MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2021-22
Module Code	DEM202
Module Title	Demographic Analysis: Further Methods and Models
Module Organiser(s)	Georges Reniers, Kazuyo Machiyama
Faculty	Faculty of Epidemiology & Population Health London School of Hygiene and Tropical Medicine http://www.lshtm.ac.uk/eph/
FHEQ Level	Level 7
Credit Value	**CATS** 15 **ECTS** 7.5
HECoS Code	101408 : 100473
Mode of Delivery	Distance Learning
Mode of Study	Directed self-study, through online materials via the Virtual Learning Environment
Language of Study	English
Pre-Requisites	Those wishing to study this module must have already studied DEM101 Introduction to Demographic Analysis and EPM102 Statistics with Computing prior to studying this module.
Accreditation by Professional Statutory and Regulatory Body	Not currently accredited by any other body.
Module Cap (Maximum number of students)	There is no cap on the number of students who can register for this distance learning module.
Target Audience	*Demographic Analysis: Further Methods and Models* is a compulsory module for all students on the DL PG Diploma/MSc Demography and Health programmes.
Module Description	This module provides technical training in advanced methods used in the estimation of demographic parameters, the analysis of population dynamics, and the practice of population projections. The techniques and concepts taught in this module build in complexity on the methods taught in DEM 101; most sessions contain a large amount of mathematical material.

Duration	Distance learning module studies begin in early October. Students may start their studies at any time once they gain access to Moodle and therefore the study materials, and work through the material until the start of the June examinations (although assessment submission deadlines which are earlier than this must be observed).
Last Revised (e.g. year changes approved)	April 2020

Programme(s) This module is linked to the following programme(s)	**Status**
PGCert/PGDip/MSc Demography & Health (University of London Worldwide)	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
The aim of this module is to provide technical training on (i) the mathematical theory of changes in population size and structure and its application in demographic estimation; (ii) the types and uses of demographic models; (iii) the principles and practices of population projections and forecasts.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to:

1. Define and interpret the main measures of fertility, mortality, migration and age structure
2. Describe and assess typical age patterns of fertility, mortality and migration and explain the models commonly used to represent them
3. Evaluate and explain the interactions between the components of population change and the age structure of the population
4. Explain the concept of population momentum
5. Apply several estimation methods derived from the demographic theories studied
6. Construct national-level population projections using computer packages
7. Review the main approaches used to forecast fertility, mortality and migration.

Indicative Syllabus

Session Content
The module is expected to cover the following topics:

- Session 1 Demographic models: life tables, relational models
- Session 2 Demographic models: mathematical approaches
- Session 3 Demographic models: fertility
- Session 4 Population projections (II): uses and accuracy of forecasts

Session Content
• Session 5 Population projections (III): sub-national projections and forecasting vital rates • Session 6 Advanced fertility analysis: reproductivity • Session 7 Demographic models: stable population models • Session 8 Population dynamics and momentum • Session 9 Models of populations with variable growth rates.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Directed self-study	80	53
Self-directed learning	30	20
Assessment, review and revision	40	27
Total	**150**	**100**

Teaching and Learning Strategy
Learning is self-directed against a detailed set of learning objectives using the materials provided. The key learning methods are: • Reading and reflecting on the CAL (computer-assisted learning) materials which introduce, explain and apply the principles and methods covered in the module. • Reading and reflecting on provided materials which support the learning in the CAL sessions. This may include making use of the LSHTM online library resources. • Accessing academic support which is available from the module tutors through the web-based discussion forums and real-time sessions (using Collaborate Ultra) in which students are encouraged to participate. • Completing formative assignment(s) and reflecting on written feedback from module tutors.

Assessment

Assessment Strategy
The Formative Assignment (FA) is part of the learning process and revolves around the application of advanced methods to a specific demographic scenario. The assessed assignment (AA) uses a task that is similar to that of the FA, allowing students to build on the practice and feedback on the FA. The exam focuses on students' understanding of population dynamics and projections rather than the practical application thereof.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of	Weighting (%)	Intended Module Learning Outcomes Tested

	presentation in minutes)		
Assessed Assignment	The questions are open-book and students need to submit the answer before the deadline. The AA should not be longer than 1,000 words (not including tables and figures).	30	1, 2, 3, 4, 5, 6, 7
Exam	2hrs 15mins	70	1, 2, 3, 4, 7

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

Resources

Indicative reading list

Introductory texts
1. Preston, S., Guillot, M. & Heuveline, P. (2001). M. *Demography. Measuring and Modeling Population processes*. Oxford: Blackwell, 291 p.
2. Newell, C. (1998) Methods and Models in Demography. London :Belhaven, 217p
3. Keyfitz, N., Caswell H. (2005) Applied Mathmatical Demography. Cambridge : Springer, 556p
4. Le Bras, H. (2008) The Nature of Demography. Princeton : Princeton University Press, 362p

Other resources
The following materials are provided to students after registration for this module when the online learning site, Moodle, opens in October:
- A brief guide to studying the module.
- The main learning materials (sessions listed above, provided on Moodle).
- A reading list including details of both required and optional reading and links to selected papers.
- A list of useful websites.

The School's Moodle site allows students to access a range of materials, including those listed above; participate in module-specific discussion forums and Collaborate sessions, and access the LSHTM online library resources.

Teaching for Disabilities and Learning Differences

The module-specific site on Moodle provides students with access to the module learning materials and online reading list (containing both essential and recommended readings), and additional resources including supplementary exercises and optional lecture recordings (where appropriate). 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 with special needs, reasonable adjustments and support can be arranged – details and how to request support can be found on the University of London Worldwide website at
https://london.ac.uk/applications/how-it-works/inclusive-practice-access-arrangements