School of Chemistry

Chemistry (CH) modules

CH1202 Introductory Chemistry for Second Year Direct Entry Students				
SCOTCAT Credits:	10	SCQF Level 7	**Semester:**	1
Academic year:	2016/7 & 2017/8			
Availability restrictions:	Only available to students entering Single Honours Chemistry programmes and Biomolecular Science at Level 2000			
Planned timetable:	9.00 am or 10.00 am			
This module provides an introduction to some of the fundamental aspects of Chemistry and is for students entering the Chemistry BSc and MChem 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, Materials Chemistry, Materials Chemistry with External Placement,Chemical Sciences			
Pre-requisite(s):	Advanced Higher Chemistry at Grade A, or A-Level Chemistry at Grade A		**Anti-requisite(s):**	CH1401, CH1402, CH1601
Co-requisite(s):	CH2501		**Required for:**	CH2601, CH2603, CH2701
Learning and teaching methods and delivery:	**Weekly contact**: 3 lectures or tutorials. Students are also required to complete 3 x 3-hour practicals in Week 1 only, integrated within their CH2501 laboratory hours.			
	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%			
Re-Assessment pattern:	1.5-hour Written Examination = 100%			
Module Co-ordinator:	Dr J B O Mitchell			
Lecturer(s)/Tutor(s):	Prof P Lightfoot, Prof N J Westwood, Prof A D Smith, Dr R M J Goss, Dr J B O Mitchell, Dr T van Mourik, Prof D Philp			

CH1301 The Impact of Chemistry

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	1
Academic year:	2016/7 & 2017/8			
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**: 5 lectures (x 9 weeks) and 1 group project hour (x 1 week).			
	Scheduled learning: 46 hours		**Guided independent study:** 154 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%			
Re-Assessment pattern:	2-hour Written Examination = 70%, Existing 15-minute Practical Examination = 20%, Existing Coursework = 10%			
Module Co-ordinator:	Prof S E M Ashbrook			
Lecturer(s)/Tutor(s):	Dr R A Aitken, Prof S E M Ashbrook, Dr P A Connor, Prof T K Smith, Prof J H Naismith, Prof J T S Irvine			

CH1401 Introductory Inorganic and Physical Chemistry

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	1
Academic year:	2016/7 & 2017/8			
Planned timetable:	Lectures: 11.00 am, Practical classes: One per week 2.00 to 5.00 pm			
The module includes lectures on the origin of the elements, atoms and the Periodic Table, shapes and properties of molecules, chemistry of the elements, properties of solutions, 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 1 x 3-hour afternoon 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%			
Re-Assessment pattern:	2-hour Written Examination = 60%, Existing Coursework = 40%			
Module Co-ordinator:	Prof P A Wright			
Lecturer(s)/Tutor(s):	Prof P A Wright, Prof R E Morris, Dr P Kilian			

CH1402 Inorganic and Physical Chemistry 1

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	2
Academic year:	2016/7 & 2017/8			
Planned timetable:	Lectures: 10.00 am, Practical classes: One per week 2.00 to 5.00 pm			
The module includes lectures on bonding in simple molecules, inorganic solids, chemistry of the first row transition metals, properties of solids, states of matter and introductory spectroscopy.				
Programme module type:	Compulsory for all Degrees involving Chemistry (except Biomolecular Science)			
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 1 x 3-hour afternoon practical.			
	Scheduled learning: 82 hours		**Guided independent study:** 118 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%			
Re-Assessment pattern:	2-hour Written Examination = 60%, Existing 1-hour Practical Examination = 5%, Existing Coursework = 35%			
Module Co-ordinator:	Dr T van Mourik			
Lecturer(s)/Tutor(s):	Dr F D Morrison, Dr T van Mourik, Dr G Haehner, Prof P Lightfoot, Dr B E Bode, Prof R E Morris			

CH1601 Organic and Biological Chemistry 1

SCOTCAT Credits:	20	SCQF Level 7	**Semester:**	2
Academic year:	2016/7 & 2017/8			
Planned timetable:	Lectures: 11.00 am, Practical classes: One per week 2.00 to 5.00 pm			
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)			
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 1 x 3-hour afternoon 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%			
Re-Assessment pattern:	2-hour Written Examination = 60%, Existing 1-hour Practical Examination = 5%, Existing Coursework = 35%			
Module Co-ordinator:	Dr A Smellie			
Lecturer(s)/Tutor(s):	Prof D Philp, Prof A D Smith, Dr R J M Goss			

CH2201 A First Course in Organic Chemistry

SCOTCAT Credits:	20	SCQF Level 8	**Semester:**	1
Academic year:	2016/7 & 2017/8			
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**: 3 - 4 lectures, 1 tutorial, 2 afternoon practical classes.			
	Scheduled learning: 87 hours		**Guided independent study:** 113 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%			
Re-Assessment pattern:	2-hour Written Examination= 80%, Existing Coursework = 20%			
Module Co-ordinator:	Prof D Philp			
Lecturer(s)/Tutor(s):	Dr H Mitchell, Prof D Philp			

