

# Bachelor of Business

## Information System and Decision Making

<b>Section A: Teaching, Learning and Assessment</b>
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<b>Subject Name &amp; Code</b>	<b>Information Systems and Decision Making (IS302)</b>
<b>Semester/year</b>	<b>Semester 1 2022</b>
<b>Credit Point Value</b>	<b>10</b>
<b>Duration</b>	<b>One semester</b>
<b>AQF Level</b>	<b>7</b>
<b>Student Workload</b>	<b>10 hours a week</b>
<b>Pre-Requisite</b>	<b>None</b>

**Presentation Team**

<b>Subject Coordinator</b>	<b>Philip Wang</b>
<b>Lecturers</b>	<b>Philip Wang</b>
<b>Office Location</b>	<b>302-306 Elizabeth St Surry Hills NSW 2010</b>
<b>Email</b>	<b>Philip.wang@win.edu.au</b>
<b>Phone</b>	<b>(02) 8252 9999</b>
<b>Consultation times</b>	<b>30 mins before and after class, or by appointment through email</b>

## **Teaching methods/strategies**

Three-hour class contact: 1 hour lecture and 2 hour tutorial.

This subject adopts the following teaching and learning strategies:

Hypothetical as well as contemporary real world case studies are used to develop students' understanding of key Information System and Decision Making concepts.

### **Preparation outside class:**

One of the principal learning strategies for this subject involves the preparation of assigned material prior to class. Students are required to read and reflect upon assigned readings and problems from the textbook, workbook and other sources and are expected to apply this learning when they come to class.

### **In-class activities:**

Each session uses a combination of lecture and interactive tutorial learning activities. The interactive tutorial activity is designed to build upon your understanding of business decision making and apply these understanding in real life scenario to ensure that students comprehend the technical aspects of each topic. The lecture material is designed to work with the activity in the tutorial material and consist of typically incorporate in-class discussion and the application of the technical content to authentic Decision Marking problems through the completion of in-class exercises.

### **Consultation with subject teaching staff:**

All subject teaching staff are available for one-on-one consultation with students. The specific times that staff are available for consultation will be advised in seminars by your lecturer and can also be found on the cover page of this outline. Meeting staff during consultation provides an opportunity for students to receive feedback on their learning in this subject.

### **Brief Subject Description**

The most important activity that a manager may engage in is their decision making. Indeed, decision making is one of the most frequent activities that human beings do: these decisions range from incredibly simple things such as what sorts of clothes to wear today up to whether a takeover offer made by a rival organisation should be accepted or rejected. The movement towards a post-industrial or knowledge intensive economy has also meant that decision making has evolved from one which has been mainly human-centric to one in which the use of information technology to support decision making has become more and more important and pervasive. Where this information technology support for decision-making is implemented well, it would be expected that the capacity of human decision makers will improve meaning that decisions will be both more efficient and more effective. Accordingly, this subject will first investigate the sort of decisions the organisations and managers must make at different levels within the organisation. Second, the subject will examine the different models of decision making that the underlying theory of decision making which supports these models, e.g. decision trees, linear programming, etc. Third, the subject

will undertake a critical review of the success or otherwise in applying information technology to the support of human beings in their decision-making. Finally, the subject will also look at the emerging “decision aiding” technology such as expert and knowledge-based systems (including neural networks and case-based reasoning systems) to determine how these technologies will either support or replace human decision making.

### **Subject Learning Outcomes**

After successfully completing this subject, students will be able to:

<b>A</b>	Understand the heterogeneous nature of the decision-making activity across different managerial levels and decision environments within organisations;
<b>B</b>	Apply different decision models to the decision making process;
<b>C</b>	Understand how humans make decisions - individually, in a group or within a whole-of-organisation context;
<b>D</b>	Recognize that humans have a number of flaws in their decision making and understand what responses are necessary to address these flaws;
<b>E</b>	Apply appropriate information systems to support the decision making by managers and/or teams within an organisation; and
<b>F</b>	Appreciate how advanced ICT technologies, such as artificial intelligence, can either support or replace human decision makers.

