



Module Descriptor

Title	Advanced GIS / Remote Sensing		
Session	2025/26	Status	Published
Code	BIOL10029	SCQF Level	10
Credit Points	20	ECTS (European Credit Transfer Scheme)	10
School	Health and Life Sciences		
Module Co-ordinator	Kiri Rodgers		
Summary of Module			
<p>This module introduces students to the applications of remote data sensing and will advance student knowledge in geographical information systems (GIS).</p> <p>The module will look at the conceptual, practical and methodological issues associated with using GIS for environmental and socio-economic applications. In addition, through the development of data processing skills, labelling and symbology applications student will gain the essential skills to produce quality cartographic reports suitable for publication.</p> <p>Students will develop an understanding of remote sensing techniques by exploring different types of data sources and assessing the economics of using remote sensing. Through the development of relevant skills and knowledge, students will be able to perform data acquisition, processing, visualisation, and manipulation. Furthermore, students will have the capacity to Interpret and analysis data for environmental and sustainability applications.</p> <p>By undertaking this module students will develop a range of 'I am UWS' Graduate Attributes.</p> <p>Universal – development of critical thinking, ethically and research minded.</p> <p>Work Ready – an effective problem solver, communicator and ambitious.</p> <p>Successful – by being autonomous, resilient, and driven</p>			

Module Delivery Method	On-Campus¹	Hybrid²	Online³	Work -Based Learning⁴
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

Campuses for Module Delivery	<input type="checkbox"/> Ayr <input type="checkbox"/> Dumfries		<input checked="" type="checkbox"/> Lanarkshire <input type="checkbox"/> London <input type="checkbox"/> Paisley		<input type="checkbox"/> Online / Distance Learning <input type="checkbox"/> Other (specify)	
	Term 1	<input type="checkbox"/>	Term 2	<input checked="" type="checkbox"/>	Term 3	<input type="checkbox"/>
Long-thin Delivery over more than one Term	Term 1 – Term 2	<input type="checkbox"/>	Term 2 – Term 3	<input type="checkbox"/>	Term 3 – Term 1	<input type="checkbox"/>

Learning Outcomes	
L1	Understand the ways in which geographical data of various types can be combined, interpreted and modelled.
L2	Analyse and critically interpret secondary geographical data
L3	Develop an understanding of remote sensing capabilities and different types of sensing platforms
L4	An ability to develop advanced map renderings, specifically 3D models and animations, using Global and Local scenes in ArcGIS.
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 10 Develop a detailed knowledge and understanding of geodatabases and advanced data manipulation and visualisation. Demonstrate a critical understanding of the principal concepts underpinning current techniques used in presenting environmental monitoring data.
Practice: Applied Knowledge and Understanding	SCQF 10 Apply scientific knowledge to solve practical problems and demonstrate an appreciation of the benefits of both GIS and remote sensing applications.
Generic Cognitive skills	SCQF 10 Develop the ability to extract and critically analyse relevant information from published research papers.
Communication, ICT and Numeracy Skills	SCQF 10 Abstracting relevant information from databases. Clearly and critically explain ideas gained from analysis of spoken, written and online resources. Critically analyse techniques, applications and implications, including ethical issues, of an application of GIS and remote sensing.
Autonomy, Accountability	SCQF 10 Work autonomously and with others in teams to present / produce suitable results.

and Working with Others	Research and present information that will require time management, organisational skills and an understanding of professional practice.
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Prerequisites	Module Code	Module Title
	Other	
Co-requisites	Module Code	Module Title

Learning and Teaching	
<p>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.</p> <p>This module covers a wide variety of theoretical, conceptual and practical areas, which require a range of knowledge and skills to be displayed and exercised. Delivery of its syllabus content therefore involves a diversity of teaching and assessment methods suitable to the learning outcomes of the module; these include lectures, structured tutorials (work closely integrated with the lecture material), laboratory exercises to develop practical skills and familiarisation with equipment and experimental techniques, completion and submission of written coursework making use of appropriate forms of IT and VLE, and independent study.</p>	
Learning Activities	Student Learning Hours
During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	(Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	12
Tutorial / Synchronous Support Activity	4
Laboratory / Practical Demonstration / Workshop	20
Independent Study	164
n/a	
n/a	
TOTAL	200

Indicative Resources
<p>The following materials form essential underpinning for the module content and ultimately for the learning outcomes:</p> <p>https://www.youtube.com/playlist?list=PL0f6dPgo2jPb1BFTLfovEL4BGAcWX00mT</p> <p>https://www.esri.com/en-us/arcgis/products/arcgis-online/resources</p>
(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:

Attendance to all online, on-campus classes and laboratory sessions

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](#).

In line with current legislation (Equality Act, 2010) and the UWS Equality, Diversity, and Human Rights Code, our modules are accessible and inclusive, with reasonable adjustment for different needs where appropriate. Module materials comply with University guidance on inclusive learning and teaching, and specialist assistive equipment, support provision and adjustment to assessment practice will be made in accordance with UWS policy and regulations. Where modules require practical and/or laboratory based learning or assessment required to meet accrediting body requirements the University will make reasonable adjustment such as adjustable height benches or assistance of a 'buddy' or helper.

(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	Biological Sciences Health
Overall Assessment Results	<input type="checkbox"/> Pass / Fail <input checked="" type="checkbox"/> Graded
Module Eligible for Compensation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	Biology
Moderator	Roderick Williams
External Examiner	TBC
Accreditation Details	
Module Appears in CPD catalogue	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Changes / Version Number	1

Assessment (also refer to Assessment Outcomes Grids below)

Assessment 1

Case study - map production (60%)

Assessment 2

Report of practical work (40%)

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
Case study	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60	0

Component 2

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Report of practical/ field/ clinical work	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	40	0

Component 3

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Combined total for all components						100%	0 hours

Change Control

What	When	Who