Unit of Study Outline

Unit Code BUSS7902
Unit Title Quantitative Research Methods

Semester 1, 2014

Pre-requisite Units: N/A
Co-requisite Units: N/A
Prohibited Units: ECOF7902
Assumed Knowledge and/or Skills: HSC level of mathematics or equivalent

Unit Coordinator: Diane Dancer
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Email: diane.dancer@sydney.edu.au  Phone: 93516585
Consultation Hours: Please go to Blackboard for details of all staff consultation times.
Class Day(s): Please go to Blackboard for class times and locations

Required Text / Resources:

There is no required textbook. The full list of required and recommended readings can be found at the back of this document and on the course Blackboard site. Where possible, readings have been placed on closed reserve in the Fisher Library.

This unit of study outline MUST be read in conjunction with
The Business School Unit of Study Common Policy and implementation information that applies to every unit of study offered by the Business School (http://sydney.edu.au/business/currentstudents/policy). All assessment rules, such as standards used, penalties etc, are covered.

The Business School Student Administration Manual - for information about all processes such as illness, appeals etc (http://sydney.edu.au/business/currentstudents/student_information/student_administration_manual) When deciding applications and appeals relating to these matters it will be assumed that every student has taken the time to familiarise themselves with these key policies and procedures.

The Business School seeks feedback from students and staff in order to continually improve all units offered. For information on previously collected feedback and innovations made in response to this feedback, please see http://sydney.edu.au/business/learning/planning_and_quality/feedback/student

1. Unit of Study Information

This unit aims to provide students with a review or introduction to the types of quantitative analysis techniques that they may be required to know, discuss or conduct, both during their PhD and in their future working lives. The unit aims to provide such a basic training with a focus on econometric and statistical analysis methods. The skills taught in this unit are considered important for all PhD candidates to possess, both during and after their candidature.
2. Program Learning Outcomes and Unit Learning Outcomes

The Program Learning Outcomes for this Program are located at http://sydney.edu.au/business/learning/staff/leadership/program_directors/outcomes

Unit Learning Outcomes

<table>
<thead>
<tr>
<th>Unit Learning Outcomes</th>
<th>Program Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the successful completion of the Unit you should be able to:</td>
<td></td>
</tr>
</tbody>
</table>
| Apply research principles and methods for gathering and analysing data/information relevant to their major field of study. | 1. Domain Knowledge  
2. Research Contribution  
3. Communication |
| Use the descriptive statistics tools to create and analyse results using your data for the research project. | 1. Domain Knowledge  
2. Research Contribution  
3. Communication |
| Apply the learnt statistical concepts to the research project. | 1. Domain Knowledge  
2. Research Contribution  
3. Communication |
| Evaluate and interpret the results of using quantitative methods in your project. | 2. Research Contribution  
3. Communication |
| Communicate statistical knowledge and outcomes relevant to the research project. | 3. Communication |

3. Assessment

<table>
<thead>
<tr>
<th>Assessment Name</th>
<th>Individual/Group</th>
<th>Assessment Conditions</th>
<th>Program Learning Outcomes Assessed</th>
<th>Length</th>
<th>Weight</th>
<th>Due Date</th>
<th>Closing Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Proposal</td>
<td>Individual</td>
<td>Compulsory</td>
<td>1, 2, 3</td>
<td>3000</td>
<td>35%</td>
<td>25-Mar-2014</td>
<td>01-Apr-2014</td>
</tr>
<tr>
<td>Presentation</td>
<td>Individual</td>
<td>Compulsory</td>
<td>1, 2, 3</td>
<td>N/A</td>
<td>15%</td>
<td>Week 6</td>
<td>Week 6</td>
</tr>
<tr>
<td>Research Report</td>
<td>Individual</td>
<td>Mandatory</td>
<td>1, 2, 3</td>
<td>7500</td>
<td>40%</td>
<td>21-Apr-2014</td>
<td>28-Apr-2014</td>
</tr>
<tr>
<td>Self-Assessment of Research Report</td>
<td>Individual</td>
<td>Mandatory</td>
<td>2, 3</td>
<td>300</td>
<td>10%</td>
<td>21-Apr-2014</td>
<td>28-Apr-2014</td>
</tr>
<tr>
<td>Academic Honesty</td>
<td></td>
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</tbody>
</table>

For the meaning and operation of this table, see policy information in the box on the front page or click here

Assessment details

Research Proposal

- Task Description
  Your research proposal should give an account of the design and preliminary findings (if any) of your proposed research idea. This might include, but should not be limited to: background and motivation of the problem; problem definition and research question(s); any hypotheses of interest; research design; type of study; data required; population and sampling frame (if relevant); sample size; proposed models; proposed analysis/methods; problems with data or other issues; exploratory data analysis (if possible).

