

# Nottingham Trent University Course Specification

## Basic Course Information

1	Awarding Institution:	<b>Nottingham Trent University</b>
2	School/Campus:	<b>Science and Technology/ Clifton</b>
3	Final Award, Course Title and Modes of Study:	<b>MChem Chemistry FT and MChem Chemistry with Professional Practice SW</b>
4	Normal Duration:	<b>4 years with or without a placement</b>
5	UCAS code:	<b>F103 (full-time) / 350R (with placement)</b> <b>NTU code CHEM048 FT / CHEM050 SW</b>

## 6 Overview and general educational aims of the course

The MChem (Master of Chemistry) course is an undergraduate Integrated Masters qualification taking you from university entry level to master's level. It combines learning outcomes at bachelor's and master's levels. The main branches of chemistry are developed further without the discrete specialisation associated with MSc and MRes postgraduate study. Integrated Master's qualifications are essentially unique to the UK and are currently the most common route to master's level for its chemistry students. It is the ideal qualification for those wishing to become career chemists and for those wishing to progress to PhD studies. The Sandwich placement year gives an invaluable robust experience of the workplace giving you a cutting edge advantage in the employment market.

Chemistry provides you with the opportunity to study the characteristic properties of elements and their compounds, the nature and behaviour of functional groups in organic molecules, major synthetic pathways in organic chemistry, the application of thermodynamics and kinetics of chemical change including catalysis, the principal techniques of structural investigations including spectroscopy, the principles and procedures used in chemical analysis and the characterisation of chemical compounds. Related areas include bioscience, materials and environmental sustainability together with aspects of chemical technology and computation. We offer you high quality, modern facilities for practical work and lectures. Practical work forms a large proportion of learning to ensure that you have extensive skills for employment or research, with the enhanced Project in Year 4 providing the crucial research experience and skills that are a specific feature of this MChem course.

The aims of the course are:

- to stimulate enthusiasm for the studying, learning and application of chemistry and chemistry related topics in society;
- to provide a recognisable knowledge base for, and an understanding of the fundamental principles, concepts and terminology of theoretical and practical chemistry;
- to promote your development to work logically and critically in the evaluation of theoretical and practical problems;
- to foster a professional approach to safe working practices and environmental issues;
- to provide and allow you to develop key scientific transferable skills applicable to the world of work and life-long learning;
- to provide an in-depth education to an enhanced level across the major branches of chemistry;
- to produce graduates well qualified to embark on a career in chemical research;
- to introduce you to the management aspects of a chemist's role in industry.

Accredited by the Royal Society of Chemistry as contributing towards CChem Chartered Chemist status.

## 7 Course outcomes

Course outcomes describe what you should know and be able to do by the end of your course if you take advantage of the opportunities for learning that we provide.

**Knowledge and understanding.** By the end of the course you should be able to:

- K1 (GA1) demonstrate extensive in depth knowledge and understanding and critical evaluation of essential terminology, facts concepts, principles and theories of chemistry and related topics
- K2 (GA2) independently plan, design, adapt and implement good, safe measurement science and practice with systematic reliable recording and documentation of data and its critical evaluation and interpretation in relation to a research project of publishable quality
- K3 (GA3) recognise and analyse complex novel problems and plan strategies for their solution and apply enterprise and creativity, with self-direction and originality
- K4 (GA6) apply in depth knowledge of computational and data processing skills to data

acquired from a variety of sources and present scientific material and arguments clearly and correctly in writing or orally to a range of audiences including professionals from other disciplines

- K5 (GA5;GA12) acquire, assimilate and evaluate chemical information from a variety of sources to inform judgements on scientific, social and ethical issues including environmental sustainability
- K6 (GA11;GA13) demonstrate in depth knowledge and understanding of major issues currently at the frontiers of chemical research and development internationally and be prepared to inform public debate

**Skills, qualities and attributes.** By the end of the course you should be able to:

- S1 (GA10) analyse, interpret and evaluate critically, data and information retrieved from a variety of sources giving and receiving feedback effectively including judgement of own efficacy
- S2 (GA7) communicate effectively in spoken, written and visual media
- S3 (GA9) prioritise, plan and implement efficient and effective modes of working using time management and organisational skills being self-critical
- S4 (GA8) autonomously or collaboratively as part of a team, work and communicate effectively showing initiative and personal responsibility
- S5 (GA4) develop enthusiasm for extensive self-directed learning and the study skills needed for continuing professional development and informed career management choices.