## Weekly Schedule (Semester 1, 2022)

Week	Date (Week beginning Monday)	Topics	Required Reading
1	07.03.2022	Lecture: Models of decision making  Tutorial: Excel Function Overview Part #1 (Building Excel, What-if functions, SUMPRODUCT functions, If, and COUNTIF)	Excel Handbook (Online PDF)
2	14.03.2022	Lecture: Structured versus Unstructured decisions  Tutorial: Excel Function Overview Part #2 (VLOOKUP Auditing Excel & Error Checking SUMIF Cell Naming)	Excel Handbook (Online PDF)
3	21.03.2022	Lecture: Decision making using computers: an overview  Tutorial: Linking problem solving and decision making (Goal Seeking)	Anderson, et al., 2018: Chapter 1; end of chapter problems 4, 8 & 12 (Available on Canvas)
4	28.03.2022	Decision making using computers: knowledge representation and models of machine reasoning  Tutorial: Simple decision making using linear programming (Solver)	Anderson, et al., 2018: Chapter 2; Appendix 2.1 and end of chapter problems 4, 6,7 & 10 (Available on Canvas)
5	04.04.2022	Decision making using computers: machine learning  Tutorial: Using sensitivity analysis in decision making (Solver: Sensitivity)	Anderson, et al., 2018: Chapter 3; Appendix 3.1 and end of chapter problems 12 (Available on Canvas)
6	11.04.2022*	Lecture: Building decision support systems  Tutorial: Logistics problem solving and decision making (Solver and SUMPRODUCT)	Anderson, et al., 2018: Chapter 6; Appendix 6.1 and end of chapter problems 2 & 11 (Available on Canvas)
<b>7</b>	<b>18.04.2022</b>	<b>Intra-Semester Break</b>	
8	25.04.2022**	Lecture: Decision making and human behaviour: an overview  Tutorial: Nonlinear optimisation decision models ( Solver: Nonlinear )	Anderson, et al., 2018: Chapter 8; Appendix 8.1 and end of chapter problems 10 (Available on Canvas)

Week	Date (Week beginning Monday)	Topics	Required Reading
9	02.05.2022	Lecture: Decision making and human behaviour: how humans make judgements  Tutorial: Anderson, et al., 2018: Chapter 12; executing Sanotronics simulation trials with Excel; end of chapter problems 2 (RAND(), What-If? = Data Table, and FREQUENCY())	Anderson, et al., 2018: Chapter 12; executing Sanotronics simulation trials with Excel; end of chapter problems 2 (Available on Canvas)
10	09.05.2022	Lecture: Decision making and human behaviour: heuristics and biases  Tutorial: Decision trees and other decision analysis; value of perfect information; utility theory	Anderson, et al., 2018: Chapter 13; end of chapter problems 1 & 3 (Available on Canvas)
11	16.05.2022	Lecture: Decision making and human behaviour: overconfidence  Tutorial: Multi-criteria decision making – goal setting and programming, Analytic Hierarchy Process (AHP) (SUM())	Anderson, et al., 2018: Chapter 14; Appendix 14.1; end of chapter problems 9 (Available on Canvas)
12	23.05.2022	Lecture: Decision making and human behaviour: other issues  Tutorial: Time series analysis, trend projection, seasonal analysis, and forecasting (Data Analysis, LINEST () and Forecast Sheet)	Anderson, et al., 2018: Chapter 15; Appendix 15.1
13	30.05.2022	Lecture: Decision making, uncertainty and decision risk  Tutorial: Course Summary and Revision	
14	06.06.2022***	Study Week – No Classes	
15	13.06.2022	<b>Exam Week</b>	
16	20.06.2022	<b>Exam Week</b>	

\* Friday 15<sup>th</sup> April is a public holiday. There will not be any classes on this date.

\*\* Monday 25<sup>th</sup> April is a public holiday. There will not be any classes on this date.

\*\*\* Monday 6<sup>th</sup> June, make up classes for the Labour Day public holiday

## Summary of Assessment

Assessment Task	%	Relevant Learning Outcomes	Due Date
<b>Assessment 1: Online Questions (Computer Decision-Making)</b>	30%	B, F	Week 7
<b>Assessment 2: Online Questions (Statistic Decision-making)</b>	30%	A, B, E	Week 14
<b>Assessment 3: individual Essay Assignment (2,000 – 2500 words) (Business and Psychology Decision Making)</b>	40%	A, B, C, D&E	Exam Week

The full marking criteria and rubric can be found in this subject's Canvas site. Please go to the tabs on the left-hand side of the home page, click on 'Assignments' and then click onto the assignment.

The marking rubric shown there will be used to assess your work, so please ensure that you have read and understood it before commencing work on your assignment.

