Programme Specification: Undergraduate

For Academic Year 2026/27

1. Course Summary

Names of programme and award title(s)	Master in Forensic Chemistry (MChem) Master in Forensic Chemistry (MChem) with International Year (see Annex A for details) Master in Forensic Chemistry (MChem) with Work Placement Year (see Annex B for details)
Award type	Single Honours (Masters)
Mode of study	Full-time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 7
Normal length of the programme	4 years; 5 years with either the International Year or Placement Year between years 2 and 3
Maximum period of registration	The normal length as specified above plus 3 years
Location of study	Keele Campus
Accreditation (if applicable)	All Master in Forensic Chemistry (MChem) combinations, including the 'with International Year' and 'with Work Placement Year' options, will be submitted for accreditation to the Royal Society of Chemistry (RSC) and Chartered Society of Forensic Science (CSFS) once a full degree cycle has been completed.
Regulator	Office for Students (OfS)
Tuition Fees	**UK students:** Fee for 2026/27 is £9,790* **International students:** Fee for 2026/27 is £18,200** The fee for the international year abroad is calculated at 15% of the standard year fee The fee for the work placement year is calculated at 20% of the standard year fee

How this information might change: *Please read the important information at http://www.keele.ac.uk/student-agreement/. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.*

** These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at http://www.keele.ac.uk/studentfunding/tuitionfees/*

*** These fees are for new students. We reserve the right to increase fees in subsequent years of study by an*

inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at http://www.keele.ac.uk/studentfunding/tuitionfees/

2. What is an Integrated Master's programme?

The Master's level programme described in this document allows you to focus exclusively on the study of Forensic Chemistry. Integrated master's awards are delivered through a programme that combines study at a bachelor's degree with honours with study at master's level. As such, you will graduate with an integrated master's degree after a single four-year programme of study. The Integrated Master's programme described in this document will allow you to gain enhanced skills and knowledge to master's level.

3. Overview of the Programme

Chemistry is the science which bridges the fundamental atomic building blocks of the universe to the complexity of the living world. Its impact on modern life is vast, encompassing many advancements in society including the analysis of forensic evidence that underpins our legal system. The MChem Forensic Chemistry programme is designed with this in mind to provide a tailored educational experience at the interface of chemical and forensic sciences. It draws skills, concepts and ideas from both subjects together to provide graduates with a broad understanding of the subject, from the full breadth of chemistry to the crime scene and court, ideal for those wishing to pursue a career in the analysis and investigation of forensic evidence. You will have opportunities for individual advanced project work, collaborative learning, experiential work placements, and to explore frontier topics guided by our world-leading researchers.

In the first two years of study, you will be taught the core concepts in each of the fundamental areas of chemistry, with analytical topics specifically being taught from the perspective of analysis of forensic evidence, alongside forensic investigation and identification, crime scene analysis and drugs of abuse. Relevant mathematical concepts and skills are taught fully within their chemical and forensic context, and does not assume knowledge beyond GCSE Maths. Your learning will be supported through interactive teaching, workshops and small group activities, as well as frequent opportunities to apply key concepts in laboratory classes and other practical exercises including crime scene simulations in a range of authentic settings. In your third and fourth year, you will complete your education as well a rounded forensic chemist, developing a toolkit of advanced skills including data analysis and problem-solving, as well as an understanding of professional practice in forensic science, which includes certification in expert witness training.

Your development as an independent researcher is a central theme throughout the degree. You will be able to tailor your learning to your interests and career aspirations with more advanced optional modules in chemistry and forensic science, as well as an independent research project in year 3. In year 4, you will complete a year-long research project in the area of Forensic Chemistry, as the highlight of your degree. You will also conduct an in-depth literature review, giving you the opportunity to delve into an area of Forensic Chemistry your own personal interest which you may connect to your research project, or diversify into another area. These activities will allow you to fully immerse yourself at the forefront of the subject, and apply your skills of scientific inquiry to explore the world of research.

Throughout your degree, you will have hands-on access to sector-leading laboratory, crime scene simulation, and teaching facilities. You will gain individual, practical confidence of using specialist computational tools and research-grade instrumentation which will link your understanding of key theories and ideas to the practical skills needed for gathering, processing, and evaluating evidence. Employability and transferable skills are embedded and developed throughout the entire curriculum with problem-solving, communication, independent learning and inquiry, as well as dedicated career-focused sessions and workshops. Your understanding and skills will be assessed through a diverse range of authentic activities which will develop your specialist and transferable skills, and prepare you for your future career. You will receive personalised and comprehensive feedback and formative opportunities on assessed work in various formats. If you take advantage of the full range of opportunities the programme offers, you will have acquired the knowledge and skills to confidently pursue a fulfilling and impactful career and make your mark on the world.

4. Aims of the programme

The broad aims of the programme are to enable you to:

- A depth and breadth of fundamental and applied knowledge from across the chemical and forensic sciences, both through guided learning and creating new knowledge through scientific research
- Professional skills and competencies in practical chemistry and analysis, use of instrumentation, and safe working practices, and the design and execution of original research
- A sound understanding of continuity of evidence, and how the forensic crime scene, the laboratory and the court contribute to the forensic and legal process.
- An understanding of the intersection of chemical and forensic sciences with sustainability, ethical practices and wider societal challenges.

- Transferable skills in problem solving, communication, digital tools, and independent, open-ended scientific investigation.

5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Key or transferable skills (including employability skills)

Subject knowledge and understanding

Successful students will be able to:

- A broad range of chemical concepts spanning the full breadth of chemistry, with focus in forensic and analytical chemistry.
- How chemical concepts can be applied to solve problems, particularly in (but not exclusive to) forensic analysis.
- The role of chemistry in sustainability and an awareness of the impact of chemistry in currently global challenges.
- The principles of crime scene investigation, the place of forensic science within the legal framework, and the role of the expert witness in court.

Subject specific skills

Successful students will be able to:

- Work safely and ethically, managing documentation including COSHH, risk assessments and SOPs.
- Demonstrate practical competence in laboratory techniques, including operation of a range of instrumentation.
- Formulate, test and refine chemical hypotheses through scientific investigation.
- Interpret and evaluate the significance of the results of a forensic investigation in the context of the circumstances of the crime, using appropriate statistical tools.
- Process, transform and critically evaluate qualitative and quantitative datasets.
- Prepare a written statement of expert testimony and defend it under cross-examination in a court setting.

Key or transferable skills (including employability skills)

Successful students will be able to:

- Conduct research, engaging with chemical literature to source, interpret, collate and cite relevant information.
- Demonstrate numeracy and digital skills, working confidently with mathematical concepts and employing a range of computational tools, including specialist scientific software.
- Communicate scientific information and ideas through oral and written methods as appropriate, to a range of different audiences.
- Display reflective practice and professionalism through self-direction and collaborative work.
- Solve complex problems with self-direction and originality, by clearly formulating the problem, identifying the key issues and generating different approaches to its solution.
- Work both independently and as part of a team to plan, organise and perform work efficiently and conscientiously, and meet appropriate deadlines.

Keele Graduate attributes

The Keele Graduate Attributes are the qualities (skills, values and mindsets) which you will have the opportunity to develop during your time at Keele through both the formal curriculum and also through co- and extra-curricular activities (e.g., work experience, and engagement with the wider University community such as acting as ambassadors, volunteering, peer mentoring, student representation, membership and leadership of clubs and societies). Our Graduate Attributes consist of four themes: **academic expertise, professional skills, personal effectiveness, and social, environmental and ethical responsibility**. You will have opportunities to engage actively with the range of attributes throughout your time at Keele: through your academic studies, through self-assessing your own strengths, weaknesses, and development needs, and by setting personal development goals. You will have opportunities to discuss your progress in developing graduate

attributes with, for example, Academic Mentors, to prepare for your future career and lives beyond Keele.

