MACQUARIE UNIVERSITY, SYDNEY
Division of Economic and Financial Studies
STAT175: Gambling Sport and Medicine
Unit Outline: First Semester 2006
Convenor: Associate Professor Peter Petocz

You should read this unit outline carefully. 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

STAT175 is a general education unit, recommended for students in all fields of study. There are no prerequisites or assumed background knowledge. The unit gives you an opportunity to investigate three interesting areas where statistics plays an important role: games of chance and gambling, sporting performance and medical studies. At the same time, you will be introduced to a range of statistical ideas and methods that will be useful in many other areas, professionally and personally.

TEACHING STAFF

Our lecturing team consists of (left to right in the photos below):
- Associate Professor Peter Petocz (convenor):
      room E4A 529; phone 9850 9174; e-mail ppetocz@efs.mq.edu.au
- Ms Kj Byun (lecturer): room E4A 509, ph 9850 7473, e-mail kbyun@efs.mq.edu.au
- Mr Xavier Shea will take our Wednesday lab classes: phone 0414 240 490

Formal consultation times will be posted on the website and on our office doors.

UNIT WEB PAGE

The web page for this unit can be found at: www.stat.mq.edu.au/units/stat175/index.htm (you can get there conveniently from the Department of Statistics website www.stat.mq.edu.au by selecting Units and then Stat175). You should check this web page regularly (at least once a week) as we will post notices, lecture notes/summaries, laboratory materials and solutions.

There is a WebCT page for the unit that contains some useful background material from previous semesters, as well as some simulations of different gambling games. We will be using this at various times during the course. You can access this from the address http://online.mq.edu.au (or by pressing the Login button on the Stat175 web page). You will be asked for your Student ID number and myMQ Portal password. If you have any problem accessing this website, you should go to the Online Teaching Facility support web page at http://online.mq.edu.au/docs/tecinf.html .

CLASSES

You will have one 3-hour lecture time, and you will be enrolled in one 1-hour laboratory class:
- Lectures: Monday 6–9pm W5A T1 (these also contain a tutorial component)
- Labs: Wed 4–5pm (E4B 214); Wed 5–6pm (E4B 118); and depending on numbers, Wed 6–7pm (E4B 118). All labs start in week 2.

We firmly believe that you will learn more and enjoy the course more if you attend all the lectures and labs: try it and see if we are right!

LEARNING OUTCOMES

After successfully completing this unit, you will be able to:
- explain the meaning of common statistical terms that appear in gambling, sport and medicine
- apply a range of statistical and probability techniques in these and other areas
- use a spreadsheet and a statistical computer package to carry out statistical investigations
- communicate the results of your statistical investigations clearly
- discuss the role that statistics plays in gambling, sporting performance and medical studies
- discuss ethical problems raised by the use of statistics in gambling, sport and medicine
- continue any future statistical studies with increased confidence

All academic programs at Macquarie seek to develop students' generic skills in a range of areas. One aim of this unit is that you will develop your skills in literacy, numeracy and information technology; groupwork and communication; problem solving and critical thinking; and creativity.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

The textbook is available in the Co-op Bookshop, and you will need to get yourself a copy:
- J. S. Croucher (2003). Gambling and Sport: A statistical approach. Macquarie University.

Some useful background references are:
- D. Huff (1960). How to Take a Chance. Gollancz, London [BC141.H8]
- D. Rowntree (1981). Statistics without Tears. Penguin [QA276.R66]
- M. Bland (2000). An Introduction to Medical Statistics. Oxford Uni Press [RA409.B55/2000]
- J. Tanur (ed.) (1989). Statistics: A Guide to the Unknown. Wadsworth [QA276.16.S84/1989]

We will give you other print and web-based references during classes.

ASSESSMENT AND ITS RELATION TO LEARNING OUTCOMES

The assessment in this unit consists of the following components:

Assignment 1	10%	due by 4pm Thursday 23 March 2006
Assignment 2	15%	due by 4pm Thursday 4 May 2006
Assignment 3	15%	due by 4pm Thursday 1 June 2006
Final examination	60%	(date to be advised)

You can do the assignments in a group of 3 or 2 people, or as an individual. We would strongly encourage you to work in a group: it's more fun, you can learn from your fellow students, you get practice in the important skills of groupwork – and group assignments usually get higher marks! *You need to hand the assignments in at ERIC (E4B 106) by the due date and time*. We will return marked assignments as soon as possible. To pass the unit, you need to submit assignments and perform satisfactorily on the final exam. Assignments that are not submitted on time may not be accepted later without appropriate documentation. The exam will assess the range of learning outcomes in a formal and individual context, while the assignments will focus on assessing outcomes in a less formal and group setting. The labs are not assessed formally, but you can get feedback on them if you hand them in to your tutor at the end of the class.

