

The following module specifications reflect the most current planning for module delivery in the 2021/22 academic year. In planning for module delivery in 2021/22 the University will continue to respond to the UK government's projected road map, and also to any further relevant national developments and public health requirements relating to the coronavirus pandemic. The University will continue to develop our approach to delivery and assessment in 2021/22 and these specifications may be subject to change in the event of updating national guidance or public health requirements. The specifications will be updated as soon as practically possible to reflect changes as they arise.

CH1200 General Chemistry

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	5
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	25
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Richard Blackburn
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Continuous Assessment 1	30				
005	Continuous Assessment 2	30				
006	Examination (Final)	40		1.5		

Period: Semester 1
Occurrence: E1
Coordinator: Richard Blackburn
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Explain the principles of atomic structure, electron configuration, energy quantisation, wave particle duality, molecular orbital theory and coordinate bonding
- Determine the shapes of covalent molecules using Valence-Shell Electron-Pair repulsion theory
- Predict the Lewis acidity or basicity of a molecule
- Describe chemical equilibria on both molecular and mathematical levels
- Describe the underlying principles of spectroscopy and apply quantitative relationships (e.g. Beer-Lambert law, Rydberg equation) to analyse spectra; predict and rationalise spectra of atoms & molecules
- Draw and name organic molecules explaining their structure, shape and possible isomers
- Use curly arrow notation to rationalise and predict stability, polar reactivity and acidity for organic molecules

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

Coursework
 Examination

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH1201 Introductory Organic Chemistry

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Sandeep Handa
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Tutorial	10				
005	Coursework	15				
007	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Sandeep Handa
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
005	Continuous Assessment	100				

Intended Learning Outcomes

On successful completion of the module, student at both Leicester and the Dalian Leicester Institute should be able to:

- Recognise functional groups, anticipate their reactivity and interconversions and the reagents required for these transformations
- Identify and explain the relationships between isomers and conformers of organic molecules.
- Rationalise and predict reactivity based on curly arrow mechanisms and diagrams; explain how structure and bonding controls the outcome and rate of organic reactions
- Interpret and discuss the differences between a variety of reaction mechanisms including nucleophilic substitution, elimination reactions, reactions of alkenes, reactions of carbonyls and electrophilic aromatic substitution
- Predict and interpret spectroscopic data for organic molecules whose structures are known; deduce structures of molecules using spectroscopic and analytical data

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

Coursework
 Examination

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH1202 Introductory Inorganic Chemistry

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Mark Lowe
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Tutorial	10				
005	Coursework	15				
007	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Mark Lowe
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
005	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students at both Leicester and the Dalian Leicester Institute should be able to:

- Calculate oxidation states and d_n configurations for transition metal complexes and identify the common types of ligand and methods of complex preparation
- Describe bonding in transition metal complexes using ionic (crystal field theory) and covalent (molecular orbital) models and calculate and crystal field stabilisation energies and use these to explain and predict magnetic and spectroscopic properties of transition metal complexes
- Predict the geometries of complexes, recognising rotational axes, mirror planes and centres of inversion and draw these on diagrams of molecules, use these to assign point groups to molecules and identify the possibility of distortions from ideal geometries and isomerism
- Describe the inorganic chemistry of a range of main group compounds and discuss the broader applications of descriptive inorganic chemistry
- Interpret solid state structures in terms of the type of unit cell adopted, the coordination number and coordination geometry of each atom, the radius ratio, and the relevant bonding models for ionic and metallic solids

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

Coursework
Examination

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH1203 Introductory Physical Chemistry

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Andrew Hudson
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Tutorial	10				
005	Coursework	15				
007	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Andrew Hudson
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
005	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students at both Leicester and Dalian Leicester Institute should be able to:

- Describe and explain the aims and terminology of thermodynamics including the first and second laws, basic thermochemistry, enthalpy and entropy, Gibbs energy, acid-base equilibria, simple statistical mechanics and phase diagrams. Discuss electrochemical process and how they relate to thermochemistry
- Describe and explain the properties of ideal and non-ideal gases including the use of virial coefficients, Maxwell distributions and collision rates
- Know the basic principles of reaction kinetics and how they can be measured; use these principles to calculate the effect of various parameters on the rates of chemical reactions
- Perform qualitative and quantitative analyses of and solve problems involving thermodynamic and kinetic data

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

Coursework
Examination

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH1204 Chemistry Key Skills & Maths

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	21
Synchronous Small Group Teaching	21
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	10
Asynchronous Lectures/Presentations	31
Asynchronous Other	67
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Stephen Ball
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Examination (Semester 1)	20		1		
002	Coursework	40				
003	Examination (Semester 2) (Final)	40	40	2		

Period: Academic Year
Occurrence: E1
Coordinator: Stephen Ball
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
002	Coursework (Final)	100				

