

Module Code:	LND308
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Module Title:	Laboratory and Field Skills
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Level:	3	Credit Value:	20
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Cost Centre(s):	GAHT, GAFS	JACS3 code:	F100
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Faculty:	Faculty of Arts, Science and Technology	Module Leader:	Dr Amiya Chaudhry
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Scheduled learning and teaching hours	40 hrs
Guided independent study	160 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
BSc (Hons) Chemistry (with Foundation Year)	✓	<input type="checkbox"/>
BSc (Hons) Forensic Science (with Foundation Year)	✓	<input type="checkbox"/>
FdSc Animal Studies (with Foundation Year)	✓	<input type="checkbox"/>
BSc (Hons) Equine Science and Welfare Management (with Foundation Year)	✓	<input type="checkbox"/>
BSc (Hons) Animal Science (with Foundation Year)	✓	<input type="checkbox"/>

Pre-requisites
None

Office use only

Initial approval: 12/12/2018

With effect from: 01/09/2019

Date and details of revision:

Version no:1

Version no:

Module Aims

This aim of this module is to introduce the students to a range of basic laboratory and field skills in natural science providing a solid foundation for their full degree study in the relative areas.

Specific aims:

- To develop an understanding of basic scientific theories and concepts required to carry out the relevant laboratory and field work.
- To develop laboratory skills
- To develop field skills

Intended Learning Outcomes

Key skills for employability

- KS1 Written, oral and media communication skills
 KS2 Leadership, team working and networking skills
 KS3 Opportunity, creativity and problem solving skills
 KS4 Information technology skills and digital literacy
 KS5 Information management skills
 KS6 Research skills
 KS7 Intercultural and sustainability skills
 KS8 Career management skills
 KS9 Learning to learn (managing personal and professional development, self-management)
 KS10 Numeracy

At the end of this module, students will be able to

Key Skills

1	Apply scientific theories and concepts to develop experiments, test hypotheses or explore phenomena.	KS3	KS5
		KS6	KS10
2	Apply knowledge of a range of techniques, apparatus, and materials and select those appropriate for fieldwork and laboratory experiments with due regard for health and safety considerations.	KS3	KS6
3	Write laboratory and field reports following technical report writing conventions.	KS1	KS3
		KS4	KS5

Transferable skills and other attributes

- Note taking
- Literacy
- Numeracy
- Time management

Derogations

None

Assessment:

Indicative Assessment Tasks:

Assessment is by means of a portfolio of laboratory work and fieldwork exercises spread throughout the module, covering outcomes 1, 2 and 3.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1, 2, 3	Portfolio	100	n/a	2,500

Learning and Teaching Strategies:

Methods of delivery:

Lectures

Practicals

Problem solving workshops

Directed study *via* Moodle VLE

Student directed study

The module will be presented to students through a series of lectures and practicals and learning will be reinforced through module tutor guided and self-directed study and interactive problem-solving tutorial sessions utilising laboratory equipment where appropriate.

Formative assessment involves tutorial questions and summative assessment is by coursework and practical work.

Syllabus outline:

Theoretical concepts and practical skills

1. Field

- Health and safety in field work and risk assessments
- Field identification; taxonomy of plants and animals
- Field sampling in transects and quadrats

- Measuring environmental variables e.g. soil characteristics, temperature, humidity
 - Organic decomposition or material degradation.
2. Laboratory
- Health and safety in the laboratory and risk assessments
 - Terms Units and symbols in the chemical and biological laboratory
 - Use of optical microscopes
 - Preparation of microscope slides with temporary and permanent mounts
 - Introduction to dissection
 - Introduction to laboratory glassware
 - Calculating dilutions and preparing chemical solutions
 - Keeping a lab notebook
 - Recording data using ICT

Indicative Bibliography:

Essential reading

1. Dean J, & Holmes, D.A. (2017) *Practical Skills in Chemistry, 3rd Edition*, Pearson Education.
2. Kent, M. (2013) *Advanced Biology(Advanced Sciences)*, Oxford University Press.

Other indicative reading

Langford, A.L. & Dean, J. (2018) *Practical Skills in Forensic Science, 3rd Edition*, Pearson Education.

A-Level text books in physics, chemistry and biology are recommended.

<http://www.Facultyscience.co.uk/home>