

## **COURSE OUTLINE: DEMOGRAPHIC METHODS**

**Instructor:** Alyson van Raalte

**Start date:** Nov. 11, 2024

**End date:** Nov. 15, 2024

### **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 are held from 10:00-11:30 CET and afternoon sessions are held from 13:00-15:30 CET on all course days.

It is expected that students will spend 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.hadley.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](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 with the latest versions of R and RStudio installed. If you do not have a laptop, please contact us.

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 and receive a certificate based on attendance and successful completion of the afternoon assignments.

**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.