

Module Specification

Module Title Module Code
Credit Value Level Mode of Delivery Semester

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 module is designed to introduce first year students on the chemistry F100 and F103 programmes to the properties of the different phases of matter (gases, liquids and solids), viewed from a physical and inorganic chemistry perspective. The module considers the various types of interactions that occur between atoms and molecules, and how these influence the molecular behaviour and the characteristics of the various phases of matter. The review of solid structures includes an introduction to crystallography and diffraction, whilst in the final section of the module, discussions of the liquid phase are extended to aspects of solution chemistry.

2) Module Aims

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

This module aims to equip students with knowledge of the structure and properties of the different phases of matter. More generally, the module aims to develop an appreciation of how behaviour and interactions at the atomic and molecular level are manifested at the macroscopic level, and also aims to improve students' capabilities and confidence in dealing with quantitative problems.

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	Types of interatomic and intermolecular interaction, and how these can determine the stable phase and influence the characteristics of the various phases of matter
A 2	The properties of fluid phases of matter, such as gases, liquids and solutions, and understanding of the factors affecting mixing, miscibility and solubility
A 3	The various types of solid state structures, their characteristic properties, and the factors which are important in determining the type of structure exhibited by specific materials
A 4	Chemical processes and reactions in solution, including those responsible for acidity and basicity, and aspects of redox chemistry

Disciplinary skills - able to:

B1	Identify the intermolecular interactions present in specific systems, and rationalize how these influence the chemical and physical properties of the system
B2	Evaluate experimental observations relating to the structure and properties of materials, and explain them using basic chemical concepts
B3	Predict the properties of chemical systems, based upon theories of molecular behaviour and existing knowledge of similar systems
B4	Identify, describe, illustrate and rationalize the type of solid-state structure exhibited by various types of chemical compounds and analyse problems and conduct calculations relating to the properties of molecules and materials.

Attributes:	
C1	The module will enable students to acquire and apply knowledge relating to the principles and practices of physical and inorganic chemistry, produce analyses which are grounded in experimental evidence, connect information and ideas within the field of chemistry and conduct calculations in a confident and reliable manner
C2	Students will also be trained and have practice in solving numerical problems relevant to chemistry, thereby enhancing

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.

Chemistry introducing inorganic, organic and physical chemistry, by A. Burrows et al. (Oxford University Press)

Inorganic Chemistry, by D.F Shriver and P.W Atkins (Oxford University Press)

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

Quantitative Chemical Analysis, by D.C. Harris, 7th Edition, WH Freeman & Co., 2006, QD75 HAR.

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	8
Total		30

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	30	20
Placement	0	0
Independent Study	120	80
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	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