

This document provides detailed information on the module named below. It will be updated as necessary when modifications to the module are approved. Modules are allocated to a Subject Network not a programme, and may be accessed by students studying on different programmes.

1	SUMMARY MODULE INFORMATION	Geographical Information Systems
a	Module Title	Geographical Information Systems
b	SITS Module Code	UL711934
c	UHI Subject Network	Science, Environment and Rural Resource Management
d	Exam Board	MSc Managing Sustainable Rural/Mountain Development Course Committee
e	SCQF Level	11
f	SCOTCAT Credit Points	15
g	Module Leader and Contact Details (E-Mail, Phone)	Donna Clark Donna.Clark@moray.uhi.ac.uk 01343 576272
h	Brief Description of Module	<p>This module will provide an introduction to the capabilities of GIS and outline the requirements for their successful design and implementation. The module will provide an understanding of the nature and use of GIS rather than seek to develop technical expertise in any specific GIS platform. The module will encourage students to consider how GIS might be used to address issues raised in other parts of their course or professional life.</p> <p>This module will enable students to develop their knowledge and understanding of geographic information systems and therefore may also be applicable as a stand-alone module in the UHI Post Graduate prospectus.</p>
i	Pre-Requisites or Co-Requisites	An undergraduate degree award.
j	Primary Mode(s) Of Delivery And Support (e.g. Face-To-Face Teaching, Blended, Block Teaching, Wholly On-line, etc)	Wholly online, supported by tutor
k	Assessment	<ol style="list-style-type: none"> 1. Report based in practical exercises (1000 words and 45%) 2. Design a basic GIS to solve a management problem (2000-2500 words and 45%) 3. Contribution to Blackboard discussion board (10%) <p>To pass the module overall, you must get at least 50% in each of the assignments and the discussion board, as well as an overall weighted mark of at least 50%.</p>

l	Key Learning Resources	Use of free online GIS training resource (Esri Virtual Academy). Will require installation of ArcGIS software, provided on CD or accessible via MyUHI.
m	Suitable for access via Learning Centres	Only if ArcGIS software is installed/available on Learning Centre PCs
n	Keywords	GIS

2	MODULE DESCRIPTOR													
a	Aims													
	To convey an understanding of the essential elements of Geographical Information Systems (GIS) and to illustrate how the appropriate use of GIS can help solve problems with a spatial dimension.													
b	Intended Learning Outcomes													
	<p>On completion of the module the student should be able to:</p> <ul style="list-style-type: none"> • Use the basic functions of a GIS; • Design a simple GIS to solve a relevant management problem; • Understand the components, structure and data types of Geographic Information Systems; • Identify and evaluate the strengths and weaknesses of geographical information systems. 													
c	Indicative Content													
	<ul style="list-style-type: none"> • introduction to the development of geographical information systems and their constituent components; • data models: levels of abstraction, raster and vector representations; • data storage methods, SQL (standard query language) and database structures; • data input: global positioning systems, aerial photographs, remote sensing, the incorporation of records from existing databases, thematic maps, data quality, errors, manual digitising and digital maps; • basic analysis of spatial data: Interpolation, use of digital elevation models, fuzzy sets, cost surfaces, use of SQL and other methods of spatial analysis; • identification of a management problem suitable for GIS solution, analysis of the cost and benefits of using a GIS and feasibility; • designing a GIS to solve a management problem: definition of questions to be asked of the GIS, identification of spatial data sources, linking thematic to spatial data, identification of potential methodologies; • application of GIS to solve a management problem: a case study problem to be solved using the GIS designed previously; • evaluation of GIS use in a range of applications. 													
d	Mode(s) Of Delivery And Support For Teaching And Learning													
	<table border="1"> <tr> <td>Face-to-face</td> <td>0 hours</td> </tr> <tr> <td>Video-conference</td> <td>0 hours</td> </tr> <tr> <td>Supported on-line learning</td> <td>65 hours</td> </tr> <tr> <td>Self-directed learning</td> <td>85 hours</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>Total activity</td> <td>150 hours</td> </tr> </table>		Face-to-face	0 hours	Video-conference	0 hours	Supported on-line learning	65 hours	Self-directed learning	85 hours			Total activity	150 hours
Face-to-face	0 hours													
Video-conference	0 hours													
Supported on-line learning	65 hours													
Self-directed learning	85 hours													
Total activity	150 hours													
e	Assessment													

	<p>4. Report based in practical exercises (1000 words and 45%)</p> <p>5. Design a basic GIS to solve a management problem (2000-2500 words and 45%)</p> <p>6. Contribution to Blackboard discussion board (10%)</p>
f	<p>Key Learning Resources</p> <p>Essential reading: Heywood, Cornelius and Carver (2006) <i>An Introduction to Geographical Information Systems</i>, 3rd edition. Prentice Hall. ISBN 9780131293175 Free access to the e-version of this textbook is available via UHI library > Dawson books (http://www.uhi.ac.uk/home/libraries/e-book-collections). If buying the textbook a 20% discount code can be obtained from the module leader.</p>
g	<p>Additional background information</p> <p>The practical element of this module will be taught using Esri Virtual Campus online resources. This requires installation of ArcGIS software on home PCs, which will be made available either on DVD or via MyUHI</p>
h	<p>Specialist learning resources</p> <ul style="list-style-type: none"> • Access to a PC with Microsoft Windows installed. NB the GIS software will <u>not</u> run on a Mac • A broadband internet connection - essential • ArcGIS 10 software (access provided by UHI) • Windows Media Player 9 or higher • Adobe Flash Player • Adobe Reader