Intended Learning Outcomes

On successful completion of the module, student should be able to:
 Perform a variety of mathematical manipulations involving working with units, logarithms and trigonometric functions, solving simultaneous & quadratic equations, plotting and extracting information from graphs
 Differentiate and integrate simple and more complex functions using a variety of methods
 Perform simple statistical analyses on datasets (mean, median, mode, standard deviation, and use the normal distribution function to identify statistical outliers); calculate errors and uncertainties
 Communicate chemical concepts and ideas to a range of audience types using methods that will engage discipline specific and general audiences (e.g. posters, oral presentations and written materials)
 Work as part of a diverse team on solving an open-ended scientific problem; planning teamwork and managing time effectively
 Reflect on their own skills identifying areas of strength and weakness

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- Exam (1st semester, 20%), Coursework (40%), Final Exam (40%)

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH1205 Introductory Practical Chemistry

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	3
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	88
Synchronous Other	
Asynchronous Lectures/Presentations	
Asynchronous Other	
Guided Independent Study	59
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Mark Lowe
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Practical (100%)	100				
005	Attendance	0				

Intended Learning Outcomes

On successful completion of the module, students at both Leicester and the Dalian Leicester Institute should be able to:

- Manipulate simple laboratory equipment and glassware and hence perform a variety of basic synthetic and analytical practical procedures (either individually or as part of a larger team) in a safe manner and following good chemistry laboratory practice
- Accurately observe and record experimental details and results and appreciate the different types of errors that may occur and how to deal with them
- Interpret experimental data and report the findings in a concise written report
- Prepare, separate and purify compounds using different techniques including recrystallisation, distillation and tlc; characterise and identify these compounds using a variety of analytical and spectroscopic methods
- Employ a range of analytical techniques to determine important thermodynamic, kinetic and spectroscopic properties of systems, solutions and reactions

Teaching and Learning Methods

Lectures, pre-lab exercises, supervised practical work supported by demonstrations and experimental simulations, marked work, formative feedback

Assessment Methods

- Practical (100%), there are no reassessment opportunities for this module, it must be passed at the first time of taking
- Note - students must attend and complete at least 90% of scheduled laboratory sessions to pass the module

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, pre-lab exercises, online video demonstrations and simulations

CH1206 Scientific Method & Principles of Analytical Chemistry

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Sergey Piletsky
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Coursework	50				
006	Examination (Final)	50		1.5		

Period: Semester 1
Occurrence: E1
Coordinator: Sergey Piletsky
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Coursework (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Discuss the role of ethics in the pursuit of scientific discovery and be familiar with some of the underlying philosophical principles of science
- Describe the different types of analytical problems, the methods that can be used to solve them and the errors associated with each method and how they can be dealt with; use this knowledge to select the best technique to solve specific analytical problems
- Know the basic principles of electrochemical, chromatographic and UV/Vis and elemental spectroscopic techniques and discuss and evaluate their application in qualitative and quantitative analyses
- Know the principles and underlying chemistry of titrimetric and gravimetric quantitative methods of analysis
- Evaluate and interpret the results from qualitative and quantitative analyses and solve problems involving analytical data

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

Coursework and exam

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH1207 Chemistry of the Real World

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Dylan Williams
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Coursework (Final)	100				

Intended Learning Outcomes

On successful completion of the module, student should be able to:

- Identify and describe how chemistry impacts on everyday life in such areas as the environment, sustainability & materials.
- Present and critically analyse the role played by chemistry in a particular area of society
- Work together in groups to analyse and solve unseen problem based chemical scenarios
- Analyse and critique how science and chemistry in particular is disseminated in the media
- Participate effectively in a range of teaching and learning activities (some involving group work), combine facts and ideas and communicate scientific concepts to a range of audience types

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- Coursework (100%)

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH1209 Introductory Pharmaceutical Chemistry

Academic Year: 2021/2
Module Level: Year 1
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Richard Blackburn
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
004	Coursework (Final)	100				

Intended Learning Outcomes

On successful completion of the module, student should be able to:

- Identify and describe the chemical structure, organisation, properties and functions of various biological entities including; membranes, prokaryotic and eukaryotic cells, the nervous system and neurotransmission, molecular receptors and signalling mechanisms
- Describe the presence, interactions and various roles of amino acids, sugars, nucleotides and fatty acids in biological systems and drug discovery
- Describe the evolution of the pharmaceutical industry from historically important therapeutic areas to current targets and the overall process of drug design, development, screening and bringing to market
- Discuss the role and kinetics of enzymes and co-factors in biological catalysis, drug mode of action and their relationship to ATP and energy production
- Participate effectively in a range of teaching and learning activities (some involving group work), combine facts and ideas and communicate scientific concepts to a range of audience types

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- Coursework (100%)

Pre-Requisites

-

Co-Requisites

-

Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH2200 Spectroscopy Theory & Practice

