



Course Outline (Higher Education)

Institute / School: Global Professional School

Course Title: MODELLING AND CHANGE

Course ID: GPMAT1001

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 010101

Description of the Course:

This course is aimed at a broad tertiary level audience interested in solving real world problems. The main focus will be on learning and applying standard calculus techniques to model motion, growth and change. Problems requiring optimisation techniques and calculation of area will also be considered. It will be particularly valuable to students interested in improving their understanding of these commonly encountered areas of applied mathematics.

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:
Knowledge:

K1. explain fundamental calculus techniques;

Skills:

S1. formulate simple real world problems as mathematical problems;

S2. use algebra to solve mathematical problems;

S3. use differentiation to solve mathematical problems;

S4. use integration to solve mathematical problems;

S5. use appropriate technology to assist in the solution and investigation of problems;

S6. Develop the appropriate English language and academic skills to successfully study at an undergraduate level.

Application of knowledge and skills:

A1. interpret the results produced by a model to help solve real world problems;

A2. critically appraise mathematical models

Course Content:

Topics in this course may include an introduction to the concepts of mathematical modelling and functions, calculus, trigonometry, sequences, series and optimisation through the use of real world problems.

Values:

V1. appreciate the role of mathematics for finding solutions to real world problems;

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#)
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, S1-S5, A1	3
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.	Not applicable	Not applicable

Graduate attribute and descriptor		Development and acquisition of GAs in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
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.	Not applicable	Not applicable
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, S1-S6, A1, A2	1, 2
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.	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, S1-6, A1	Participate in class activities	Portfolio of completed work	10 - 20%
A1, A2	Self-directed or group exploration	Projects/presentation	30 - 50%
K1, S1-6, A1	Review and skills practice	Tests/examination(s)	50 - 60%

Adopted Reference Style:

APA

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

 Fed Cite - [referencing tool](#)