Unit of Study Outline

Unit Code: QBUS6320
Unit Title: Management Decision Making
Semester 1, 2017

Pre-requisite Units:
Co-requisite Units:
Prohibited Units:
Assumed Knowledge and/or Skills: Basic Algebra

Unit Coordinator: Steven Sommer
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Email: steven.sommer@sydney.edu.au  Phone: 93514926

Consultation Hours: Please go to Blackboard for details of all staff consultation times.
Class Day(s): Please see the timetable application to determine the class times and locations

Required Text / Resources:

All are available in electronic versions.

Primary Text:


Supporting Texts:


1. Unit of Study Information

This unit introduces models and tools for decision analysis and their application in managerial settings. The unit focuses on the use of formal decision methods for management decisions in business. The main goal is to show how these decision models can improve the decision process by helping the decision maker to understand the structure of decisions; use subjective probabilities for measuring risk; analyse sensitivity of decisions to changing decision parameters; quantify outcomes in accordance with risk attitudes; and estimate the value of information.
Special attention is paid to informal interpretations of formal decision approaches.
2. Program Learning Outcomes and Unit Learning Outcomes

The Program Learning Outcomes for this Program are located at http://sydney.edu.au/business/about/accreditations/AoI.

Unit Learning Outcomes

<table>
<thead>
<tr>
<th>Program Learning Outcomes</th>
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<tbody>
<tr>
<td>1. Business Knowledge</td>
</tr>
<tr>
<td>2. Critical Thinking</td>
</tr>
<tr>
<td>3. Business Analysis and Problem-Solving</td>
</tr>
<tr>
<td>4. Communication</td>
</tr>
<tr>
<td>6. Ethical and Social Responsibility</td>
</tr>
</tbody>
</table>

On the successful completion of the Unit you should be able to:

Apply descriptive decision making theories to particular judgements and decisions in order to identify human biases and heuristics that may be present, and hence to evaluate the quality of those judgements and decisions.

Apply logical, probabilistic, and statistical techniques in order to make the right decision for a particular desired outcome. This includes decisions with uncertainty, unknowns, risk, and multi-value decisions.

Engage in and evaluate multi-party decisions in both competitive and cooperative environments. In particular, you will be able to apply basic Game Theory and Negotiation techniques.

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 Time</th>
<th>Due Date</th>
<th>Closing Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>Individual</td>
<td>Compulsory</td>
<td>1, 2, 3, 4</td>
<td>6</td>
<td>25%</td>
<td>4:00pm</td>
<td>14-Apr-2017</td>
<td>30-Apr-2017</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>Individual</td>
<td>Compulsory</td>
<td>1, 2, 3</td>
<td>~10</td>
<td>25%</td>
<td>4:00pm</td>
<td>22-May-2017</td>
<td>05-Jun-2017</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Individual</td>
<td>Mandatory</td>
<td>1, 2, 3</td>
<td>~12</td>
<td>50%</td>
<td>Final Exam Period</td>
<td>Final Exam Period</td>
<td></td>
</tr>
<tr>
<td>Academic Honesty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 4</td>
<td></td>
</tr>
</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

Assignment 1

- Task Description
  Assignment 1 requires you to consciously observe, identify, and reflect on the bounded rationality exhibited by others. You are to report on real occurrences of the topics covered in weeks 1 to 3.

- Assessment Criteria
  - Clarity of expression (including grammar, spelling, referencing, and structure)
  - Knowledge and application of theory
  - Analysis and evaluation
  - Reflection

- Feedback - What, when and how feedback will be provided for this assessment
Assignment 2

- **Task Description**
  Assignment 2 will consist of a set of quantitative problems based on the material of weeks 4 to 9.

- **Assessment Criteria**
  - Analyse, solve, and compute the solutions to probability, statistics, and logic problems. This will require identifying and then applying the appropriate theory to utilise.
  - Determine the optimal decision for a complex decision problem by constructing and then solving decision trees involving certain and uncertain probabilities.
  - Apply utility theory to solve decision problems for a decision maker with particular risk preferences.

- **Feedback - What, when and how feedback will be provided for this assessment**
  - Annotated assignment with personalised feedback.
  - Class Discussion of common errors.
  - Optimal solutions for some of the problems.

Final Exam

- **Task Description**
  The final exam will be two and a half hours long (with 10 minutes reading time). All of the material in the unit will be examinable.

  The exam will be a semi-closed-book examination; it has the same restrictions as a closed book exam with the exception that students will be allowed to bring into the exam a single handwritten sheet of A4 paper containing whatever information they wish. Both sides of the sheet may be written on. Students may not keep the sheet after the exam - it must be submitted with the exam answer booklet. However, they are free to make a copy of the sheet before the exam for their own records. The sheet will not be assessed. Further details of the format and expectations regarding the examination will be provided in lectures.