All of the above learning outcomes K 1-6 and S1-5 support Chemistry Benchmark Statements (QAA 2007); GA = NTU Graduate Attributes

Graduate Attributes:

Intellectual Agility

- GA1 Extensive understanding of their chosen profession or discipline, including the associated practices, technologies, research, methodologies, values and ethics
- GA2 Aptitude for independent, critical thought and rational enquiry, alongside the capacity for analysis and problem solving in multiple contexts
- GA3 An enterprising and creative mindset, able to thrive in rapidly changing work and social environments
- GA4 Intellectual curiosity, enthusiasm for learning and an aptitude for self-directed learning

Information, Communication and Organisational Skills

- GA5 Proficiency in finding, evaluating, analysing and applying data
- GA6 Digital literacy and the ability to use ICT effectively
- GA7 Effective communication skills in spoken, written and visual media
- GA8 Good team and collaborative working skills
- GA9 Ability to prioritise, plan and manage work and time
- GA10 capacity to appropriately judge self-efficacy and to give and receive feedback effectively

Global Citizenship

- GA11 International awareness and openness to the world, based on appreciation of social and cultural diversity, respect for human rights and dignity
- GA12 Understanding and appreciation of social, economic or environmental sustainability issues
- GA13 Leadership capacity, including a willingness to engage in constructive public discourse, and to accept social and civic responsibility.

## 8 Teaching and Learning Methods

You will experience a wide range of teaching and learning methods including laboratories, lectures, seminars, individual and group presentations and problem solving tutorials. In many modules, your teaching and learning is focused on lectures supported by practical laboratory classes. Laboratory work develops hands-on practical skills, problem solving and data collection. Further time is allocated to the analysis, interpretation and evaluation of the results both inside and outside these practical classes. Much of the theory introduced in lectures is consolidated through these laboratory sessions and through tutorials. The location of academic accommodation allows staff to practise an effective 'open door' policy for students outside of formal contact hours. You will be expected to carry out supplementary reading to enhance and consolidate taught material progressively becoming a self-motivated and independent learner. Lecture material is supported through e-resources. NOW, the NTU On-line Workspace, is used to post summary slides of lectures and for information about the organization of modules and the course. Teaching of the MChem Chemistry degree is enhanced by external speakers and by inputs from Careers staff. Opportunities will exist for you to improve your communication skills by writing reports in various formats, by producing posters and by giving oral presentations to your colleagues.

## 9 Assessment Methods

The course utilises a variety of assessment methods to enable you to demonstrate your achievement of the learning outcomes. Subject knowledge and understanding is mainly assessed

by unseen examinations, short answer tests, laboratory reports, oral and poster presentations. Laboratory experiments and reports are used to assess a range of practical skills relating to preparation, observation, recording, interpretation and analysis. Your communication skills are assessed in written, oral and graphical formats in examinations, laboratory reports, essays poster presentations and oral defence. Normally the balance of assessment in modules on the course is 60% coursework and 40% examination at Level 1; 50% coursework and 50% examination at Level 2; and 40% coursework, 60% examination at Level 3 but the assessment strategies used within a particular module are chosen to be the most appropriate for that aspect of study.

## 10 Course structure and curriculum

The academic year comprises 30 weeks divided into 3 terms. Teaching and learning takes place for 26 weeks with the final 4 weeks of each year being set aside for examinations. An MChem degree is awarded to students who successfully complete 480 credit points; 120 credit points (cp) at each of the levels 1,2, 3 and M. A threshold aggregate of 50% at level 1 and 55 % at level 2 is required to remain on the MChem course. The BSc (H) Chemistry is awarded for the successful completion of 360 cp, 120 at each of the levels 1,2 and 3. An Ordinary Degree is awarded to a student who successfully completes 120 cp at Level 1, 120 cp at Level 2 and a minimum of 60 cp at Level 3. A Diploma of Higher Education is awarded to a student who successfully completes 120 cp at Level 1 and 120 cp at Level 2 but less than 60cp at Level 3. A Certificate of Higher Education is awarded to students who successfully complete 120 cp at Level 1 but less than 120cp at Level 2.