6. How is the programme taught?

Our forensic chemistry programme is delivered with an emphasis on live, in-person, interactive sessions, supported by online materials on the Keele Learning Environment (KLE) allowing flexible engagement. Students are also provided with regular opportunities to talk through particular areas of difficulty, and any specific learning needs they may have, with their Academic Mentors or module lecturers on a one-to-one basis.

1st Year:

Content is predominantly taught through **interactive lectures** consisting of a mixture of presentation and interactive activities. Activities include guided problem solving, worked examples and student response polls facilitated by digital tools such as mentimeter or padlet. Global awareness and sustainability goals are drawn out through elements of **group discussion** incorporated in teaching sessions and through discussion boards. Lectures are supported by **workshops** and **problem classes** incorporating **small group learning** approaches such as **Team Based Learning** (TBL). **e-Portfolios** are used to scaffold the development of problem solving and information literacy skills with **reflective exercises** helping you learn to make effective use of **feedback**. **Practical classes** include weekly **laboratory sessions** following scripted labs to teach fundamental practical skills and **PC labs** to enable hands-on training in information retrieval, data analysis and programming techniques.

2nd Year:

Teaching styles continue from first year with **interactive lectures** supported by **problem classes**, **workshops**, **TBL sessions** and **tutorials**. **Practical classes** include scripted **laboratory sessions** developing more advanced skills and hands-on experience of a range of analytical instruments and forensic techniques. **Investigative group work** is developed through analytical projects. Professional skills are developed with a focus crime scene investigation and **reflective development** of employability skills including an industrial themed **group project**. There is a greater emphasis on the use of scientific software in **PC labs** to support understanding and the processing of data, including statistical consideration of accuracy.

From second year, you are also invited to attend our **Chemical Sciences Seminar Series** in which you will experience speakers from academia and industry presenting material at the forefront of current scientific knowledge in chemistry and forensic science.

3rd Year:

A highlight of our 3rd year is the independent research project. Rather than scripted labs, you will collaborate with an academic member of staff to complete approximately 80 hours of **project work**, spread over both semesters. Laboratory work takes place in teaching labs with expert supervision. You will also complete a literature review, and you can choose to combine your research project and literature review in one specialised area, or to differentiate and explore a different bespoke topic for your literature review. Further practical work is taught through **laboratory sessions** and **PC labs** involving hands-on experience of a wide range of research grade analytical instruments. **Interactive lectures** and **seminars** form the basis of most taught content, with **workshops** or **TBL sessions** typically held at the end of each topic. Through investigation of **simulated crime scenes**, you will apply the principles and procedures of crime scene investigations to novel incidents and implement a forensic strategy and ensure a rigours chain of custody. Fewer contact hours provide more time for **independent work**, and the ability to specialise in your preferred areas.

4th Year:

The majority of your MChem year is devoted to your **independent research project**, in which you will work in a collaborative research environment on a project in the broad area of Forensic Chemistry. Approximately three days each week are devoted to project work, and regular meetings with your project supervisor will support you in planning and reviewing progress. Alongside your project you will participate in a series of **forensic research skills seminars,** training you on aspects of forensic science research and in advanced scientific writing and data analysis techniques.

In addition to your project work and related skills, you will study a range of synoptic and advanced chemistry topics, and further develop your understanding of crime scene investigation and the forensic legal process. In the first semester, you will consolidate your understanding of the depth and breadth of chemistry in **seminar** style sessions drawing together core chemistry themes, and continue this with a series of advanced topics at the forefront of chemistry research. In the second semester, you will gain professional, expert experience, skills and knowledge for use in professional forensic practice and learn to deliver written and oral **expert witness statements** and defend these under cross-examination.

Apart from these formal activities, students are also provided with regular opportunities to talk through

particular areas of difficulty, and any special learning needs they may have, with their Academic Mentors or module lecturers on a one-to-one basis.

7. Teaching Staff

A dynamic group of staff with a broad range of expertise teach on the forensic chemistry programme and bring a wealth of experience acquired through research and scholarship across a diverse set of areas. Some current staff members are internationally recognised leaders in their field and manage research groups comprising postgraduate research students and postdoctoral researchers, some of whom contribute to the teaching on the programme. A strength of the programme lies in our specialist forensic science practitioners who bring their wealth of real-world experience and case work to the teaching of forensic topics. Reflecting the diversity of expertise, some staff members also contribute to the physics programme at Keele. There are a number of guest lecturers from the forensic science profession who contribute either a single or a short series of lectures, workshops or practical classes across the programme in topics such as crime scene examination and fire scene investigation.

Many current teaching staff hold or are working towards an accredited Higher Education Teaching qualification, and many are Fellows (FHEA) or Senior Fellows (SFHEA) of the Higher Education Academy (the professional body for teachers in Higher Education). Our staff regularly make scholarly contributions to national education conferences, journals and books, as well as attract funding for teaching innovation projects on topics spanning authentic assessment, embedding technology in teaching, team-based and active learning, gamification and induction to HE, among others. A number of the teaching staff have established a national reputation for excellence in teaching and learning and have been recognised for their innovation in teaching through national teaching awards, for example:

- Green Gown Award - for embedding sustainability in the chemistry curriculum.
- RSC Team Prize for Excellence in Higher Education.
- AdvanceHE Collaborative Award for Teaching Excellence.
- AdvanceHE National Teaching Fellowship.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

8. What is the structure of the programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from course to course, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April. Our degree courses are organised into modules. Each module is usually a self- contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are two types of modules delivered as part of your programme. They are:

Compulsory modules - a module that you are required to study on this course.

Optional modules - these allow you some limited choice of what to study from a list of modules.

Due to requirements from accrediting bodies (Royal Society of Chemistry and Chartered Society of Forensic Sciences), of which we are aiming for dual accreditation, it is not possible to study on the Global Challenge Pathways. For further information on the content of modules currently offered, please visit: https://www.keele.ac.uk/recordsandexams/modulecatalogue/

Modern Language modules: You are able to take up to 60 credits across your degree programme as Faculty Funded additional Modern Language modules in order to graduate with the Enhanced Degree Title. [Please see link for more information on Enhanced degree titles.]

Course Transfers

Transfers to Chemistry, Chemistry with Medicinal Chemistry or Chemistry with Materials Chemistry routes:

You may elect to transfer from MChem Forensic Chemistry to any of the core BSc or MChem Chemistry routes (Chemistry, Chemistry with Medicinal Chemistry or Chemistry with Materials Chemistry) at any point up to the first week of Semester 1 of Year 2.

Transfers to Forensic Science routes:

You may elect to transfer from MChem Forensic Chemistry to the BSc(Hons) Forensic Science or MSci Forensic Science routes at any point up to the first week of Semester 1 of Year 2.

Transfers to the BSc(Hons) (3 year) Programme:

The Forensic Chemistry programmes are structured to allow flexibility to transfer between BSc and MChem routes throughout the programme. If you do not reach the Level 5 to 6, or Level 6 to 7 progression thresholds set out in Regulation D2 for Integrated Masters programmes, you will be automatically transferred to the corresponding BSc(Hons) route. You may also choose to transfer to the BSc(Hons) Forensic Chemistry route at any point before the end of year 3.

A summary of the credit requirements per year is as follows.

