

Module Specification

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

| Pre-requisite modules | Co-requisite modules | Overlapping modules |
|-----------------------|----------------------|---------------------|
| BMD163 OR BIO163 | | |
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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).

The module forms an essential part of the B990 Biomedical Sciences degree programme offered by the School of Biological and Chemical Sciences and reviews our current understanding of the organization and expression of human genes and of selected topics in human molecular genetics. The lectures include discussion of the organization of the human genome, packaging, replication and repair of DNA, human gene expression and its regulation, translation and mRNA processing, protein sorting and export and recombinant DNA technology. Topics covered in the practicals include bioinformatics and plasmid purification and manipulation.

2) Module Aims

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

The aim of the module is to provide students with a broad understanding of the concepts and experimental techniques that constitute the recognised 'compulsory' of knowledge in the field of eukaryotic molecular biology and molecular genetics, with an emphasis on topics relevant to human biology and medicine. In addition, the module will provide students with knowledge of molecular biology and molecular genetics necessary for other modules that they will take, particularly in their third year.

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: | |
|-------------------|---|
| A 1 | How genes are organized and packaged in humans and how DNA is replicated and repaired in humans |
| A 2 | How eukaryotic genes are transcribed and the mechanisms by which gene expression can be regulated, both transcriptionally and post-transcriptionally |
| A 3 | The role of chromatin and the histone code in the regulation of transcription and mRNA splicing and processing and translation and how protein products are processed |
| A 4 | The mechanisms by which proteins are targeted to their appropriate intra- or extra-cellular location, how genes and cDNA can be cloned and characterized and the basic principles and experimental techniques of recombinant DNA technology |

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|--------------------------------|---|
| Disciplinary skills - able to: | |
| B1 | The module will enhance students' understanding of the molecular mechanisms by which eukaryotic genes are expressed and how their expression is regulated in response to a variety of signals |
| B2 | Students will also appreciate and gain an understanding of many of the 'core' techniques of recombinant DNA technology and how these can be used to investigate human biology and disease |

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| Attributes: | |
| C1 | Grasp the principles and practices of the field of molecular biology, especially experimental design, laboratory techniques and data handling. |
| C2 | Produce analyses which are grounded in evidence. |
| C3 | Apply analytical skills to investigate unfamiliar problems. |
| C4 | Use technologies to access and interpret information effectively. |

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.

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| 1. Krebs, JE et al (2013) Lewins Gene's XI, Jones & Bartlett |
| 2. Tropp, BE (2013) Molecular Biology: Genes to Proteins (4th edn) Jones & Bartlett |
| Lectures are largely based on the above texts. Previous/newer editions of these textbooks are also available and have almost identical material. |
| Any general undergraduate molecular biology textbook will be suitable for this module (e.g. Molecular Cell Biology or Molecular Biology of the Cell) |

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 |
| Practical | 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 | Examination | Examination | 2 Hours | 50% | Yes | |
| Practical Report 1 | Written Assessment | Coursework | | 25% | No | |
| Practical Report 2 – in Class lab | Written Assessment | Coursework | | 25% | 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

| 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 | 2 Hours |