



MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2020-21
Module Code	2057
Module Title	Demographic Methods
Module Organiser(s)	Georges Reniers
Faculty	Epidemiology and Population Health
FHEQ Level	Level 7
Credit Value	CATS: 15 ECTS: 7.5
HECoS Code	101408
Term of Delivery	Term 1
Mode of Delivery	For 2020-21 this module will be delivered online only. Where specific teaching methods (lectures, practicals, discussion groups) are noted in this module specification these will be delivered using an online platform. There will be a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning).
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	None
Accreditation by Professional Statutory and Regulatory Body	n/a
Module Cap (Maximum number of students)	None
Target Audience	This module is compulsory for students on the MSc Demography and Health and a requirement for those wishing to take the Population Dynamics and Projections module (2429). Students on the MSc Epidemiology can take the first 5 weeks as an elective.
Module Description	A module teaching the key techniques of demographic analysis relevant to the study of population and health.

Duration	Part 1: 5 weeks (Thursday morning and a repeat on Thursday afternoon); Part 2: 5 weeks (Wednesday afternoon + Thursday afternoon)
Timetabling slot	Term 1
Last Revised (e.g. year changes approved)	September 2020

Programme(s)	Status
This module is linked to the following programme(s)	
MSc Demography & Health	Compulsory
MSc Epidemiology	Recommended (first 5 weeks)

Module Aim and Intended Learning Outcomes

Overall aim of the module
<p>The overall module aim is to:</p> <ul style="list-style-type: none"> • Enable students to understand and apply key techniques of demographic analysis relevant to the study of population and health.

Module Intended Learning Outcomes
<p>Upon successful completion of the first half of this module, a student will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of some key techniques used in demographic analysis for the measurement of fertility and mortality. This includes standardization techniques and the construction of life tables. 2. Identify the key steps in interpreting basic demographic data 3. Explain the usefulness of a demographic approach for the study of population and health issues <p>Upon successful completion of the entire module, a student will be able to:</p> <ol style="list-style-type: none"> 4. Demonstrate a broader understanding of techniques used in demographic analysis for the measurement of fertility, mortality, migration, population structure and change 5. Appreciate how different types of demographic information may be collected and used

Indicative Syllabus

Session Content
<p>The first half of the module comprises five half-day sessions on Thursday mornings. Each session consists of a lecture and a practical session. Most practical sessions are computer-based. To that end students can use either Excel, Stata or R. The second half of the</p>



Session Content

module is taught on Wednesday afternoons and Thursday mornings and also uses a format of lectures mixed with practicals.

The module is expected to cover the following topics (subject to change):

Part 1 (weeks 1-5)

- **Population composition, basic rates and ratios:** Ratios, probabilities and rates, the balancing equation of population change, person-years, age and sex (population pyramids)
- **Measuring mortality and standardization:** Crude Death Rate (CDR), age-specific death rates, direct and indirect standardization, other mortality indices (IMR, U5MR, MMR)
- **Life tables:** Cohort and period life tables, life expectancy (e_0)
- **Life table extensions and applications.** The life table as a stationary population, survivorship ratios, Net Reproduction Rate (NRR)
- **Fertility:** concepts and definitions, child/woman ratio, Crude Birth Rate (CBR), General Fertility Rate (GFR), age-specific fertility rates, Total Fertility Rate (TFR), cohort fertility

Part 2 (weeks 7-11)

- **Cohort fertility and parity progression:** Period versus cohort fertility measures (tempo distortions), Completed Family Size (CFS), Parity Progression Ratio's (PPR)
- **Birth Intervals and the proximate determinants of fertility**
- **Demographic data sources (1):** censuses, vital registration, and surveys
- **Demographic data sources (2):** longitudinal studies, demographic surveillance, and causes of death
- **Measures of morbidity and mortality:** Health expectancies (Sullivan's active life expectancy and Disability Adjusted Life Expectancy), and health gap measures (Disability Adjusted Life-Years, DALY)
- **Migration:** definitions, migration as a component of population change, data sources, age patterns of migration rates, estimating net migration
- **Multiple decrements:** Multiple decrement life tables and cause-deleted life tables
- **Nuptiality:** Marriage rates (decremental versus non-decremental rates), Indirect median age at first marriage, Singulate Mean Age at Marriage (SMAM), nuptiality tables



Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	45	30
Directed self-study	30	20
Self-directed learning	30	20
Assessment, review and revision	45	30
Total	150	100

Student contact time refers to the tutor-mediated time allocated to teaching, provision of guidance and feedback to students. This time includes activities that take place in face-to-face contexts such as lectures, seminars, demonstrations, tutorials, supervised laboratory workshops, practical classes, project supervision as well as where tutors are available for one-to-one discussions and interaction by email. Student contact time also includes tutor-mediated activities that take place in online environments, which may be synchronous (using real-time digital tools such as Zoom or Blackboard Collaborate Ultra) or asynchronous (using digital tools such as tutor-moderated discussion forums or blogs often delivered through the School's virtual learning environment, Moodle).

