

MODULE SPECIFICATION PROFORMA

<b>Module Title:</b>	Cell Biology	<b>Level:</b>	4	<b>Credit Value:</b>	20
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<b>Module code:</b>	SCI430	<b>Is this a new module?</b>	No	<b>Code of module being replaced:</b>	
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<b>Cost Centre(s):</b>	GAFS	<b>JACS3 code:</b>	F410
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<b>With effect from:</b>	September 18
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<b>School:</b>	Applied Science, Computing & Engineering	<b>Module Leader:</b>	Dr Joss Bartlett
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Scheduled learning and teaching hours	60 hrs
Guided independent study	140 hrs
Placement	
<b>Module duration (total hours)</b>	<b>200 hrs</b>

<b>Programme(s) in which to be offered</b>	Core	Option
BSc (Hons) Forensic Science	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

<b>Pre-requisites</b>
None.

Office use only

Initial approval: February 17

APSC approval of modification: *Enter date of approval*

Version: 1

Have any derogations received SQC approval?

Yes  No  N/A

If new module, remove previous module spec from directory?

Yes  No

**Module Aims**

To make students familiar with some important structures of the cell and how they function, with particular emphasis on DNA.

To introduce laboratory techniques for the study of cell biology, including microscopy and DNA extraction.

**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

At the end of this module, students will be able to		Key Skills	
1	Explain the differences between procaryotic and eucaryotic cells.	KS1	
2	List the main structural elements of these cell categories.	KS1	KS6
3	Describe some of the distinctive features of viruses.	KS5	
4	Describe some of the important DNA technologies relevant to forensic science.	KS1	KS4
5	Carry out relevant laboratory techniques such as setting up a microscope, extracting DNA, gel electrophoresis.	KS2	KS9

Transferable skills and other attributes

Present a written report on a laboratory experiment.  
Use IT resources including simulations to support their learning.

**Derogations**

N/A.

**Assessment:**

Coursework (50%):

Example: a set of short answers to help students understand the background to one of the practicals, together with an analysis of the results produced during the practical.

Exam (50%):

A set of approximately 20 short or multiple-choice questions based on the content of the lectures.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	4-5	Coursework	50		1500
2	1-3	Examination	50	1.5 hours	

**Learning and Teaching Strategies:**

Material required to meet learning outcomes 1-4 will be presented through lectures, supported by online content (lecture notes plus additional resources). Learning outcomes 4 and 5 will be addressed with laboratory sessions. The laboratory sessions are in each case supported by online simulation material to either introduce or reinforce the student's own practical work.

**Syllabus outline:**

- Introduction to cells
- Viruses and viral disease
- Proteins, DNA, chromosomes
- Transcription and translation
- DNA technology
- Gel electrophoresis.
- Restriction enzymes and DNA fingerprinting
- PCR and gene frequencies
- STR data analysis

**Bibliography:**

**Essential reading**

Alberts, B. (2013) *Essential Cell Biology*, Garland Science.

**Other indicative reading**

Alberts, B. (2014) *Molecular Biology of the Cell*, New York: Garland Science.

Reed R (2016) *Practical Skills in Biomolecular Sciences*, Pearson.

Kratz RF (2009) *Molecular and Cell Biology for Dummies*, Wiley.

A number of online resources provide high-quality material, for example the National Center for Biotechnology Information, or the DNA learning Center at the Cold Spring Harbor Laboratory. Reading lists for individual sessions direct students to selected articles in Nature, Science and Scientific American.