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Andrew Ellis
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Tutorial	10				
002	Coursework	15				
003	Examination (Final)	75		2		

Period: Semester 1
Occurrence: E1
Coordinator: Andrew Ellis
Mark Scheme: UG Honours Level Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students at both Leicester and the Dalian Leicester Institute should be able to:

- Identify and explain at a quantum level the nature of the transitions induced when specific wavelengths of electromagnetic radiation interact with molecules
- Interpret or predict data (from more than one spectroscopic technique) and hence identify structural or bonding characteristics and/or determine the full structure of molecules
- Analyse molecular spectroscopic data and conduct calculations relating to the properties of molecules
- Choose appropriate physical methods to solve chemical identification and characterisation problems
- Recognise elements of symmetry and use these to determine point groups of molecules; use this analysis to predict vibrational spectra

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- 10% Tutorial; 15% Coursework; 75% exam

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH2201 Organic Chemistry

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Alison Stuart
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Tutorial	10				
002	Coursework	15				
003	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Alison Stuart
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

- On successful completion of the module, students at both Leicester and the Dalian Leicester Institute should be able to: -
- Explain how carbon-carbon bonds can be formed from carbanions and electrophilic molecules and how this chemistry can be used in both the retrosynthetic analysis and the synthesis of organic molecules
 - Represent important conformations of alicyclic systems (especially 6-membered); predict and rationalise their relative stability and their influence on the stereoelectronic requirements of reaction pathways
 - Discuss and explain the electronic structure of aromatic carbocycles and heterocycles and its effect upon reactivity; use this information to propose effective reaction sequences to synthesise and interconvert aromatic species
 - Rationalise and predict reactivity based on curly arrow mechanisms and diagrams; explain how structure and bonding controls the outcome and selectivity of organic reactions

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- 10% Tutorial; 15% Coursework; 75% exam

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH2202 Inorganic Chemistry

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Gregory Solan
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Tutorial	10				
002	Coursework	15				
003	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Gregory Solan
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

- On successful completion of the module, students at both Leicester and the Dalian Leicester Institute should be able to:
- State the methods of preparation, and describe the bonding, relative stability and reactivity of metal carbonyls, -alkyls, -carbenes, -hydrides; as well as alkene, diene, allyl, cyclopentadienyl and benzene complexes
 - Describe inorganic reactions in terms of the basic reaction types: substitution, oxidative addition, migratory insertion, reductive elimination, salt elimination
 - Be able to use spectroscopic (IR, NMR and Mass Spectrometry) microanalytical data and structural methods in the characterisation of organometallic species.
 - Apply the concepts of chemical kinetics to inorganic chemistry including making connections between the kinetics of a process and the mechanism of a reaction
 - Discuss the importance of inorganic chemistry in catalysis and describe the mechanistic steps in a number of industrially important catalytic cycles

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- 10% Tutorial; 15% Coursework; 75% exam

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH2203 Physical Chemistry

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Corey Evans
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Tutorial	10				
002	Coursework	15				
003	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Corey Evans
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

- On successful completion of the module, students at both Leicester and the Dalian Leicester Institute should be able to:
- Describe the thermodynamics of solution formation, distinguishing the different methods of transportation and explaining and analyzing the factors affecting ion migration & diffusion. Distinguish the different ways a species can be transported through a solution. Explain the factors that affect ion migration and diffusion
 - Describe the nature of a colloid and the factors affecting its stability. Explain the techniques used to determine the size and shape of colloidal particles. Discuss the interplay between the attractive and repulsive interactions between colloidal particles
 - Describe how the kinetics of chemical reactions are influenced by homogenous and heterogeneous catalysts including associated mechanisms
 - Perform qualitative and quantitative analyses of and solve problems involving the movement of charged and neutral species in solutions and kinetic data associated with adsorption and desorption processes on surfaces.
 - Describe the process of surface growth and distinguish between the different techniques used to probe a surface. Explain the interactions at the electrode-solution interface and be able to determine the rate of electron transfer at the surface of an electrode. Understand adsorption and desorption processes on a surface.

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- 10% Tutorial; 15% Coursework; 75% exam

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH2204 Practical Chemistry & Key Skills

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 30

Student Workload (hours)

Synchronous Lectures
 Synchronous Small Group Teaching
 Synchronous Practical Classes/
 Workshops/Professional Placements
 Synchronous Other
 Asynchronous Lectures/Presentations
 Asynchronous Other
 Guided Independent Study
 Total Module Hours

