

MACQUARIE  
UNIVERSITY



FACULTY OF  
BUSINESS AND ECONOMICS

Unit Code: DEM356  
Unit Name: Demographic  
Techniques

First Semester, 2011

*Department of Marketing and Management*

**MACQUARIE UNIVERSITY  
FACULTY OF BUSINESS AND ECONOMICS  
UNIT GUIDE**

**Year and Semester: 2011, Semester 1**

**Unit convenor: Dr. Fei Guo**

**[Prerequisites / Corequisites:]:**

**DEM127 (P) and [DEM255 (P) or DEM245 (P) or 18 credit points with a GPA of 1.5 or higher]**

Students in this unit should read this unit outline carefully at the start of semester. It contains important information about the unit. If anything in it is unclear, please consult one of the teaching staff in the unit.

**ABOUT THIS UNIT**

This unit will appeal to commerce, social science and science students, particularly those who are interested in the analysis and interpretation of quantitative data. The unit introduces a number of more advanced demographic techniques including testing the accuracy of demographic data, multiple decrement tables, estimating internal migration, advanced standardisation techniques, and the concept and application of stable population and model life table. By the end of the semester, students are expected to gain knowledge of demographic analysis at a more advanced level and develop ability of assessing quality of demographic data and estimating demographic parameters using established demographic models. Students will get hands-on experience of analysing demographic data for Australia and some overseas countries. Apart from the ability to use a calculator some knowledge of Excel will be assumed.

The unit is worth 3 credit points.

**TEACHING STAFF**

Dr. Fei Guo is the unit convenor. Please feel free to contact her if you have any questions, or if there is any way in which she can assist you. Dr. Guo will be available for consultation on **Mondays from 1pm to 3pm** in her office located in building E4A, room 627. For other times please make an appointment by calling her on 98508445 or by sending her an e-mail on [fei.guo@mq.edu.au](mailto:fei.guo@mq.edu.au).

## CLASSES

Lecture: Thursdays, 2:05pm – 3:55pm, W6B-345  
Tutorial: Thursdays, 4:05pm – 4:55pm, C5A-232 or  
Tutorial: Thursdays, 5:05pm – 5:55pm, C5C-209

The unit will involve attendance to a two-hour lecture every week and a one-hour tutorial. The lectures will be held on Thursday from 2.05pm to 3:55pm in W6B-345. Students will only be allowed to attend the tutorial session in which they have been enrolled. Tutorials will be held on Thursdays, 4:05pm – 4:55pm in C5A-232 and 5:05pm – 5:55pm in C5C-209. It is a requirement of the unit that students attend all lectures and tutorials. Attendance sheets will be circulated and it is the students' responsibility that they sign these sheets. Students are encouraged to contact Dr. Guo if, due to any reason, they are unable to attend a lecture and/or a tutorial.

The timetable for classes can be found on the University web site at:  
<http://www.timetables.mq.edu.au/>

***Please bring a calculator, lecture notes and the recommended readings to all lecturers and tutorials.***

## REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

There is no prescribed textbook for this unit. Students will be referred to books, book chapters, and other materials for the weekly lectures. Referred books will be available in the Special Reserve Section of the Library. A weekly reading list will be available on Blackboard. It is advisable that students download the lecture notes from the Blackboard and reading materials from the library E-reserve page or relevant databases prior to the lecture time. Hardcopies of teaching and reading materials will NOT be provided in the class. It is highly recommended that students compile notes of their own based on the materials covered in lectures and tutorials and from recommended readings.

It is assumed that students are familiar with the various demographic techniques taught in DEM127. To refresh their memory students may wish to consult the book *Demographic Techniques* by A.H. Pollard, Farhat Yusuf and G.N. Pollard (in particular chapters 1-3, 5, 6 and 8). This book is available in the Special Reserve Section of the Library.

## UNIT WEB PAGE

Students may access unit materials online through the Macquarie University Online Learning Facility <http://learn.mq.edu.au> using your Student ID Number and your Online Learning @ MQ password.

Information about the Demography Program is at:  
[http://www.bus.mq.edu.au/bus\\_quick\\_links/demography](http://www.bus.mq.edu.au/bus_quick_links/demography)

## **iLectures**

Lectures will be recorded using the iLectures system. Whilst the iLectures may provide an additional resource, students are advised that no guarantees are given in relation to the availability or quality of the sound recordings or the functioning of any related websites or links to files of recordings of lectures. Students are expected to attend the lectures on a regular basis and to compile notes during the course of the lectures. Thus any failing of the iLectures will not be accepted as grounds for appeal. Copies of a selection of the overheads shown in lectures will be made available via Online Learning @ MQ <http://learn.mq.edu.au>.

