

School of Chemistry

Chemistry (CH) Modules

CH1202 Introductory Chemistry				
SCOTCAT Credits:	10	SCQF Level 7	Semester:	1
Academic year:	2013/4			
Planned timetable:	9.00 am or 10.00 am			
This module provides an introduction to some of the fundamental aspects of Chemistry and is primarily aimed at students entering the Chemistry B.Sc. and M.Chem. courses directly into second year. The module will cover structure and bonding in inorganic chemistry, states of matter and an introduction to thermodynamics and the solid state in physical chemistry and bonding, stereochemistry and reaction mechanisms in organic chemistry.				
Programme module type:	Compulsory for second year entry to Biomolecular Science, Chemistry, Chemistry with Medicinal Chemistry, Chemistry with External Placement, Chemistry with Medicinal Chemistry and External Placement, Chemical Sciences			
Anti-requisite(s):	CH1401, CH1402, CH1601			
Co-requisite(s):	CH2501	Required for:	CH2601, CH2603, CH2701	
Learning and teaching methods and delivery:	Weekly contact: 2 lectures.			
	Scheduled learning: 30 hours		Guided independent study: 70 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 100%, Practical Examinations = 0%, Coursework = 0%			
	As used by St Andrews: 1.5-hour Written Examination = 100%			
Module Co-ordinator:	Dr F M Gray			
Lecturer(s)/Tutor(s):	Prof P Lightfoot, Professor D J Cole-Hamilton, Dr N J Westwood, Dr R A Aitken, Prof D O'Hagan, Dr F M Gray, Dr J B O Mitchell, Dr T Van Mourik			

CH1301 The Impact of Chemistry				
SCOTCAT Credits:	20	SCQF Level 7	Semester:	1
Academic year:	2013/4			
Planned timetable:	12.00 noon			
This module explores the impact that Chemistry has on all our lives and all aspects of society. Starting with the chemical origins of life in the primordial soup, it will explore fuel and energy, the great challenge of global warming, forensic chemistry, chemistry and the environment, and chemistry in food production.				
Programme module type:	Optional for all qualified students			
Pre-requisite(s):	Standard Grade or GCSE Chemistry (Students with no formal qualification in chemistry may be admitted but should expect to undertake additional tutorial work and private study)			
Learning and teaching methods and delivery:	Weekly contact: 4 lectures and 1 group project hour.			
	Scheduled learning: 56 hours		Guided independent study: 144 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 70%, Practical Examinations = 20%, Coursework = 10%			
	As used by St Andrews: 2-hour Written Examination = 70%, 15-minute Practical Examination = 20%, Coursework = 10%			
Module Co-ordinator:	Dr R A Aitken			
Lecturer(s)/Tutor(s):	Dr R A Aitken, Dr S E M Ashbrook, Prof D J Cole-Hamilton, Dr P A Connor, Dr T K Smith, Prof J H Naismith, Dr J A Crayston			

Chemistry – 1000 & 2000 Level 2013/14 – August 2013

CH1401 Introductory Inorganic and Physical Chemistry				
SCOTCAT Credits:	20	SCQF Level 7	Semester:	1
Academic year:	2013/4			
Planned timetable:	11.00 am			
The module includes lectures on the origin of the elements, atoms and the Periodic Table, shapes and properties of molecules, chemistry of the elements, states of matter, thermochemistry, thermodynamics and kinetics.				
Programme module type:	Compulsory for Biomolecular Science, all Degrees involving Chemistry			
Pre-requisite(s):	Higher or A-Level Chemistry at Grade B or above	Anti-requisite(s):	CH1202	
Required for:	CH1402			
Learning and teaching methods and delivery:	Weekly contact: 4 lectures, 1 tutorial and a 3-hour practical.			
	Scheduled learning: 82 hours		Guided independent study: 118 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Module Co-ordinator:	Dr C J Baddeley			
Lecturer(s)/Tutor(s):	Prof P A Wright, Dr C J Baddeley, Dr J A Crayston, Prof J D Woollins, Dr P Kilian			