"Research Proposal" is Compulsory. This means you must undertake the assessment. If you do not undertake the assessment you will receive zero for this assessment.

- Assessment Criteria
Description of economic or business problem being investigated.
Relationship with existing theoretical and empirical literature
Discussion of proposed statistical work
Documentation of data needs
Initial data description and data analysis

- Feedback - What, when and how feedback will be provided for this assessment

Feedback to the students will be given using an assessment rubric with additional comments on their paper. The feedback is related to the criteria. This feedback is to inform and influence the student in the working and completion of their research project.

Presentation

- Task Description
  A 10-15 minute presentation summarising your (almost) completed research project shall be required. All issues in the Proposal should be considered, as well as the progress made since then. At a minimum, an exploratory data analysis should be presented; while preliminary findings from any quantitative analysis would also be welcome and are indeed expected. Students will be assessed on the overall clarity of their presentation; their skills in finding and identifying the important issues; their understanding of the chosen research topic and the effectiveness of their presentation (e.g. communication, presentation aids, etc.) The presentation will assess the student’s ability to communicate with technical terms, but also in layman’s language where appropriate, i.e. in a manner appropriate for any prospective decision makers/traders/managers to use and understand.

"Presentation" is Compulsory. This means you must undertake the assessment. If you do not undertake the assessment you will receive zero for this assessment.

- Assessment Criteria
  Description of economic or business problem being investigated.
  Relationship with existing theoretical and empirical literature
  Discussion of proposed statistical work
  Documentation of data needs
  Initial data description and data analysis

- Feedback - What, when and how feedback will be provided for this assessment
  Informal discussions with each student on their presentation. The lecturer will use a rubric to assess the presentation. Extra comments will be provided as necessary.

Research Report

- Task Description
  The research report should include a full description of your research project from literature review to problem formulation, readable and fully understandable presentation of the quantitative analysis, to results and final conclusions (plus relevant paths ahead) and be presented in a style similar to (but more comprehensive than, in terms of detail) a research paper in your area.
Research Report is Mandatory. This means you must undertake the assessment and achieve a mark above 50%. Students who fail to achieve this minimum standard in this assessment, even when their aggregate mark for the entire unit is above 50%, will be given an AF grade for this unit. As a result a student's academic transcript will show AF and the actual mark achieved if between 0-49 and AF and a capped mark of 49 for all other marks.

- Assessment Criteria

  Description of economic or business problem being investigated.
  Relationship with existing theoretical and empirical literature
  Discussion of proposed statistical work
  Documentation of data needs
  Initial data description and data analysis
  Modelling, testing for problems, refinement of model.
  Conclusions.

- Feedback - What, when and how feedback will be provided for this assessment

  To assess the criteria, written feedback on the proposal will be given as well as feedback using the assessment rubric as in Assessment Task 1. Feedback is provided to inform and influence future research and learning.
  Students will be required to write a paragraph and hand it in by 28-April-2014 indicating how they will use the feedback.
  After this each student will be given their assessment report.

Self-Assessment of Research Report

- Task Description
  Using the assessment rubric, students will complete the self-assessment. They have the opportunity to add extra comments for the lecturer if needed.

"Self-Assessment of Research Report" is Mandatory. This means you must undertake the assessment and achieve a mark above 50%. Students who fail to achieve this minimum standard in this assessment, even when their aggregate mark for the entire unit is above 50%, will be given an AF grade for this unit. As a result a student's academic transcript will show AF and the actual mark achieved if between 0-49 and AF and a capped mark of 49 for all other marks.

- Assessment Criteria
  Description of economic or business problem being investigated.
  Relationship with existing theoretical and empirical literature
  Discussion of proposed statistical work
  Documentation of data needs
  Initial data description and data analysis
  Modelling, testing for problems, refinement of model.
  Conclusions.

- Feedback - What, when and how feedback will be provided for this assessment
  Feedback will be given by allowing the students to have the opportunity to discuss their self-assessment individually with the lecturer.
4. Other Resources for Students

All lectures and seminars are recorded and will be available within Blackboard for student use. Please note the Business School does not own the system and cannot guarantee that the system will operate or that every class will be recorded. Students should ensure they attend and participate in all classes.

