MATH3599
PACE: Professional Practice for Mathematical Sciences
Session 2, In person-scheduled-weekday, North Ryde 2022
School of Mathematical and Physical Sciences

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General Information

Unit convenor and teaching staff
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Credit points
10

Prerequisites
(Admission to BMathSci or BSc or BCom) and (20cp from STAT or MATH units at 3000 level)

Corequisites

Co-badged status

Unit description
This PACE unit draws together learning in previous units to prepare students for the workplace through engaging with a partner organisation. Students will work in close collaboration throughout the session with a project sponsor that has provided a problem to be solved or a study to be designed. Students will develop the ability to appreciate the nature of statistical/mathematical problems and discuss the problem solving cycle; listen to a client's statement of a problem and ask appropriate questions for clarification; recognise appropriate statistical/mathematical 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 a verbal summary of a statistical/mathematical investigation at a level appropriate for the audience; and discuss the ethical aspects and implications of professional statistical/mathematical 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: Critically analyse and describe the client's problem and apply principles, models, tool, techniques, technology and processes to provide a solution.
ULO2: Effectively communicate stages and results of the project (in both written and oral form)
ULO3: Recognise and address ethical issues when they arise based on an understanding of professional ethic
ULO4: Improve ability to work co-operatively as a team member

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.

Late Assessment Submission Penalty

From 1 July 2022, Students enrolled in Session based units with written assessments will have the following university standard late penalty applied. Please see https://students.mq.edu.au/study/assessment-exams/assessments for more information.

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11:55 pm. A 1-hour grace period is provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for Special Consideration.

Assessments where Late Submissions will be accepted

In this unit, late submissions will accepted as follows:

• Participation - NO, unless Special Consideration is Granted
• Self-reflection - YES, Standard Late Penalty applies
• Project Plan - NO, unless Special Consideration is Granted
• Project Report - YES, Standard Late Penalty applies
• Project Presentation - NO, unless Special Consideration is Granted

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>10%</td>
<td>No</td>
<td>Weekly</td>
</tr>
<tr>
<td>Self Reflection</td>
<td>10%</td>
<td>No</td>
<td>Weeks 2 &amp; 13</td>
</tr>
<tr>
<td>Project Plan</td>
<td>10%</td>
<td>No</td>
<td>Week 4</td>
</tr>
<tr>
<td>Name</td>
<td>Weighting</td>
<td>Hurdle</td>
<td>Due</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
<td>--------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Project Presentation</td>
<td>20%</td>
<td>No</td>
<td>Weeks 12 &amp; 13</td>
</tr>
<tr>
<td>Project Report</td>
<td>50%</td>
<td>No</td>
<td>Week 12</td>
</tr>
</tbody>
</table>

**Participation**

Assessment Type 1: Participatory task  
Indicative Time on Task 2: 6 hours  
Due: Weekly  
Weighting: 10%

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

On successful completion you will be able to:

- Critically analyse and describe the client's problem and apply principles, models, tool, techniques, technology and processes to provide a solution.
- Effectively communicate stages and results of the project (in both written and oral form)
- Recognise and address ethical issues when they arise based on an understanding of professional ethic  
- Improve ability to work co-operatively as a team member

**Self Reflection**

Assessment Type 1: Reflective Writing  
Indicative Time on Task 2: 5 hours  
Due: Weeks 2 & 13  
Weighting: 10%

Self Reflection on Previous Learning, Group Process, technical aspects of the group project and working with partner experience.

On successful completion you will be able to:

- Effectively communicate stages and results of the project (in both written and oral form)
- Recognise and address ethical issues when they arise based on an understanding of professional ethic
Project Plan
Assessment Type: Plan
Indicative Time on Task: 5 hours
Due: Week 4
Weighting: 10%

The project plan is a document where students outline what they are going to do to address the issues raised by the partner (i.e. designing a study or solving a problem) in a given time frame (i.e. project milestones achieved within the session).

On successful completion you will be able to:
- Critically analyse and describe the client's problem and apply principles, models, tool, techniques, technology and processes to provide a solution.
- Effectively communicate stages and results of the project (in both written and oral form)
- Recognise and address ethical issues when they arise based on an understanding of professional ethic
- Improve ability to work co-operatively as a team member

Project Presentation
Assessment Type: Presentation
Indicative Time on Task: 5 hours
Due: Weeks 12 & 13
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:
- Critically analyse and describe the client's problem and apply principles, models, tool, techniques, technology and processes to provide a solution.
- Effectively communicate stages and results of the project (in both written and oral form)
- Recognise and address ethical issues when they arise based on an understanding of professional ethic
- Improve ability to work co-operatively as a team member
Project Report

Assessment Type: Report
Indicative Time on Task: 15 hours
Due: Week 12
Weighting: 50%

Written report to demonstrate a solution to client problem.

On successful completion you will be able to:

- Critically analyse and describe the client's problem and apply principles, models, tool, techniques, technology and processes to provide a solution.
- Effectively communicate stages and results of the project (in both written and oral form)
- Recognise and address ethical issues when they arise based on an understanding of professional ethic
- Improve ability to work co-operatively as a team member

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
They will start in Week 1. You should plan 10 hours of learning each week including attending lectures each week.

Required and Recommended Texts and/or Materials
Note that some of the following will be provided to students during semester.


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)


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.


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


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


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


INFORMS (The Institute for Operations Research and the Management Sciences) website: http://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 learning activities are designed for students to work together in groups and to learn together.
- 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 or mathematical technique to be used for a proper solution to the problem at hand.

**Unit Schedule**

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to consulting in statistical and mathematical sciences</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>2</td>
<td>Asking the right questions (oral communication skills) &amp; Literature Review</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>3</td>
<td>Data preparation for analysis</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>4</td>
<td>Working in a group (skills required for effective group work)</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>5</td>
<td>Statistical Graphics</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>6</td>
<td>Writing a report (written communication skills)</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>7</td>
<td>Statistical and mathematical thinking</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td></td>
<td>Mid semester break (not holiday)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Human side of consulting (Guest lecture)</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>9</td>
<td>Public Holiday</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Ethics in Statistics and Mathematics</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>11</td>
<td>Project Work</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>12</td>
<td>Presentations of final projects</td>
<td>A²B² &amp; FV</td>
</tr>
<tr>
<td>13</td>
<td>Presentations of final projects</td>
<td>A²B² &amp; FV</td>
</tr>
</tbody>
</table>

The order of the lectures might change, as some classes depend on the availability of clients and guest lecturers.

$A^2B^2 = Ayse Aysin Bombaci Bilgin$
Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). 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
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

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

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

**Student Code of Conduct**

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/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

**Academic Integrity**

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

**Student Support**

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

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the 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

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues

Student Enquiries

Got a question? Ask us via AskMQ, or contact Service Connect.

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.

Changes from Previous Offering

This unit is offered first time in 2021 S2. However the content is similar to STAT399 or STAT3199 with addition of material to cater for students majoring in Mathematics.