Module Specification

Module Title	Chromosomes and Gene Function	Module Code	BMD111

Credit Value	15	Level	4	Mode of Delivery	On Campus	Semester A

Pre-requisite modules	Co-requisite modules	Overlapping modules

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 course reviews a number of seminal experiments in classical and molecular genetics to illustrate how these complementary experimental approaches seek to understand the complexities of living organisms. It also introduces recombinant DNA technology and genomic approaches to understanding how the hereditary material gives rise to observable phenotypes.

2) Module Aims

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

This course aims to provide a wide range of students with a basic understanding of how the flow of biological information from DNA to RNA to protein gives rise to the recognisable, inherited attributes of living organisms. It uses seminal experiments to introduce the students to basic classical and molecular genetics, and then expands on these themes to include genetic engineering and genomic approaches to these phenomena. . By the end of the course the students should appreciate the power and limitations of genetics, understand how inherited information manifests as phenotypes, and be able to discuss the principles that underlie patterns of inheritance.

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	Understand the relationship between mutation, protein structure and function, and inherited human diseases
A2	Recall the processes of mitosis and meiosis, and explain how the latter provides an explanation for Mendel's laws, and for exceptions to his laws
A3	Describe the basic structure of DNA and explain how this is related to its twin functions of storing and reproducing biological information
A4	Describe how the processes of transcription and translation give rise to phenotypes
A5	Discuss the principles that underlie gene cloning technology and genome analysis

A 6	Employ the relevant skills required to visualise and analyse chromosomes and DNA

Disciplinary skills - able to:	
B1	This module will enhance students' understanding of the principles that underlie the complexity found in biological systems
B2	They will also understand the power and limitations of reductionism in biological research
B3	They will appreciate, and gain a fundamental understanding of, the various biological processes occurring in all living organisms, which are of scientific and technological interest

Attributes:	
C1	The course work will improve planning, problem solving and organisational skills
C2	Overall, the module will improve the students' ability to handle information, to conduct independent study and to extract information from the scientific literature

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.

Curran, B. A Terrible Beauty is Born (Clones, genes and the future of mankind) (2003).

Brooker , R. Genetics (Analysis and Principles) (2017).

Hartwell, L. *et al.* Genetics (From Genes to Genomes) (2017).

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
Laboratory	Scheduled	12
	Total	34

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	34	22.7
Placement	0	0
Independent Study	116	77.3
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	Exam		1 Hours and 30 Minutes	75%	Yes	
Coursework	Coursework	Coursework		11.5%		
Coursework	Coursework	Coursework		13.5%		

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

Synoptic reassessment details (if you have indicated synoptic reassessment above, please give details)		
Brief Description of Assessment	Assessment Type	Duration/Length of Examination/ Coursework
Examination	Exam	1 Hours and 30 Minutes