

## University of the West of Scotland

## Module Descriptor

Session: 2024/25

<b>Title of Module: Inorganic Chemistry 3</b>			
<b>Code: CHEM09001</b>	<b>SCQF Level: 9 (Scottish Credit and Qualifications Framework)</b>	<b>Credit Points: 20</b>	<b>ECTS: 10 (European Credit Transfer Scheme)</b>
<b>School:</b>	School of Computing, Engineering and Physical Sciences		
<b>Module Co-ordinator:</b>	Dr Alastair Marr		
<b>Summary of Module</b>			
<p>The module builds on concepts introduced in level 8, Inorganic Chemistry II. The basic treatments of CFT and MO Theory previously encountered are extended to a deeper understanding of the chemistry of TM complexes via their spectroscopic and magnetic properties. A theoretical treatment of spectroscopy applied to simple molecules introduces the concepts required for rotational, vibrational and electronic transitions including application of selection rules. A more detailed treatment of d-d spectroscopy in TM complexes using Tanabe-Sugano diagrams is introduced. The reaction chemistry of Transition Metal compounds is explored with factors affecting their stabilities in aqueous solution. The mechanisms of a variety of reactions are linked to important industrial processes dependent on TM catalysts. As many catalysts are organometallic compounds, the nomenclature of OMCs are introduced and the structures and chemistry of a variety of OM compounds are explored. Symmetry and group theory are introduced and used to explore the IR and Raman spectroscopy of simple molecules.</p> <p>A series of tutorials provides support and practice in applying the concepts and the laboratory programme enhances the student experience by allowing first hand exploration of the fascinating chemistry. A series of assignments will test the skills developed through the programme of study and a final examination will be set. : covering the major areas studied</p> <p>Graduate Attributes: Academic - inorganic &amp; general chemistry competency: scientific thinker, problem solver, practical skills, calculation numeracy. Personal / Professional - Team working, written &amp; verbal communicator, motivated in science</p>			

Module Delivery Method					
Face-To-Face	Blended	Fully Online	HybridC	Hybrid0	Work-Based Learning
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
See Guidance Note for details.					

Campus(es) for Module Delivery						
The module will <b>normally</b> be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit) (tick as appropriate)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Add name

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1		Term 2		Term 3	
	<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Learning Outcomes: (maximum of 5 statements) These should take cognisance of the SCQF level descriptors and be at the appropriate level for the module. At the end of this module the student will be able to:	
L1	Demonstrate an integrated knowledge of the principal concepts of Inorganic Chemistry, appreciating the contribution made by spectroscopic techniques to our understanding of molecular structure and reactivity.
L2	Apply these concepts to the critical analysis of a variety of different chemical problems
L3	Demonstrate a variety of practical laboratory skills, working safely and carefully. Interpret experimental data, linking it clearly to the underlying concepts.
L4	Identify a topic of current interest in inorganic chemistry.
Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level <b>9</b>

	The broad area of Inorganic Chemistry with an integrated knowledge of bonding concepts, molecular properties and factors affecting the reactivity of molecules.	
Practice: Applied Knowledge and Understanding	SCQF Level 9 Aspects of practical inorganic chemistry including the synthesis and characterisation of more unusual compounds. Integration of experimental observations and measurements to explain molecular behaviour.	
Generic Cognitive skills	SCQF Level 9 Evaluating information from a range of sources in order to solve a variety of chemical problems.	
Communication, ICT and Numeracy Skills	SCQF Level 9 Presenting laboratory reports in appropriate format. Using scientific databases to research a topic of current interest in the field and presenting the findings.	
Autonomy, Accountability and Working with others	SCQF Level 9 Working responsibly, with due regard to time management	
<b>Pre-requisites:</b>	Before undertaking this module, the student should have undertaken the following:	
	<b>Module Code:</b> CHEM08003	<b>Module Title:</b> Inorganic Chemistry 2
	<b>Other:</b>	or appropriate background
<b>Co-requisites</b>	<b>Module Code:</b>	<b>Module Title:</b>

\*Indicates that module descriptor is not published.

<b>Learning and Teaching</b>	
<b>In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.</b>	
<b>Learning Activities</b> During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	<b>Student Learning Hours</b> (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	12

Tutorial/Synchronous Support Activity	12
Laboratory/Practical Demonstration/Workshop	24
Independent Study	152
	200 Hours Total

**\*\*Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Weller, Overton, Rourke & Armstrong, Inorganic Chemistry, Oxford University Press, ISBN 978-0-19-964182-6

Current research literature in Inorganic Chemistry accessed via UWS library and online databases

Click or tap here to enter text.

Please ensure the list is kept short and current. Essential resources should be included, broader resources should be kept for module handbooks / Aula VLE.

Resources should be listed in Harvard Cite Them Rite referencing style or agreed professional body deviation and in alphabetical order.

(\*\*N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk\*) to wait until the start of session for confirmation of the most up-to-date material)

**Attendance and Engagement Requirements**

In line with the [Student Attendance and Engagement Procedure](#): Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time.

For the purposes of this module, academic engagement equates to the following:

Academic Engagement procedure

**Equality and Diversity**

The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: [UWS Equality, Diversity and Human Rights Code](#).

Please ensure any specific requirements are detailed in this section. Module Co-ordinators should consider the accessibility of their module for groups with protected characteristics..

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

### Supplemental Information

<b>Divisional Programme Board</b>	Physical Sciences
<b>Assessment Results (Pass/Fail)</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>School Assessment Board</b>	Physical Sciences
<b>Moderator</b>	Dr Andrew McLean
<b>External Examiner</b>	M Paterson
<b>Accreditation Details</b>	This module is accredited by the royal Society of Chemistry(RSC) as part of the BSc(Hons) Chemistry programme
<b>Changes/Version Number</b>	2.13

### Assessment: (also refer to Assessment Outcomes Grids below)

This section should make transparent what assessment categories form part of this module (stating what % contributes to the final mark).

Maximum of 3 main assessment categories can be identified (which may comprise smaller elements of assessment).

**NB: The 30% aggregate regulation (Reg. 3.9) (40% for PG) for each main category must be taken into account. When using PSMD, if all assessments are recorded in the one box, only one assessment grid will show and the 30% (40% at PG) aggregate regulation will not stand. For the aggregate regulation to stand, each component of assessment must be captured in a separate box.**

Please provide brief information about the overall approach to assessment that is taken within the module. In order to be flexible with assessment delivery, be brief, but do state assessment type (e.g. written assignment rather than "essay" / presentation, etc ) and keep the detail for the module handbook. [Click or tap here to enter text.](#)

Assessment 1 - Class test

Assessment 2 - Coursework

(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.  
(ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

## Assessment Outcome Grids (See Guidance Note)

Component 1							
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Closed book on campus assessment	X	X				50	2

Component 2							
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)		Weighting (%) of Assessment Element	Timetabled Contact Hours
Case Study				X		10	0
Laboratory			X			20	0
Portfolio of written work	X	X		X		20	0

<b>Combined Total for All Components</b>						<b>100%</b>	<b>2 hours</b>
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**Change Control:**

What	When	Who
Change to Face to Face teaching		
Change from Adapted Assessment to Class Test		

Version Number: MD Template 1 (2023-24)