BUS708 STATISTICS AND DATA ANALYSIS T325 BRIEF

All information in the Subject Outline is correct at the time of approval. KOI reserves the right to make changes to the Subject Outline if they become necessary. Any changes require the approval of the KOI Academic Board and will be formally advised to those students who may be affected by email and via Moodle.
Information contained within this Subject Outline applies to students enrolled in the trimester as indicated

1. General Information

1.1 Administrative Details

Associated HE Award(s)	Duration	Level	Subject Coordinator
Graduate Certificate in Business; Graduate Diploma in Business; Master of Accounting; Master of Professional Accounting; Graduate Diploma of TESOL; Master of Arts (TESOL) Graduate Diploma of Information Technology Master of Information Technology	1 trimester	Postgraduate	Dr Mary Amponsah mary.amponsah@koi.edu.au P: +61 (2) 9283 3583 L: Level 1, 545 Kent St. Consultation: via Moodle or by appointment

1.2 Core / Elective

This is a core subject for the Graduate Certificate in Business, the Master of Accounting, the Master of Professional Accounting, Graduate Diploma of Information Technology, Master of Information Technology, and an elective subject for the Graduate Diploma of TESOL, the Graduate Diploma of Business, and the Master of Arts (TESOL).

1.3 Subject Weighting

Indicated below is the weighting of this subject and the total course points.

Subject Credit Points	Total Course Credit Points
4	GCBus 16; GDBus 32; GDTESOL 32; MAcc 48; MA(TESOL) 48; MPA 64; GDIT 32; MIT 64

1.4 Student Workload

Indicated below is the expected student workload per week for this subject

No. timetabled hours/week*	No. personal study hours/week**	Total workload hours/week***
3 hours/week plus supplementary online material	7 hours/week	10 hours/week

* Total time spent per week at lectures and tutorials
** Total time students are expected to spend per week in studying, completing assignments, etc.
*** Combination of timetable hours and personal study.

1.5 **Mode of Delivery** Classes will be face-to-face or hybrid. Certain classes will be online (e.g., special arrangements).

1.6 Pre-requisites There are no pre-requisites for this subject.

While not a pre-requisite, numerical literacy is an advantage for this subject. Note: This subject is equivalent to BUS701 Research Methods – Qualitative and Quantitative.

1.7 General Study and Resource Requirements

- Students are expected to attend classes with the required textbook and to read specific chapters prior to the tutorials. Students should read this material before coming to class to improve their ability to participate in the weekly activities.
- Students will require access to the internet and their KOI email and should have basic skills in word processing software such as MS Word, spreadsheet software such as MS Excel and visual presentation software such as MS PowerPoint.
- Computers and WIFI facilities are extensively available for student use throughout KOI. Students are encouraged to make use of the campus Library for reference materials.

Resource requirements specific to this subject: Students should have a non-programmable calculator – applications in smart phones will not be sufficient to perform the required calculations. This subject requires the use of statistical software packages to analyse numerical data.

1.8 Academic Advising

Academic advising is available to students throughout teaching periods including the exam weeks. As well as requesting help during scheduled class times, students have the following options:

- Consultation times: A list of consultation hours is provided on the homepage of Moodle where appointments can be booked.
- Subject coordinator: Subject coordinators are available for contact via email. The email address of the subject coordinator is provided at the top of this subject outline.
- Academic staff: Lecturers and Tutors provide their contact details in Moodle for the specific subject. In most cases, this will be via email. Some subjects may also provide a discussion forum where questions can be raised.
- Head of Program: The Head of Program is available to all students in the program if they need advice about their studies and KOI procedures.
- Vice President (Academic): The Vice President (Academic) will assist students to resolve complex issues (but may refer students to the relevant lecturers for detailed academic advice).

2. Academic Details

2.1 Overview of the Subject

Data is everywhere and understanding data is a vital asset to an organisation. It can provide valuable insights into areas such as customer behaviour, market intelligence and operational performance. This subject explains how to understand and analyse data in the business context and assess and communicate its significance. It covers the statistical principles behind sampling, hypothesis testing and forecasting. It also includes practice in posing research questions and presenting research reports. These skills of data analysis and decision-making are essential preparation for conducting research and managing work in business settings.

2.2 Graduate Attributes for Undergraduate Courses

Graduates of Postgraduate courses from King's Own Institute will achieve the graduate attributes expected from successful completion of a Master's degree under the Australian Qualifications Framework (2nd edition, January 2013). Graduates at this level will be able to apply an advanced body of knowledge from their major area of study in a range of contexts for professional practice or scholarship and as a pathway for further learning.

