

Course Specification

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Produced By:	Laura Clode
Status:	Validated

Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	Wolverhampton School of Sciences		
Course Code(s):	CH008P01UV CH008P31UV	Full-time Part-time	12 Months 2 Years
Course Title:	MSc Chemistry		
Hierarchy of Awards:	Master of Science Chemistry Postgraduate Diploma Chemistry Postgraduate Certificate Chemistry Postgraduate Certificate Chemistry University Statement of Credit University Statement of Credit		
Language of Study:	English		
Date of DAG approval:	25/Sep/2017		
Last Review:	2016/7		
Course Specification valid from:	2016/7		
Course Specification valid to:	2022/3		

Academic Staff

Course Leader:	Dr John Henry
Head of Department:	Georgina Manning

Course Information

Location of Delivery:	University of Wolverhampton
Category of Partnership:	Not delivered in partnership
Teaching Institution:	University of Wolverhampton
Open / Closed Course:	This course is open to all suitably qualified candidates.

Entry Requirements:

Entry requirements are subject to regular review. The entry requirements applicable to a particular academic year will be published on the University website (and externally as appropriate e.g. UCAS)

Successful applicants will normally be required to have a 2/ii (or better) honours degree in Chemistry. English competence for international applicants should be in-line with University requirements for science based Masters-level taught degrees (IELTS currently 6.5).

Distinctive Features of the Course:

This course aims to:

- extend your comprehension of key chemical concepts and so provide you with an in-depth understanding of specialised areas of chemistry.
- provide you with the ability to plan and carry out experiments independently and assess the significance of outcomes.
- develop your ability to adapt and apply methodology to the solution of unfamiliar types of problems.
- instil a critical awareness of advances at the forefront of the chemical sciences.
- prepare you effectively for professional employment or research degrees in the chemical sciences.

Educational Aims of the Course:

- to extend your comprehension of key chemical concepts and so provide you with an in-depth understanding of specialised areas of chemistry
- to provide you with the ability to plan and carry out experiments independently and assess the significance of outcomes
- to develop in your ability to adapt and apply methodology to the solution of unfamiliar types of problems
- to instill a critical awareness of advances at the forefront of the chemical sciences
- to prepare you effectively for professional employment or research degrees in the chemical sciences.

Intakes:

September

Major Source of Funding:

Office for Students (OFS)

Tuition Fees:

Tuition fees are reviewed on an annual basis. The fees applicable to a particular academic year will be published on the University website.

Year	Status	Mode	Amount
2020/1	Overseas	Full Time	£13350.00
2020/1	H	Full Time	£10650.00
2020/1	H	Part Time	£5325.00

PSRB:

None

Course Structure:

September (Full-time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Year 1

Module	Title	Credits	Period	Type
7CH009	MSc Research Methods and Project Preparation	60	IN YR	Core
7CH002	MSc Chemistry research project	60	IN YR	Core

For this option group you must choose a minimum of 60 credits and a maximum of 60 credits

7CH005	Advanced Topics in Organic Chemistry	20	IN YR
7CH007	Advanced Topics in Inorganic Chemistry	20	IN YR
7CH003	Advanced Topics in Physical Chemistry	20	IN YR
7CH006	Advanced Analytical Chemistry	20	IN YR

Please note: Optional modules might not run every year, the course team will decide on an annual basis which options will be running, based on student demand and academic factors, to create the best learning experience.

Learning, Teaching and Assessment

Academic Regulations Exemption:

AFRSC/16/14.4.1 MSc Chemistry

Section 1.2.3 - Exemption for the Year Long delivery of taught modules, outside of the standard University Academic Framework, in order to enable more concentrated laboratory research;

7CH005 Advanced Organic Chemistry (20 credits, Year Long)

7CH006 Advanced Analytical Chemistry (20 credits, Year Long)

7CH003 Advanced Physical Chemistry (20 credits, Year Long)

7CH007 Advanced Inorganic Chemistry (20 credits, Year Long).

Effective date: September 2017.

APPROVED

AFRSC/16/14.4.1 MSc Chemistry

Section 1.2.8 - Exemption to exceed normal amount of independent study for a masters degree;

7CH*** MSc Research Methods and Project (120 credits, Year Long).

Effective date: September 2017.

NOT APPROVED (whilst project modules of 120 credits were already in existence across the University, these were so far reserved for research based programmes, and the Committee did not feel the rationale for introducing these on taught masters awards was strong enough or justified the greater importance of these in the calculation of the overall degree classification. Members recommended splitting this into a 60 credit research module and 60 credit dissertation instead).