Period: Academic Year
Occurrence: E
Coordinator: Richard Blackburn
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
006	Practical	85	40			
007	Coursework (Final)	15				
008	Attendance	0				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Determine, plan and perform a variety of purification, analytical and computational practical procedures (either individually or as part of a larger team) in a safe manner and following good chemistry laboratory practice
- Record and interpret data from a variety of analytical and spectroscopic techniques and present the data in an appropriate format
- Employ a range of analytical techniques to determine important thermodynamic, kinetic and spectroscopic properties of systems, solutions and reactions; assess potential sources of errors in these techniques and calculate the errors associated with the final measurement
- Prepare and purify a variety of organic and inorganic compounds using single or multi-step synthetic procedures; characterise and identify the products from these syntheses using appropriate spectroscopic techniques
- Accurately observe and record experimental details and results; subsequently interpret this information and present their findings in a professional format
- Identify and research scientific concepts of interest to a defined target audience and prepare resources that will communicate these concepts in an effective way
- Evaluate the role of chemistry in the sustainable energy sector and the viability of different sustainable technologies based on the specific requirements of a defined geographical location
- Create, review and edit written content for a range of scientific audiences (e.g. journal articles) and employers (e.g. CV's, application letters)
- Reflect on their own skills identifying areas of strength and weakness

Teaching and Learning Methods

Lectures, pre-lab exercises, supervised practical work supported by demonstrations and experimental simulations, marked work, formative feedback, workshops, problem based learning activities, presentations

Assessment Methods

- Practical (85%)
- Coursework (15%)

There are no reassessment opportunities for this module, it must be passed at the first attempt.

Note: students must attend and complete at least 90% of scheduled laboratory sessions to pass the module

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

CH2204 Practical Chemistry & Key Skills

Guided Independent Study: Indicative Activities

Directed reading, pre-lab exercises, online video demonstrations and simulations, reflective skills exercises

CH2206 Analytical Chemistry in Practice

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Elena Piletska
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2		

Period: Semester 2
Occurrence: E1
Coordinator: Elena Piletska
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, student should be able to:

- Identify the errors associated with analytical measurements and sampling methods and how they can be minimised and evaluated
- Describe the key components of analytical instrumentation and their function
- Describe the principles of a variety of spectrochemical methods and explain their use in chemical and biochemical analysis; choose the most appropriate method to solve specific analytical and bioanalytical problems
- Explain the principles of chromatography, electrophoresis and mass spectrometry and describe how these techniques can be used in bioanalysis; Describe the structure and biological function of DNA and RNA and explain how methods to analyse DNA are important in analytical chemistry and forensic science
- Evaluate and interpret the results from qualitative and quantitative analyses and solve problems involving analytical data in a critical manner assessing the significance and reliability of measurements

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH2207 Polymer & Materials Chemistry

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Andy Abbott
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2		

Period: Semester 1
Occurrence: E1
Coordinator: Andy Abbott
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, student should be able to:

- Describe the terminology of materials mechanics and explain the strength of materials in relation to their molecular structure
- Discuss the formation of alloys; explain and predict the chemical and physical properties of alloys based upon a knowledge of their composition
- Describe and explain the methods for production of polymers and characterization of their properties (e.g. glass transition temperature); explain and predict how polymer structure affects physical properties
- Classify polymers on the basis of their structure, properties or origin; describe the applications of polymers explaining how they are related to their structure and properties
- Discuss and rationalise the key mechanisms for polymerization (radical, cationic and anionic) and for cross-linking
- Recognise repeat units of polymers and hence predict appropriate routes for their synthesis
- Discuss and explain how kinetic & thermodynamic factors affect polymerisation reactions

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH2208 Introductory Forensic Science II

Academic Year: 2021/2
Module Level: Year 2
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	40				
002	Examination (Final)	60		1.5		

Period: Semester 1
Occurrence: E1
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, student should be able to:

- Appreciate the needs for recording, observational and analytical skills when dealing with a forensic investigation
- Discuss the different types of evidence explaining the limitations of each
- Explain the need for good communication skills in an expert witness and the need for scientific reasoning
- Discuss the underlying philosophical principles of science, including deductive and inductive reasoning and the concept of falsification
- Discuss the role and function of the principle actors in and main elements of the criminal justice system
- Explain the relationship between statutory material, code of practice & case law as authorities for legal propositions
- Advise on the application of law to hypothetical situations

Teaching and Learning Methods

Asynchronous lectures, synchronous classes that include example problems and problem solving, tutorials, marked work & VLE directed activities

Assessment Methods

- Coursework (40%), Final Exam (60%)

Pre-Requisites

-

Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises

CH3201 Advanced Organic Chemistry

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Sandeep Handa
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 1
Occurrence: E1
Coordinator: Sandeep Handa
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Illustrate the importance of spectroscopy (particularly NMR and MS) in the determination of the structure and shape of organic compounds. Interpret or predict NMR, MS and IR data, and hence determine the full structure, including stereochemistry, of organic molecules
- Recognise and be able to classify the principal types of pericyclic reaction
- Explain how mechanism relates to the selectivity of pericyclic reactions and why thermally and photochemically-activated molecules frequently exhibit contrasting selectivity. Use this knowledge to predict the outcome of unseen reactions
- Know and understand how radicals and carbenes can be generated and the types and mechanisms of reaction that they most commonly exhibit. Use this information to predict the outcome of unseen reactions
- Explain how the reactivity of transient species can be investigated, and recognise the advantages and limitations of the high reactivity of transient intermediates