### Please Note:

- Due to the evolving nature of the situation with coronavirus, the assessment items and schedule may change
- Students **MUST** achieve a mark of at least **40%** in the final exam (or final assessment item if no exam), **AND** at least a mark of **50%** in total, to pass this subject.
- Subject to Covid-19 restrictions, it is our intention that all end of semester exams will be **face to face on campus (NOT online)**. You will be kept informed if there is any change to this.

### Detailed Assessment Guidelines

#### Assessment 1: Online Questions (Computer Decision-Making)

In this assignment, students are required to demonstrate that they understand of how computers make decisions by answering a series of multiple choice and short answer questions

<b>Due date:</b>	22.04.2022
<b>Weighting:</b>	30%
<b>Length and Format:</b>	2 hours online questions with a mix of multiple choice and short answer questions
<b>Assessment Details:</b>	Online questions include both short questions and multiple choice will be created based on lecture of artificial intelligence between week 3 to week 5 that is designed to test the student's understanding and appreciation of the topic. Students are required to complete online questions before the

	end of week 7.
<b>Assessment addresses SLOs</b>	B, F
<b>Marking Criteria</b>	Please refer to Marking Rubric on Canvas

### Assessment 2: Online Questions (Statistic Decision-making)

In this assignment, students are given a set of statistical problems. They are required to use the techniques, models, and various problem solving skills discussed in the tutorials to find their solutions.

<b>Due date:</b>	05.06.20
<b>Weighting:</b>	30%
<b>Length and Format:</b>	2 hours online questions, student require to submit one document and one excel to answer these given questions
<b>Assessment Details:</b>	A list of 10 questions will be created based on questions and appendix activities listed from week 3 to 11. The list of question will be made available in week 12. Student is required to submit one document and one excel on Canvas before the end of week 14.
<b>Assessment addresses SLOs</b>	A, B, E
<b>Marking Criteria</b>	Please refer to Marking Rubric on Canvas

### Assessment 3: individual Essay Assignment (2,000 – 2500 words) (Business and Psychology Decision Making) (Note: Students MUST achieve a mark of at least 40% in this assessment item, AND at least a mark of 50% in total, to pass this subject.)

In this assignment, student require to use their understanding of Decision Making from Business Analysis and Psychology perspective to critically analyse and evaluate the case study provided

<b>Due date:</b>	05.06.20
<b>Weighting:</b>	40%
<b>Length and Format:</b>	2000-2500 words, Essay

<b>Assessment Details:</b>	A Case study that aimed to examine understanding of decision-making process will be provided to the student. The student is required to apply lecture material by writing an individual essay.
<b>Assessment addresses SLOs</b>	A, B, C, D, E
<b>Marking Criteria</b>	Please refer to Marking Rubric on Canvas

## Texts and References

### Prescribed text:

Anderson, DR, Sweeney, DJ, Williams, TA, Camm, JD, Cochran, JJ & Fry, MJ 2018, *An Introduction to Management Science: Quantitative Approach*, 15th edn., Cengage Learning, Boston Massachusetts. ISBN 9781337406529

### Recommended Reading

Bidgoli, H 2020, MIS, 10th edn., Cengage Learning, Boston, Massachusetts. ISBN 9780357418697

Ekel, P, Pedrycz, W & Pereira, J Jr., 2019, *Multicriteria Decision-Making Under Conditions of Uncertainty: A Fuzzy Set Perspective*, John Wiley & Sons, Inc., Hoboken, New Jersey. ISBN 9781119534921

Sheedy, KJP 2018, *Good Thinking, and Bad: Using the Science of Cognition to Make Better Decisions*, Navidus Consulting/WritersWorld, Woodstock Oxfordshire, UK. ISBN 9781999623807

Fausto, APM & Marquez, PG 2017, *Decision-Making Management: A Tutorial and Applications*, Academic Press (Elsevier), London, UK. ISBN 9780128115404

Wilson, J 2017, *Critical Thinking: A Beginner's Guide to Critical Thinking, Better Decision Making and Problem Solving!*, CreateSpace. ISBN 9781542966146

Christian, B & Griffiths, T 2016, *The Computer Science of Human Decisions*, Picador, MacMillan Publishing Group, New York, NY. ISBN 9781250118363

Russell, S. J., & Norvig, P. (2016). *Artificial intelligence: a modern approach*. Malaysia; Pearson Education Limited,.