This now is reflected in module 7CH009 and 7CH002.

Effective date: September 2017.

APPROVED BY DELEGATED CHAIRS ACTION on 15/05/2017

Reference Points:

Quality Code - [Part A: Setting and Maintaining Academic Standards](#). Including :

[Qualifications Frameworks](#)

[Characteristics Statements](#)

[Credit Frameworks](#)

[Subject Benchmark Statements](#) – *list*

The course is designed with reference to the most up-to-date QAA Chemistry benchmark statements (2014), which are themselves embedded in the Royal Society of Chemistry (RSC) accreditation criteria for MSc Chemistry degrees (2012). We have also referred to an HEA publication "Skills required by new Chemistry graduates and their development in degree programmes (2010).

Quality Code - [Part B: Assuring and Enhancing Academic Quality](#)

[University Policies and Regulations](#)

We have also referred to internal documents such as the University of Wolverhampton's Teaching, Learning and Assessment Sub Strategy (2012-2017) and current Academic Regulations (2016-17).

Equality Act (2010)

Learning Outcomes:

PGCert Course Learning Outcome 1 (PGCCL01)

"Demonstrate a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of your academic discipline, field of study or

area of professional practice with a conceptual understanding that enables the student: 1. to evaluate critically current research and advanced scholarship in the discipline. 2. to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses."

PGCert Course Learning Outcome 2 (PGCCL02)

"Demonstrate a comprehensive understanding of techniques applicable to your own research or advanced scholarship and ability to continue to advance your knowledge and understanding, and to develop new skills to a high level."

PGCert Course Learning Outcome 3 (PGCCL03)

"Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline."

PGCert Course Learning Outcome 4 (PGCCL04)

"Ability to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate your conclusions clearly to specialist and non-specialist audiences."

PGCert Course Learning Outcome 5 (PGCCL05)

"Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level."

PGCert Course Learning Outcome 6 (PGCCL06)

Demonstrate the qualities and transferable skills necessary for employment requiring: 1. the exercise of initiative and personal responsibility 2. decision-making in complex and unpredictable situations 3. the independent learning ability required for continuing professional development.

PGDip Course Learning Outcome 1 (PGDCL01)

"Demonstrate a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of your academic discipline, field of study or area of professional practice with a conceptual understanding that enables the student: 1. to evaluate critically current research and advanced scholarship in the discipline 2. to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses."

PGDip Course Learning Outcome 2 (PGDCL02)

"Demonstrate a comprehensive understanding of techniques applicable to your own research or advanced scholarship and ability to continue to advance your knowledge and understanding, and to develop new skills to a high level."

PGDip Course Learning Outcome 3 (PGDCL03)

"Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline."

PGDip Course Learning Outcome 4 (PGDCL04)

"Ability to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate your conclusions clearly to specialist and non-specialist audiences."

PGDip Course Learning Outcome 5 (PGDCLO5)

"Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level."

PGDip Course Learning Outcome 6 (PGDCLO6)

Demonstrate the qualities and transferable skills necessary for employment requiring: 1. the exercise of initiative and personal responsibility 2. decision-making in complex and unpredictable situations 3. the independent learning ability required for continuing professional development.

Masters Course Learning Outcome 1 (MACLO1)

evidence an extension of your knowledge base to a systematic understanding and critical awareness of current research in selected aspects of chemistry at MasterÆs level.

Masters Course Learning Outcome 2 (MACLO2)

"carry out experimental work independently, with evidence of originality and autonomous decision making, perform a project feasibility study and perform appropriate risk assessments at MasterÆs level."

Masters Course Learning Outcome 3 (MACLO3)

"deal with problems of an unfamiliar nature (and solve where possible) by application of appropriate knowledge and methodology, including experimental, a project feasibility study and extended project work."

Masters Course Learning Outcome 4 (MACLO4)

"evidence that a range of professional skills has been developed, for example by use of a skills recording tool, for continuing professional development."