Useful Reference Texts:


Popper, K. The Logic of Scientific Discovery, by (many editions and publishers, almost any will do).


These books will either be in the library or the Coop bookshop. However, any texts that you can get hold of on "Research Methods", "Sampling" and "Introductory Statistics" will be useful references for this unit.

Assessment Research Proposal is Compulsory. This means you must undertake the assessment. If you do not undertake the assessment you will receive zero for this assessment.

Assessment Presentation is Compulsory. This means you must undertake the assessment. If you do not undertake the assessment you will receive zero for this assessment.

Assessment Research Report is Mandatory. This means you must undertake the assessment and achieve a mark above 50%. Students who fail to achieve this minimum standard in this assessment, even when their aggregate mark for the entire unit is above 50%, will be given an AF grade for this unit. As a result a student's academic transcript will show AF and the actual mark achieved if between 0-49 and AF and a capped mark of 49 for all other marks.

** Students must complete the Academic Honesty module in Blackboard with a mark above 80% by the final day of exam, or an Absent Fail (AF) grade will be given for the entire unit. Students can complete the module multiple times until this grade is achieved. Students who completed the module with a score of 80% or above in any previous semesters do not need to do it again.

*** The due date for an assessment is the last day on which you can submit the assessment without penalty. If you submit the assessment after that date, you will receive a late penalty, unless excused by special consideration, special arrangement or disability services adjustment. The closing date is the last day on which an assessment will be accepted for marking. A task occurs over a number of weeks, e.g. class presentations, due and closing date are both the first occasion of the task.
### 5. Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Required Reading(s)</th>
<th>Lecture/Lab</th>
<th>Assessments Due</th>
</tr>
</thead>
</table>
| 1 7 Mar 2014 | First Lecture  
Read C&H, Ch 1, 2, 3 & 7  
Further reading: G&G Ch 2, 3, 8.1  
Ch 10.2,10.3  
H&G Ch 1-4 | Lecture/Lab  
Introduction to the (scientific) research process; types of research; the research process; Data types & management; Exploratory data analysis. |                                  |
| 2 11 Mar 2014 | Second Lecture  
C&H Ch 4, 5 and 10  
G&G Ch 3,4, 5 and 10  
H&G Ch 5, 6, 7 | Lecture/Lab  
Concepts and frameworks; Types of variables and studies; preliminary info gathering; Probability and distributions. |                                  |
| 3 14 Mar 2014 | Third Lecture  
CDS Ch 4  
G&G Ch 3, 6  
C&H Ch 4, 5, 10  
H&G Ch 8, 9, 10 | Lecture/Lab  
Operationalising concepts, measurement, rating scales, goodness of measures. Central limit theorem, confidence intervals and “Parametric” methods for simple location and proportion problems. |                                  |
| 4 18 Mar 2014 | Fourth Lecture  
Tryfos Ch 1-4  
H&G Ch 10, 11  
C&H Ch 6 and 7  
G&G Ch 9 & 11 | Lecture/Lab  
Sampling, probability sampling, non-probability sampling, determining sample size. Testing propositions about means and proportions; hypothesis tests, simple tests for one and two sample location problems |                                  |
| 5 25 Mar 2014 | Fifth Lecture  
C&H Ch 6  
G&G Ch 8 and 11  
H&G Ch 12 | Lecture/Lab  
Questionnaire and survey design, pre-testing questionnaires and measures. Overview of ANOVA and non-parametric alternatives. | Research Proposal (25 March)     |
| 6 1 Apr 2014 | Sixth Lecture  
H&G Ch 13  
C&H Ch 6 and 7  
G&G Ch 6 and 11 | Lecture/Lab  
Experimental Design; Reliability and validity; Identifying relationships between variables: category and interval variables, correlation and rank correlation, simple linear regression and quantile regression |                                  |
| 7 11 Apr 2014 | Seventh Lecture  
H&G Ch 14, 15  
C&H Ch 7  
G&G Ch 11 | Presentations  
Introduction to multiple regression; assessing the model fit, prediction, diagnostics, model selection and building. Transforming data. | Presentation (11 April)          |
| 8 21 Apr 2014 | Date for Submission  
Research Report to be submitted | -Research Report (21 April) |                                  |