King's Own Institute's generic graduate attributes for a master's level degree are summarised below:

	KOI Master's Degree Graduate Attributes	**Detailed Description**
	Knowledge	Current, comprehensive and coherent knowledge, including recent developments and applied research methods
	Critical Thinking	Critical thinking skills to identify and analyse current theories and developments and emerging trends in professional practice
	Communication	Communication and technical skills to analyse and theorise, contribute to professional practice or scholarship and present ideas to a variety of audiences.
	Research and Information Literacy	Cognitive and technical skills to access and evaluate information resources, justify research approaches and interpret theoretical propositions
	Creative Problem Solving Skills	Cognitive, technical and creative skills to investigate, analyse and synthesise complex information, concepts and theories, solve complex problems and apply established theories to situations faced in professional practice.
	Ethical and Cultural Sensitivity	Appreciation and accountability for ethical principles, cultural sensitivity and social responsibility, both personally and professionally
	Leadership and Strategy	Initiative, leadership skills and ability to work professionally and collaboratively to achieve team objectives across a range of team roles. Expertise in strategic thinking, developing and implementing business plans and decision making under uncertainty
	Professional Skills	High level personal autonomy, judgement decision-making and accountability required to begin professional practice.

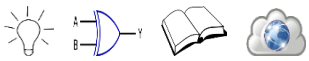
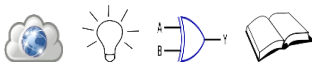
Across the course, these skills are developed progressively at three levels:

- **Level 1 Foundation –** Students learn the skills, theories and techniques of the subject and apply them in stand-alone contexts.
- **Level 2 Intermediate –** Students further develop skills, theories and techniques of the subject and apply them in more complex contexts, beginning to integrate the application with other subjects.

- **Level 3 Advanced** – Students have a demonstrated ability to plan, research and apply the skills, theories and techniques of the subject in complex situations, integrating the subject content with a range of other subject disciplines within the context of the course

2.3 Subject Learning Outcomes

Listed below, are *key* knowledge and skills students are expected to attain by successfully completing this subject:

Subject Learning Outcomes	Contribution to Graduate Attributes
a) Critically review the data requirements for a business project and identify approaches for collecting and analysing the data	
b) Use a variety of statistical methods to make inferences about business data and interpret the findings and use it to solve business problems	
c) Construct hypotheses, test them and interpret the findings	
d) Critically review a data set, report, illustrate and present the results of analysis of data and make suggestions about further research and management action.	

2.4 Subject Content and Structure

Below are details of the subject content and how it is structured, including specific topics covered in lectures and tutorials. Reading refers to the text unless otherwise indicated.

Weekly Planner:

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
Week 1 27 Oct	Basic concept of statistics	Lock, Ch.1	Workshop Exercises **HW quiz 1**
Week 2 03 Nov	Gathering data	Lock, Chs.1, 2	Workshop Exercises **HW quiz 2**
Week 3 10 Nov	Descriptive statistics	Lock, Ch.2	Workshop Exercises **HW quiz 3**
Week 4 17 Nov	Probability distributions	Lock, Ch.5	Workshop Exercises **HW quiz 4**
Week 5 24 Nov	Sampling distribution	Lock, Ch.3	Workshop Exercises **HW quiz 5**

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
Week 6 01 Dec	Confidence interval	Lock, Chs. 3, 5, 6	Workshop Exercises **HW quiz 6**
Week 7 08 Dec	**In-class Quiz** Hypotheses testing – single population	Lock, Chs. 4, 5, 6	Workshop Exercises
Week 8 15 Dec	Hypotheses testing – two population	Lock, Ch. 6	**HW quiz 7**
Week 9 05 Jan	ANOVA and Chi-Square tests	Lock, Chs. 7, 8	Workshop Exercises **HW quiz 8**
Week 10 12 Jan	Linear regression	Lock, Chs. 9, 10	Workshop Exercises **HW quiz 9**
Week 11 19 Jan	Statistical modelling. Introduction to Big Data and use of AI in Data Analysis	Lock, Ch.10 Richardson & Watson, Ch. 10	Workshop Exercises
Week 12 27Jan (Tue)	Introduction to Power BI, Power Query and Tableau	Richardson & Watson, Ch. 11 Richardson & Watson, App. B & C	**Statistics report due** **HW quiz 10**
Week 13 02 Feb	Study Review Week and Final Exam Week		
Week 14 09 Feb	Examinations Continuing students - enrolments for T126 open	Please see exam timetable for exam date, time and location	
Week 15 16 Feb	Student Vacation begins New students - enrolments for T126 open		
Week 16 23 Feb	• Results Released • Review of Grade Day for T325 – see Sections 2.6 and 3.2 below for relevant information. • Certification of Grades		