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH3202 Advanced Inorganic Chemistry

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	3
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	117
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Gregory Solan
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 1
Occurrence: E1
Coordinator: Gregory Solan
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Describe how the understanding of basic and advanced topics in inorganic chemistry, and appropriate physical methods can be applied to solve inorganic chemical problems; use this knowledge to solve unseen problems.
 - Describe the basic principles of a variety of key spectroscopic and analytical techniques for inorganic chemistry appreciating the significance/relevance of the data available from each to select which technique is most appropriate for a given situation; interpret and evaluate data for these techniques to solve unseen problems.
 - Discuss and critique the importance of inorganic chemistry in Biomedicine and metals in medicine and be able to apply this knowledge to solve unseen problems.
- Discuss and critique the importance of inorganic chemistry in catalysis: acetic acid manufacture, polymerisation of alkenes, oligomerisation of alkenes and relation to the SHOP process, ring opening polymerisation (e.g., synthesis of biodegradable polymers like polylactide and polycaprolactone); apply this knowledge to solve unseen problems.

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH3203 Advanced Physical Chemistry

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Stephen Ball
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 2
Occurrence: E1
Coordinator: Stephen Ball
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Discuss the mutual reliance of theory, statistical methods and spectroscopy
- Explain the Schrödinger equation for light atoms (H, He, Li etc) and simple diatomic molecules (H₂⁺, H₂, etc); identify the various terms as contributions to the potential energy or kinetic energy of the system
- Establish the symmetry of atomic and molecular wave functions; rank orbitals according to their energy; construct molecular orbital energy level diagrams and use them to infer properties about the bonding within molecules
- Implement Hückel theory to calculate the properties of π-bonded molecules and aromatic organic compounds
- Classify the various forms of molecular motion in terms of separation of their quantum mechanical energy levels
- Evaluate partition functions for a variety of simple chemical systems; use partition functions to calculate bulk thermodynamic properties of the system
- Explain key processes in the interaction between light and matter; use the information content of spectroscopic lines to infer properties of the molecule; identify the symmetry of energy levels and hence establish whether the transition is allowed or forbidden

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

DLI Students: Directed reading, set problems, group problem solving exercises, formative quizzes, presentations

CH3204 Biological Chemistry

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Richard Blackburn
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 2
Occurrence: E1
Coordinator: Richard Blackburn
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Discuss and rationalize the structure, chemistry and properties of simple carbohydrates and naturally occurring nucleosides; use this knowledge to solve unseen problems
- Explain the common strategies used for the synthesis of carbohydrates and use them to propose syntheses of target molecules
- Identify the structure, chemistry and functions of cofactors and vitamins; predict & rationalise the chemistry of these systems for both seen and unseen examples
- Produce and rationalise mechanisms and reaction pathways associated with cofactor catalysis, biosynthesis of natural products and energy production for both seen and unseen examples
- Explain and rationalise the chemistry involved for the laboratory synthesis and structure determination of DNA; apply this chemistry to design synthetic routes to such molecules and/or evaluate data to deduce DNA structure

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH3205 Metals in Synthesis

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Sandeep Handa
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 2
Occurrence: E1
Coordinator: Sandeep Handa
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Explain the importance of selectivity in synthesis
- Summarise the important features of the use of transition and main group elements in stoichiometric and catalytic organic synthesis. Use this information to predict the outcome of unseen reactions and propose synthetic routes to target molecules
- Discuss the important features of the synthetic chemistry of silicon, selenium, lithium, boron and aluminium; explain the selectivity seen in the reactions of these organometallic compounds and use this knowledge to predict and explain the outcome of unseen reactions
- Explain what is catalysis and the effect of a catalyst on the free energy of a reaction. Define turnover frequency and turnover number and use these terms to calculate the catalytic efficiency in unseen systems
- Discuss in detail specific examples of transition metal catalysed processes, including asymmetric catalysis, information on their mechanisms and key reaction steps
- Explain how spectroscopy, kinetics and labelling studies can be used to help elucidate reaction mechanisms; evaluate data from these studies to deduce mechanistic pathways in unseen systems

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

DLI Students: Directed reading, set problems, group problem solving exercises, formative quizzes, presentations

CH3206 Advanced Analytical Chemistry

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 2
Occurrence: E1
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Discuss the principles underlying modern analytical techniques and their applications. Use this information to critically analyse and interpret data for the solution of unseen problems in analytical chemistry
- Explain the methods of analytical chemistry at interfaces
- Summarise the relevance of sensitivity and selectivity to choice of an analytical method for a specific application; use this information to analyse unseen scenarios and choose the correct methods to solve analytical problems
- Evaluate unseen problems in analytical chemistry and thus select and apply techniques to obtain the best results in a variety of situations. Have insight into the nature, mechanism and dynamics of a range of interfacial physical and chemical processes
- Recognise the nature of the interaction between surfaces and the environment to which they are exposed
- Explain how interfacial structure may be experimentally determined and simulated, evaluating different methods for different scenarios