Salles, M 2015, *Decision-Making and the Information System*, ISTE/Wiley, London. UK ISBN 9781848217539 (9781119102984)

Clemen, RT & Reilly, T 2013, *Making Hard Decisions with DecisionTools*, 3rd edn., Cengage Learning, Hoboken, New Jersey. ISBN 9780538797573

### Online and Other Resources

Brackins, GP 2019, *Critical Thinking Skills: 11 Proven Strategies To Improve Decision Making And Problem Solving Skills*, Bluesource and Friends, [www.facebook.com/bluesourceandfriends](http://www.facebook.com/bluesourceandfriends). ISBN [9781070578378](https://doi.org/10.1002/97811070578378)



## Detailed descriptors for each grade

### High Distinction (H)

An analytical piece of work that offers originality in synthesis or analysis, and utilises a multitude of relevant sources to justify arguments and produce a critical and intelligent piece of work. Work of this standard will require flawless referencing and will contain few, if any, grammatical errors. All areas of criteria will be of an excellent standard.

### Distinction (D)

Comprehensively analyses the question, understands and compares approaches systematically, critical comments on literature, excellent examples and illuminating insights. Work of this standard will be consistent and clear with appropriate referencing and use of grammar throughout.

### Credit (C)

Analytical and explanatory discussion, some theoretical insights, good use of sources and examples, focused argument that could be improved. Work of this standard may achieve good levels of performance on some of the criteria but not all. The discussion will address the question but could lean towards description rather than analysis.

### Pass (P)

Competent descriptive discussion, some grasp of the topic, coherent style and composition, essentially a superficial discussion. Work of this standard might only include a limited range of source material and provide information rather than argument. Structure and presentation could require improvement and the introduction and conclusion might not clearly convey the position and findings of the author.

### Fail (F)

Discussion fails to answer the set question or relies on few, if any, source material. Answer contains grammatical errors and/or inappropriate referencing technique and, of course, an absence of any referencing. Work of this standard is often brief and is unable to demonstrate a clear understanding of the topic and relevant issues. Responses fail to meet the learning objectives for the assessment.

### Plagiarism

A similarity report provides an important indicator of whether a student's work is original or plagiarised. Generally, a similarity report of more than 25% warrants close scrutiny to assess whether the problem relates to poor writing technique or plagiarism.

## **Canvas and Turnitin**

This subject will use the Canvas learning management system. Canvas can be accessed by first clicking onto the Student Portal link on the Win home page, and then clicking onto Canvas.

The Canvas home page for this subject will include the subject outline, information on assessment items and other subject information, a notice board, and a weekly folder of relevant course materials, including Power Point slides and a tutorial guide for each topic.

All communications with students in the subject will use the Notice Board and the Canvas email system. Emails will use only students' Win email addresses.

Grades will also appear in the My Grades section of Canvas once marking for each assessment has been completed.

It is an expectation that all students will check the subject's Canvas site (and their Win student email) on a regular basis each week.

Assessments will be submitted using the drop boxes that are included in the Canvas site for this subject. All assignments will be subject to checking using Turnitin text matching programs. Turnitin is a software product that reports on similarities between your paper and other documents. Turnitin is used by over 1000 organisations, including universities and colleges around the world. They are an important tool to assist students with their academic writing by promoting awareness of plagiarism and contract cheating.

When you submit your assignment through the Canvas drop box, you will receive an originality report, based on a matching of your work to that in Turnitin's extensive databases. If you submit your assignment within a reasonable time before the due date, you will have time to act on the originality report, if necessary. For example, a high matching percentage may mean that you need to fully acknowledge your source materials, or it may mean that you need to better paraphrase the source materials in your own words. Therefore, if you use Turnitin in this way, it can be of considerable assistance in helping you to improve your writing skills. The key is to allow enough time to make any changes after viewing the originality report - do not leave your submission until the last minute!

## Section B – Additional Institute Information

### Grade Descriptions

Students may be awarded a raw numerical mark for each subject which will then be converted to one of the following:

HD – High Distinction 85% and above

D – Distinction 75 – 84%

C – Credit 65 – 74%

P – Pass 50 – 64%

F – Fail – below 50%

CF – Compulsory Fail (this may be a mark of over 50%, however the student did not achieve at least 40% in the final assessment item)

For more information on please refer to the Institute's policy 'Student Assessment Policy and Procedure' available on the Institute's website.

### Assignment Submissions

Students are required to submit assessment items at the time and date specified in this *Subject Outline*. Assessment items submitted after the due date will be subject to a penalty unless the Lecturer or Course Coordinator has given prior approval in writing for an extension of time to submit that item.