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
	NOTE: More information about the dates will be provided at a later date through Moodle/KOI email.		
T126 2 Mar 2026			
1 2 Mar 2026	Week 1 of classes for T126		

2.5 Teaching Methods/Strategies

Briefly described below are the teaching methods/strategies used in this subject:

- *Lectures* (1 hour/week) are conducted in seminar style and address the subject content, provide motivation and context and draw on the students' experience and preparatory reading.
- *Tutorials* (2 hours/week) include class discussion of case studies and research papers, practice sets and problem-solving and syndicate work on group projects. Tutorials often include group exercises and so contribute to the development of teamwork skills and cultural understanding. Tutorial participation is an essential component of the subject and contributes to the development of many of the graduate attributes (see section 2.2 above). Tutorial participation contributes towards the assessment in many subjects (see details in Section 3.1 for this subject). Supplementary tutorial material such as case studies, recommended readings, review questions etc. will be made available each week in Moodle.
- *Online* teaching resources include class materials, readings, model answers to assignments and exercises and discussion boards. All online materials for this subject as provided by KOI will be found in the Moodle page for this subject. Students should access Moodle regularly as material may be updated at any time during the trimester
- *Other contact* - academic staff may also contact students either via Moodle messaging, or via email to the email address provided to KOI on enrolment.

2.6 Student Assessment

Provided below is a schedule of formal assessment tasks and major examinations for the subject.

Assessment Type	When assessed	Weighting	Learning Outcomes Assessed
Assessment 1: Online Homework (HW) Quizzes	W1-W12 (Except week 7 and week11)	25%	a, b, c
Assessment 2: In class online Quiz	In class – Week 7	25%	a, b, c
Assessment 3: Statistics Report Written 40% Oral/Video presentation 10%	Week 12	50%	a, b, c, d

2.7 Prescribed and Recommended Readings

Provided below, in formal reference format, is a list of the prescribed and recommended readings.

Prescribed Text:

Lock, P.F. 2021. *Statistics: Unlocking the Power of Data.* 3rd edition, Wiley, New York.

Recommended Readings:

Fishman, Neal, and Cole Stryker 2020. *Smarter Data Science: Succeeding with Enterprise-Grade Data and AI Projects*, John Wiley & Sons, Incorporated. Available from ProQuest Ebook Central. [16 Mar 2023].

Hopcraft, F 2019, Presenting Technical Data to a Non-Technical Audience, Momentum Press, New York. Available from: ProQuest Ebook Central. [16 Mar 2023].

Kenett, RS, & Redman, TC 2019, The Real Work of Data Science: Turning Data into Information, Better Decisions, and Stronger Organizations, John Wiley & Sons, Incorporated, Newark. Available from: ProQuest Ebook Central. [16 Mar 2023].

Maronna, RA, Martin, RD, Yohai, VJ, & Salibián-Barrera, M 2019, Robust Statistics: Theory and Methods (with R), John Wiley & Sons, Incorporated, Newark. Available from: ProQuest Ebook Central. [16 Mar 2023].

Richardson, V, & Watson, MW 2023, Introduction to Business Analytics, McGraw Hill.

Tsionas, M 2019, Panel Data Econometrics: Theory, Elsevier Science & Technology, San Diego. Available from: ProQuest Ebook Central. [16 Mar 2023].

Vora, S 2019, The Power of Data Storytelling, SAGE Publications, New Delhi. Available from: ProQuest Ebook Central. [16 Mar 2023].

Useful Websites:

The following websites are useful sources covering a range of information useful for this subject. However, most are not considered to be sources of Academic Peer Reviewed theory and research. If your assessments require *academic peer reviewed journal articles* as sources, you need to access such sources using the Library database, Ebscohost, or Google Scholar. Please ask in the Library if you are unsure how to access Ebscohost. Instructions can also be found in Moodle.

- Australian Bureau of Statistics – *Understanding Statistics* website. The *Understanding Statistics* pages are here to support your statistical literacy development and assist you understand, evaluate and communicate statistical data and information. http://www.abs.gov.au/websitedbs/a3121120.nsf/home/understanding%20statistics
- Data Analsyis - Excel Tutorial - *"Excel Easy was founded in 2010 by Niels Weterings while he was pursuing a master's degree in Operations Research and Management at the University of Amsterdam. Our goal for 2016 is to help Excel beginners all over the world master Excel quickly and easily."* http://www.excel-easy.com/data-analysis.html
- Free Management Library – Basic Business Research Methods. http://managementhelp.org/businessresearch/index.htm?PHPSESSID=5d461796f95ec637100f7f212eb8b535

- StatKey, to accompany Statistics: Unlocking the Power of Data http://www.lock5stat.com/StatKey/
- WolframAlpha computational knowledge https://www.wolframalpha.com/