

MODULE TITLE	GIS for Geologists	CREDIT VALUE	10
MODULE CODE	CSM3319	MODULE CONVENER	Dr Charlie Moon (Coordinator)
DURATION: TERM	1	2	3
DURATION: WEEKS	1	10	
Number of Students Taking	Module (anticipated)	15	

DESCRIPTION - summary of the module content

Provides an introduction to the use of GIS in geology. This is an essential requirement for accreditation and strong selling point for most geological jobs. The software used is ArcGIS but applicable to other software. The only knowledge required is general geology and ability to use spreadsheets and PC operating systems

Links to field and exploration techniques modules.

AIMS - intentions of the module

To provide a practical introduction to Geographical Information Systems and Science and their use in geology.

INTENDED LEARNING OUTCOMES (ILOs) (see assessment section below for how ILOs will be assessed)

On successful completion of this module you should be able to demonstrate:

Module Specific Skills and Knowledge: 1.An ability to use, with limited guidance, geographical information software systems to view and manipulate spatial geological data.

2.An understanding of the concept of spatial variation and spatial autocorrelation and properties that distinguish spatial data from other types of data.

3.An ability to describe the properties of spatial data models and be aware of the significance of scale.
4.A knowledge of the difference between reality and data representation and understand how geological phenomena are referenced.

5.Knowledge of a range of analytical and spatial prediction techniques in geographical information science. 6.An understanding how geographical information systems are used in practical geology.

7.An ability to employ technical methods in geographical information systems for a range of tasks including entering and handling spatial data, and executing functionality such as buffering and overlay **Discipline Specific Skills and Knowledge:**

8.An ability to evaluate the issues involved in applying IT skills within the specific context of applied geology

9.An ability to analyse new and/or abstract geological data using appropriate techniques with limited guidance 10.An ability to review the techniques available for accurate and quantitative analysis of spatial data.

11.An ability to use spatial data, with support, to answer quantitative and qualitative geological questions. 12.An understanding the importance of the spatial characteristics of geological data

13.An ability to analyse and critically interpret geological data, and abstract and synthesise information Personal and Key Transferable/ Employment Skills and Knowledge:

14.An ability to competently use, with some support, computers and information technology to answer geological questions using spatial data.

15.An ability to use self-directed learning to evaluate and synthesise examples from the literature into written work, and to effectively use cited sources to support fluent written arguments in theory and analysis.

16.An ability to demonstrate the ability to work with the correct ethos, whether that be alone or as part of a group with the aim of attaining the learning obiectives

SYLLABUS PLAN - summary of the structure and academic content of the module

Lecture plan Week 1 Overview; What are GISs?; Week 2 Commercial systems; Database design Week 3; Entering data; Week 4 Mapping Data and Visualisation; Week 5 Remote Sensing; Week 6 Mapping geophysical and geochemical data; Week 7 Qualitative queries/models; Week 8 Quantitative queries: weights of evidence, prospectivity mapping Week 9 3D GIS and interface with mining software

LEARNING AND TEACHING

LEARNING ACTIVITIES AND TEACHING METHODS (given in hours of study time)								
Scheduled Learning & Teaching Activities	27.00	Guided Indep	endent Study	73.00	Placement / Study Abroad			
DETAILS OF LEARNING ACTIVITIES AND TEACHING METHODS								
Category F Scheduled learning & teaching activities 2	lours of st ?7	udy time	Description Lectures and computer	based p	ractical exercises			

ASSESSMENT

FORMATIVE ASSESSMENT - for feedback and development purposes; does not count towards module grade

SUMMATIVE ASSESSMENT (% of credit)								
Coursework	50	Written Exams	50	Practical Exams				
DETAILS OF SUMMATIVE ASSESSMENT								
Form of Assessment	% of Credit	Size of Assessment (e.g. duration/length)		ILOs Assessed	Feedback Method			
Examination	50	1.5 hours		1-14	Exam mark			
Assignment	20	1000 words		1, 6, 7 11-16	Written & oral			

DETAILS OF RE-ASSESSMENT (where required by referral or deferral) **Original Form of Assessment** Form of Re-assessment **ILOs Re-assessed Time Scale for Re-reassessment** Summative assessment Additional assessment As above August Ref/Def period Examination Additional examination As above August Ref/Def period

RESOURCES

INDICATIVE LEARNING RESOURCES - The following list is offered as an indication of the type & level of information that you are expected to consult. Further guidance will be provided by the Module Convener

ELE - College to provide hyperlink to appropriate pages Reading list for this module:

Pergamon, 1994 [Library] 398p
3rd Wiley 2011 [Library]
2nd, 9.3 ESRI Press 2009 [Library] version
E 5
ARNING No
Wednesday 17 October 2012
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