Year	Compulsory	Optional	
		Min	Max
Level 4	105	15	15
Level 5	105	15	15
Level 6	90	30	30
Level 7	120	0	0

Module Lists

Level 4

The level 4 structure builds a strong foundation in both chemistry and forensic science, providing you with the flexibility to transfer to the Chemistry, Chemistry with Medicinal Chemistry, Chemistry with Materials Chemistry, or Forensic Science programmes at the end of level 4. Optional modules can be in a further element of chemistry or forensic science (Sustainable Chemistry or CSI: Crime Scene Investigation), or widen your focus through teaching shared across the faculty (Science and Society). The zero credit Employability Skills module will support you in identifying and evidencing subject and transferable skills developed in your programme.

Compulsory modules	Module Code	Credits	Period
Practical and Professional Chemistry Skills	CHE-10061	30	Semester 1-2
Chemical Structure and Reactivity	CHE-10063	30	Semester 1-2
Chemistry Career Planning and Employability Skills	CHE-10089	0	Semester 1-2
Forensic Investigation: From Documents to DNA	FSC-10019	30	Semester 1-2
Forensic Analysis: Evidence under Investigation	FSC-10015	15	Semester 2

Optional modules	Module Code	Credits	Period
CSI: Crime Scene Investigation	FSC-10025	15	Semester 1
Sustainable Chemistry	CHE-10051	15	Semester 1-2
Science & Society	NAT-10001	15	Semester 1-2

Level 5

Compulsory chemistry modules span the breadth of organic, inorganic, physical and analytical chemistry, as well as developing practical and professional skills. Compulsory forensic science modules focus on the analytical methods used to examine a range forensic samples. Optional modules supplement your knowledge in either medicinal chemistry or counterfeit detection, or provide experiential learning through the faculty professional placement module.

Compulsory modules	Module Code	Credits	Period
Chemical Analysis and Detection	FSC-20027	15	Semester 1
Chemical Characterisation and Transformations	CHE-20093	30	Semester 1-2
Practical and Professional Chemistry	CHE-20099	30	Semester 1-2
Drugs of Abuse	FSC-20009	15	Semester 2
Crime Scenes: Blood, Marks and Prints	FSC-20031	15	Semester 2

Optional modules	Module Code	Credits	Period
Counterfeits, Fakes and Forgeries	FSC-20011	15	Semester 1
Flexible Work Placement (Level 5)	NAT-20011	15	Semester 1-2
Principles of Drug Design	CHE-20081	15	Semester 2

Level 6

You will study compulsory chemistry modules spanning the full breadth of chemistry, as well as compulsory forensic science modules that provide vital skills for work in a professional context, as well as provide advanced analytical knowledge. You will also get the chance to specialise, studying your choice of topics in chemical or forensic science and selecting an independent research project and literature review in your chosen area(s).

Compulsory modules	Module Code	Credits	Period
Kinetics, Catalysis and Mechanism	CHE-30078	15	Semester 1
Independent Research Project	CHE-30066	15	Semester 1-2
Forensic Chemistry Literature Review	FSC-30041	15	Semester 1-2
Crime Scene to Court	FSC-30049	30	Semester 1-2
Chemical Analysis: Instrumentation and Evaluation	CHE-30070	15	Semester 2

Optional modules	Module Code	Credits	Period
Inorganic, Physical and Quantum Chemistry	CHE-30072	15	Semester 1
Synthetic Strategies in Organic Chemistry	CHE-30080	15	Semester 1
Explosives, Arson and Evidence	FSC-30043	15	Semester 1
Forensic Toxicology: Ingestion to Detection	FSC-30039	15	Semester 2

Level 6 Module Rules

Students must pick a maximum of one optional module from group A and a maximum of one optional module from group B:

1. FSC-30039 (Forensic Toxicology: Ingestion to Detection) **OR** FSC-30043 (Explosives, Arson and Evidence).
2. CHE-30080 (Synthetic Strategies in Organic Chemistry) **OR** CHE-30072 (Inorganic, Physical and Quantum Chemistry).

Level 7

The final year of the Forensic Chemistry MChem places a greater emphasis on your ability to work independently, and equips you for a research career. You will be trained in advanced chemistry and forensic science research methods and carry out a 60-credit research project in an area of forensic chemistry research. A 30 credit taught module consolidates your chemistry knowledge through synoptic topics and offers a choice of modern topics at the forefront of the discipline, while two 15-credit taught modules in Forensic Science research skills, scene investigation and court processes will further develop your expertise as a forensic science practitioner.

Compulsory modules	**Module Code**	**Credits**	**Period**
Forensic Research Skills	FSC-40045	15	Semester 1
Synoptic Topics and Modern Trends in Chemistry	CHE-40070	30	Semester 1-2
MChem Forensic Chemistry Independent Research Project	CHE-40072	60	Semester 1-2
Major Scene Investigation: From Crime to Trial	FSC-40039	15	Semester 2

Learning Outcomes

The table below sets out what students learn in the programme and the modules in which that learning takes place. Details of how learning outcomes are assessed through these modules can be found in module specifications.

Level 4

The table below sets out what students learn in the programme and the modules in which that learning takes place. Details of how learning outcomes are assessed through these modules can be found in module specifications.

In Year 1 (Level 4) and Year 2 (Level 5) these learning outcomes are achieved in the compulsory modules which all students are required to take. Some of these outcomes may also be achieved or reinforced in optional modules together with other outcomes not stated here. In Year 3 (Level 6) the stated outcomes are achieved by taking any of the modules offered in each semester.

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Demonstrate knowledge and understanding of a broad range of chemical concepts spanning the full breadth of chemistry, with focus in forensic and analytical chemistry.	Practical and Professional Chemistry Skills - CHE-10061 Chemical Structure and Reactivity - CHE-10063 Forensic Analysis: Evidence under Investigation - FSC-10015
Demonstrate knowledge and understanding of how chemical concepts can be applied to solve problems, particularly in (but not exclusive to) forensic analysis.	Chemical Structure and Reactivity - CHE-10063 Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019
Demonstrate knowledge and understanding of the role of chemistry in sustainability and an awareness of the impact of chemistry in currently global challenges.	Sustainable Chemistry - CHE-10051 Practical and Professional Chemistry Skills - CHE-10061 Chemical Structure and Reactivity - CHE-10063 Science & Society - NAT-10001
Demonstrate knowledge and understanding of the principles of crime scene investigation, the place of forensic science within the legal framework, and the role of the expert witness in court	Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019 CSI: Crime Scene Investigation - FSC-10025

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
Be able to work safely and ethically, managing documentation including COSHH, risk assessments and SOPs.	Practical and Professional Chemistry Skills - CHE-10061 Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019 CSI: Crime Scene Investigation - FSC-10025
Be able to demonstrate practical competence in laboratory techniques, including operation of a range of instrumentation.	Practical and Professional Chemistry Skills - CHE-10061 Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019
Be able to formulate, test and refine chemical hypotheses through scientific investigation.	Practical and Professional Chemistry Skills - CHE-10061 Forensic Analysis: Evidence under Investigation - FSC-10015
Be able to interpret and evaluate the significance of the results of a forensic investigation in the context of the circumstances of the crime, using appropriate statistical tools.	Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019 CSI: Crime Scene Investigation - FSC-10025
Be able to process, transform and critically evaluate qualitative and quantitative datasets.	Practical and Professional Chemistry Skills - CHE-10061 Forensic Analysis: Evidence under Investigation - FSC-10015
Be able to prepare a written statement of expert testimony and defend it under cross-examination in a court setting.	Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019 CSI: Crime Scene Investigation - FSC-10025

