectures will introduce concepts in geospatial analysis. Guided laboratory/practical sessions will show students how to perform various geospatial analytic tasks using the R statistical package and Google Earth Engine. Interviews with leading geospatial data science experts from cancer epidemiology, global health, and environmental health will show how these techniques are applied in public health research. Students will have access to research articles implementing these techniques and web-based forums to discuss strengths and limitations of these articles.
- Students are expected to spend 3-5 hours/week to complete the course. Certificates will be awarded upon satisfactory completion of course tasks.

Scan here to learn more:

Applications accepted on a rolling basis.

Questions?
Visit us at **www.cancerlearninglab.com** or email us at **GCLL@dfci.harvard.edu**