Module Descriptor

Title	Science Numeracy & Mathematics in Early Years		
Session	2025/26	**Status**	
Code	EDUC08045	**SCQF Level**	20
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Education and Social Sciences**		
Module Co-ordinator	L.Lindsay		

Summary of Module

This module will focus on developing an understanding of extending and supporting children's learning in Science and Mathematics in the Early Years.

This module will allow students to investigate theories of learning including behaviourist, cognitive and social constructivist approaches. The importance of leadership and teamwork in childhood settings will be extended, taking account of own and others' roles in leading learning in Science and Mathematics.

Students will be encouraged to evaluate feelings towards, experiences and understanding of Science and Mathematics within their own education, reflecting on the impact of this upon children's experiences in the Early Years. Students will reflect upon issues relating to equity of access for all children to experiences in the areas of Science, Numeracy and Mathematics. Students will apply theories of learning in the workplace, inspiring colleagues and /or leading learning in the area of Science, Numeracy and Mathematics.

Students will develop their understanding of the language of science and mathematical and numerical concepts, enabling them to plan, deliver and evaluate curricular experiences with confidence. Students will explore the nature of scientific.

The module enables students to develop the following UWS Graduate Attributes:

- Inquiring
- Knowledgeable
- Creative

The module contributes towards the following UN Sustainability Goals:

- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

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 knowledge and understanding of theories of learning, reflecting upon approaches which promote learning effectively within the early years.
L2	Demonstrate understanding of the language of Science and Mathematics: planning, delivering and evaluating activities in the area of Science and Mathematics.
L3	Begin to reflect upon equity of access for all children, with a focus on learning in the areas of Science and Mathematics.
L4	Apply knowledge and understanding to lead learning in the area of Science and/or Mathematics, evaluating practice.
L5	

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 8** Knowledge and theories of learning, including behaviourist, cognitive and constructivist approaches. Knowledge of the language of Science and Mathematics and the foundations of scientific enquiry and mathematical thinking in the Early Years.
Practice: Applied Knowledge and Understanding	**SCQF 8** Carry out routine lines of enquiry, development or investigation into effective strategies which support Science and Mathematical development.

[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

	Lead learning and/ or small-scale change in the area of Science and Mathematics within a childhood setting.
Generic Cognitive skills	**SCQF 8** Evaluate evidence-based solutions to support equitable access to Science and Mathematics in an Early Years setting. Reflect upon own and other's attitudes towards Science and Mathematics, and how this may impact upon children's experiences.
Communication, ICT and Numeracy Skills	**SCQF 8** Convey complex information to a range of audiences and for a range of purposes associated with relevant professional contexts.
Autonomy, Accountability and Working with Others	**Please select SCQF Level** Take continuing account of own and others' roles, responsibilities and contributions in carrying out and evaluating learning experiences across the curriculum.

Prerequisites	**Module Code**	**Module Title**
	Other	
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	36
Work-based Learning	35
Independent Study	129
Please select	
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Brunton, P. and Thornton, L. (2009) Science in the early years: Building firm foundations from birth to five. London: SAGE Publishing.

Haylock, D. and Manning, R. (2019) Mathematics explained for primary teachers. London: Sage Publications.

Montague-Smith, A., Cotton, T., Hansen, A. and Price, A. (2017) Mathematics in early years education 4th edn. London: Routledge.

Moomaw, S. (2013) Teaching STEM in the early years: activities for integrating science, technology, engineering and mathematics. St Paul, NM: Redleaf Press.

(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:

In line with the Student Attendance and Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on VLE, and complete assessments and submit these on time.

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 overall commitment to equality and diversity stated in the Programme Specifications, the module supports equality of opportunity for students from all backgrounds and with different learning needs. Using VLE, learning materials will be presented electronically in formats that allow flexible access and manipulation of content (part-time and distant learning students should check with their programme leader for any queries). The module complies with University regulations and guidance on inclusive learning and teaching practice. Specialist assistive equipment, support provision and adjustment to assessment practice will be made in accordance with UWS policy 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	**Education**
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	Early Years
Moderator	J. Ovington

External Examiner	J Shaik Mopidevi
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.04

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
The module will be assessed by a portfolio, which seeks to demonstrate students knowledge and understanding of the learning outcomes for this module. Section 1 of the Portfolio will consist of at least 3 planned learning experiences and Section 2 will consist of 1000 word focussed reflection of professional activity written essay.
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	☒	☒	☒	☒	☐	100	

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

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

Change Control

What	**When**	**Who**

New template	Mar 25	L Lindsay