The MChem (H) Chemistry degree is modular with modules selected to meet course learning outcomes. The structure of the curriculum is outlined below with an indication of the module status (i.e., C = core; O = option). Core modules are compulsory but option strands enable you to choose themes of pharmaceutical, materials or sustainable chemistry.

Completion of a European language module in addition to the modules listed below and at extra cost is possible (French, German, Spanish, Italian) on the University Language Programme and makes the course eligible for Eurobachelor award status.

### Level 1

Introduction to Organic Chemistry (20 cp) (C)  
Introduction to Inorganic Chemistry (20 cp) (C)  
Introduction to Physical Chemistry (20 cp) (C)  
Introduction to Analytical Chemistry (20 cp) (C)  
Professional Development (20 cp) (C)  
Introduction to Specialist Areas of Chemistry (20 cp) (C)

### Level 2

Organic Chemistry (20 cp) (C)  
Inorganic Chemistry (20 cp) (C)  
Physical Chemistry (20 cp) (C)  
Analytical Chemistry (20 cp) (C)  
Professional Practice (20 cp) (C)  
*And your choice of one from:*  
Modern Day Materials (20 cp) (O)  
Pharmaceutical Chemistry (20 cp) (O)  
Chemical Technology Chemistry (20 cp) (O)  
Applied Instrumental Analysis (20 cp) (O)

### Level 3

Advanced Inorganic Chemistry (20 cp) (C)  
Advanced Organic Chemistry (20 cp) (C)  
Advanced Physical Chemistry (20 cp) (C)  
Advanced Chemistry (20 cp) (C)  
Research Methodology (20 cp) (C)  
*And your choice of one from:*  
Advanced Chemical Analysis (20 cp) (O)  
Chemotherapeutics (20 cp) (O)  
Nano and Green Technology (20 cp) (O)  
Communicating Science and Technology (20 cp) (O)

### Level M

Project (60 cp) (C)

*And your choice of three from:*

Organic Synthesis and Characterisation of Biologically Active Compounds (20 cp) (O)  
Inorganic Chemistry Beyond the Molecule (20 cp) (O)  
Physical Properties of Materials (20 cp) (O)

## Drug Detection Analysis and Screening (20 cp) (O)

Provided that you have passed every module, the classification of the degree you are awarded depends on the overall degree aggregate, according to the following table:

70% and over	First class honours degree	1
60%-69%	Upper second class honours degree	2.1
50%-59%	Lower second class honours degree	2.2
40%-49%	Third class degree	3

### 11 Admission to the course

The admissions policy for this course is administered in accordance with the University regulations including a commitment to widening participation and equal opportunities.

For entry on to the MChem (H) Chemistry course you would normally be over 18 years of age and possess one of the following:

- Five passes at GCSE grade C or above including passes in English and Mathematics and 280 UCAS points at A2-level or equivalent (e.g., BTEC Nationals, International Baccalaureate) including A2 in Chemistry;
- A pass on an appropriate Access Course, with a minimum of 16 credits, 15 of which must be at Level 3;
- A pass in an appropriate Foundation Degree

Equivalent UK and International qualifications are acceptable. The equivalence of these qualifications to the standard entry requirements are usually established with reference to the published UCAS Tariff (e.g. Irish leaving certificate, Scottish National Higher and International Baccalaureate), the information published by UCAS ("International Qualifications Guide" and "UCAS Admissions Guide and Decisions Processing Manual"), and the recommendations of UK Naric. OCN and Access HE qualifications are acceptable if a sufficient number of level 3 units in Maths and Physics have been taken. Non-standard qualifications are referred to the admissions tutor for assessment.]

If you wish to use Accreditation of Prior Experiential Learning (APEL) or Accreditation of Prior Certified Learning (APCL) for entry to this course, you will be assessed according to the standard procedures of the School of Science and Technology.

If you request APCL, you will be required to produce a transcript and details of the units/modules you have studied at your former institution to assist with the curriculum mapping process. This institution may be contacted before a final offer is made to confirm your suitability for the course of study.

If you wish to use APEL for entry to the start of the course, or exceptionally, for advanced entry, you will be required to provide a detailed curriculum vitae outlining relevant experience. You will be asked to complete an appropriate assignment to enable you to demonstrate your learning for which equivalence is being claimed.

