



Course Outline (Higher Education)

School:	School of Education
Course Title:	MATHEMATICS AND INTRODUCTORY STATISTICS
Course ID:	FASTP1013
Credit Points:	15.00
Prerequisite(s):	(YEAR 10 EQUIVALENT)
Co-requisite(s):	(NIL)
Exclusion(s):	(NIL)
ASCED:	120199

Description of the Course:

This course is designed to develop confidence and positive attitudes towards mathematics through a thorough understanding of foundational concepts and skills. Students will be encouraged to communicate their mathematical ideas, developed from agreed upon basic principles. The key sections will be on development of skills in arithmetic, algebra and statistics. The focus will be on students understanding and ability to explain their reasoning, rather than purely on getting the correct answer.

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

Work Experience:

No work experience: Student is not undertaking work experience in industry.

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	✓					
Intermediate						
Advanced						

Learning Outcomes:

After successfully completing this course students will be able to:

Knowledge:

- K1.** conceptualise and explain the meaning of place value and the decimal system
- K2.** conceptualise and explain the meaning of the binary number system
- K3.** conceptualise and explain the four basic operations of addition, subtraction, multiplication and division, as well as exponential notation
- K4.** conceptualise and explain the connection between fractions, percentages, and decimals
- K5.** conceptualise and explain how to add, subtract, divide and multiply fractions by whole numbers and by other fractions
- K6.** conceptualise and explain how to add, subtract, divide and multiply decimals and percentages
- K7.** conceptualise and explain the use of scientific notation
- K8.** conceptualise and explain expressions that contain variables (pronumerals, or letters of the alphabet) together with numbers
- K9.** conceptualise and explain the meaning of equality as an intrinsic mathematical notion, allowing them to solve otherwise intractable problems
- K10.** conceptualise and explain the usefulness of algebra in solving real life problems
- K11.** identify, conceptualise and explain the difference between numerical and categorical data
- K12.** identify, conceptualise and explain measures of central tendency and spread

Skills:

- S1.** use the four basic operations of addition, subtraction, multiplication and division, as well as exponential notation
- S2.** apply index laws to numerical expressions
- S3.** competently work with fractions decimals and percentages
- S4.** work with expressions that contain variables (pronumerals, or letters of the alphabet) together with numbers
- S5.** use equality as an intrinsic mathematical notion to solve otherwise intractable problems
- S6.** present statistical data in useful ways

Application of knowledge and skills:

- A1.** add, subtract, divide and multiply fractions by whole numbers and by other fractions
- A2.** add, subtract, divide and multiply decimals and percentages
- A3.** solve problems involving fractions percentages and decimals
- A4.** use algebra to solve real life problems
- A5.** create and interpret data and graphs in order to come to logical and useful conclusions

Course Content:

Topics may include:

- Arithmetic:
 - Number Systems
 - Basic operations
 - Order of operations

- Fractions, Decimals and Percentages
 Exponential notation
- Algebra:
 - Evaluation, expressions and equations
 - Equality and transforming equations
 - Solving linear equations
 - Formulas in real world problems
 - Worded problems
 - Statistics:
 - Data presentation
 - Measures of central tendency
 - Measures of spread

Values:

- V1.** have a positive attitude toward mathematics
- V2.** appreciate algebra as a useful problem solving tool
- V3.** value the use of statistics as a tool for hypothesis testing

Graduate Attributes

The Federation University FedUni 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#)
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.	K1-12, S1-6, A1-5, V1-3	AT1, AT2, AT3, AT4, AT5
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.	K8-12, S1-6, A3-5	AT3, AT4
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.	K1-12, S1-6, A1-5, V1-3	AT1, AT2, AT3, AT4, AT5
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.	K1-12, S1-6, A1-5, V1-3	AT1, AT2, AT3, AT4, AT5
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.	V1-3	AT1, AT2, AT3, AT4, AT5

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1; K2; K3; K4;K5; K6; K7; S1 -S3; S5; A1; A2	Arithmetic test	Written test	10-20%
K8; K9; K10; S2; S5; S3; A4	Algebra test	Written test	10-20%
K1-9; K12; S1-4; S6; A3; A5	Statistics application task	Written assignment	10-20%
K1-4; K11; K12; S1; A1-5	Submitted folio of completed exercises and summaries at end of each topic arithmetic, algebra and statistics	Written assignment	10-20%
K1-K12; S1-5; A1-4	Exam	Written Exam	20-40%

Adopted Reference Style:

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

Fed Cite - [referencing tool](#)