International Max Planck Research School for Population, Health and Data Science (IMPRS-PHDS)

COURSE OUTLINE: DEMOGRAPHIC METHODS

Instructor: Alyson van Raalte

Start date: Nov. 2, 2022

End date: Nov. 8, 2022

Course description

This course covers the most commonly used demographic methods in studying fertility, mortality and migration with population-level data. Techniques covered in the course include age standardization, Lexis diagrams, life table construction, fertility and reproduction, single and multiple decrement processes, and decomposition techniques.

Organization

Five morning lectures will consist of a general introduction to each of the methods. Five afternoon sessions /lab sessions will consist of a guided implementation of these methods using the open-source R statistical program.

Morning lectures will be held from 10:30 - 12:00 CET on all course days. Afternoon sessions will be held 14:00 -16:00 CET on all days except Wednesday, November 2. On that day the afternoon session will be 15:00-17:00 CET.

It is expected that students spent about 6-8 hours per day on the course (including lectures and lab-sessions as well as pre- and post-lecture studies).

Although the course will be an in-person event, we will also offer a virtual option to allow those who are unable to travel to participate online, at least to a limited extent. It should be noted, however, that the conditions for in-person and virtual participants will not be the same. In particular, in-person participants will have better conditions and virtual participants will have worse conditions. We therefore strongly recommend that all students participate in person.

Course prerequisites

Students are expected to have basic knowledge of R (including data handling, for-loops, and writing basic functions). If you have never used R in your research work, please make sure you have sufficient knowledge before the course starts, e.g. by attending a free online course such as

- https://r4ds.had.co.nz/
- https://swirlstats.com
- https://www.coursera.org/course/rprog

Alternatively or additionally you can also use the tutorial website from UCLA (https://stats.oarc.ucla.edu/stat/data/intro_r/intro_r_interactive_flat.html) or any other R-tutorial which goes into sufficient detail.

Participants need a laptop or desktop computer with the latest versions of R and RStudio installed. Students could either use their own laptops or the desktop computers provided by the MPIDR. Instructions on how to download and install R can be found in “A (very) short introduction to R” by Torfs and Brauer (2014): https://cran.r-project.org/doc/contrib/Torfs+Brauer-Short-R-Intro.pdf.

Examination

There will be no final exam at the end of the course. Students will be graded based on attendance and successful completion of the afternoon tasks.

General readings

- Preston, Samuel H, Patrick Heuveline and Michel Guillot. (2001). Demography: Measuring and Modeling Population Processes. Oxford: Blackwell Publishers.
- Wachter, Kenneth W. (2014). Essential demographic methods. Harvard University Press, 2014.

Both books will be available at the MPIDR library during the course. A slightly abridged electronic version of each book will be provided with the course materials.