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive and self-directed study.

Teaching and Learning Strategy

Pre-recorded lecture videos, reading lists and computer practical materials that contains one or more applications of the material covered in the lecture are available in Moodle, and the students are expected to self-study using the materials before each of the synchronous sessions. Following the asynchronous directed self-study, a 90-minute synchronous session is scheduled and this consists of a Q&A session facilitated by the lecturer (approx. 30 minutes) and a tutorial where facilitators discuss the solutions in-group towards the end of each practical (approx. 60 minutes).

During the practicals, students can use a statistical package of their choice. Whenever this is relevant, the solutions are provided for Excel, Stata as well as R. Solutions and computing code are made available through Moodle after the practical session.



Assessment

Assessment Strategy

The assessment for this module has been designed to measure student learning against the module intended learning outcomes (ILOs) as listed above. Formative assessment methods are used to measure students' progress.

The assessment for this module will be part of the summer exams which will be online.

An online formative assessment with feedback will be organised in December. Formal examination is held in June.

A formula 'cheat' sheet will accompany the exam questions. Students are, in other words, not expected to learn formulas by heart.

Students are only examined on their understanding of demographic methods, not on their ability to implement these methods and techniques in a statistical software package.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Exam (Papers 1 & 2)	1 question in Paper 1	100	1 – 5

Resitting assessment

Resits will accord with the LSHTM's [Resits Policy](#)



Resources

Indicative reading list

Most of the topics in this course (and more) are covered by four online modules that LSHTM has developed for the International Union for the Scientific Study of Population. These are freely accessible via <http://papp.iussp.org/>, and are also referred to as the “PAPP sessions” (Population Analysis for Policies and Programs). The PAPP sessions do not require any prior knowledge of calculus and can be used as the lecture notes for this course (in combination with the slides used in class)

Student who prefer a different style of presentation may also consult one of the following three textbooks:

- (1) Palmore, J. A., & Gardner, R. W. (1994). *Measuring mortality, fertility, and natural increase: A self-teaching guide to elementary measures*. Honolulu: East-West Center, 169 p.

This is a basic textbook covering most topics from the first half of the term. Ideal for students without a strong maths background and more succinct than the PAPP sessions. A pdf of this book is available from <http://scholarspace.manoa.hawaii.edu/>

- (2) Rowland, Donald T. (2003). *Demographic methods and concepts*. Oxford: Oxford University Press, 546 p.

Another non-technical introduction to demography, including a discussion of migration measurement.

- (3) Preston, S., Guillot, M. & Heuveline, P. (2001). *Demography. Measuring and Modeling Population processes*. Oxford: Blackwell, 291 p.

Standard reference for graduate students with a stronger quantitative background (some expositions involve calculus). Also covers the topics taught in the second half of the term and is a good reference for those interested in extensions of the methods covered in class.



Teaching for Disabilities and Learning Differences

Lecture notes (including audio recordings), reading lists, and computer practical resources are made available through Moodle. Suggestions for background reading are tailored to the students prior training in statistics and/or mathematics. All of the material covered in the lectures is also available through an open access learning platform developed by LSHTM (<http://papp.iussp.org/>). Supplementary exercises with solutions (including old exam questions) are made available through Moodle.

The module-specific site on Moodle provides students with access to lecture notes and copies of the slides used during the lecture prior to the lecture (in pdf format). All lectures are recorded and made available on Moodle as quickly as possible. All materials posted up on Moodle areas, including computer-based sessions, have been made accessible where possible.

The LSHTM Moodle has been made accessible to the widest possible audience, using a VLE that allows for up to 300% zoom, permits navigation via keyboard and use of speech recognition software, and that allows listening through a screen reader. All students have access to "SensusAccess" software which allows conversion of files into alternative formats.

For students who require learning or assessment adjustments and support this can be arranged through the Student Support Services – details and how to request support can be found on the [LSHTM Disability Support pages](#).