STAT3199

Consulting in Statistical Sciences

Session 2, Special circumstance 2020

Department of Mathematics and Statistics

Contents

Disclaimer

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Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and ot her small group learning activities on campus for the second half-year, while keeping an online ver sion available for those students unable to return or those who choose to continue their studies onli ne.

To check the availability of face-to-face and onlin e activities for your unit, please go to timetable vi ewer. To check detailed information on unit asses sments visit your unit's iLearn space or consult yo ur unit convenor.

General Information

Unit convenor and teaching staff
Unit Convenor/Lecturer
Hassan Doosti
hassan.doosti@mq.edu.au
Contact via Contact via Email
12WW 534
please refer to iLearn

Unit Convenor/Lecturer
Ayse Bilgin
ayse.bilgin@mq.edu.au
Contact via via email
12 WW 635
By appointment

Credit points
10

Prerequisites
20cp in STAT units at 3000 level including (STAT375 or STAT3175 or STAT379 or STAT3579)

Corequisites

Co-badged status

Unit description
This unit integrates core concepts in statistics in the practical context of solving real research problems by the application of technical ideas and methods. In particular, the unit aims to give students exposure to the general and discipline-specific issues that arise in statistical work, and to provide an experiential background in consulting. Students will develop the ability to appreciate the nature of statistical problems and discuss the problem-solving cycle: listen to a client's statement of a problem and ask appropriate questions for clarification; recognise appropriate technical techniques for use in a variety of problems, and apply these techniques competently; recognise situations in which familiar techniques do not apply and search the literature for appropriate alternative techniques; write reports at an appropriate technical level for a client or a colleague; give an oral summary of a statistical investigation at a level appropriate for the audience; and discuss the ethical aspects and implications of professional data work.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Identify and apply appropriate statistical techniques for authentic client projects

ULO2: Enhance critical thinking skills through self reflection and peer assessment

ULO3: Ask appropriate questions to identify a statistical problem

ULO4: Improve ability to work co-operatively as a team member

ULO5: Write reports at an appropriate statistical level for a client or a colleague

ULO6: Give a verbal summary of a statistical investigation at a level appropriate for theaudience

ULO7: Discuss the ethical aspects and implications of professional statistical work

ULO8: Recognise situations in which familiar techniques do not apply and search the literature for appropriate alternative techniques

General Assessment Information

The projects that you will be working on are real problems belong to real clients. You need to keep everything confidential.

Assessment submissions All assessments should be submitted electronically on iLearn, by the given due date and time.

Assessment Tasks

Name	Weighting	Hurdle	Due
Participation	10%	No	Weekly
Self Reflection	10%	No	W2 & W13
Project Plan	10%	No	W4
Project Presentation	20%	No	W11, W12 & W13
Project Report	50%	No	W13

Participation

Assessment Type [1]: Participatory task
Indicative Time on Task [2]: 6 hours

Due: **Weekly**
Weighting: **10%**

Contribution to weekly activities such as tutorial, client meetings, group meetings and discussions.

On successful completion you will be able to:

- Identify and apply appropriate statistical techniques for authentic client projects
- Enhance critical thinking skills through self reflection and peer assessment
- Ask appropriate questions to identify a statistical problem
- Improve ability to work co-operatively as a team member
- Discuss the ethical aspects and implications of professional statistical work
- Recognise situations in which familiar techniques do not apply and search the literature for appropriate alternative techniques

Self Reflection

Assessment Type [1]: Reflective Writing
Indicative Time on Task [2]: 5 hours
Due: **W2 & W13**
Weighting: **10%**

Self Reflection on Previous Learning, Group Process, technical aspects of the group project and statistical consulting experience.

On successful completion you will be able to:

- Enhance critical thinking skills through self reflection and peer assessment
- Improve ability to work co-operatively as a team member
- Write reports at an appropriate statistical level for a client or a colleague
- Discuss the ethical aspects and implications of professional statistical work

Project Plan

Assessment Type [1]: Plan
Indicative Time on Task [2]: 5 hours
Due: **W4**

Weighting: **10%**

The project plan should include background to the project; aim(s) of the project; some information about the data set (or how it is going to be collected); statistical methods that might be used to analyse the data; how the expected findings of this report would be useful to the project owner (one or two sentences).

On successful completion you will be able to:
- Identify and apply appropriate statistical techniques for authentic client projects
- Enhance critical thinking skills through self reflection and peer assessment
- Ask appropriate questions to identify a statistical problem
- Improve ability to work co-operatively as a team member
- Discuss the ethical aspects and implications of professional statistical work
- Recognise situations in which familiar techniques do not apply and search the literature for appropriate alternative techniques

Project Presentation

Assessment Type [1]: Presentation
Indicative Time on Task [2]: 10 hours
Due: **W11, W12 & W13**
Weighting: **20%**

All members of a group will present a 5-7 minutes talk on a particular aspect of the project.