CH1402 Inorganic and Physical Chemistry 1				
SCOTCAT Credits:	20	SCQF Level 7	Semester:	2
Academic year:	2013/4			
Planned timetable:	10.00 am			
The module includes lectures on bonding in simple molecules, inorganic solids, chemistry of the first row transition metals, properties of solids, properties of solutions and introductory spectroscopy.				
Programme module type:	Compulsory for Chemical Sciences, all Degrees involving Chemistry (except Biomolecular Science, Chemistry with Pharmacology)			
Pre-requisite(s):	CH1401 or Higher or A-Level Chemistry at Grade B or above	Anti-requisite(s):	CH1202	
Required for:	CH2701			
Learning and teaching methods and delivery:	Weekly contact: 4 lectures, 1 tutorial and a 3-hour practical.			
	Scheduled learning: 82 hours		Guided independent study: 118 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Module Co-ordinator:	Prof P Lightfoot			
Lecturer(s)/Tutor(s):	Dr F D Morrison, Dr F M Gray, Dr G Haehner, Prof D J Cole-Hamilton, Prof P Lightfoot, Dr B E Bode			

CH1601 Organic and Biological Chemistry 1				
SCOTCAT Credits:	20	SCQF Level 7	Semester:	2
Academic year:	2013/4			
Planned timetable:	11.00 am			
The module includes lectures on the structure, stereochemistry and nomenclature of simple organic compounds, fundamental organic reaction mechanisms, organic functional groups and their reactions, introductory bioorganic chemistry, and organic spectroscopy.				
Programme module type:	Compulsory for Biomolecular Science, all Degrees involving Chemistry (except Chemistry and Physics, Materials Chemistry)			
Pre-requisite(s):	Higher or A-Level Chemistry at Grade B or above	Anti-requisite(s):	CH1202	
Required for:	CH2601, CH2603			
Learning and teaching methods and delivery:	Weekly contact: 4 lectures, 1 tutorial and a 3-hour practical.			
	Scheduled learning: 80 hours		Guided independent study: 120 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 5%, Coursework = 35%			
	As used by St Andrews: 2-hour Written Examination = 60%, 1-hour Practical Examination = 5%, Coursework = 35%			
Module Co-ordinator:	Dr I A Smellie			
Lecturer(s)/Tutor(s):	Prof D Philp, Prof J H Naismith, Prof A D Smith			

CH2201 A First Course in Organic Chemistry				
SCOTCAT Credits:	20	SCQF Level 8	Semester:	1
Academic year:	2013/4			
Availability restrictions:	Available to non-graduating Students only			
Planned timetable:	10.00 am			
This module is an introductory course in Organic Chemistry. It covers aspects of structure, bonding and stereochemistry in Organic Chemistry. The syllabus includes the chemistry of alkanes, simple cycloalkanes, alkenes and alkynes together with functional group chemistry, largely that of singly-bonded functional groups. The chemistry is discussed and rationalised with reference to reaction mechanisms. The lecture course is complemented by a laboratory course.				
Programme module type:	Non-graduating students only			
Anti-requisite(s):	CH1202, CH1601			
Learning and teaching methods and delivery:	Weekly contact: 4 lectures, 2 seminars, 1 tutorial, 1 or 2 practical classes. In addition a total of 3 or 4 half-day visits to hospitals.			
	Scheduled learning: 85 hours		Guided independent study: 115 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 15%, Coursework = 25%			
	As used by St Andrews: 2-hour Written Examination = 60%, 1-hour Practical Examination = 15%, Coursework = 25%			
Module Co-ordinator:	Prof D Philp			
Lecturer(s)/Tutor(s):	Dr H Mitchell			

Chemistry – 1000 & 2000 Level 2013/14 – August 2013

CH2501 Inorganic Chemistry 2				
SCOTCAT Credits:	30	SCQF Level 8	Semester:	1
Academic year:	2013/4			
Planned timetable:	11.00 am			
The module includes lectures on metal complexes and organometallics, descriptive transition-metal chemistry, atmospheric chemistry, green chemistry, solid-state chemistry and descriptive main-group chemistry.				
Programme module type:	Compulsory for Biomolecular Sciences, all Degrees involving Chemistry			
Pre-requisite(s):	CH1402 or Advanced Higher Chemistry or A-Level Chemistry			
Co-requisite(s):	CH1202 if Direct entrant to 2000-level	Required for:	CH3513	
Learning and teaching methods and delivery:	Weekly contact: 4 lectures, 1 tutorial and 6 hours of practicals.			
	Scheduled learning: 105 hours		Guided independent study: 195 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 5%, Coursework = 35%			
	As used by St Andrews: 3-hour Written Examination = 60%, 15-minute Practical Examination = 5%, Coursework = 35%			
Module Co-ordinator:	Dr J A Crayston			
Lecturer(s)/Tutor(s):	Prof P G Bruce, Dr J A Crayston, Professor D J Cole-Hamilton, Dr P Kilian, Prof J T S Irvine			