Assessments should be submitted in the form specified in the subject outline or as notified by the Lecturer. Where assessment items are submitted electronically, the date and time the email was received will be considered the date and time of submission. Written papers or other physical submissions are to be time and date stamped as a record of receipt.

Students whose ability to submit or attend an assessment item is affected by sickness, misadventure, or other circumstances beyond their control, may be eligible for special consideration. No consideration is given when the condition or event is unrelated to the student's performance in a component of the assessment, or when it is considered not to be serious.

Please refer to the Institute's policy 'Student Assessment Policy and Procedure' available on the Institute's website for details.

### Assignment Extensions and Penalties

Assignments must be submitted on the due date. Late assignments will incur a penalty as outlined in the Institute's policy 'Student Assessment Policy and Procedure' available on the Institute's website.

### **Academic Misconduct**

Academic misconduct involves cheating, collusion, plagiarism or any other conduct that deliberately or inadvertently claims ownership of an idea or concept without acknowledging the source of the information. This includes any form of activity that negates the academic integrity of the student or another student and/or their work.

Plagiarism occurs when students fail to acknowledge that the ideas of others are being used. Specifically it occurs when:

- other people's work and/or ideas are paraphrased and presented without a reference;
- other students' work is copied or partly copied;
- other people's designs, codes or images are presented as the student's own work;
- phrases and passages are used verbatim without quotation marks and/or without a reference to the author or a web page;
- lecture notes are reproduced without due acknowledgement.

Cheating occurs when a student seeks to obtain an unfair advantage in an examination or in other written or practical work required to be submitted or completed for assessment.

Collusion (unauthorised collaboration) involves working with others without permission to produce work which is then presented as work completed independently by the student. Collusion is a form of plagiarism. Students should not knowingly allow their work to be copied.

There are substantial penalties for academic misconduct. Please refer to the Institute's 'Academic Integrity and Honesty Policy and Procedure' available on the web site for more information.

### **Referencing Procedures**

The Institute has adopted the APA Style for the referencing of sources. Please refer to the Institute's web site or the library for information on how to reference using the APA style.

### **Subject Evaluation**

At the end of each semester all students will be asked to fill in a subject evaluation form. This information will assist us in making improvements to enhance the quality of delivery.

Evaluations will include questions about the content, the assessment, delivery mode and other features. You will also have an opportunity to make open-ended comments. Subject evaluations are important to us and are taken seriously so please ensure that your responses accurately reflect how you feel. All evaluations are anonymous to ensure privacy.

## **Learning Support Services**

If you have any queries or requests about the course and this subject in particular, you should first approach your Lecturer or Tutor. You may also approach the Course Coordinator if you are unable to resolve your issue with the Lecturer or Tutor. Contact details are provided below.

The Institute wants to ensure that you have the best learning environment available to maximize your chances to do well in the course. We have staff on hand to provide student support and assistance with administrative matters when required. We also have a Student Success and Wellbeing Centre that can provide assistance and support with any personal matters. Contact details are provided below.

If you are experiencing language difficulties, please discuss this with your lecturer who may refer you to an English language Centre for additional assistance. Depending on the level of support required, there may be some additional costs imposed.

The Institute has a Student Success and Wellbeing Centre. As part of this centre, there are on-going workshops available if you need assistance with study skills, presentation skills, writing skills, how to reference information sources using the APA style etc. Please check with the Study Skills Advisor to access these services.

Prior to your enrolment, the Institute makes every effort to ensure that your verbal and written skills in English are at the appropriate level to successfully complete a bachelor's degree. Each of the subjects will be delivered by lecturers who are sensitive to the needs of students from a NESB. For this reason, important vocabulary will be pre-taught. Nevertheless, if you are experiencing language difficulties, you may be referred by your lecturer to the English language Centre or the Learning Assistance Centre for additional support.

All lecturers are instructed to carefully monitor each student's language proficiency in the first four weeks of subject delivery using the "Participation" mode of assessment, to determine if there are any problems with your understanding and usage of written and spoken academic English. Through these Centres, the Institute offers specially developed modules of study designed to enhance your language and study skills. The level of language support you will require will be determined by our specially trained staff, qualified "IELTS" testers, in order to ensure that you have all the necessary support to succeed in your studies.

Depending on the level of support required, there may be some additional costs imposed.

## Additional Contacts

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Bella Carr	<a href="mailto:bella.carr@win.edu.au">bella.carr@win.edu.au</a>	Study Skills Advisor
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