On successful completion you will be able to:
- Identify and apply appropriate statistical techniques for authentic client projects
- Enhance critical thinking skills through self reflection and peer assessment
- Ask appropriate questions to identify a statistical problem
- Improve ability to work co-operatively as a team member
- Write reports at an appropriate statistical level for a client or a colleague
- Give a verbal summary of a statistical investigation at a level appropriate for theaudience
- Discuss the ethical aspects and implications of professional statistical work
- Recognise situations in which familiar techniques do not apply and search the literature for appropriate alternative techniques

Project Report

Assessment Type [1]: Report
Indicative Time on Task [2]: 10 hours
Due: **W13**
Weighting: **50%**

Statistical report for client project.

On successful completion you will be able to:

- Identify and apply appropriate statistical techniques for authentic client projects
- Enhance critical thinking skills through self reflection and peer assessment
- Ask appropriate questions to identify a statistical problem
- Improve ability to work co-operatively as a team member
- Write reports at an appropriate statistical level for a client or a colleague
- Give a verbal summary of a statistical investigation at a level appropriate for theaudience
- Discuss the ethical aspects and implications of professional statistical work
- Recognise situations in which familiar techniques do not apply and search the literature for appropriate alternative techniques

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Classes

Lectures: There are 13 x 2hr lectures each week.

SGTA's: There are   12x 2hr SGTA classes each week.

Required and Recommended Texts and/or Materials

Note that some of the following will be provided to students during semester.

Boen J & Zahn D, The Human Side of Statistical Consulting, Lifetime Learning Pubs, Belmont

CA, 1982. (Not available in library)

Boomer K, Rogness N & Jersky B, Statistical consulting courses for undergraduates: fortune or folly, JSE, 15(3), 2007. (Electronic version QA276.18)

Chatfield C, Problem Solving: A Statistician's Guide, 2nd ed., Chapman and Hall, London, 1995. (QA276.12 .C457 1995)

Derr J, Statistical Consulting: A Guide to Effective Communication, Duxbury 2000. (HA29 .D386/ 2000)

Finch S & Gordon I, Lessons we have learned from post-graduate students, ICOTS8, 2010.

Hand DJ and Everitt BS (eds.), The Statistical Consultant in Action, Cambridge Uni Press, 1987. (Sections 1, 2 and 4 are available in Google.books)

Mackisack M & Petocz P, Projects for advanced undergraduates, ICOTS6, 2002.

McGinn M, Learning to use statistics in research: a case study of learning in a university-based statistical consulting centre, SERJ, 2010.

Peter Petocz, Anna Reid (2010) On Becoming a Statistician - A Qualitative View. International Statistical Review. 78(2): 271-286.

Rothman E, Teaching students and staff consultancy skills, ICOTS7, 2006.

Smith H & Walker J, Experiences with research teams comprised of graduate students, faculty researchers and a statistical consulting team, ICOTS8, 2010.

Wild C & Pfannkuch M, Statistical thinking in empirical enquiry, International Statistical Review, 67(3), 1-12.

ICOTS, SERJ and International Stat Review papers are available at http://www.stat.auckland.ac.nz/~iase/publications.php

International Statistical Institute http://www.isi-web.org/

The Statistical Society of Australia http://www.statsoc.org.au/

American Statistical Association http://www.amstat.org/

Statistical Society of Canada http://www.ssc.ca/en/whats-new

EURO (The Association of European Operational Research Societies) website: https://www.euro-online.org/web/pages/1/home

Australian Society for Operations Research http://www.asor.org.au/

INFORMS (The Institute for Operations Research and the Management Sciences) website: https://www.informs.org/

Technologies used and required

We will use iLearn for distribution of course notes, readings, data sets, solutions, announcements and discussions. We would like you to use the 'Discussions' to communicate with other students and the lecturers to enable transparency between all the students and the

lecturers. You can access the unit iLearn site from http://ilearn.mq.edu.au using your Student ID number and myMQ Portal password. If you have any problems go to the http://www.mq.edu.au/iLearn/student_info/

If you have a personal question, please send an e-mail to one of the lecturers through the iLearn e-mail facility (called dialogue) or alternatively a regular e-mail using your Macquarie University student e-mail account.

The lecturers will make announcements via iLearn. Accordingly, you should make sure you log in and read the posts at least twice a week. You might consider subscribing to iLearn posts this way you will not miss any posts.

Teaching and Learning Strategy

- Readings will be provided through iLearn.
- Weekly SGTAs are designed for students to work together in groups and to gain feedback.
- Assessments are designed to enhance self reflection and peer assessment as well as providing individual learning if a real life problem requires an unknown statistical technique to be used for a proper solution to the problem at hand.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy.

The policy applies to all who connect to the MQ network including students.