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Be able to conduct research, engaging with chemical literature to source, interpret, collate and cite relevant information.	Practical and Professional Chemistry Skills - CHE-10061 Chemical Structure and Reactivity - CHE-10063
Be able to demonstrate numeracy and digital skills, working confidently with mathematical concepts and employing a range of computational tools, including specialist scientific software.	Practical and Professional Chemistry Skills - CHE-10061 Chemical Structure and Reactivity - CHE-10063 Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019
Be able to communicate scientific information and ideas through oral and written methods as appropriate, to a range of different audiences.	Sustainable Chemistry - CHE-10051 Practical and Professional Chemistry Skills - CHE-10061 Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019 Science & Society - NAT-10001
Be able to display reflective practice and professionalism through self-direction and collaborative work	Sustainable Chemistry - CHE-10051 Practical and Professional Chemistry Skills - CHE-10061 Forensic Investigation: From Documents to DNA - FSC-10019 CSI: Crime Scene Investigation - FSC-10025 Science & Society - NAT-10001
Be able to solve complex problems with self-direction and originality, by clearly formulating the problem, identifying the key issues and generating different approaches to its solution.	Practical and Professional Chemistry Skills - CHE-10061 Forensic Analysis: Evidence under Investigation - FSC-10015 Science & Society - NAT-10001
Be able to work both independently and as part of a team to plan, organise and perform work efficiently and conscientiously, and meet appropriate deadlines.	Practical and Professional Chemistry Skills - CHE-10061 Forensic Analysis: Evidence under Investigation - FSC-10015 Forensic Investigation: From Documents to DNA - FSC-10019

Level 5

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Demonstrate knowledge and understanding of a broad range of chemical concepts spanning the full breadth of chemistry, with focus in forensic and analytical chemistry.	Principles of Drug Design - CHE-20081 Chemical Characterisation and Transformations - CHE-20093 Practical and Professional Chemistry - CHE-20099 Chemical Analysis and Detection - FSC-20027
Demonstrate knowledge and understanding of how chemical concepts can be applied to solve problems, particularly in (but not exclusive to) forensic analysis.	Drugs of Abuse - FSC-20009 Counterfeits, Fakes and Forgeries - FSC-20011 Chemical Analysis and Detection - FSC-20027
Demonstrate knowledge and understanding of the role of chemistry in sustainability and an awareness of the impact of chemistry in currently global challenges.	Chemical Characterisation and Transformations - CHE-20093 Practical and Professional Chemistry - CHE-20099
Demonstrate knowledge and understanding of the principles of crime scene investigation, the place of forensic science within the legal framework, and the role of the expert witness in court	Drugs of Abuse - FSC-20009 Counterfeits, Fakes and Forgeries - FSC-20011 Crime Scenes: Blood, Marks and Prints - FSC-20031

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
Be able to work safely and ethically, managing documentation including COSHH, risk assessments and SOPs.	Practical and Professional Chemistry - CHE-20099 Drugs of Abuse - FSC-20009 Counterfeits, Fakes and Forgeries - FSC-20011 Chemical Analysis and Detection - FSC-20027 Crime Scenes: Blood, Marks and Prints - FSC-20031
Be able to demonstrate practical competence in laboratory techniques, including operation of a range of instrumentation.	Practical and Professional Chemistry - CHE-20099 Drugs of Abuse - FSC-20009 Counterfeits, Fakes and Forgeries - FSC-20011 Chemical Analysis and Detection - FSC-20027 Crime Scenes: Blood, Marks and Prints - FSC-20031
Be able to formulate, test and refine chemical hypotheses through scientific investigation.	Principles of Drug Design - CHE-20081 Practical and Professional Chemistry - CHE-20099 Chemical Analysis and Detection - FSC-20027
Be able to interpret and evaluate the significance of the results of a forensic investigation in the context of the circumstances of the crime, using appropriate statistical tools.	Drugs of Abuse - FSC-20009 Counterfeits, Fakes and Forgeries - FSC-20011 Chemical Analysis and Detection - FSC-20027 Crime Scenes: Blood, Marks and Prints - FSC-20031
Be able to process, transform and critically evaluate qualitative and quantitative datasets.	Practical and Professional Chemistry - CHE-20099 Drugs of Abuse - FSC-20009 Counterfeits, Fakes and Forgeries - FSC-20011 Chemical Analysis and Detection - FSC-20027 Crime Scenes: Blood, Marks and Prints - FSC-20031
Be able to prepare a written statement of expert testimony and defend it under cross-examination in a court setting.	Drugs of Abuse - FSC-20009 Crime Scenes: Blood, Marks and Prints - FSC-20031

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Be able to conduct research, engaging with chemical literature to source, interpret, collate and cite relevant information.	Practical and Professional Chemistry - CHE-20099 Drugs of Abuse - FSC-20009 Chemical Analysis and Detection - FSC-20027
Be able to demonstrate numeracy and digital skills, working confidently with mathematical concepts and employing a range of computational tools, including specialist scientific software.	Chemical Characterisation and Transformations - CHE-20093 Practical and Professional Chemistry - CHE-20099 Chemical Analysis and Detection - FSC-20027
Be able to communicate scientific information and ideas through oral and written methods as appropriate, to a range of different audiences.	Principles of Drug Design - CHE-20081 Chemical Characterisation and Transformations - CHE-20093 Practical and Professional Chemistry - CHE-20099 Drugs of Abuse - FSC-20009 Counterfeits, Fakes and Forgeries - FSC-20011 Chemical Analysis and Detection - FSC-20027 Crime Scenes: Blood, Marks and Prints - FSC-20031
Be able to display reflective practice and professionalism through self-direction and collaborative work	Principles of Drug Design - CHE-20081 Chemical Characterisation and Transformations - CHE-20093 Drugs of Abuse - FSC-20009
Be able to solve complex problems with self-direction and originality, by clearly formulating the problem, identifying the key issues and generating different approaches to its solution.	Principles of Drug Design - CHE-20081 Drugs of Abuse - FSC-20009
Be able to work both independently and as part of a team to plan, organise and perform work efficiently and conscientiously, and meet appropriate deadlines.	Principles of Drug Design - CHE-20081 Practical and Professional Chemistry - CHE-20099 Drugs of Abuse - FSC-20009 Chemical Analysis and Detection - FSC-20027

Level 6

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Demonstrate knowledge and understanding of a broad range of chemical concepts spanning the full breadth of chemistry, with focus in forensic and analytical chemistry.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Inorganic, Physical and Quantum Chemistry - CHE-30072 Kinetics, Catalysis and Mechanism - CHE-30078 Synthetic Strategies in Organic Chemistry - CHE-30080
Demonstrate knowledge and understanding of how chemical concepts can be applied to solve problems, particularly in (but not exclusive to) forensic analysis.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Forensic Toxicology: Ingestion to Detection - FSC-30039
Demonstrate knowledge and understanding of the role of chemistry in sustainability and an awareness of the impact of chemistry in currently global challenges.	Kinetics, Catalysis and Mechanism - CHE-30078 Synthetic Strategies in Organic Chemistry - CHE-30080
Demonstrate knowledge and understanding of the principles of crime scene investigation, the place of forensic science within the legal framework, and the role of the expert witness in court	Forensic Toxicology: Ingestion to Detection - FSC-30039 Explosives, Arson and Evidence - FSC-30043 Crime Scene to Court - FSC-30049

