Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Statistical Methods

Unit ID: STATS1000

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 010103

Description of the Unit:

This unit introduces students to the full range of descriptive statistical techniques, and also introduces the key concepts underlying statistical inference. A wide range of basic inferential techniques are introduced. Data from various disciplinary contexts is utilised, and there is a strong emphasis on computing skills, interpretation of computer output and communication of statistical results and conclusions.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience

Placement Component:

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment.

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory			✔			

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Intermediate						
Advanced						

Learning Outcomes:

Knowledge:

K1. Describe a set of data using appropriate statistical measures, language and symbols.
K2. Describe quantitative data using probability distributions.
K3. Recognise the role of hypothesis tests in statistics.
K4. Describe relationship between two variables using linear regression equations.

Skills:

S1. Use standard statistical computer packages to perform routine data management tasks and statistical analyses.
S2. Present data in a clear and informative way in both tabular and graphical form.
S3. Perform appropriate hypothesis tests using standard statistical computer packages.
S4. Obtain a linear regression equation and interpret the coefficients and associated statistics.
S5. Perform one and two way analyses of variance.
S6. Communicate results from statistical analyses using appropriate statistical conventions.

Application of knowledge and skills:

A1. Interpret computer output in terms that relate to the particular problem situation.
A2. Select and perform appropriate statistical tests for given data sets and problem situations.

Unit Content:

•Data presentation and basic descriptive statistics.
•Discrete and continuous probability distributions.
•Estimation and hypothesis testing (t-tests for single sample, paired and independent).
•Non-parametric alternatives.
•Chi-square tests.
•Correlation and regression.
•Introduction to 1-way and 2-way analysis of variance.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	**Assessment task (AT#)**
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams.	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: • Creating a collegial environment • Showing self -awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving.	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities.	Not applicable	Not applicable
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life.	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, S1, S2, S3, S4, S5, S6, A1, A2	Practical use of appropriate statistical packages and interpretation of output.	Weekly laboratory classes and tutorial exercises	10 - 20 %
K1, K2, K3, K4, S1, S2, S3, S4, S5, S6, A1, A2	Appropriate statistical analysis and presentation of data based on a given context.	Assignment	20 - 40 %
K1, K2, K3, K4, S1, S2, S3, S4, S5, S6, A1, A2	Attend lectures, read and summarise all aspects of the unit.	Tests and Examination(s)	50 - 70 %

Adopted Reference Style:

APA ()

Refer to the library website for more information

Fed Cite - referencing tool