*Note that the overheads offer only a skeletal coverage of the topics covered in lectures that must be augmented by additional note-taking during the lecture or using the recommended references. Please also note that only some of the overheads shown in lectures are available (eg. ones with key formulae or definitions or with tables of data that would be too lengthy to copy down during a lecture).*

## **LEARNING OBJECTIVES AND OUTCOMES**

The main *objectives* of this unit include acquainting students with the concepts and methods of various advanced demographic techniques and providing them hands-on experience of analysing demographic data for Australia and other countries.

The main *outcomes* that students are expected to achieve from this unit include:

1. knowledge of more advanced demographic techniques;
2. ability to recognise and assess the quality of demographic data;
3. ability to estimate demographic parameters using inadequate data;
4. competence in the use of established population models and techniques;
5. competence in the application of demographic techniques in other areas;
6. understanding of demographic data for Australia and selected overseas countries.

In addition to the discipline based objectives, all academic programs at Macquarie University seek to develop students' generic skills in a range of areas. One of the aims of this unit is that students develop their skills in the following areas:

- *Critical analysis skills;*
- *Problem-solving skills;*
- *Creative thinking skills;*
- *Communication skills.*

## **GRADUATE CAPABILITIES**

Students who graduate from this unit will achieve the following capabilities:

1. Ability to use more advanced demographic techniques;
2. Ability to evaluate and assess the quality of demographic data;

3. Knowledge of techniques of improving demographic data;
4. Able to calculate and estimate demographic parameters using inadequate demographic data;
5. Able to use established population models and techniques in estimating demographic measures; and
6. Knowledge of the application of demographic techniques in planning, business and other areas.

In addition to the discipline-based learning objectives, all academic programs at Macquarie seek to develop students' generic cognitive capabilities, interpersonal or social capabilities, and personal capabilities. One of the aims of this unit is that students will enhance their:

critical, analytical and integrative thinking;  
problem solving and research capability;  
effective communication;  
capabilities to be engaged and ethical local and global citizens;  
capabilities to be socially and environmentally active and responsible;  
capabilities for professional and personal judgement and Initiative ;  
commitment to continuous learning.

#### **TEACHING AND LEARNING STRATEGY**

The teaching strategy consists of the provision of information in the weekly two-hour lectures and a one-hour weekly tutorial, both on Thursdays. Copies of overhead lecture slides for each topic will be provided via Online Learning @ MQ. It is recommended students download or print a copy of the slides beforehand and bring them to the lecture. It is expected that students will attend the weekly lectures and tutorial on a regular basis and will take additional notes during the lectures.

The relationship between workload and credit points, which, for a typical competent student, is 4 hours per credit point per week. Thus, you should plan to spend, on an average, 12 hours per week on the study of demographic techniques. This includes the time spent in lectures and tutorials as well as doing assignments, exercises and *independent study* of the relevant demographic topics. If you consistently spend less time than that stipulated above then you are probably not studying hard enough and/or do not understand fully the requirements of this unit.

A week-by-week list of the topics covered is provided on the next page.

### DEM356 Schedule of Lectures, First Semester 2011

Week	Date	Topic	Lecturer / Tutor	Assignment	
				Given	Due
1	24 Feb.	Introduction. Rates, ratios, life tables.	FG		
2	3 Mar.	Testing the accuracy of demographic data.	FG	1	
3	10 Mar.	Techniques of adjusting and smoothing of demographic data	FG		1
4	17 Mar.	Multi-decrement tables and their uses: working life tables and disease elimination tables	FG	2	
5	24 Mar.	Nuptiality tables and the analysis of marriage	FG		2
6	31 March	Methods of estimating internal migration	FG		
7	7 April	Priorities and emerging challenges in Australian demographic statistics <i>(topic to be confirmed)</i>	Guest		
MID-SEMESTER BREAK (11 April – 22 April)					
8	28 Apr.	Stable population and use of model life tables in the estimation of demographic parameters	FG	3	
9	5 May	Component analysis	FG	4	3
<b>10</b>	<b>12 May</b>	<b>Class Test</b>	FG		
11	19 May	Methods of fertility estimation	FG		4
12	26 May	Methods of mortality estimation	FG		
13	2 Jun.	Revision, conclusion and unit evaluation.	FG		

