

Module Specification

Module Title Module Code
Credit Value Level Mode of Delivery Semester

Pre-requisite modules	Co-requisite modules	Overlapping modules
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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).

This module will provide a comprehensive understanding of biomarkers in both neurological and psychiatric disorders. The application of biomarkers for diagnosis, patient stratification, monitoring disease progression and establishing drug effects and safety will be discussed. Students will gain an appreciation of current genomic, proteomic and neuroimaging approaches to undertake biomarker discovery and validation. Neurological conditions such as Parkinson's, Multiple Sclerosis, Alzheimer's diseases and neurotrauma will be discussed as well as emerging biomarkers for psychiatric disorders such as schizophrenia, and depression.

2) Module Aims

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

The aim of this module is to provide a comprehensive understanding of the use of biomarkers within neuroscience. There is a particular focus on neurological and psychiatric disorders. Biomarker development and validation are covered, as well as regulatory and ethical considerations of their application. Students will be expected to appraise and interpret scientific findings from the literature. There will be a strong component of statistical methods to validate biomarkers including multi-variant statistics, classification and regression models and receiver operator curves (ROC).

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	Comprehensive knowledge of different categories of biomarkers
A2	Critically evaluate the contribution of biomarkers to medical and scientific research
A3	Detailed understanding of statistical methods to validate biomarkers
A4	Demonstrate an critical understanding of the use of biomarkers for diagnostic use, patient stratification, monitoring disease progression and establishing drug effects.
A5	Articulate and synthesise information around the limitations and ethical considerations regarding the acquisition and use of biomarkers

Disciplinary skills - able to:	
B1	Critical understanding of the experimental approaches used to discover biomarkers and validate candidate biomarkers
B2	Analyse and evaluate the use of different biomarker modalities
B3	Critically appraise and interpret scientific findings from the literature
B4	Identify and define analytic and statistical approaches required to conduct research experiments
B5	Engage effectively in debate and construct a coherent argument

Attributes:	
C1	Be able to critique scientific findings from the literature
C2	Effective time management
C3	Developed intellectual curiosity to learn and be independent learners
C4	Have an awareness of global impact of research in society

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.

Research papers and reviews will be the primary literature required for this module

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
Tutorial	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
Exam	Written Exam	Written	3 hours	80	Yes	
Essay (In class test)	In class assignment	In class assignment	1h	10		
MCQ	In class assignment	In class assignment	1h	10		

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	Written Exam	3 hours

