

## 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 is designed to introduce first year students to fundamental principles underpinning physical chemistry. The module will give detailed consideration to thermodynamics of chemical systems and an introduction to the kinetics of chemical reaction.

### 2) Module Aims

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

This module aims to provide students with knowledge of the fundamental concepts required to understand the thermodynamics of chemical systems and the kinetics of chemical reactions. Emphasis is placed on developing understanding of concepts which can then be applied to more advanced topics in physical chemistry

### 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	thermodynamics of chemical systems and the kinetics of chemical reactions

Disciplinary skills - able to:	
B1	Describe and explain the thermodynamics of chemical systems and the kinetics of chemical reactions
B2	Rationalize the concepts of thermodynamics state functions, thermodynamic laws, reversible and irreversible work of expansion of ideal gases, spontaneous change, equilibrium constants, kinetics of chemical reactions, differential rate equations, kinetics of multi-step reactions and catalysed processes

B3	Explain how various physical and optical properties of molecules and complexes can be influenced by the geometry and electronic structure
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Attributes:	
C1	Acquire and apply knowledge relating to the principles and practices of physical chemistry
C2	Produce analyses which are grounded in experimental evidence
C3	Apply analytical skills to investigate unfamiliar problems and conduct calculations in a confident and reliable manner.

#### 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 this module students should have access to textbooks covering both inorganic chemistry and physical chemistry. Indicative examples include:

A general first-year textbook such as:

“Atkins' Physical Chemistry”, by P.W. Atkins and J. de Paula (Oxford University Press)

#### 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	10
Total		32

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	21.3
Placement	0	0
Independent Study	118	78.7
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	Assessment	KIS Category	Duration/Length	Percentage	Final element	Qualifying
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of Assessment	Type			Weighting	of assessment	Mark
Examination	Exam	Exam	2 Hours	80%	Yes	
Coursework	Written assignment	Coursework		20%	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