UCLouvain

ldemo2220

2020

Population models and projections

Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

5 credits	30.0 h + 15.0 h	Q2

Teacher(s)	Masquelier Bruno ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	*The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** Students' achievements are assessed on the basis of • Three presentations of intermediate and final results, with the evaluation criteria being clarity of the oral presentation, quality of the slides, link to the content of lectures and the course, quality of the analysis. • A complete report to be written by pairs. This involves preparing population projections for the country or region of the selected scenario, comparing the results obtained with several scenarios by varying the assumptions of fertility, mortality and migration, and selecting about five or six scenarios, justifying the different scenarios and comparing the results of the projections with those obtained by other producers (United Nations, statistical office of the selected country, or others).
Teaching methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** The course is structured around a project carried out in pairs of students. This project involves the complete realization of a population projection for a country or region, based on a given scenario. Students collect data, develop and apply the appropriate methodology to achieve their objectives. Working sessions are organized to discuss the main orientations for the work, answer specific questions, present and discuss the intermediate results of the project.
Content	The LDEMO 2220 course is an in-depth introduction to modelling and population projection methods. At the end of this course, students will be able - to understand what a demographic model is and provide several illustrations, - to describe and compare the main models used in demography, which summarize the age distribution of different vital events or the relationships between population structure and movement, - to carry out population projections with the appropriate tools (Excel spreadsheets and the Spectrum software), - to understand the influence of changes in the components of population dynamics (fertility, mortality and migration) on population changes (volume and structure) at different geographical levels and time horizons, - to critically interpret the results of existing population projections. Topics covered: - Principles and utility of modelling and simulation in demography. - Stable populations and their use. - Mathematical methods of extrapolation. - The cohort-component projection method. - Mortality modelling and projections: extrapolation of age-specific rates, use of model life tables, Lee and Carter's (1992) method. - Fertility modelling and projections: rate extrapolation, use of model fertility schedules, period approach vs. cohort approach. - Migration modelling and projections: projections of net migrants, migration rates. - Uncertainties in projections: comparison of scenarios, comparison of perspectives of different producers, ex-post analyses. - Extensions: multi-state models (household composition, projections by the level of education) and micro-simulation models.

Bibliography	D.T. Rowland. *Demographic Methods and Concepts*. Oxford University Press, 2003 S. Preston, P. Heuveline, et M. Guillot. *Demography : Measuring and Modeling Population Processes*, Blackwell, 2001 G. Caselli. Projections de mortalité : hypothèses et méthodes. Dans *Démographie. Analyse et synthèse,* volume V, pages 301-322. INED, 2004. O. Barsotti et A. Bonaguidi. Hypothèses pour les projections de migration. Dans *Démographie. Analyse et synthèse*, volume V, pages 329-333. INED, 2004. E. Van Imhoff et W. Post. Méthodes de micro-simulation pour des projections de population. *Population*, 4 :889-932, 1997.
Faculty or entity in charge	PSAD

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Population and Development Studies	SPED2M	5		