Overview of Assessment:

Module	Title	Course Learning Outcomes
7CH002	MSc Chemistry research project	MACLO1, MACLO2, MACLO3, MACLO4, PGCCLO1, PGCCLO2, PGCCLO3, PGCCLO4, PGCCLO5, PGCCLO6, PGDCLO1, PGDCLO2, PGDCLO3, PGDCLO4, PGDCLO5, PGDCLO6
7CH003	Advanced Topics in Physical Chemistry	MACLO1, MACLO2, MACLO3, PGCCLO1, PGCCLO2, PGCCLO3, PGCCLO4, PGCCLO5, PGCCLO6, PGDCLO1, PGDCLO2, PGDCLO3, PGDCLO4, PGDCLO5, PGDCLO6
7CH005	Advanced Topics in Organic Chemistry	MACLO1, MACLO2, MACLO3, PGCCLO1, PGCCLO2, PGCCLO3, PGCCLO4, PGCCLO5, PGCCLO6, PGDCLO1, PGDCLO2, PGDCLO3, PGDCLO4, PGDCLO5, PGDCLO6
7CH006	Advanced Analytical Chemistry	MACLO1, MACLO2, MACLO3, MACLO4, PGCCLO1, PGCCLO2, PGCCLO3, PGCCLO4, PGCCLO5, PGCCLO6, PGDCLO1, PGDCLO2, PGDCLO3, PGDCLO4, PGDCLO5, PGDCLO6
7CH007	Advanced Topics in Inorganic Chemistry	MACLO1, MACLO2, MACLO3, PGCCLO1, PGCCLO2, PGCCLO3, PGCCLO4, PGCCLO5, PGCCLO6, PGDCLO1, PGDCLO2, PGDCLO3, PGDCLO4, PGDCLO5, PGDCLO6

Teaching, Learning and Assessment:

The University's Learning, Teaching and Assessment Sub-Strategy 2012-2017 was consulted. We aim to develop students who are critically reflective, entrepreneurial, employable, digitally literate, well networked and socially responsible.

It is important that students should be aware of several key industrial, environmental and other applied and

research aspects of chemistry or chemical analysis. Throughout the course, students will consider the role that chemistry or chemical analysis plays in the broader context of chemistry-related disciplines, and the impact of chemistry upon many walks of life.

Throughout the course students will use a range of standard and specialist software to prepare and present reports, assignments, presentations, etc across a wide range of modules, with increasing sophistication. Students will be expected to make use of the Universities virtual on-line learning framework for accessing module information, submitting assignments, formative self-testing, engaging in module fora, etc. Students will be expected to make use of email for module and other University communications. One aspect of the course will encompass the use of chemistry based software such as Knowitall, molecular modelling packages and use of packages such as Excel or Graphpad Prism to manipulate data.

By the end of the course, students should be comfortable with, and be competent in, the digital world and have the flexibility to adapt to a wide range of digital activities.

The course develops students' knowledge base and skills in Chemistry using the subject specific module content of the selected diet of modules. In addition, the development of transferable (professional) skills improves and enhances employability beyond the field of chemistry, and indeed science in general. There are many instances of trained chemists switching to careers in chemistry-related disciplines, teaching or further research.

At Master's level a student centred learning approach, simultaneously fostering the continued development of transferrable and professional skills, together with group learning and problem solving approaches will be used. Students are required to critically reflect upon their learning experience and to extrapolate from this the skills that would make them stand out in their respective career pathways. As part of the level 7 project planning process the students need to consider CV's, job applications, and how best to present themselves, by making a formal written application for the level 7 project.

Students will also be directed to the relevant careers support services in the University. In addition, the RSC offers extensive careers support.

There will be a range of learning activities, as indeed there will be a range of assessment patterns. The typical learning activities that will be employed can be listed as follows:

- Traditional face to face lectures with some e-lecture/podcasts. These lectures will typically be of the "Key Note" variety and either direct students to further sources of information or require students to search for, and find, information for themselves.
- Traditional tutorial activity with some e-tutorial work with the emphasis being on problem solving either singly or in groups as appropriate.
- Hands on "in the laboratory" practical activity (working singly) with an emphasis being upon development of practical procedures and Risk Assessments for themselves.
- Workshop/seminars (including problem solving, problem-based learning).

Typically, students will be presented with theoretical information in lecture sessions and then will use workshops, group tutorials, seminars, on-line fora, electronic tutorials, directed reading and a range of IT-based activities to develop these concepts to develop and apply their knowledge and critical thinking skills.

Practical skills will continue to be developed at post graduate level. An ability to "problem solve" will be an important part of the teaching and learning process. In addition, an extensive 120 credit level 7 project will enable students to carry out experimental work independently, with some evidence of originality, and perform appropriate risk assessments at Master's level.