  This assessment is listed as **MANDATORY** which means you must undertake the assessment and achieve at least 40% of the available marks in that assessment. Students who fail to achieve this minimum standard in this assessment, even when their aggregate mark for the entire unit of study is above 50%, will be given a Fail grade for this unit. As a result a student's academic transcript will show a Fail grade and the actual mark achieved if the final mark of the unit is between 0-49 and a Fail grade and a capped moderated mark of 49 for all other final marks.

- **Assessment Criteria**
  - Identify, classify, assess, evaluate and discuss human biases and heuristics and other forms of bounded rationality.
  - Analyse, solve, and compute the solutions to probability, statistics, and logic problems. This will require identifying and then applying the appropriate theory to utilise.
  - Determine the correct decision for a complex decision by constructing and then solving decision trees involving certain and uncertain probabilities.
  - Apply utility theory to solve decision problems for a decision maker with particular risk preferences.
  - Analyse, model, and solve problems using game theory approaches.
  - Describe and apply negotiation principles and theories.
  - Compare and contrast theories introduced in different weeks of the unit.
Feedback - What, when and how feedback will be provided for this assessment

Exam Mark

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.

The class will be highly interactive involving students working in pairs and groups to address instructive problems, class discussion, games, solving problems with information not available to all students, negotiation and other activities. Many of activities are then summarised on the white-board. Very little of this information is captured in the recordings. For this reason, for many of the weeks, the recordings are highly unsuitable and will not aid in learning.

The lecture slides will be made available on Blackboard and should be brought to class each week.

For weeks 4 to 11, students need to have a basic competency in arithmetic operations, algebra, and functions. Please consider attending workshop 1 of the Maths in Business classes if you do not feel confident in this area. See http://sydney.edu.au/business/study/services/maths/topics

Pass Program
Peer Assisted Study Sessions. This program helps to improve students’ academic performance providing extra free learning opportunities with trained student facilitators, including problem solving practice where relevant, in areas directly related to understanding the unit concepts more thoroughly. Students register for PASS online at: http://sydney.edu.au/business/learning/students/pass Email all enquiries about the PASS program to: business.pass@sydney.edu.au

Maths in Business
The Business School provides a free series of workshops with student facilitators open to all students interested in mastering both basic and higher intermediate level mathematics. Workshops will be structured to strengthen your knowledge of algebra before proceeding to calculus, probability and then progressing to refine your skills in Excel. Students register for workshops online at: http://sydney.edu.au/business/study/services/maths/register Email all enquiries about the Maths in Business program to: business.maths@sydney.edu.au

Readings
Unit readings are available on Blackboard.
## 5. Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>List of Topics</th>
<th>Assessments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 6 Mar 2017</td>
<td>Introductions</td>
<td></td>
</tr>
<tr>
<td>2 13 Mar 2017</td>
<td>Biases and Heuristics</td>
<td></td>
</tr>
<tr>
<td>3 20 Mar 2017</td>
<td>Affect, Fairness, Ethics and Escalation</td>
<td></td>
</tr>
<tr>
<td>4 27 Mar 2017</td>
<td>Probability and Statistics</td>
<td></td>
</tr>
<tr>
<td>5 3 Apr 2017</td>
<td>Probability (2)</td>
<td></td>
</tr>
<tr>
<td>6 10 Apr 2017</td>
<td>Decision Trees, Risk and Utility</td>
<td>Assignment 1</td>
</tr>
</tbody>
</table>

**Common week 17 Apr to 23 Apr**

<table>
<thead>
<tr>
<th>Week</th>
<th>List of Topics</th>
<th>Assessments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 24 Apr 2017</td>
<td>(No class - Public Holiday)</td>
<td></td>
</tr>
<tr>
<td>8 1 May 2017</td>
<td>Uncertainty, Dominance, and Simulation</td>
<td></td>
</tr>
<tr>
<td>9 8 May 2017</td>
<td>Multi-value Decisions</td>
<td></td>
</tr>
<tr>
<td>10 15 May 2017</td>
<td>Game Theory (1)</td>
<td></td>
</tr>
<tr>
<td>11 22 May 2017</td>
<td>Game Theory (2)</td>
<td>Assignment 2</td>
</tr>
<tr>
<td>12 29 May 2017</td>
<td>Negotiation</td>
<td></td>
</tr>
<tr>
<td>13 5 Jun 2017</td>
<td>Closing</td>
<td></td>
</tr>
</tbody>
</table>