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

DLI Students: Directed reading, set problems, group problem solving exercises, formative quizzes, presentations

CH3208 Advanced Materials Chemistry

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Kal Karim
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 2
Occurrence: E1
Coordinator: Kal Karim
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Apply chemical knowledge and computational methods to design materials with specific properties
- Explain the basis of the analytical techniques used to characterize chemical materials and critically evaluate the advantages and limitations of each technique for different applications
- Interpret analytical data in view of a materials properties; predict material properties based on analytical data and vice versa
- Use advanced chemical technologies and design concepts to propose novel materials and their synthesis
- Demonstrate awareness of the impact of materials in society and the environment particularly in the fields of sustainability, diagnostics, imaging and drug discovery

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH3211 Pharmaceutical Chemistry

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	20
Asynchronous Other	120
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Richard Doveston
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2.5		

Period: Semester 2
Occurrence: E1
Coordinator: Richard Doveston
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Discuss and critically assess the important factors that need to be considered when deciding on possible synthetic routes to pharmaceutical molecules (e.g. safety, reaction scale, purification, cost & availability of reagents, market value & quality control)
- Describe the different stages involved in drug discovery, development and determining the mode of action of a drug
- Discuss the essential features of protein structure and how they can be determined
- Explain the basic principles and chemistry involved in solid phase synthesis of peptides; apply these strategies to propose synthetic routes to target peptides in unseen problems
- Explain how physicochemical properties of drugs can determine their activity and stability; rationalise the chemistry that can be used to alter the physicochemical properties of drugs
- Explain the concepts of combinatorial chemistry (including dynamic methods); apply these strategies for the synthesis of target molecules in unseen problems

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (25%), Final Exam (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH3212 Forensic Science

Academic Year: 2021/2
Module Level: Year 3
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	10
Synchronous Small Group Teaching	
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	14
Asynchronous Lectures/Presentations	20
Asynchronous Other	106
Guided Independent Study	
Total Module Hours	150

Period: Semester 2
Occurrence: E
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	40				
002	Examination (Final)	60		1.5		

Period: Semester 2
Occurrence: E1
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Describe the capabilities of various analytical techniques; discuss the relevance of sensitivity and selectivity to choice of an analytical method for a specific application; use this information to critically evaluate and thus select and apply techniques to obtain the best results in a variety of situations
- Describe and explain the contributions of chemical analysis to aspects of pathology, fire investigation, road traffic accidents, forensic engineering and explosives detection; describe and explain other forensic tools to analyse some of the following, documents, biometrics, gunshot residue, advanced fingerprint methods
- Describe the role and limitations of analytical techniques in solving forensic problems; discuss these techniques and the information they provide with peers and teachers
- Design and execute analytical procedures
- Apply laboratory-based knowledge to the identification and collection of evidence at a crime scene.

Teaching and Learning Methods

The contact time will involve a variety of teaching methods – asynchronous lectures, synchronous classes that include example problems and problem solving & VLE directed activities. Application of the ideas encountered in lectures to the solution of problems is an essential part of the module

Assessment Methods

- Coursework (40%), Final Exam (60%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, formative quizzes

CH4201 Advanced Structure Determination

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Sandy Kilpatrick
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Sandy Kilpatrick
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Demonstrate that they are aware of the range of major spectroscopic techniques currently available to synthetic chemists; recognise and describe the analytical, structural and stereochemical information each technique can provide
- Discuss the magnetic properties of nuclei and electrons, summarise the main features of spectra (resonant frequencies, line intensities, lineshape) and describe the physical and chemical interactions that define these features
- Analyse and evaluate complex NMR spectra to extract key data; select and make use of appropriate 1D and 2D NMR experiments in simplifying and assigning spectra fully; predict and rationalize NMR spectra from inorganic and organic molecules
- Discuss techniques based on Correlation Spectroscopy, their uses and their limitations; apply these techniques to solve unseen problems
- Discuss the importance of variation of temperature in the study of time-dependent processes using NMR spectroscopy; evaluate the results of such VT NMR experiments to obtain data concerning equilibria and rates of reaction

Teaching and Learning Methods

Problems will be set and discussed throughout the module. The contact time will involve a variety of teaching methods – synchronous lectures, asynchronous classes that include example problems & group problem solving classes. Application of the ideas encountered in lectures to the solution of unseen problems is an essential part of the module

Assessment Methods

- Coursework (25%)
- Exam (Final) (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, group literature interrogation exercises.