TEACHING AND LEARNING STRATEGIES

Our role: In the 3-hour "lecture" class, we will present new material in the form of lectures, and we will include a tutorial component where you can practice the techniques and ask questions. In the laboratory classes, we will help you work practically, solving problems and analysing data. If you hand in the labs to your tutor at the end of the class, he/she will give you written feedback by the following class. We will answer your questions at consultation times and by e-mail.

Your role: We expect that you will prepare by reading set material in advance, attend classes, attend laboratory sessions and participate in the various learning activities. You will work individually and in groups with your fellow students. We also expect that you will make a good attempt at the assignments and final exam.

EXAMINATIONS – GENERAL INFORMATION

The University Examination period for the first semester 2006 is from 14–30 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 at http://www.timetables.mq.edu.au/exam in draft form approximately eight weeks before and in final form approximately four weeks before the commencement of the examinations.

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 this is given 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. 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.

PLAGIARISM – IMPORTANT NOTES

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.

UNIVERSITY POLICY ON GRADING

Academic Senate has a set of guidelines on the distribution of grades across the range from fail to high distinction. Your final result will include one of these grades plus a standardised numerical grade (SNG). On occasion your raw mark for a unit (i.e., the total of your marks for each assessment item) may not be the same as the SNG which you receive. Under the Senate guidelines, results may be scaled to ensure that there is a degree of comparability across the university, so that units with the same past performances of their students should achieve similar results.

It is important that you realise that the policy does not require that a minimum number of students are to be failed in any unit. In fact it does something like the opposite, in requiring examiners to explain their actions if more than 20% of students fail in a unit. The process of scaling does not change the order of marks among students. A student who receives a higher raw mark than another will also receive a higher final scaled mark.

For an explanation of the policy see http://www.mq.edu.au/senate/MQUonly/Issues/Guidelines2003.doc or http://www.mq.edu.au/senate/MQUonly/Issues/detailedguidelines.doc.

STUDENT SUPPORT SERVICES

Macquarie University provides a range of Academic Student Support Services. Details of these services can accessed at http://www.student.mq.edu.au. For students taking units in the Division of Economic and Financial Studies, ERIC is in room C5C 244 and contains a large amount of resources for your help.

Stat175 Gambling, Sport and Medicine – Semester 2, 2006

Date (Monday)	Wk	Title	Stats topics	Lab class (Wednesday)
27 Feb	1	Lotto & Lotteries	Introduction Counting techniques	(no lab first week)
6 Mar	2	Keno	Describing gambling games Probability intervals	Lotto (Excel)
13 Mar	3	Roulette	House margin Chances of being ahead	Keno (Excel)
20 Mar	4	Sports betting	Odds and prices Bookmaking	(lab time for assignment) *(Assignment 1 due Thur)*
27 Mar	5	Sport and binomial	Binomial distribution Olympic records	Sports betting (Excel)
3 Apr	6	Sport and Poisson	Poisson distribution Chi-squared goodness of fit	World Cup Hockey (Excel)
10 Apr	7	Sports performance	Normal distribution Z-scores and comparisons	Soccer Goals (Excel)
17 Apr		Mid-semester break		
24 Apr		Mid-semester break		
1 May	8	Health surveys	Data types & summaries Comparing means	Pulse rates (SPSS) *(Assignment 2 due Thur)*
8 May	9	Medical studies 1	Types of studies Odds ratios	Ear infections (SPSS)
15 May	10	Medical studies 2	Chi-square tests Crosstabulations	Gestational diabetes (SPSS)
22 May	11	Medical testing	Diagnostic testing Characteristics of tests	Sleep apnoea (SPSS)
29 May	12	Forensic statistics	Statistics and the law Bayesian approaches	(lab time for assignment) *(Assignment 3 due Thur)*
5 June	13	Revision	Olympics data Winning at gambling	(lab time for revision)