Statistics Korea

The 8th KOSTAT-UNFPA Summer Seminar on Population

제8회 통계청-유엔인구기금 인구서머세미나

The KOSTAT-UNFPA Summer Seminar on Population has been serving as a forum for individuals and institutions concerning population-related issues in the Asia-Pacific. Four independent and consecutive workshops will focus on **"R in Demography", "Migration Estimation and Visualization", "Panel Data Analysis and Event History Analysis", and "Analyzing Demographic Data Using GIS"**. These workshops are expected to provide an opportunity for experts on demography and government officials in charge of population censuses and statistics around the world to promote new methods for producing and analyzing population statistics and demography.

Participants are encouraged to select one or more workshops among the four options.

Application

Requirements

- Training and experience in a field relevant to the topic of the workshop(s)
- Fluency in English (for Workshop 1, 2) or Korean (for Workshop 3, 4)
- Real time online access via participants' own electronic devices (for Workshop 1, 2)

Tuition: Free of charge, will be supported by KOSTAT

- Responsible for own electronic devices (for online workshops)
- Responsible for own meals and lodging (for offline workshops)

* Limited funding (lodging) for full-time graduate students is available (for offline workshops only for students residing in Korea)

Size of class: Around 30 people (for each workshop)

Registration : Online

http://intpopstat.kr/

Registration deadline: July 4, 2021

- Cancellation is available only by July 16, 2021

Inquiry: Summer Seminar on Population Secretariat

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*Considering the COVID-19 situation, this year's program will be conducted online with English lectures for both international/domestic participants and offline with Korean lectures for domestic participants only.

Workshop 1

R in Demography (English Lecture)

July 26 (Mon) - 30 (Fri), Online
15:30-18:30 (Korea Standard Time)
15-hour course

Lecturer: Tim Riffe
Visiting professor, Department of Sociology II , University of the Basque Country

This workshop introduces the R statistical language with an emphasis on wrangling, analyzing, and visualizing demographic data. This workshop emphasizes a reproducible approach to data analysis, using the R mark-down system throughout the module. Concepts will be repeated through a series of worked examples and exercises.
Some core concepts of demography will be indirectly taught via these examples. Upon completion, participants will have worked through a wide array of data processing operations and visualization options, and will have the tools to continue learning.

No prior experience with R is required. Familiarity with common forms of demographic data, other statistical packages (e.g. STATA, SPSS or others) and spreadsheets is assumed.

Session 1	An introduction to R, Rstudio, and basic R markdown
Session 2	The tidy data approach, and basic data processing concepts for loading, aggregating, reshaping, and merging demographic data.
Session 3	Writing functions for advanced operations on data subsets
Session 4	Visualizing data using the ggplot2 approach
Session 5	Advanced data processing and visualization pipelines for reproducible analyses

Workshop 2

Migration Estimation and Visualization (English Lecture)

August 2 (Mon) - 6 (Fri), Online
15:30-18:30 (Korea Standard Time)
15-hour course

Lecturer: Guy Abel
Professor, School of Sociology and Political Sciences, Shanghai University

Despite the increasing importance of migration to population change, migration data is often of poor quality or missing. Methods to estimate migration have been developed by demographers and alike to help address shortfalls and provide a platform to better understand migration patterns and trends.

This workshop explores methods for estimating and visualizing migration, and their implementation in R. Upon completion of the workshop, participants will be familiar with typical measures of migration, common estimation methods to overcome inadequate or missing migration data, and recently developed methods to visualize migration patterns.

Practical hands-on exercises will be emphasized throughout the workshop to build up participants' experience. Some prior knowledge is required on how to handle and plot data using the tidyverse set of R packages.

Session 1	Migration measurement concepts and handling migration data in R
Session 2	Estimating migration summary indices
Session 3	Working with migration age schedules
Session 4	Describing and estimating origin-destination migration patterns
Session 5	Visualizing migration patterns

Workshop 3

Panel Data Analysis and Event History Analysis (Korean lecture)

August 9 (Mon) - 13 (Fri), Seoul
30-hour course

Lecturer: Bongoh Kye
Professor, Department of Sociology, Kookmin University

This workshop focuses on panel data analysis and event history analysis. We will start our workshop by reviewing key topics in panel data analysis, including fixed-effects models, random effects models, and growth curve models. Then we will cover event history analysis and methods to analyze "time to event" outcomes. Examples of these outcomes include demographic outcomes (e.g., mortality, first marriage, first birth, and marital status transitions), labor market outcomes (e.g., promotion, employment, and unemployment), adoptions of new practices, etc. This workshop will combine lectures and hands-on exercises. Participants are expected to learn practical applications of the models as well as theoretical issues in panel data analysis and event history analysis.

Specific topics include the following:

- Fixed-effects model
- Random effects model
- Growth curve model
- Logistic regression analysis
- Continuous-time event history analysis
- Discrete-time event history analysis
- Life table analysis

> Prerequisites - Linear regression, logistic regression

> Preparation
- Laptop computer with STATA installed
- Own data set suitable for event history analysis (recommended)

Session 1	OLS regression, logistic regression, and panel data structure	Session 6	Life tables
Session 2	Fixed effects model	Session 7	Discrete-time hazard model, basic
Session 3	Random effects model	Session 8	Discrete-time hazard model, extension
Session 4	Growth curve model	Session 9	Continuous-time hazard model
Session 5	Understanding event-occurrence data	Session 10	Cox proportional hazards model

Workshop 4

Analyzing Demographic Data Using GIS (Korean lecture)

August 16 (Mon) - 20 (Fri), Seoul
30-hour course

Lecturer: Seong-Yun Hong
Professor, Department of Geography, Kyung Hee University

This workshop aims to provide an overview of GIS-based methods for visualizing and analyzing demographic data. In the first half of this five-day workshop, participants will learn the basic concepts of GIS, as well as its use for data integration, spatial queries, and thematic mapping. The second half of the workshop will focus on a more specific topic—population segregation. It will introduce key theories and methodologies in the field and explains how GIS can be used to facilitate segregation studies. Throughout the workshop, participants will become familiar with various tools for exploring demographic data from a spatial perspective.

The topics that will be covered in this workshop include:
> Fundamental concepts of GIS and spatial data
> Producing choropleth maps and dot maps, and building a map layout using QGIS
> Measuring spatial autocorrelation and hot spot analysis
> Spatial data analysis in R
> Theories on the causes and consequences of population segregation and its evaluation

Hands-on exercises are an important component of this workshop. Participants will use the open-source software QGIS and R for visualizing demographic data and measuring the levels of population segregation.
This workshop is intended for social scientists with no prior experience of GIS.

Day	Lecture topic	Exercise
1	Types of spatial data (vector vs. raster); Attributes and metadata	Getting started with QGIS; Working with attribute tables; Spatial and non-spatial joins
2	Map projection and coordinate systems; Various types of maps	Define and transform map projection; Choropleth mapping; Map layout in QGIS
3	Spatial interpolation and kernel density maps; Spatial autocorrelation and hot spot analysis	Inverse distance weighting and kernel density mapping in QGIS
4	Introduction to R and sf	Basics of R; Choropleth mapping using the 'tmap' package; Moran's I and hot spot analysis
5	Population segregation and measures of segregation	Measuring segregation in R

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