Module Descriptor

Title	Introductory Mathematics A		
Session	2025/26	**Status**	Published
Code	MATH06001	**SCQF Level**	6
Credit Points	10	**ECTS (European Credit Transfer Scheme)**	
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Ryan P. Meeten		

Summary of Module

This level 6, 10-credit module covers the essential topics required to equip students with the skills needed to begin to study calculus at the level of an incoming university student in STEM, which will be undertaken in Introductory Mathematics B.

The module will begin with a review of fundamental algebra techniques, such as manipulating expressions, laws of indices, rearranging equations, solving and graphing linear equations and quadratics, and will introduce the concept of a function. The idea of logarithms and exponentials will be discussed, including their properties and how they can be applied to solve problems involving exponential growth or decay.

A review of trigonometry will follow, beginning with right-angled triangles, Pythagoras' Theorem, and the basic trigonometric ratios sine, cosine and tangent. The law of sines and the law of cosines will be briefly discussed.

After reviewing the essentials of trigonometry, the module will take up the study of circles and examine the interplay between circles and triangles. This allows one to extend the definitions of the basic trigonometric functions to the more sophisticated unit circle definitions. The radian will be discussed, which is the most natural way to measure angles.

The module will end with a treatment of vectors, and how to relate the geometric interpretation of a vector as an oriented length to its algebraic description in terms of components. Both geometric and algebraic viewpoints for performing arithmetic with vectors will be shown, and the concept of projections and the dot product will be investigated.

Module Delivery Method	On-Campus[1] ☒	Hybrid[2] ☒	Online[3] ☐	Work -Based Learning[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1	☐	Term 2	☐	Term 3	☒
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Demonstrate fluency with essential algebraic techniques.
L2	Understand the concept of a function; know the general appearance and basic properties of some standard elementary functions.
L3	Manipulate logarithms and exponentials and use them to solve problems involving exponential growth or decay.
L4	Recall and apply key theorems in trigonometry, work with radians, and convert between radians and degrees.
L5	Work with vectors algebraically and appreciate the associated geometrical interpretation.

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 6** Students will obtain essential foundational knowledge for studying numerate disciplines at university level.
Practice: Applied Knowledge and Understanding	**SCQF 6** The topics covered in this module will ensure that students have the necessary skills in algebra and geometry to begin their study of calculus or succeed in other numerate disciplines.

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Generic Cognitive skills	**SCQF 6** Students will enhance their numeracy and logic abilities, as well as their overall preparedness for university study.
Communication, ICT and Numeracy Skills	**SCQF 6** Collaborative group working at the whiteboard during tutorial sessions will be encouraged. Peer teaching will happen naturally during these interactions. Students will also be shown the GeoGebra software for graphing and manipulating geometric objects.
Autonomy, Accountability and Working with Others	**SCQF 6** Those choosing to attend this summer school module will have already displayed ownership of their own learning. These qualities will be further developed, with students being encouraged to identify and address their own knowledge gaps, thereby solidifying their mathematical foundations in preparation for future study. The importance of academic honesty will be instilled throughout the module.

Prerequisites	**Module Code** N/A	**Module Title** N/A
	Other	
Co-requisites	**Module Code** N/A	**Module Title** N/A

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	9
Tutorial / Synchronous Support Activity	9
Independent Study	12
Please select	
Please select	
Please select	
TOTAL	30

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Module materials will be sufficient and self-contained, however any textbook in introductory level university mathematics will contain all topics in this module. We will make use of the free resources are openstax Algebra & Trigonometry (2nd edition) and openstax Precalculus (2nd edition).
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will log in to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify that Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. Secialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Engineering Physical Sciences**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Mathematics and Physics
Moderator	R. Carragher
External Examiner	P. Wilson

Accreditation Details	N/A
Module Appears in CPD catalogue	☒ **Yes** ☐ **No**
Changes / Version Number	2.0 Moved to the new template

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Class Test (Open Book)
Assessment 2
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Class Test (Open Book)	☒	☒	☒	☒	☒	100	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	2 hours

Change Control

What	**When**	**Who**
Moved to new template and added EDI and Engagement statements	March 2025	R. Meeten

Minor updates to the module summary	March 2025	R. Meeten