CH4202 Advanced Synthetic Methods

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Sandeep Handa
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Sandeep Handa
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Explain and evaluate different synthetic strategies and methods for stereocontrol as applied to the synthesis of target molecules; critically analyse proposed synthetic routes based on these methods explain the role of typical reagents and transformations in modern organic synthesis; evaluate potential synthetic routes to target molecules rationalizing the use of suitable reagents for selective synthetic transformations
- Use disconnections based on the chemical reactivity of the carbonyl group to propose a retrosynthesis and synthesis of unseen target molecules
- Predict and rationalise both familiar and unfamiliar organic reactions based on a mechanistic understanding of reactivity; with particular emphasis on the selectivity (chemo-, regio- and stereoselectivity) of such reactions
- Apply chemo-, regio- and stereoselective reactions for the proposed synthesis of unseen target molecules

Teaching and Learning Methods

Problems will be set and discussed throughout the module. The contact time will involve a variety of teaching methods – synchronous lectures, asynchronous classes that include example problems & group problem solving classes. Application of the ideas encountered in lectures to the solution of unseen problems is an essential part of the module

Assessment Methods

- Coursework (25%)
- Exam (Final) (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises

CH4203 Earth System Science

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Stephen Ball
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Stephen Ball
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Explain the fundamental physical and chemical processes that control the composition of Earth's atmosphere. Describe how atmospheric composition also links to the other components of the Earth system (geosphere, biosphere, hydrosphere, lithosphere).
- Compare, contrast and distinguish between the different physical and chemical processes that occur in the stratosphere and the troposphere.
- Apply concepts from gas kinetics in seen and unseen problems to calculate concentrations of atmospheric gases, their lifetimes, and sources & sink rates.
- Discuss how human activities can modify atmospheric composition and/or affect climate. Discuss some of the societal issues resulting from anthropogenic influences on the Earth system.
- Collate information from textbooks, research literature, atmospheric databases and scientific reports (e.g. IPCC) on a topic in Earth system science. Cogently present their findings to peers & staff.

Teaching and Learning Methods

Problems will be set and discussed throughout the module. The contact time will involve a variety of teaching methods – synchronous lectures, asynchronous classes that include example problems & group problem solving classes. Application of the ideas encountered in lectures to the solution of unseen problems is an essential part of the module

Assessment Methods

- Coursework (25%)
- Exam (Final) (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, researching the peer-reviewed literature, reading relevant reports from scientific bodies (e.g. Intergovernmental Panel on Climate Change).

CH4207 Computational Chemistry & Quantum Mechanics

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Andrew Ellis
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	40				
002	Examination (Final)	60		2		

Period: Academic Year
Occurrence: E1
Coordinator: Andrew Ellis
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Discuss the physical principles behind major simulation techniques such as ab initio quantum chemistry, molecular dynamics and the Monte Carlo procedure
- Use appropriate software packages utilizing the simulation techniques to predict and analyse properties in individual molecules and molecular assemblies
- Critically assess the strengths and weakness of different simulation approaches for predicting molecular properties
- Write short computational routines to determine key properties, such as energy levels and wavefunctions, using various methods
- Apply knowledge of simulation techniques and computer software simulations to solve unseen chemical problems
- Present data from computational simulations in a clear and concise way

Teaching and Learning Methods

Problems will be set and discussed throughout the module. The contact time will involve a variety of teaching methods – synchronous lectures, asynchronous classes that include example problems & group problem solving classes. Application of the ideas encountered in lectures to the solution of unseen problems is an essential part of the module

Assessment Methods

- Coursework (40%)
- Exam (Final) (60%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises, simulation software exercises

CH4208 Bioinorganic Chemistry

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Rama Suntharalingam
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Rama Suntharalingam
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
002	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

Describe the occurrence and function of metals in biological systems including the transport and storage of oxygen and electron transport processes

Describe the ways in which spectroscopic and kinetic techniques, and synthetic model compounds, can be used to study metalloprotein mechanisms; apply this knowledge to unseen problems

Discuss the role played by platinum compounds as anti-cancer therapies and explain the fundamental coordination chemistry underpinning their mode of action; critically assess the design features of potential Pt-based anti-cancer agents

Describe how specific metals are used to carry out activation of small molecules such as H₂, CO, O₂, and N₂, and discuss the importance of both metal coordination and macromolecular structure in tuning the chemistry of metal centres in proteins; be able to rationalise protein function based on metal coordination.

Apply the knowledge gained in this module to conclude whether a given metal complex/ligand system is suitable for a particular therapeutic application.

Teaching and Learning Methods

Problems will be set and discussed throughout the module. The contact time will involve a variety of teaching methods – synchronous lectures, asynchronous classes that include example problems & group problem solving classes. Application of the ideas encountered in lectures to the solution of unseen problems is an essential part of the module

Assessment Methods

- Coursework (25%)
- Exam (Final) (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises.

