

Module Specification

Module Title Module Code
Credit Value Level Mode of Delivery Semester

Pre-requisite modules	Co-requisite modules	Overlapping modules
Basic Biochemistry		

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 is a second year module for students following biochemistry/biology with an interest in the application of a number of techniques to understand molecular structure. It is a core module for biochemists.

2) Module Aims

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

This module aims to provide second year students with knowledge of the theory and application of a number of modern techniques available to the biochemist and chemists to study the structure and function of proteins and pharmaceuticals at the molecular level.

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	Illustrate how the structure of proteins can be elucidated, with particular emphasis on NMR spectroscopy, X-ray crystallography and Cryo-EM
A 2	Compare and contrast a number of spectroscopic techniques used to study macromolecular structure and function
A 3	Apply chromatographic techniques to separate proteins and other molecules

Disciplinary skills - able to:	
B1	

Attributes:	
C1	

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.

For NMR, X-ray Crystallography and Spectroscopy
“Physical Biochemistry: Principles and Applications”
by David Sheehan (Wiley)
A good general book for the course

For NMR and MRI
“An NMR Primer for life scientists”
by Henry Rattle (Partnership Press)
QH 324
Great for the NMR and MRI lectures

Specific chapters within the following textbooks will be useful for background to the spectroscopic methods studied.

For UV-Vis (Chapter 13) and CD (Chapter 16)
Methods in Molecular Biology, Vol 22,
Microscopy Optical Spectroscopy and Macroscopic Techniques.
Ed Jones, Mulloy, Thomas
QP 519

For NMR (Chapter 1,2 and 3)
Methods in Molecular Biology, Vol 17,
Spectroscopic Methods and Analyses
Ed Jones, Mulloy, Thomas
QP 519

Biological Spectroscopy (Chapters 2, 4, 6, 7 and 10)
by Campbell and Dwek
QH 324

Further reading (beyond the scope of these course)
Biomolecular NMR Spectroscopy by J N S Evans
NMR of Macromolecules ed. G C K Roberts

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)
Lectures	Scheduled	22
Workshops	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	25.3
Placement	0	0
Independent Study	112	74.7
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	Exam	2 Hours and 30 Minutes	75%	Yes	
Coursework	Written assignment	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
Resit Examination	Examination	2 Hours and 30 Minutes