Note: (FG) Dr Fei Guo, Unit Convenor

**RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES**

**Assessment Tasks**

	<b>Assessment Task 1</b>	<b>Assessment Task 2</b>	<b>Assessment Task 3</b>
Title/Name	Assignments	Class test	Final exam
Description ( <i>including length or similar if applicable</i> )	Four assignments on major advanced demographic techniques	One class test in Week 10	A three-hour final exam
Due date	As specified in the schedule of lectures.	Week 7 in lecture time.	University Exam period.
% Weighting	30%	20%	50%
Grading method - marking criteria/ standards - expectations in relation to presentation - referencing requirements	Correctly apply the techniques required and correctly interpret the results; sufficiently identify limitation and problems of the data.	Correctly apply the techniques required and correctly interpret the results with limited references; sufficiently identify limitation and problems of the data.	Correctly apply the techniques required and correctly interpret the results with limited references; sufficiently identify limitation and problems of the data.
Submission method	Submit at tutorial time	In Week 10	Submit to exam supervisor
Feedback ( <i>type, method, date</i> )	Written feedback to individual students and group feedback on Blackboard after assignments are returned	Feedback given in Week 12	Available upon students' request as part of grade appeal process
Estimated student workload (hours)	Three to Five hours for each assignment	Five to eight hours preparation for each class test	Eight to sixteen hours preparation for the final exam
Learning outcomes assessed			
1	X	X	X
2	X	X	X
3	X	X	X
4	X	X	X
5	X	X	X
6	X		
Graduate capabilities assessed			
1	X	X	X
2	X	X	X
3	X	X	X
4	X	X	X
5	X	X	X
6	X	X	X

Assessment of the student performance will be based on the following three components:

Final examination .....	50 %
Class test .....	20 %
Four assignments .....	30 %

To pass this unit, students must obtain a satisfactory pass in the final examination and maintain a satisfactory record of class attendance and assignments.

### **Attendance**

Students are advised that a poor record of attendance in lectures and tutorials may adversely affect the grade awarded. Satisfactory attendance in lectures and tutorials may be used to determine a marginal grade. Satisfactory attendance is 75% of tutorials and 75% of lectures for which attendance is taken. Teaching staff may refuse to mark the assignments of students who have an unsatisfactory record of attendance in lectures and tutorials or who have previously been late in submitting assignments (without satisfactory evidence of unavoidable disruption). Students who miss a lecture or a tutorial due to unavoidable disruption are advised to submit an "Application for Special Consideration" form and a professional authority form to the Student Enquiry Service. The form is on the web at:

<http://www.reg.mq.edu.au/Forms/APScons.pdf>

### **Alignment between assessment tasks and learning objectives and outcomes.**

The four assignments are designed to help students to progress towards the learning outcomes through practising what they have learned in the lectures, assessing the quality of their understanding, and obtaining feedback which will further assist their learning. Advanced demographic techniques introduced in the lectures are incorporated into the four assignments. Assignment 1 will be returned to students before the census date to enable students to gain an indication of their ability to handle the unit materials before the census date.

Questions in the class test and the final exam will test students' ability of calculating demographic measures by applying advanced demographic techniques, assessing the quality of demographic data, and interpreting/analysing demographic parameters using established demographic models. The class test and the final examination will also include a small section of short answer questions to assess students' knowledge and understanding of the advanced demographic techniques and their applications. All questions are designed to assess students' learning outcomes listed in the above section.

### **Criteria and standards against which individual assessment tasks are judged**

The assignments generally include multiple question parts. The maximum marks available for each part will be indicated on the assignment sheets. The class test and final examination will also incorporate multiple parts. The maximum marks available for each part will be indicated on the test/exam papers. Where a question part involves calculations the marks awarded will reflect whether the answers are correct,

whether the units of measurement are stated clearly, and whether an outline of the method used to derive the answers is presented clearly. All assignments are intended to be undertaken independently and individually by students and students who collude excessively or plagiarise will incur penalties for doing so.

Students whose class test performance or attendance is affected by unavoidable disruption are advised to submit an "Application for Special Consideration" form and a professional authority form to the Student Enquiry Service. The form is on the web at: <http://www.reg.mq.edu.au/Forms/APScons.pdf> . Students who miss the test due to unavoidable disruption should also contact Dr. Fei Guo as soon as possible.