CH4211 Medicinal Chemistry

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Richard Blackburn
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	25				
002	Examination (Final)	75		2		

Period: Academic Year
Occurrence: E1
Coordinator: Richard Blackburn
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Describe and discuss the concepts of drug targets and the differing strategies used in the drug discovery process for hit identification
- Describe the various stages of the drug discovery process and evaluate the medicinal chemistry involved following hit identification through to drug approval
- Describe and explain the key chemical and biological process involved in the development of several major diseases
- Discuss and rationalize the differing modes of action(s) of given examples of known therapeutic drugs such as antibiotics and anticancer agents; use this knowledge to predict the mode of actions for unfamiliar drug candidates
- Discuss and rationalize the organic chemistry involved in the synthesis of commercially available drugs; propose and critically analyse synthetic routes to potential drug molecules using the chemistry covered in this module and from core modules in years 1-3
- Describe and critically evaluate contemporary drug discovery strategies including future challenges in this field

Teaching and Learning Methods

Problems will be set and discussed throughout the module. The contact time will involve a variety of teaching methods – synchronous lectures, asynchronous classes that include example problems & group problem solving classes. Application of the ideas encountered in lectures to the solution of unseen problems is an essential part of the module

Assessment Methods

- Coursework (25%)
- Exam (Final) (75%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, set problems, group problem solving exercises.

CH4212 Advanced Forensic Science

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Academic Year
Occurrence: E
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework	60				
002	Examination (Final)	40		1.5		

Period: Academic Year
Occurrence: E1
Coordinator: Rob Hillman
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Continuous Assessment (Final)	100				

Intended Learning Outcomes

On successful completion of the module, students should be able to:

- Analyse and apply the process of making inferences about "facts" and "evidence" in forensic contexts
- Critically assess the contributions of scientific analysis to aspects of specialist investigations
- Apply archaeological methodology to the field of criminal investigation
- Describe the judicial and police frameworks in the UK and the role of the forensic archaeologist within those systems
- Critically assess the organizing and evaluation of forensic evidence
- Describe and appreciate the roles of expert forensic witnesses in the Anglo-American legal systems
- Describe and critically analyse the role and limitations of a variety of investigative techniques for solving forensic problems

Teaching and Learning Methods

Problems will be set and discussed throughout the module. The contact time will involve a variety of teaching methods – synchronous lectures, asynchronous classes that include example problems & group problem solving classes. Application of the ideas encountered in lectures to the solution of unseen problems is an essential part of the module.

Assessment Methods

- Coursework (60%)
- Exam (Final) (40%)

Pre-Requisites
Co-Requisites
Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, group problem solving exercises, primary literature critique

CH4711 Study Abroad - Masters Options 1

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Dylan Williams
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework (Final)	100				

Intended Learning Outcomes

Students may take two options from within the suite of options available to MChem students:

CH4201
 CH4202
 CH4203
 CH4207
 CH4208
 CH4211

Teaching and Learning Methods

Lectures, set text(s), directed reading (literature articles), group problem solving workshops

Assessment Methods

Coursework

Pre-Requisites
Co-Requisites
Excluded Combinations
Guided Independent Study: Indicative Activities

-

CH4712 Study Abroad - Masters Options 2

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Dylan Williams
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework (Final)	100				

Intended Learning Outcomes

Students may take two options from within the suite of options available to MChem students:

CH4201
 CH4202
 CH4203
 CH4207
 CH4208
 CH4211

Teaching and Learning Methods

Lectures, set text(s), directed reading (literature articles), group problem solving workshops

Assessment Methods

Coursework

Pre-Requisites
Co-Requisites
Excluded Combinations
Guided Independent Study: Indicative Activities

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CH4713 Study Abroad - Masters Options 3

Academic Year: 2021/2
Module Level: Year 4
Scheme: UG
Department: Chemistry
Credits: 15

Student Workload (hours)

Synchronous Lectures	7
Synchronous Small Group Teaching	5
Synchronous Practical Classes/ Workshops/Professional Placements	
Synchronous Other	
Asynchronous Lectures/Presentations	10
Asynchronous Other	128
Guided Independent Study	
Total Module Hours	150

Period: Semester 1
Occurrence: E
Coordinator: Dylan Williams
Mark Scheme: UG Module Mark Scheme

No.	Assessment Description	Weight %	Qual Mark	Exam Hours	Ass't Group	Alt Reass't
001	Coursework (Final)	100				

Intended Learning Outcomes

Students may take two options from within the suite of options available to MChem students:

CH4201
 CH4202
 CH4203
 CH4207
 CH4208
 CH4211

Teaching and Learning Methods

Lectures, set text(s), directed reading (literature articles), group problem solving workshops

Assessment Methods

Coursework

Pre-Requisites
Co-Requisites
Excluded Combinations
Guided Independent Study: Indicative Activities

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