



# Course Outline (Higher Education)

<b>School:</b>	Federation Business School
<b>Course Title:</b>	QUANTITATIVE FOUNDATIONS AND NUMERICAL ANALYSIS
<b>Course ID:</b>	BUHON4005
<b>Credit Points:</b>	15.00
<b>Prerequisite(s):</b>	Nil
<b>Co-requisite(s):</b>	Nil
<b>Exclusion(s):</b>	Nil
<b>ASCED:</b>	080300

**Description of the Course:**

Students are introduced firstly to data measurement, data models, probability distributions and forms of data presentation. Sampling, sample distributions and statistical inference including hypothesis testing are then described. The course concludes with descriptions of correlation-based methods including ANOVA, regression and factoring, time series techniques, categorical data analysis and nonparametric statistics. Applied statistical methods or analytical techniques for econometric modelling, structural equation modelling, discriminant analysis, cluster analysis or others may be described according to student research requirements

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

**Placement Component:** No

**Supplementary Assessment:** Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

**Program Level:**

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Learning Outcomes:**

**Knowledge:**

- K1.** Describe fundamental concepts in numerical data analysis including data forms, sampling and hypothesis testing
- K2.** Explain basic statistical approaches to analysing data to answer various research questions
- K3.** Compare and contrast statistical methods with respect to assumptions, limitations and interpretation of results

**Skills:**

- S1.** Construct summary models appropriate for the data and research purpose
- S2.** Identify numerical sampling techniques for inferential statistical analysis and hypothesis testing
- S3.** Determine suitable statistical methods and techniques to answer research questions for a range of data contexts

**Application of knowledge and skills:**

- A1.** Report and present data models summarising numerical distributions
- A2.** Devise and implement a sampling framework designed to answer a specified research question
- A3.** Apply analytical techniques to a data set with results reported in the context of key assumptions, findings, and limitations

**Course Content:**

- Basic numerical analysis including probability distributions and suitable forms of data presentation
- Sampling from populations, statistical inference and hypothesis testing
- Quantitative methods and techniques including correlational analysis plus advanced techniques

**Values:**

- V1.** The importance of understating the foundation of numerical analysis
- V2.** Appreciation of statistical methods for making inferences about populations
- V3.** The importance of quantitative methods for answering applicable research questions

**Graduate Attributes**

The Federation University Federation graduate attributes (GA) are entrenched in the [Higher Education Graduate Attributes Policy](#) (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor	Development and acquisition of GAs in the course	
	Learning Outcomes (KSA)	Assessment task (AT#)

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		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1, K2, K3, S3, A2, A3	AT2, AT3
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	K3, S2, S3, A3	AT3
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	K3, S3, A2, A3	AT2, AT3
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K2, K3, S2, S3, A1, A2, A3	AT2, AT3
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	K1, K2, K3, S1, S2, S3, A1, A2, A3	AT1, AT2, AT3

### Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K3, S1, S3	Self-paced online quiz	Short Answer	10 - 20%
K3, S2, S3, A3	Quantitative method application and interpretation	Written Report and Coding Files	40 - 60%
K1, K2, S1, S2, A1, A2	Sampling plan and data analysis	Report and Presentation	30 - 50%

### Adopted Reference Style:

APA

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)