If English is not your first language, you are expected to have a good command of spoken and written English. The minimum recommended requirement is the British Council IELTS grade 6.5 or CBTOEFL 213 or IBTOEFL 83. Equivalent experience may include the successful completion of a non-UK degree in the English language or a significant period of residence/work placement in an English-speaking country, for which evidence should be provided.

Advanced entry would normally be into Level 2 of the course, for which you would possess an appropriate Foundation Degree or HND in Chemistry or equivalent subject. In order to ensure potential applicants from FdSc or HND routes have the suitable experiences to enable them to successfully progress on to BSc (H) courses in year 2, it is likely that the Admissions Tutor will request information about previous learning, for example transcripts and course content. Advanced entry into Level 3 would be considered in exceptional circumstances (e.g., successful completion of a Bachelor's degree and relevant certified/experiential learning).

The full UCAS entry profile for this course can be found at: <http://www.ucas.co.uk>.

### 12 Support for Learning

We will work with you to ensure that you settle into your new academic environment and that your studies go well, and you will find that there are lots of people to support you at Nottingham Trent University.

All students at Nottingham Trent University have full access to Student Support Services. In addition, School based support networks are in place to offer you support, guidance and advice on

academic and personal issues. Within the course, students experience the full support of the Chemistry Academic Team. The Academic Team Leader, with support from the Course Manager, Course Leader(s), Module Leader(s), and Personal Tutor, takes responsibility for student support and guidance. The Module Leader will offer guidance and support to students taking each specific module.

Academic staff can be contacted by e-mail, telephone, letter, or in person.

As a new student you will experience a minimum of a 3 day induction period at the commencement of their first academic year. Induction will inform you about:

- Student Support Services at University, School and Course level;
- University policies and procedures on academic systems;
- Personal development planning;
- Timetable issues, room allocations and location;
- University, School and Course Handbooks;
- Enrolment procedures;
- Computing, IT and Library services;
- Health and Safety procedures.

During your induction you will be assigned a Personal Tutor and informed about the best way to get in touch with your Course Leader and Module tutors. Every year, you will have regular time-tabled sessions with your Personal Tutor, in small groups. Your group tutorials will help you to reflect on your approaches to study and make connections between modules, integrating material from across the curriculum and encouraging you to achieve your maximum potential. You will also have an opportunity to discuss and deal with any personal or course-related issues which may be affecting your studies and get advice on what support the university can offer. Personal tutorials can also be used for personal development planning and skills development.

Student Mentors are also used to provide you with learning support. Student Mentors are typically students at Level 2 and above of their course, who provide some form of mathematics, academic writing or module-specific support. Such support is usually available on a 'help desk' basis.

For accommodation matters, University Accommodation Officers will provide you with information, guidance and continuing support, for example hall of residence, private rented accommodation, and the Landlord Approval Scheme. The Accommodation Services can be accessed through [www.ntu.ac.uk](http://www.ntu.ac.uk).

### 13 **Graduate destinations/ employability**

There is a wide range of career opportunities relating to chemistry, or postgraduate studies, which our students enter on completion of the course. Employment opportunities include research and development in the UK chemical industry, which comprises some 3,500 companies and is manufacturing's number one exporter for Britain, as well as international chemical and pharmaceutical companies. A multitude of related areas such as forensic science, bioscience, environmental monitoring and analysis, teaching, marketing, management, computing and accountancy etc. offer employment opportunities for chemists.

### 14 **Course standards and quality**

The Course Committee, with staff and student representatives, operates to discuss matters arising on the course, review module feedback and consider the course report and external examiners' comments. Overarching responsibility for quality control lies with the School Academic Standards and Quality Committee whose remit is to provide guidance and support to academic courses. External Examiners offer further quality control through monitoring academic standards, moderation of assessment tasks and processes.

### 15 **Assessment regulations**

This course is subject to the University's Common Assessment Regulations (located in its [Academic Standards and Quality Handbook](#)). Any course-specific assessment features are described below:

MChem honours awards are based on an aggregate of 50% level 3 and 50% level M marks.

### 16 **Additional Information**

Collaborative partner(s):

Course referenced to national QAA

Benchmark Statements:

Chemistry 2007

Course recognised by: Royal Society of Chemistry.

Date implemented: 1 September 2014

Any additional information: