The University of Southern Queensland

Course specification

This version produced 7 Jul 2008.
The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.
Please consult the web for updates that may occur during the year.

Description: Data Analysis

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
STA	2300	66241	2, 2007	ONC	1.00	Fraser Coast

Academic group:	FOSCI
Academic org:	FOS003
Student contribution band:	2
ASCED code:	010103

STAFFING

Moderator: Christine McDonald

OTHER REQUISITES

Recommended Pre-requisite: CSC1402 or CIS1000

RATIONALE

Statistics are pervasive in work and life. Whether it is the planning and implementation of a survey to assess the market penetration ofa new product, the design of an experiment to test the efficacy of a new drug, the gathering and summarizing of data provided by a government organization to support an argument or a summary of how well your sports team is doing, data and the discipline of statistics contributes is an essential way. Never before has some understanding of the discipline of statistics been so important to an educated person. Regardless of whether you ever need to initiate the collection or analysis of data in your future studies or future work, some understanding of statistical methods is highly desirable, if not essential, in being able to critically appraise the methods employed by others in generating information of importance to you.

SYNOPSIS

This course provides an understanding of basic statistical concepts and gives practice at some of the methods and skills necessary for students in business, commerce, psychology and the physical sciences to collect, appraise, present, analyse and interpret data. Students are introduced to the basic concepts involved in descriptive and inferential statistics. Emphasis is placed on understanding the basic concepts and principles of dealing with data. Because these concepts and methods are interdisciplinary in nature, students will encounter problems from many sources including their own area of interest. The use of statistical software is a core component of the course. The mathematical underpinning of the methods used are not covered. Other statistics courses deal with this aspect.

OBJECTIVES

On completion of this course students will be able to:

1. demonstrate an understanding of why and how statistics as a discipline contributes in essential ways to all other disciplines (Assignments 2 and 3, Exam);
2. make appropriate use of a statistical computer package in entering, summarising and analysing data as relevant to this course (Assignments 2 and 3, Exam);
3. summarise data using appropriate graphical and numerical tools (CMA2, CMA3, Assignments 2 and 3, Exam);
4. understand the relative advantages and disadvantages of observational and experimental studies (CMA4, Assignments 2 and 3, Exam);
5. model appropriate real-life situations using the normal and binomial models (CMA2, CMA5, Assignments 2 and 3, Exam);
6. understand the importance of randomness in data collection (CMA4, CMA6, Assignments 2 and 3, Exam);
7. understand the concepts of inference employed in hypothesis testing and estimation (CMA6, CMA7, Assignment 3, Exam);
8. apply appropriately the methods of hypothesis testing and estimation in several commonly encountered situations (CMA6-9, Assignment 3, Exam);
9. understand the distinction between statistical significance and practical significance (CMA7, Assignment 3, Exam).

TOPICS

	Description	Weighting (%)
1.	Quantitative basics: calculator useage; substitution into formulae; straight-line graphs.	2.00
2.	Exploring and understanding data: variables and values; types of data; introduction to SPSS; graphs and summary statistics; contingency tables; the normal model.	22.00
3.	Exploring relationships between variables: scatterplots; correlation and regression; boxplots.	12.00
4.	Gathering data: Observational and experimental studies; surveys; sampling methods; principles of good design; caustion and confounding.	12.00
5.	Randomness and probability: probability rules; events; probability models; means and standard deviation; the binomial model.	10.00
6.	Sampling distibution models: proportions and means; standard error; the central limit theorem.	6.00
7.	Generalising to the World at Large: introduction to hypothesis testing and confidence intervals; the sign test; sample size determination.	14.00
8.	Learning about the world: one and two sample t-procedures; independent and dependent samples; confidence intervals and hypothesis testing.	14.00
9.	Chi square testing: test of independence; follow-up analysis.	8.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at http://bookshop.usq.edu.au click 'Semester', then enter your 'Course Code' (no spaces).

SPSS Student Version 14.0 (Version 10.0 or later is acceptable) for Windows, Prentice Hall. (Available separately or bundled with De Veaux, Velleman & Bock)

De Veaux, RD, Velleman, PF & Bock, DE 2006, *Intro Stats*, 2nd edn, Pearson Addison Wesley, Boston.

Introductory Book 2007, *Course STA2300 Data Analysis*, USQ Distance and e-Learning Centre, Toowoomba.

Study Book 2007, *Course STA2300 Data Analysis*, USQ Distance and e-Learning Centre, Toowoomba.

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	30.00
Examinations	2.00
Lectures	26.00
Practical Classes or Workshops	6.00
Private Study	80.00
Tutorials	26.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
ASSIGNMENT 1	10.00	5.00	03 Aug 2007
ASSIGN 2 ON TOPICS 2 TO 5	100.00	20.00	10 Sep 2007
ASSIGN 3 UP TO & INC TOPIC 8	100.00	25.00	22 Oct 2007
CMA ON TOPIC 1	10.00	0.00	16 Nov 2007 (see note 1)
CMA ON TOPIC 2	10.00	0.00	16 Nov 2007
CMA ON TOPIC 3	10.00	0.00	16 Nov 2007
CMA ON TOPIC 4	10.00	0.00	16 Nov 2007
CMA ON TOPIC 5	10.00	0.00	16 Nov 2007
CMA ON TOPIC 6	10.00	0.00	16 Nov 2007
CMA ON TOPIC 7	10.00	0.00	16 Nov 2007
CMA ON TOPIC 8	10.00	0.00	16 Nov 2007
CMA ON TOPIC 9	10.00	0.00	16 Nov 2007
EXAM PTA 2 HR RESTRICTED	20.00	20.00	END S2 (see note 2)
PTB OF ABOVE 2HR RESTRICT EXAM	30.00	30.00	END S2

NOTES

1. CMA's are open for submission until the end of semester 2.
2. Examination dates will be available during the semester. Please refer to the examination timetable when published.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

2 Requirements for students to complete each assessment item satisfactorily:
To satisfactorily complete an assessment item a student must achieve at least 50% of the marks or a grade of at least C-. Students do not have to satisfactorily complete each assessment item to be awarded a passing grade in this course. Refer to Statement 4 below for the requirements to receive a passing grade in this course.

3 Penalties for late submission of required work:
If students submit assignments after the due date without prior approval then a penalty of 10% of the total marks gained by the student for the assignment will apply for each working day late.

4 Requirements for student to be awarded a passing grade in the course:

To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.

5 Method used to combine assessment results to attain final grade:
The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.

6 Examination information:
Candidates are allowed access only to specific materials during a Restricted Examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); calculators which cannot hold textual information (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination). Formula sheets will be provided by the Examiner with the examination paper. Students whose first language is not English, may, with the Examiner's approval, take an appropriate non-electronic translation dictionary (but not technical dictionary) into the examination. Students who wish to use a translation dictionary MUST request and receive written approval from the Examiner at least one week before the examination date. Translation dictionaries will be subject to perusal and may be removed from the candidate's possession until appropriate disciplinary action is completed if found to contain material that could give the candidate an unfair advantage.

7 Examination period when Deferred/Supplementary examinations will be held:
Any Deferred or Supplementary examinations for this course will be held during the examination period at the end of the semester of the next offering of this course. Students who obtain an overall passing mark, but who do not perform satisfactorily in the examination, may, at the discretion of the examiner, be granted a supplementary examination. Students will be granted a deferred examination only if they perform satisfactorily in the assignments.

8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL http://www.usq.edu.au/corporateservices/calendar/part5.htm or in the current USQ Handbook.

ASSESSMENT NOTES

9 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. This should be despatched to USQ within 24 hours of receipt of a request to do so. In accordance with University Policy, the Examiner may grant an extension of the due date of an assignment in extenuating circumstances.