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
Be able to work safely and ethically, managing documentation including COSHH, risk assessments and SOPs.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Explosives, Arson and Evidence - FSC-30043
Be able to demonstrate practical competence in laboratory techniques, including operation of a range of instrumentation.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Explosives, Arson and Evidence - FSC-30043
Be able to formulate, test and refine chemical hypotheses through scientific investigation.	Independent Research Project - CHE-30066 Forensic Chemistry Literature Review - FSC-30041
Be able to interpret and evaluate the significance of the results of a forensic investigation in the context of the circumstances of the crime, using appropriate statistical tools.	Forensic Toxicology: Ingestion to Detection - FSC-30039 Explosives, Arson and Evidence - FSC-30043 Crime Scene to Court - FSC-30049
Be able to process, transform and critically evaluate qualitative and quantitative datasets.	Independent Research Project - CHE-30066 Inorganic, Physical and Quantum Chemistry - CHE-30072 Kinetics, Catalysis and Mechanism - CHE-30078
Be able to prepare a written statement of expert testimony and defend it under cross-examination in a court setting.	Crime Scene to Court - FSC-30049

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Be able to conduct research, engaging with chemical literature to source, interpret, collate and cite relevant information.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Inorganic, Physical and Quantum Chemistry - CHE-30072 Kinetics, Catalysis and Mechanism - CHE-30078 Forensic Chemistry Literature Review - FSC-30041
Be able to demonstrate numeracy and digital skills, working confidently with mathematical concepts and employing a range of computational tools, including specialist scientific software.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Inorganic, Physical and Quantum Chemistry - CHE-30072 Kinetics, Catalysis and Mechanism - CHE-30078
Be able to communicate scientific information and ideas through oral and written methods as appropriate, to a range of different audiences.	Independent Research Project - CHE-30066 Kinetics, Catalysis and Mechanism - CHE-30078 Forensic Toxicology: Ingestion to Detection - FSC-30039 Forensic Chemistry Literature Review - FSC-30041 Crime Scene to Court - FSC-30049
Be able to display reflective practice and professionalism through self-direction and collaborative work	Independent Research Project - CHE-30066 Forensic Toxicology: Ingestion to Detection - FSC-30039 Forensic Chemistry Literature Review - FSC-30041 Crime Scene to Court - FSC-30049
Be able to solve complex problems with self-direction and originality, by clearly formulating the problem, identifying the key issues and generating different approaches to its solution.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Kinetics, Catalysis and Mechanism - CHE-30078 Forensic Toxicology: Ingestion to Detection - FSC-30039 Explosives, Arson and Evidence - FSC-30043
Be able to work both independently and as part of a team to plan, organise and perform work efficiently and conscientiously, and meet appropriate deadlines.	Independent Research Project - CHE-30066 Chemical Analysis: Instrumentation and Evaluation - CHE-30070 Forensic Toxicology: Ingestion to Detection - FSC-30039 Forensic Chemistry Literature Review - FSC-30041 Crime Scene to Court - FSC-30049

Level 7

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Demonstrate knowledge and understanding of a broad range of chemical concepts spanning the full breadth of chemistry, with focus in forensic and analytical chemistry.	Synoptic Topics and Modern Trends in Chemistry - CHE-40070 Major Scene Investigation: From Crime to Trial - FSC-40039 Forensic Research Skills - FSC-40045
Demonstrate knowledge and understanding of how chemical concepts can be applied to solve problems, particularly in (but not exclusive to) forensic analysis.	Synoptic Topics and Modern Trends in Chemistry - CHE-40070 Major Scene Investigation: From Crime to Trial - FSC-40039 Forensic Research Skills - FSC-40045
Demonstrate knowledge and understanding of the role of chemistry in sustainability and an awareness of the impact of chemistry in currently global challenges.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Major Scene Investigation: From Crime to Trial - FSC-40039
Demonstrate knowledge and understanding of the principles of crime scene investigation, the place of forensic science within the legal framework, and the role of the expert witness in court	MChem Forensic Chemistry Independent Research Project - CHE-40072 Major Scene Investigation: From Crime to Trial - FSC-40039 Forensic Research Skills - FSC-40045

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
Be able to work safely and ethically, managing documentation including COSHH, risk assessments and SOPs.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Forensic Research Skills - FSC-40045
Be able to demonstrate practical competence in laboratory techniques, including operation of a range of instrumentation.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Major Scene Investigation: From Crime to Trial - FSC-40039 Forensic Research Skills - FSC-40045
Be able to formulate, test and refine chemical hypotheses through scientific investigation.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Forensic Research Skills - FSC-40045
Be able to interpret and evaluate the significance of the results of a forensic investigation in the context of the circumstances of the crime, using appropriate statistical tools.	Major Scene Investigation: From Crime to Trial - FSC-40039
Be able to process, transform and critically evaluate qualitative and quantitative datasets.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Forensic Research Skills - FSC-40045
Be able to prepare a written statement of expert testimony and defend it under cross-examination in a court setting.	Major Scene Investigation: From Crime to Trial - FSC-40039

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Be able to conduct research, engaging with chemical literature to source, interpret, collate and cite relevant information.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Forensic Research Skills - FSC-40045
Be able to demonstrate numeracy and digital skills, working confidently with mathematical concepts and employing a range of computational tools, including specialist scientific software.	Major Scene Investigation: From Crime to Trial - FSC-40039 Forensic Research Skills - FSC-40045
Be able to communicate scientific information and ideas through oral and written methods as appropriate, to a range of different audiences.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Major Scene Investigation: From Crime to Trial - FSC-40039
Be able to display reflective practice and professionalism through self-direction and collaborative work	MChem Forensic Chemistry Independent Research Project - CHE-40072 Forensic Research Skills - FSC-40045
Be able to solve complex problems with self-direction and originality, by clearly formulating the problem, identifying the key issues and generating different approaches to its solution.	Synoptic Topics and Modern Trends in Chemistry - CHE-40070 MChem Forensic Chemistry Independent Research Project - CHE-40072 Forensic Research Skills - FSC-40045
Be able to work both independently and as part of a team to plan, organise and perform work efficiently and conscientiously, and meet appropriate deadlines.	MChem Forensic Chemistry Independent Research Project - CHE-40072 Forensic Research Skills - FSC-40045

9. Final and intermediate awards

Credits required for each level of academic award are as follows:

Master in Forensic Chemistry (MChem)	480 credits	You will require at least 120 credits at levels 4, 5, 6 and 7 You must accumulate at least 360 credits in your main subject (out of 480 credits overall) to graduate with a named single honours degree in this subject.
Honours Degree	360 credits	You will require at least 120 credits at levels 4, 5 and 6 You must accumulate a minimum of 270 credits in your main subject (out of 360 credits overall), with at least 90 credits in each of the three years of study, to graduate with a named single honours degree in this subject.
Diploma in Higher Education	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
Certificate in Higher Education	120 credits	You will require at least 120 credits at level 4 or higher

International Year option: in addition to the above students must pass a module covering the international year in order to graduate with a named degree including the 'international year' wording. Students who do not complete, or fail the international year, will be transferred to the three-year version of the programme.

Work Placement Year option: in addition to the above students must pass a non-credit bearing module covering the work placement year in order to graduate with a named degree including the 'with Work Placement Year' wording. Students who do not complete, or fail the work placement year, will be transferred to the three-

year version of the programme.

10. How is the Programme Assessed?

The wide variety of assessment methods used on this programme at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance.