CH2601 Organic Chemistry 2				
SCOTCAT Credits:	30	SCQF Level 8	Semester:	2
Academic year:	2013/4			
Planned timetable:	12.00 noon			
The module includes lectures on carbon-carbon bond formation, interconversion of functional groups, aromatic and heteroaromatic reactivity, mechanistic biological chemistry and organic spectroscopy.				
Programme module type:	Compulsory for Biomolecular Science, Chemical Sciences, Chemistry, Chemistry with External Placement, Chemistry with Medicinal Chemistry, Chemistry with Medicinal Chemistry and External Placement. Either CH2601 or CH2701 is compulsory for Chemistry and Geology			
Pre-requisite(s):	CH1601 (or Advanced Higher Chemistry or A-Level Chemistry + CH1202 if Direct entrant to 2000-level)			
Anti-requisite(s):	CH2602, CH2603			
Learning and teaching methods and delivery:	Weekly contact: 4 lectures, 1 tutorial and 6 hours of practicals.			
	Scheduled learning: 115 hours		Guided independent study: 185 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 5%, Coursework = 35%			
	As used by St Andrews: 3-hour Written Examination = 60%, 1-hour Practical Examination = 5%, Coursework = 35%			
Module Co-ordinator:	Prof A D Smith			
Lecturer(s)/Tutor(s):	Prof A D Smith, Dr G J Florence, Prof J H Naismith, Dr M L Clarke			

CH2603 Organic Chemistry 2 (French)				
SCOTCAT Credits:	20	SCQF Level 8	Semester:	2
Academic year:	2013/4			
Planned timetable:	12.00 noon on selected days according to the timetable for FR2022.			
The module includes lectures on carbon-carbon bond formation, interconversion of functional groups, aromatic and heteroaromatic reactivity, mechanistic biological chemistry, organic spectroscopy and organic polymer chemistry.				
Programme module type:	Compulsory for Chemistry with French, Chemistry with French and External Placement			
Pre-requisite(s):	CH1601 (or Advanced Higher Chemistry or A-Level Chemistry + CH1202 if Direct entrant to 2000-level)	Anti-requisite(s):	CH2601, CH2602	
Co-requisite(s):	FR2022			
Learning and teaching methods and delivery:	Weekly contact: 3 lectures, 1 tutorial and 5 hours of practicals.			
	Scheduled learning: 76 hours		Guided independent study: 124 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 5%, Coursework = 35%			
	As used by St Andrews: 2-hour Written Examination = 60%, 1-hour Practical Examination = 5%, Coursework = 35%			
Module Co-ordinator:	Prof A D Smith			
Lecturer(s)/Tutor(s):	Prof A D Smith, Dr G J Florence, Prof J H Naismith, Dr M L Clarke			

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CH2701 Physical Chemistry 2				
SCOTCAT Credits:	30	SCQF Level 8	Semester:	2
Academic year:	2013/4			
Planned timetable:	11.00 am			
The module includes lectures on quantum mechanics, thermodynamics and electrochemistry, kinetics, molecular spectroscopy and diffraction and mathematical tools for chemistry.				
Programme module type:	Compulsory for Chemical Sciences, Chemistry, Chemistry and Mathematics, Chemistry with External Placement, Chemistry with French, Chemistry with French and External Placement, Chemistry with Medicinal Chemistry, Materials Chemistry, Chemistry with Mathematics, Chemistry with Medicinal Chemistry and External Placement, Chemistry and Physics, Materials Chemistry with External Placement. Either CH2601 or CH2701 is compulsory for Chemistry and Geology			
Pre-requisite(s):	CH1402 (or Advanced Higher Chemistry or A-Level Chemistry + CH1202 if Direct entrant to 2000-level)			
Required for:	CH3712			
Learning and teaching methods and delivery:	Weekly contact: 4 lectures, 1 tutorial and 6 hours of practicals.			
	Scheduled learning: 123 hours		Guided independent study: 177 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 5%, Coursework = 35%			
	As used by St Andrews: 3-hour Written Examination = 60%, 1-hour Practical Examination = 5%, Coursework = 35%			
Module Co-ordinator:	Prof W Zhou			
Lecturer(s)/Tutor(s):	Dr G Haehner, Prof P A Wright, Dr F M Gray, Dr S E M Ashbrook, Dr R Schaub			