CH2501 Inorganic Chemistry 2

SCOTCAT Credits:	30	SCQF Level 8	**Semester:**	1
Academic year:	2016/7 & 2017/8			
Planned timetable:	Lectures: 11.00 am, Practical classes: Two per week 2.00 to 5.00 pm			
The module includes lectures on metal complexes and organometallics, descriptive transition-metal chemistry, atmospheric 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 (CH1401 and CH1601) or admission to Single Honours Chemistry programmes or Biomolecular Science at Level 2000			
Co-requisite(s):	CH1202 for students entering Single Honours Chemistry programmes or Biomolecular Science at Level 2000			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 2 x 3-hour afternoon practicals.			
	Scheduled learning: 93 hours		**Guided independent study:** 207 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%			
Re-Assessment pattern:	3-hour Written Examination = 60%, Existing 15-minute Practical Examination = 5%, Existing Coursework = 35%			
Module Co-ordinator:	Dr E Zysman-Colman			
Lecturer(s)/Tutor(s):	Dr P Kilian, Prof P Lightfoot, Dr E Zysman-Colman			

CH2601 Organic Chemistry 2

SCOTCAT Credits:	30	SCQF Level 8	**Semester:**	2
Academic year:	2016/7 & 2017/8			
Planned timetable:	Lectures: 12.00 noon, Practical classes: Two per week 2.00 to 5.00 pm			
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, Materials Chemistry, Materials Chemistry with External Placement.			
Pre-requisite(s):	CH1601 or (CH1202 for students entering Single Honours Chemistry programmes or Biomolecular Science at Level 2000)			
Anti-requisite(s):	CH2603			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 2 x 3-hour afternoon practicals.			
	Scheduled learning: 115 hours		**Guided independent study:** 185 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 7%, Coursework = 33%			
	As used by St Andrews: 3-hour Written Examination = 60%, 1-hour Practical Examination = 7.5%, Coursework = 32.5%			
Re-Assessment pattern:	3-hour Written Examination = 60%, Existing 1-hour Practical Examination = 7.5%, Existing Coursework = 32.5%			
Module Co-ordinator:	Dr R A Aitken			
Lecturer(s)/Tutor(s):	Dr G J Florence, Prof J H Naismith, Dr M L Clarke, Dr R A Aitken			

CH2603 Organic Chemistry 2 (French)

SCOTCAT Credits:	20	SCQF Level 8	**Semester:**	2
Academic year:	2016/7 & 2017/8			
Planned timetable:	12.00 noon on selected days according to the timetable for FR2022. Practical classes: Two per week 2.00 to 5.00 pm			
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 Chemistry with French, Chemistry with French and External Placement			
Pre-requisite(s):	students entering Single Honours Chemistry programmes or Biomolecular Science at Level 2000)			
Anti-requisite(s):	CH2601		**Co-requisite(s):**	FR2022
Learning and teaching methods and delivery:	**Weekly contact**: 3 lectures, 1 tutorial and 5 hours of practicals over 2 afternoons.			
	Scheduled learning: 76 hours		**Guided independent study:** 124 hours	
Assessment pattern:	**As defined by QAA:** Written Examinations = 60%, Practical Examinations = 7%, Coursework = 33%			
	As used by St Andrews: 2-hour Written Examination = 60%, 1-hour Practical Examination = 7%, Coursework = 33%			
Re-Assessment pattern:	2-hour Written Examination = 60%, Existing 1-hour Practical Examination = 7%, Existing Coursework = 33%			
Module Co-ordinator:	Dr R A Aitken			
Lecturer(s)/Tutor(s):	Dr G J Florence, Prof J H Naismith, Dr M L Clarke, Dr R A Aitken			

CH2701 Physical Chemistry 2

SCOTCAT Credits:	30	SCQF Level 8	**Semester:**	2
Academic year:	2016/7 & 2017/8			
Planned timetable:	Lectures: 11.00 am, Practical classes: Two per week 2.00 to 5.00 pm			
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 all degrees involving Chemistry (except Biomolecular Science)			
Pre-requisite(s):	CH1402 or (CH1202 for students entering Single Honours Chemistry programmes at Level 2000).			
Learning and teaching methods and delivery:	**Weekly contact**: 4 lectures, 1 tutorial and 2 x 3-hour afternoon practicals.			
	Scheduled learning: 106 hours		**Guided independent study:** 194 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%			
Re-Assessment pattern:	3-hour Written Examination = 60%, Existing 1-hour Practical Examination = 5%, Existing Coursework = 35%			
Module Co-ordinator:	Prof W Zhou			
Lecturer(s)/Tutor(s):	Prof C J Baddeley, Dr G Haehner, Prof P A Wright, Prof S E M Ashbrook, Dr R Schaub			