COURSE OUTLINE

TPP104 Mathematics

Course Coordinator: Bruno Basic (bbasic@usc.edu.au) **School:** School of Education and Tertiary Access

2021 | Session 8

USC Sunshine Coast	ON CAMPUS	Most of your course is on campus but you may be able to do some components of this course online.

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This course is designed to upgrade your mathematical skills for entry into academic programs at the University of the Sunshine Coast. It has been specifically designed to be inclusive of those who may not have undertaken senior high school mathematics, or for those who may wish to refresh knowledge and understanding of the discipline. This course sets out to nurture a growth mindset for students around basic mathematical concepts. The flexible teaching environment allows for student's concerns around the course concepts to be voiced, questions to be asked and confidence to be built.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ON CAMPUS LOCATIONS			
Tutorial/Workshop 1	2hrs	Not applicable	Not Yet Determined
Lecture	1hr	Not applicable	Not Yet Determined

1.3. Course Topics

1.Numbers and Operations

Exploring the meaning of common mathematical symbols, the operations they represent, and the order in which these mathematical operations should be performed.

2.Algebra and Formulas

Exploring the concept of like terms, manipulation of equations using transposing, and changing the subject of a formula.

3.Fractions, Percentages, Decimals

Exploring the mathematical manipulation of fractions and how they relate to decimal numbers and percentages.

4.Proportions and Ratios

Exploring the differences between proportions and ratios, and how they relate to fractions, decimal numbers, and percentages

5.Rounding and Significant Figures

Exploring the concept of a significant figure and how to round values correctly.

6.Logarithms and Scientific Notation

Exploring the logarithms and how they relate to powers and roots. Exploring the concept of scientific notation in order to express very large and very small values.

7.Measurement and Dimensional Analysis

Exploring the use of units, how to change from one to another, and how units give numerical values meaning.

8.Introduction to Geometry

Exploring the fundamental angle relationships that exist between straight lines, quadrilaterals and triangles.

9.Right Angle Triangle (Trigonometry)

Exploring trigonometric functions sine, cosine and tangent, and how they can be used to define the side lengths and the angle magnitudes of a right angle triangle.

10.Coordinates and Graphs

Exploring the Cartesian Plane and plotting of points and lines on a graph grid.

11.Linear Equations

Exploring the equation and plotting of a straight line by calculating the gradient and the intercepts, and how linear equations relate to rates.

2. What level is this course?

100 Level (Introductory)

Engaging with discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Limited or no prerequisites. Normally, associated with the first full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Demonstrate basic techniques and strategies used in the field of mathematics as developed in the course.	Empowered
2	Identify and employ relevant mathematical approaches to demonstrate proficiency of the key threshold concepts of the course, such as correctly manipulating and solving simple algebraic equations.	Knowledgeable
3	Employ authentic skillsets such as proficiency with a scientific calculator and graphing to solve mathematical problems.	Empowered
4	Communicate effectively using mathematical conventions and symbols to justify mathematical reasoning.	Engaged

5. Am I eligible to enrol in this course?

Refer to the USC Glossary of terms for definitions of "pre-requisites, co-requisites and anti-requisites".

5.1. Pre-requisites

Student must be enrolled in TP000

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Nil

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Weekly Quizzes and Task 2a in week 3 will provide feedback on early course progress. Weekly problem sets will allow you to track your own progression of the concepts covered in the course.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Quiz/zes	Individual	0%	not timed	Refer to Format	Online Test (Quiz)
All	2a	Examination	Individual	10%	50 mins	Week 2	Online Test (Quiz)
All	2b	Examination	Individual	20%	70 mins	Week 4	Online Test (Quiz)
All	3	Artefact - Technical and Scientific	Individual	20%		Week 6	Online Assignment Submission
All	4	Examination	Individual	50%	1 hr 50 mins	Week 7	Online Test (Quiz)

All - Assessment Task 1: Quizzes

GOAL:	The goal of this task is for you to practice your understanding of relevant weekly material formatively in preparation for the summative assessment items of the course.
PRODUCT:	Quiz/zes
FORMAT:	Task 1 quizzes are formative. Students can attempt the quizzes as many times as they choose to gain mastery of the topics. Quizzes will be available for the duration of the semester.
CRITERIA:	