Details of the dates for distribution and submission of all assignments are presented in the week-by-week class schedule on the next page. All assignments are to be submitted in class at tutorial time and they will be returned to students at tutorials in the following week unless it is specified otherwise. Students who fail to submit the assignments will be given zero for the assignments unless a satisfactory document (e.g. doctor's certificate or a letter from employer, etc.) is presented.

A 3-hour final examination for this unit will be held during the University Examination period. The final examination is designed to provide a comprehensive assessment of students' achievement of learning outcomes. Students will be permitted to use a small battery-operated calculator with scientific functions in class test and examination. Students are also allowed to bring to class test and examination an A4 size sheet of paper with formulae and notes written on both sides of the paper. Students will not be allowed to bring dictionaries to class test and examination.

The University Examination period in the First Half Year 2011 is from 6 June to 24 June. You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in Draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations. <http://www.timetables.mq.edu.au/exam>

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. Information about unavoidable disruption and the special consideration process is available at <http://www.reg.mq.edu.au/Forms/APSCon.pdf>

If a Supplementary Examination is granted as a result of the Special Consideration process the examination will be scheduled after the conclusion of the official examination period. (Individual Faculties may wish to signal when the Faculties' Supplementary Exams are normally scheduled.)

You are advised that it is Macquarie University policy not to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching semester, that is the final day of the official examination period.

## ACADEMIC HONESTY

The nature of scholarly endeavour, dependent as it is on the work of others, binds all members of the University community to abide by the principles of academic honesty. Its fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.

Further information on the academic honesty can be found in the Macquarie University Academic Honesty Policy at

[http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html)

## PLAGIARISM

The University defines plagiarism in its rules: "Plagiarism involves using the work of another person and presenting it as one's own." Plagiarism is a serious breach of the University's rules and carries significant penalties. You must read the University's practices and procedures on plagiarism. These can be found in the *Handbook of Undergraduate Studies* or on the web at: <http://www.student.mq.edu.au/plagiarism/>

The policies and procedures explain what plagiarism is, how to avoid it, the procedures that will be taken in cases of suspected plagiarism, and the penalties if you are found guilty. Penalties may include a deduction of marks, failure in the unit, and/or referral to the University Discipline Committee.

## GRADES

Macquarie University uses the following grades in coursework units of study:

HD - High Distinction

D - Distinction

CR - Credit

P - Pass

F - Fail

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy which is available at:

<http://www.mq.edu.au/policy/docs/grading/policy.html>

## **GRADING APPEALS AND FINAL EXAMINATION SCRIPT VIEWING**

If, at the conclusion of the unit, you have performed below expectations, and are considering lodging an appeal of grade and/or viewing your final exam script please refer to the following website which provides information about these processes and the cut off dates in the first instance. Please read the instructions provided concerning what constitutes a valid grounds for appeal before appealing your grade.

[http://www.businessandconomics.mq.edu.au/for/new and current students/undergraduate/admin\\_central/grade\\_appeals](http://www.businessandconomics.mq.edu.au/for/new_and_current_students/undergraduate/admin_central/grade_appeals).

## **SPECIAL CONSIDERATION**

The University is committed to equity and fairness in all aspects of its learning and teaching. In stating this commitment, the University recognises that there may be circumstances where a student is prevented by unavoidable disruption from performing in accordance with their ability. A special consideration policy exists to support students who experience serious and unavoidable disruption such that they do not reach their usual demonstrated performance level. The policy is available at: [http://www.mq.edu.au/policy/docs/special\\_consideration/procedure.html](http://www.mq.edu.au/policy/docs/special_consideration/procedure.html)

## **IT CONDITIONS OF USE**

Access to all student computing facilities within the Faculty of Business and Economics is restricted to authorised coursework for approved units. Student ID cards must be displayed in the locations provided at all times.

Students are expected to act responsibly when utilising University IT facilities. The following regulations apply to the use of computing facilities and online services:

- Accessing inappropriate web sites or downloading inappropriate material is not permitted. Material that is not related to coursework for approved unit is deemed inappropriate.
- Downloading copyright material without permission from the copyright owner is illegal, and strictly prohibited. Students detected undertaking such activities will face disciplinary action, which may result in criminal proceedings.

Non-compliance with these conditions may result in disciplinary action without further notice.

Students must use their Macquarie University email addresses to communicate with staff as it is University policy that the University issued email account is used for official University communication.

## **STUDENT SUPPORT SERVICES**

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at <http://www.student.mq.edu.au> . Information about student support services is also available from the Business and Economics Student Services (BESS – formerly ERIC) office in E4B106.