Our assessment strategy will help you to develop and evidence your ability to:

1. Conduct and report practical work

We place a strong emphasis on developing robust laboratory skills and confident use of research grade equipment. A **practical exam** at the end of 1st year consolidates the laboratory skills you have developed and gives confidence in progressing to the advanced practical skills in 2nd year. Reporting of practical work during years 1 and 2 use **electronic lab portfolios** to scaffold the development of record keeping, data analysis and chemical characterisation, setting you up for the professional **electronic lab notebooks** required for record keeping in your independent research in 3rd year and MChem projects. You are taught to prepare a professional **lab report** in year 1, develop this to a publication format **scientific paper** in year 2, culminating in writing up your own **research paper** at 3rd year and culminating in a 15,000 word **dissertation** on your research project in your MChem year. You will apply the principles and procedures for crime scene investigation to a scenario, critically review data and outcomes in light of the chain of custody for the evidence, and make critical judgements in **strategic forensic reports.**

2. Apply knowledge and understanding to solve problems

Problem solving skills are developed throughout the programme through formative problems and assessed **problem sheets**. These assessments are typically based on authentic chemistry tasks and forensic case work and may incorporate information retrieval tasks and/or data analysis. The use of written **examinations** and **class tests** in selected modules assess your ability to solve problems in a time limited fashion under invigilated conditions and supports the consolidation of knowledge. The style of questions develop from short answer questions testing core theory and familiar problem-solving tasks in 1st year to longer questions assessing critical judgment and applied problem solving in later years. To support the emphasis on problem-solving you will be encouraged to create your own content summary pages, which are permitted in some exam assessments in 3rd year. In the MChem year, **interview** assessment probing depth and breadth of knowledge is used alongside written exams.

3. Demonstrate a range of scientific skills

You will develop a broad range of scientific skills over the course of your degree, which are assessed through authentic **exercises** and scientific **reports**. These include the development of digital skills for creating, manipulating and processing data, using specialist scientific software, and design exercises where you will apply your skills to propose creative solutions to synthetic challenges.

4. Communicate effectively with a range of audiences

In addition to the formal reporting of practical work, your ability to source and communicate information from scientific literature is developed from writing for a lay audience in 1st year, through to more formal scientific and business writing tasks in 2nd year to a scientific **literature review** on a topic of your choosing in 3rd year.

Oral communication skills are developed through a **group presentation** in 2nd year and an individual **presentation** in 3rd year on your choice of topic, summarising the research literature in that field. A **technical interview** in 3rd year allows you to demonstrate your understanding of a topic in an oral discussion, replicating an interview style experienced in many scientific careers, and this is expanded in the MChem year with a **synoptic viva.**

A series of **poster, infographic, and technical leaflet** assessments assess your ability to summarise detailed knowledge in a highly visual and accessible format. These build to you presenting a conference style poster session in 3rd year, delivering an elevator pitch and answering questions on your poster. In your MChem

Preparing court **expert witness statements** allow you to understand the place of forensic science within the legal framework and the role of the expert witness in court. These reports test your ability to interpret and evaluate the significance of the results of forensic investigation in the context of the circumstances of the crime, and be able to communicate the facts in an appropriate manner for the courtroom and defend these under cross examination.

5. Work professionally, both individually and collaboratively

Reflective diaries are used in 1st and 2nd year to document learning experiences and the acquisition of

professional and employability skills. A series of **group assignments** in 2nd year focus on developing the skills needed to work successfully in group environments, including collaboratively producing a business proposal and simulating real forensic analysis teams.

In 3rd year you will undertake an individual research project, working collaboratively with an academic member of staff to plan, review and manage progress. This is further developed in your final year, when you will be working within a collaborative research environment to conduct a significant piece of research that is potentially publishable (approx. 400 practical hours). These projects, documented through detailed record keeping (**lab books**), and communicated through appropriate scientific writing (**research paper**/ **literature review** / **dissertation**) and oral communication (**presentation and viva**) draw together the professional skills required of chemists and forensic scientists in the 21st century.

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity

	Scheduled learning and teaching activities	**Guided independent Study**	**Placements**
Year 1 (Level 4)	27.9%	72.1%	0%
Year 2 (Level 5)	34.9%	65.1%	0%
Year 3 (Level 6)	25.1%	74.9%	0%
Year 4 (Level 7)	14.6%	85.4%	0%

12. Accreditation

Accreditation for the MChem Forensic Chemistry degree (including all International Year and Work Placement Year combinations) will be sought from the Royal Society of Chemistry and the Chartered Society of Forensic Sciences upon completion of a full degree cycle. This is a requirement of the Societies.

13. University Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: http://www.keele.ac.uk/student-agreement/

If this programme has any exemptions, variations or additions to the University Regulations these will be detailed in an Annex at the end of this document titled 'Programme-specific regulations'.

14. What are the typical admission requirements for the Programme?

See the relevant course page on the website for the admission requirements relevant to this programme: https://www.keele.ac.uk/study/

English for Academic Purposes

Please note: All new international students entering the university will provide a sample of Academic English during their registration Using this sample, the Language Centre may allocate you to an English language module which will become compulsory. This will replace any GCP modules. *NB:* students can take an EAP module only with the approval of the English Language Programme Director and are not able to take any other Language modules in the same academic year.

English Language Modules at Level 4:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2)
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

English Language Modules at Level 5:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2)
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

English Language Modules at Level 6:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2); ENL-90005 Advanced Business English Communication
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

Recognition of Prior Learning (RPL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here: https://www.keele.ac.uk/qa/programmesandmodules/recognitionofpriorlearning/

15. How are students supported on the programme?

Support for student learning on the Programme is provided in the following ways:

1. **Academic Mentors**: You are allocated an Academic Mentor for the duration of your studies as part of the University's Academic Mentoring system and in accordance with the University Code of Practice on Academic Mentoring. The role of the Academic Mentor is to meet formally with you periodically to discuss your progress and performance and to offer support and advice. You can make arrangements to see your Academic Mentor at any time during your studies.
2. **Use of e-learning/the Keele Learning Environment (KLE)**: All modules belonging to the programme are supported by electronic learning resources in accessible formats that are available to students *via* the KLE.
3. **Health and Safety:** All students admitted to the programme receive detailed training on health and safety in the laboratory and are provided with a Safety Handbook, Safety Glasses and a Laboratory Coat. Other personal protective equipment (PPE) will be provided as required.
4. **Students with disabilities, medical conditions or dyslexia:** Students admitted to the programme with disabilities or medical conditions are asked to disclose any conditions relevant to their studies to Student Services. Module Leaders, in conjunction with the school Disability Inclusion Tutor and faculty Student Experience and Support Officer are responsible for ensuring reasonable adjustments are made.
5. **School Student Experience and Support Officer (SESO)**: If you need to talk to someone, whether it's about your studies or life outside of them, Student Services have a dedicated SESO for the School. Your SESO works closely with teams such as Disability Support and Inclusion, Student Financial Support, Counselling and Mental Health, Residence Life and Chaplaincy, as well as your School itself, to ensure that all students can easily access the support they need.
6. Support for students on the **International Year** or the **Work Placement Year i**s detailed in the relevant annexes at the end of this document.

16. Learning Resources

Practical sessions in Forensic Chemistry are based in the Central Science Laboratories (CSL), which house modern, well-equipped teaching and research laboratory facilities, including up-to-date PC suites and state-of-the-art analytical instrumentation. You also have use of electronic resources are accessible on or off campus.

Each module has a site within the university's virtual learning environment (the Keele Learning Environment or KLE), which hosts teaching materials (lecture notes/slides, laboratory scripts, assessments and briefing documents, past examination papers, online quizzes, videos/screencasts and audio clips) and useful links. A module handbook for each module summarises details of the specific learning outcomes, Graduate Attributes, and assessments relating to each module, alongside detailed assessment briefing documents for all assessments.

Interactive lectures and other non-laboratory taught sessions are taught across the campus in modern teaching rooms equipped with screens for use with visualisers and tablet PCs. Sessions are recorded using the university's lecture capture platform Panopto and are also accessible through the KLE.

Additional learning resources available to you on the programme include:

- An extensive collection of books and journals held in the University Library on campus
- Access to a comprehensive range of ebooks, journals and published papers all available online.
- Bookable study spaces and academic skill development resources and workshops.