No.		Learning Outcome assessed
1	Demonstration of basic techniques and strategies to find answers to questions	1
2	Solution of mathematical problems through use of a scientific calculator	3

All - Assessment Task 2a: Examination

GOAL:	The goal is for you to demonstrate reliable calculator and problem-solving skills for mathematics and their application as they are needed for whole number arithmetic and formulae including algebra, and to communicate clearly using reasoning and appropriate mathematical conventions and symbols.
PRODUCT:	Examination
FORMAT:	Task 2a is a summative test covering topics 1 and 2. The test will contain a selection of multiple-choice, fill-in-the-blank, and short answer questions.
CRITERIA:	

No.		Learning Outcome assessed
1	Demonstration of basic techniques and strategies to find the answer to questions	1
2	Identification of relevant mathematical approach to working with formulae	2
3	Solution of mathematical problems through use of a scientific calculator	3
4	Communication using mathematical conventions (including sentences) and symbols to justify reasoning	4

All - Assessment Task 2b: Examination

GOAL:	The goal is for you to demonstrate reliable calculator and problem-solving skills to work with fractions and decimal arithmetic, percentages, algebra, exponents and logarithms, and to communicate clearly using reasoning and appropriate mathematical conventions and symbols including correct significant figures and rounding.
PRODUCT:	Examination
FORMAT:	Task 2a is a summative test covering topics 3 to 7 inclusive. The test will contain a selection of multiple-choice, fill-in-the blank, and short answer questions.
CRITERIA:	

No.		Learning Outcome assessed
1	Demonstration of basic techniques and strategies to find the answer to questions	1
2	Identification of relevant mathematical approach to working with formulae	2
3	Solution of mathematical problems through use of a scientific calculator	3
4	Communication using mathematical conventions (including sentences) and symbols to justify reasoning	4

All - Assessment Task 3: Assignment

GOAL:	The goal for you is to demonstrate conceptual understanding and skills development in solving routine problems in geometry and co-ordinate geometry. The assignment is designed for you to communicate your understanding through written and/or worked responses to questions.
PRODUCT:	Artefact - Technical and Scientific
FORMAT:	Task 3 is a summative written assignment covering topics 7 to 10 inclusive. The assignment will be submitted online.
CRITERIA:	

No.		Learning Outcome assessed
1	Demonstration of basic techniques and strategies to find the answer to questions	1
2	Identification of relevant mathematical approach to solve trigonometric and geometric problems with knowledge of dimensional analysis	2 3
3	Communication using mathematical conventions (including sentences) and symbols to justify reasoning	4

All - Assessment Task 4: Final Examination

GOAL:	The goal for you is to review and provide evidence of understanding of the entire course and to communicate your responses clearly using justifiable reasoning and appropriate mathematical conventions and symbols
PRODUCT:	Examination
FORMAT:	Task 4 is a summative test covering all the topics. The test will contain a selection of multiple-choice, fill-in-the-blank, and short answer questions.
CRITERIA:	

No.		Learning Outcome assessed
1	Demonstration of basic techniques and strategies to find the answer to questions	1
2	Identification of relevant mathematical approach to working with formulae	2
3	Solution of mathematical problems through use of a scientific calculator and graphing	3
4	Communication using mathematical conventions (including sentences) and symbols to justify reasoning	4

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	PUBLISHER
Required	Tertiary Preparation Pathway	2021	TPP104 Mathematics	USC Mail and Print Services

8.2. Specific requirements

It is recommended that you possess a good quality scientific hand-calculator. The Casio fx-82AU+II or the Casio fx-82AU+II 2nd Edition are recommended. You will not require a graphics, programmable or CAS calculator for this. It is your responsibility to learn to use your calculator properly.

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%
The course is graded using the Standard Grading scale
You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:
- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the Learning Advisers web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.5. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to Student Hub, email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.6. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, , injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, AccessAbility Services can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to Student Hub, email AccessAbility@usc.edu.au or call 07 5430 2890.

10.7. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.8. General Enquiries

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **USC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au