

## Module Specification

Module Title  Module Code   
Credit Value  Level  Mode of Delivery  Semester A

Pre-requisite modules	Co-requisite modules	Overlapping modules
BMD116		

### 1) Content Description

Provide a description of the module, as it will appear in the Module Directory and on the Student Information System (approx. 70-80 words).

This module aims to provide a comprehensive overview and foundation in stem cell biology, including applications in regenerative medicine. The module will cover topics including: developmental origin of stem cells, comparing/contrasting different types of stem cells, biological regulation of stem cells and tissue-specific functions. The module also will cover fundamental principles of tissue engineering and cellular reprogramming. Finally, the module will explore how these concepts can be applied in academic, industrial and clinical settings, towards the development of novel regenerative technologies and treatment of disease. Essential generic skills that will be developed on this module include critical thinking, organisation and communication.

### 2) Module Aims

Specify the aims of the module, i.e. the broad educational purposes for offering this module.

The module aims to:

- Develop knowledge of the different types of stem cells and biological mechanisms by which they are regulated
- Understand the contribution of stem cells during development, tissue homeostasis, regeneration and cancer pathogenesis
- Critically evaluate applications of stem cells in research and cell-based therapies
- Introduce concepts of tissue engineering and cellular reprogramming, including their applications in regenerative medicine
- Appraise the ethical and legal issues associated with stem cell biology

### 3) Learning Outcomes

Identify the learning outcomes for this module, i.e. knowledge, skills and attributes to be developed through completion of this module. Outcomes should be referenced to the relevant [QAA benchmark statements](#) and the [Framework for Higher Education Qualifications in England, Wales and Northern Ireland \(2008\)](#). The [SEEC Credit Level Descriptors for Further and Higher Education 2003](#) and [Queen Mary Statement of Graduate Attributes](#) should also be used as a guiding framework for curriculum design.

Academic Content:

A1	Discriminate the characteristics of different types of stem cells
A2	Summarise the network of biological mechanisms that regulate stem cells
A3	Critically evaluate the contribution of stem cells during development, tissue homeostasis, regeneration and cancer pathogenesis
A4	Comprehend the roles of cellular reprogramming and tissue engineering in regenerative medicine
A5	Illustrate how stem cells can be used for clinical applications including: i) research into mechanisms of disease ii) evaluation of therapeutics iii) cell replacement therapies
A6	Comprehend the ethical and legal issues associated with stem cell biology

Disciplinary skills - able to:	
B1	Critically evaluate published research studies
B2	Critically evaluate scientific techniques used to investigate stem cells, including comprehension of basic statistical methods
B3	Write a scientific report directed at a lay audience
B4	Display skill in summarising and disseminating results using oral communication

Attributes:	
C1	Be able to critique complex scientific concepts clearly and logically
C2	Have the intellectual curiosity to learn continuously from diverse sources of information
C3	Make judgments based on evidence
C4	Effective time management and independent learning

#### 4) Reading List

Provide an indicative reading list for the module. This should include key texts and/or journals but **should not** be an exhaustive list of materials.

Textbook: Essentials of Stem Cell Biology, Lanza et al.
Textbook: Molecular Biology of the Cell, Alberts et al.
Articles selected by lecturers from relevant research journals (e.g. Cell; Cell Stem Cell; Nature; Science; Genes and Development)

## 5) Teaching and Learning Profile

Provide details of the method of delivery (lectures, seminars, fieldwork, practical classes, etc.) used to enable the achievement of learning outcomes and an indicative number of hours for each activity to give an overall picture of the workload a student taking the module would be expected to undertake. This information will form the Key Information Set for each undergraduate programme and will be used to populate the KIS widget found on the QMUL programme information pages. More information can be found [online](#) about KIS. You may also wish to refer to the [QAA guidance on contact hours](#) when completing this section.

Activity Type	KIS Category	Time Spent (in hours)
Lecture	Scheduled	22
Seminar	Scheduled	10
Guided independent study	Independent	118
Total		150

Specify the total module notional study hours. This should be a total of the hours given for each activity. The notional study hours for each academic credit point is 10. A 15 credit point module therefore represents 150 notional study hours.

Activity Type	Total Time Spent (in hours)	Percentage of Time Spent
Scheduled learning and teaching	32	21
Placement		
Independent Study	118	79
Total	150	100

Use the information provided in the box above to specify the total time spent and the percentage time spent in each category of teaching and learning activity.

## 6) Assessment Profile

Provide details of the assessment methods used to assess the achievement of learning outcomes.

Description of Assessment	Assessment Type	KIS Category	Duration/Length	Percentage Weighting	Final element of assessment	Qualifying Mark
Examination	Written Exam	Written		50%	Yes	
Short written work	Coursework	Coursework		20%	No	
Poster	Poster	Poster		30%	No	

**Final element of assessment:** The assessment that takes place last. **There should normally be only one element of assessment marked as final unless two assessment or submission dates occur on the same day.**

**Qualifying mark:** A specified minimum mark that must be obtained in one or more elements of assessment in order to pass a module. **This is in addition to, and distinct from, the requirement to achieve a pass in the module mark to pass the module.**

### Reassessment

Provide details of the reassessment methods used, specifying whether reassessment is either standard reassessment or synoptic reassessment.

- Standard Reassessment
  Synoptic Reassessment

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Synoptic reassessment details (if you have indicated synoptic reassessment above, please give details)

Brief Description of Assessment	Assessment Type	Duration/Length of Examination/ Coursework
Written Exam	Written Exam	3 Hours