Module Descriptor

Title	Mathematics for Computing		
Session	2025/26	**Status**	Published
Code	MATH07005	**SCQF Level**	7
Credit Points	10	**ECTS (European Credit Transfer Scheme)**	5
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Dr Wan Mekwi		

Summary of Module

This module covers foundational mathematics for students in computing related disciplines.

The module revises core algebra concepts and the solution of equations in one variable. After providing this firm grounding, we move to ideas of set theory relevant for students of computing.

The module also provides an introduction to statistics, focusing on diagrammatic and descriptive statistics, including a treatment of measures of central tendency and spread.

The concept of a matrix is introduced along with matrix arithmetic and algebra. The application of matrices to the solution of linear systems of equations is discussed. Matrices as two-dimensional arrays are invaluable data structures in computing, so familiarity with them will be important.

The module aims to provide students with the foundations required to tackle, in their future studies, more mathematically based computing subjects such as database systems and data compression schemes.

The Graduate Attributes relevant to this module are given below:

• Academic: Critical thinker; Analytical; Inquiring; Knowledgeable; Problem-solver; Digitally literate; Autonomous.

• Personal: Effective communicator; Motivated; Resilient

• Professional: Collaborative; Ambitious; Driven.

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	Work fluently with algebraic operations to manipulate and solve equations.
L2	Understand and apply standard methods of displaying and analysing data.
L3	Employ matrix algebra to solve systems of linear equations.
L4	Understand basic principles of set theory.
L5	N/A

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 7** Demonstrating basic competence in the application of mathematical or statistical techniques, as appropriate, to the solution of problems.
Practice: Applied Knowledge and Understanding	**SCQF 7** Using basic techniques of calculation in solving standard mathematical or statistical problems, as appropriate, and drawing valid conclusions from these.
Generic Cognitive skills	**SCQF 7** Using a range of methods to analyse well-defined problems in relevant mathematical or statistical contexts

[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

Communication, ICT and Numeracy Skills	**SCQF 7** Communicate mathematical arguments clearly in written form.
Autonomy, Accountability and Working with Others	**SCQF 7** Working autonomously to produce individual output on basic mathematical and statistical problems. Collaborating with others in a group context to solve basic mathematical and statistical problems.

Prerequisites	**Module Code**	**Module Title**
	Other SQA National 5 in Mathematics (Grade C or above) or equivalent	
Co-requisites	**Module Code**	**Module Title**

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	12
Tutorial / Synchronous Support Activity	6
Independent Study	82
Please select	
Please select	
Please select	
TOTAL	100

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Course notes on the University VLE. College Algebra 2e, OpenStax Foundation Maths, Croft, Davison, Davison
(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 login 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 the 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. Specialist assistive equipment, support provision and adjustment to assessment practice 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	Computing, Engineering and Physical Sciences
Moderator	Dr Kenneth Nisbet
External Examiner	P Wilson
Accreditation Details	This module forms part of a number of programmes accredited by the BCS.
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.0

Assessment (also refer to Assessment Outcomes Grids below)

Assessment 1
Portfolio of written work
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**
Portfolio of written work	☒	☒	☒	☒	☐	100	0

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%	0 hours

Change Control

What	**When**	**Who**
Updated module summary	24/03/2025	R. Meeten
Updated learning outcomes	24/03/2025	R. Meeten
Updated assessment method	24/03/2025	R. Meeten