17. Other Learning Opportunities

Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided in Annex A.

Work Placement Year

Students have the opportunity to apply directly for the 5-year 'with Work Placement Year' degree programme or to transfer onto the 5-year degree programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 5-year degree programme may transfer onto the 4-year MChem degree programme at any point in time, prior to undertaking their year-long placement. To be eligible for the placement year, students must have a good University attendance record. They must also have passed all Year 1 and Year 2 Semester 1 modules. Students must have met the progression requirements to proceed to their final year of study prior to commencing a placement.

Students wishing to take the work placement year should meet with the Programme Director to obtain their signature to confirm agreement before they will be allowed to commence their placement.

International students who require a Tier 4 visa must check with the Immigration Compliance Team prior to commencing any form of placement.

A summary of the Work Placement Year, which is a potential option for students after completion of year 2 (Level 5), is provided in Annex B.

18. Additional Costs

Activity	Estimated Cost
PPE equipment (laboratory coats and glasses) are provided by the School at no cost to the student. Students will be required to have a laboratory notebook, this is provided at no cost to the student in the induction session and can be used for multiple modules/years. Replacement items are available from the School Stores, the 2025/26 price for these are listed below: Laboratory Book - £2.00 Laboratory Glasses - £3.75 Laboratory Coat - £15	£0 - £20
Textbooks and printing: Students will be required to supply appropriate writing equipment and may chose to print copies of lecture materials. All core textbooks are available in the main University Library. To increase the availability of these resources, eBooks are also purchased alongside the printed text where available; these can be accessed through the University Library Catalogue. Additional costs may be incurred if the student wishes to purchase any book for themselves.	£10 - £280

If you elect to take one of the optional modules:

1. NAT-30008: Flexible Work Placement (level 6)
2. NAT-30012: Professional Experience in Education

You will have to bear the costs of travelling to and from your placement provider, and if necessary, accommodation, food and personal costs. Depending on the placement provider additional costs may include parking permits, travel and transport, suitable clothing, DBS checks, and compulsory health checks.

A small stipend may be available from the placement provider for work placements, but this will need to be explored on a placement-by-placement basis as some organisations, such as charities, may not have any extra money available. Students should budget with the assumption that their placement will be unpaid.

International students who require a Tier 4 visa should check with the Immigration Compliance team prior to commencing any type of paid placement to ensure that they are not contravening their visa requirements.

These costs have been forecast by the University as accurately as possible but may be subject to change as a result of factors outside of our control (for example, increase in costs for external services). Forecast costs are reviewed on an annual basis to ensure they remain representative. Where additional costs are in direct control of the University we will ensure increases do not exceed 5%.

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation. We do not anticipate any further costs for this programme.

19. Quality management and enhancement

The quality and standards of learning in this programme are subject to a continuous process of monitoring, review and enhancement.

- The School Education Committee is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Revalidation process.

Student evaluation of, and feedback on, the quality of learning on every module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of annual programme review.
- Findings related to the programme from the annual Postgraduate Taught Experience Survey (PTES), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students on the programme is considered and acted on at regular meetings of the Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:
http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/

20. The principles of programme design

The programme described in this document has been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

a. UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education: http://www.qaa.ac.uk/quality-code
b. QAA Subject Benchmark Statement: (Chemistry, 2022): https://www.qaa.ac.uk/the-quality-code/subject-benchmark-statements/chemistry
c. Keele University Regulations and Guidance for Students and Staff: http://www.keele.ac.uk/regulations
d. Royal Society of Chemistry Accreditation Information (2024): https://www.rsc.org/membership-and-community/degree-accreditation/

21. Annex - International Year

MChem Forensic Chemistry with International Year

International Year Programme

Students registered for this Single Honours programme may either be admitted for or apply to transfer during their period of study at Level 5 to the International Year option. Students accepted onto this option will have an extra year of study (the International Year) at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the standard programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the International Year option.

International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject
2. Experience of a different culture, academically, professionally and socially

Entry Requirements for the International Year

Students may apply to the 4-year programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 55% across all modules in Semester 1 at Level 5 is normally required. Places on the International Year are then conditional on achieving an average mark of 55% across all Level 5 modules. Students with up to 15 credits of re-assessment who meet the 55% requirement may progress to the International Year. Where no Semester 1 marks have been awarded performance in 1st year marks and ongoing 2nd year assessments are taken into account)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's Academic Mentor, 1st and 2nd year tutors and programme director)

Students may not register for both an International Year and a Placement Year.

Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutor, in line with recommended Academic Mentoring meeting points.
- Support from the University's Global Education Team

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

1. Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
2. Discuss the benefits and challenges of global citizenship and internationalisation
3. Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.
4. Reflect on the international relevance of Chemistry and related disciplines, and their importance for addressing regional and global environmental, economic and technological challenges.
5. Consider different modes and methods of learning and teaching in the physical sciences from an international standpoint and relate these to your own development as a scientist.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

Regulations

Students registered for the International Year are subject to the programme-specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any module with significant overlap to the Level 6 modules they will study on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

Additional costs for the International Year

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students who meet external eligibility criteria may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

22. Annex - Work Placement

MChem Forensic Chemistry with Work Placement Year

Work Placement Year summary

Students registered for this programme may either be admitted for or apply to transfer during their studies to the 'with Work Placement Year' option (NB: for Combined Honours students the rules relating to the work placement year in the subject where the placement is organised are to be followed). Students accepted onto this programme will have an extra year of study (the Work Placement Year) with a relevant placement provider after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the Work Placement Year will be permitted to progress to Level 6. Students who fail to satisfactorily complete the Work Placement Year will normally revert to the 3-year programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the Work Placement Year option.

Work Placement Year Programme Aims

In addition to the programme aims specified in the main body of this document, the Work Placement Year aims to provide students with:

1. the opportunity to carry out a long-term work-based learning experience within an industry of their choice between Years 2 and 3 (Levels 5 and 6) of their degree programme. The module will be underpinned by reflective assessment, employer and tutor evaluation and support from the Placements and Projects Manager and Academic Placements Link.

Entry Requirements for the Work Placement Year

Admission to the Work Placement Year is subject to successful application, interview and references from appropriate staff. Students have the opportunity to apply directly for the 4-year 'with work placement year' degree programme, or to transfer onto the 4-year programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 4-year degree programme may transfer onto the 3-year degree programme at any point in time, prior to undertaking the year-long work placement. Students who fail to pass the work placement year, and those who fail to meet the minimum requirements of the work placement year module (minimum 30 weeks full time (1,050 hours), or equivalent, work placement), will be automatically transferred onto the 3-year degree programme.

The criteria to be applied are:

- A good University attendance record and be in 'good academic standing'.
- Academic Performance (an average of 50% across all modules in Semester 1 at Level 5 is normally required. Places on the Work Placement Year are then conditional on achieving an average mark of 50% across all Level 5 modules. Students with up to 15 credits of re-assessment who meet the 50% requirement may progress to the Work Placement Year. Where no Semester 1 marks have been awarded performance in 1st year marks and ongoing 2nd year assessments are taken into account)
- Students undertaking work placements will be expected to complete a Health and Safety checklist prior to commencing their work experience and will be required to satisfy the Health and Safety regulations of the company or organisation at which they are based.
- *(International students only)* Due to visa requirements, it is not possible for international students who require a Tier 4 Visa to apply for direct entry onto the 4-year with Work Placement Year degree programme. Students wishing to transfer onto this programme should discuss this with student support, the academic tutor for the work placement year, and the Programme Lead. Students should be aware that there are visa implications for this transfer, and it is the student's responsibility to complete any and all necessary processes to be eligible for this programme. There may be additional costs, including applying for a new Visa from outside of the UK for international students associated with a transfer to the work placement programme.