There is little specific reference to transferable (professional) skills in the University's Learning, Teaching and Assessment Sub-Strategy 2012-2017 although these will be key (see below) to the MSc course and level 7 modules.

The following have been identified as important for accreditation of our Chemistry programmes at level 7. Student facing module guides will indicate how each module maps to one or more of the professional/transferable skills.

It will be expected that students should have already developed the following 8 skills from previous study at level 4-6 as part of their first degree.

1. communication skills, covering both written and oral communication
2. problem-solving skills, relating to qualitative and quantitative information
3. numeracy and mathematical skills, including such aspects as error analysis order-of-magnitude estimations, correct use of units and modes of data presentation
4. information retrieval skills, in relation to primary and secondary information sources, including information retrieval through online computer searches
5. IT skills
6. interpersonal skills, relating to the ability to interact with other people and to engage in teamworking
7. time management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working
8. skills needed to undertake appropriate further training of a professional nature.

In addition, the following transferable (professional skills) will be extended to level 7.

9. problem-solving skills including the demonstration of self-direction, initiative and originality
10. the ability to make decisions in complex and unpredictable situations
11. the ability to think critically in the context of data analysis and experimental design
12. independent learning skills required for continuing professional development.

Assessment Methods:

At the University of Wolverhampton, a variety of modes of assessment will be used to support and test your learning and progress and to help you develop capabilities that are valued beyond your University studies and into your working life. Your course may include a variety of assessment activities:

Written examinations (including online examinations, open and closed book examinations and quizzes)
Coursework (for example, essays, reports, portfolios, project proposals and briefs, CVs, poster presentation)
Practical (for example, oral and video presentations, laboratory work, performances, practical skills assessment)

In the final year of your undergraduate degree, and at the end of your postgraduate degree, you are likely to be expected to write an extended piece of work or research, such as a dissertation or a practice-based piece of research.

Student Support:

Each student will be allocated a personal tutor who can provide general help, advice, guidance and, if required, direct them to services such as, Counselling Services, Student Enabling Centre, Student's Union, Chaplaincy (all Faiths), Study Skills (Learning centre, see below).

Module-specific support is provided through the module team via face-to-face and electronic tutorials, scheduled drop-in sessions or SAMS (Student Appointment Management System) appointments.

The Faculty of Science and Engineering also offers a Student Support Team (located in the Faculty Administration Office) and this is a key additional source of support, particularly for non-academic related matters. This tends to be a student's first port of call and the team can advise students and, if required, direct

them to further University services as mentioned above.

There are also a range of support facilities (relating to assessment tasks) that are available in the Learning Centre for students to access. The Skills for Learning programme provides opportunities to develop academic study skills, which will support you in your assessment tasks. Face to face activities, including workshops, drop-in sessions and appointments are available in Learning Centres. A wide range of support materials such as videos, study guides, interactive tasks, and self-study packages can be accessed online. Details of all support is available from www.wlv.ac.uk/skills.

These can be found in the skills zone and can be booked (some are drop in sessions). The following are included:

- Skills for learning
- Finding information
- Study Guides
- Writing at University
- Referencing
- Maths support
- General study skills
- i-skills
- Good Academic Practice and writing: paraphrasing, referencing and TurnItIn
- Introduction to Critical Thinking
- Improving your Presentation Skills
- Preparing for your Exam
- Report Writing
- Planning your Dissertation
- Reading and Note-making

In addition, there are drop in support facilities for students to seek help from the Learning Centre Staff. These cover assessment related topics such as:

- exam revision
- planning and writing your academic assignments
- how to use your time efficiently and organise your academic study
- how to take effective notes during lectures
- tips on delivering effective presentations

Employability in the Curriculum:

The students will be versed in use of the RSC's Undergraduate Skills Recording (USR) tool to annually record and reflect on their skills development as the course proceeds. This process of ePDP building commences in the first semester, with students being introduced to the RSC Undergraduate Skills recording (USR) platform. Students are encouraged to develop an ability to self-reflect on their weaknesses and strengths and plan how to develop those weaknesses. The USR platform is used as a training tool for continuing professional development. The advantage of this is that students will start to develop their career and personal development strategies.

The electronic interface means that ePDPs can be made available to prospective employers if students are building evidence-based job applications. In addition, a chemistry graduate who wishes to work towards Chartered Chemistry status via a process of continuing professional development will be well versed with portfolio construction to facilitate this process.