Students may not register for both an International Year and a Work Placement Year.

Student Support

Students will be supported whilst on the Work Placement Year via the following methods:

- Regular contact between the student and a named member of staff who will be assigned to the student as their University supervisor. The University supervisor will be in regular contact with the student throughout the year, and be on hand to provide advice (pastoral or academic) and liaise with the Placement supervisor on the student's behalf if required.
- Two formal contacts with the student during the placement year: the University supervisor will visit the student in their placement organization at around 5 weeks after the placement has commenced, and then visit again (or conduct a telephone/video call tutorial) at around 15 weeks into the placement.
- Weekly supervision sessions will take place with the placement supervisor (or his/her nominee) throughout the duration of the placement.

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete the 'with Work Placement Year' option will be able to:

1. Identify areas for skills development, in relation to a specific career or sector.
2. Demonstrate skills and attribute development through engagement with a placement.
3. Reflect on the broader personal and professional development throughout the placement experience.
4. Devise an action plan for future careers development.

These learning outcomes will be assessed through the non-credit bearing Work Placement Year module (NAT-30010) which involves:

- Skills Audit and Placement Plan - Students will identify and outline knowledge, skills or professional behaviours not already possessed, or needed to progress in a given field, sector or role, with a justification for how the placement can support their personal & professional development.
- Presentation - Students complete a 15-minute presentation that outlines their development until this point in relation to their skills audit and what further development needs to happen before the end of the project. Students also have to engage in a question and answer session with the audience.
- Employability Portfolio consisting of:

a. A reflective diary with regular reflections, approximately every 100 hours, in the form of a blog/vlog (equivalent to 2,500 words)

b. Complete a recorded interview video answering a series of interview style questions in which you draw on anecdotes from your project demonstrating a broad range of professional and personal development (15-20 minutes)

Regulations

Students registered for the 'with Work Placement Year' option are subject to programme-specific regulations (if any) and the University regulations. In addition, during the Work Placement Year, the following regulations will apply:

- Students undertaking the Work Placement Year must successfully complete the zero-credit rated Professional Placement Year module (NAT-30010)
- In order to ensure a high quality placement experience, each placement agency will sign up to a placement contract (analogous to a service level agreement).
- Once a student has been accepted by a placement organisation, the student will make a pre-placement visit and a member of staff identified within the placement contract will be assigned as the placement supervisor. The placement supervisor will be responsible for ensuring that the placement experience meets the agreed contract agreed with the University.
- The placement student will also sign up an agreement outlining his/her responsibilities in relation to the requirements of each organisation.

Students will be expected to behave professionally in terms of:

(i) conforming to the work practices of the organisation; and

(ii) remembering that they are representatives of the University and their actions will reflect on the School and have an impact on that organisation's willingness (or otherwise) to remain engaged with the placement.

Additional costs for the Work Placement Year

Tuition fees for students on the Work Placement Year will be charged at 20% of the annual tuition fees for that year of study, as set out in Section 1. The Work Placement Year can be included in your Student Finance allocation; to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their placement provider, accommodation, food and personal costs. Depending on the placement provider additional costs may include parking permits, travel and transport, suitable clothing, DBS checks, and compulsory health checks.

A small stipend may be available to students from the placement provider during the placement but this will need to be explored on a placement-by-placement basis as some organisations, such as charities, may not have any extra money available. Students should budget with the assumption that their placement will be unpaid.

Eligibility for student finance will depend on the type of placement and whether it is paid or not. If it is paid, this is likely to affect student finance eligibility, however if it is voluntary and therefore unpaid, should not affect student finance eligibility. Students are required to confirm eligibility with their student finance provider.

International students who require a Tier 4 visa should check with the Immigration Compliance team prior to commencing any type of paid placement to ensure that they are not contravening their visa requirements.

23. Annex - Programme-specific regulations

Programme Regulations: MChem Forensic Chemistry

Final Award and Award Titles	Master in Forensic Chemistry (MChem)
Intermediate Award(s)	BSc (Hons) Forensic Chemistry Diploma in Higher Education Certificate in Higher Education
Last modified	n/a
Programme Specification	https://www.keele.ac.uk/qa/programmespecifications

The University's Academic Regulations which can be found on the Keele University website (https://www.keele.ac.uk/regulations/)[1] apply to and regulate the programme, other than in instances where the specific programme regulations listed below over-ride them. These programme regulations list:

- *Exemptions* which are characterised by the omission of the relevant regulation.
- *Variations* which are characterised by the replacement of part of the regulation with alternative wording.
- *Additional Requirements* which set out what additional rules that apply to students in relation to this programme.

The following **exemptions, variations** and **additional requirements** to the University regulations have been checked by Academic Services and have been approved by the Faculty Education Committee.

A) EXEMPTIONS

The clause(s) listed below describe where an exemption from the University's Academic Regulations exists:

For the whole duration of their studies, students on this Programme are exempt from the following regulations:

- **No exemptions apply.**

B) VARIATIONS

The clause(s) listed below describe where a variation from the University's Academic Regulations exists:

Variation 1: Detail of the Award

1. Any student who fails to satisfy the requirements for progression to Level 7 shall revert to BSc Honours Degree candidature and be considered for the award of an Honours Degree (BSc Forensic Chemistry) under the provisions of regulation C3.
2. Any student who fails to satisfy the requirements for the award of a Master's degree shall revert to BSc Honours Degree candidature and be considered for an award as detailed in part 1 above.

Variation 2: Condonement

The CHE-10061 (Practical and Professional Chemistry Skills), CHE-20099 (Practical and Professional Chemistry), FSC-20027 (Chemical Analysis and Detection), CHE-30066 (Independent Research Project) and FSC-30041 (Forensic Chemistry Literature Review) modules must be passed at 40% and are not eligible for condonement due to accreditation requirements. All other modules are eligible for condonement as defined in Regulation D5.

Variation 3: Work Placement Year Eligibility

In order to be eligible to pursue a work placement year between level 5 and level 6, students must meet all university requirements and have demonstrated suitable competency in relevant practical and professional skills where appropriate.

C) Additional Requirements

The programme requirements listed below are in addition to the University's Academic Regulations:

Additional requirement 1: Laboratory and Practical Classes

1. Laboratory and practical sessions are compulsory and are essential in fulfilling the intended learning outcomes of modules of which they are part, and a requirement of Royal Society of Chemistry accreditation. Over a semester, failure to attend >70% of the laboratory/practical classes without approval, may result in failure of the relevant modules with no reassessment being offered. In addition, students must meet any ILOs related to practical sessions in each module, where appropriate. Failure to attend laboratory/practical sessions in a given module, without approval, may result in failure of the relevant modules with no reassessment being offered.
2. Any student failing to follow the health and safety guidelines in the undergraduate laboratory will be asked to leave. This may include inappropriate dress, refusal to follow reasonable requests of staff, late attendance resulting in missed safety briefings, or attending under the influence of alcohol or other substances. The student will not be permitted to make up the missed session.

Additional requirement 2: Coursework Assessment

Failure to engage appropriately with a module's coursework assessment items without good cause (that is, by failing to submit more than 50% of coursework items) may result in reassessment being denied.

[1] References to University Regulations in this document apply to the content of the University's Regulatory Framework as set out on the University website here https://www.keele.ac.uk/regulations/.

Version History

This document

Date Approved: 15 April 2026

Previous documents

Version No	Year	Owner	Date Approved	Summary of and rationale for changes