

Programme Specification: Undergraduate

For students starting in Academic Year 2024/25

1. Course Summary

Names of programme and award title(s)	MSci Forensic and Analytical Investigation MSci Forensic and Analytical Investigation with International Year (see Annex 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 the International 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)	This programme is accredited by the Chartered Society of Forensic Sciences. For further details see the section on Accreditation.
Regulator	Office of Students (OfS)
Tuition Fees	<p>UK students:</p> <p>Fee for 2024/25 is £9,250*</p> <p>International students:</p> <p>Fee for 2024/25 is £20,700**</p> <p>The fee for the international year abroad is calculated at 15% of the standard year fee</p>

Please note this document applies to Level 6 (Year 3) and Level 7 (Year 4) students in 2024/25. Level 4 (Year 1) and Level 5 (Year 2) students should refer instead to the Forensic Science (Integrated Masters) document

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/>

** 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 Masters programme?

Integrated master's awards - which are common in science, mathematics and engineering - are delivered through a programme that combines study at the level of a bachelor's degree with honours with study at master's level. As such, a student graduates with a master's degree after a single four-year programme of study. The Integrated Masters programme described in this document builds upon the three year Single Honours Forensic Science programme by adding a fourth year in which students study modules at an advanced level.

3. Overview of the Programme

This four year undergraduate Masters programme aims to provide its graduates with a broad education in the core areas of forensic science, together with a sound theoretical and practical understanding of those analytical techniques that are of particular importance, not only to the analysis of forensic evidence, but also are applied to a wider range of materials within business and industry more generally.

The core curriculum encompasses key topics in forensic chemistry, analytical science, forensic biology and criminalistic science. This is complemented by study of the overarching forensic process, from the crime scene to the court which includes some emphasis on professional practice and an understanding of the roles of the crime scene investigator and the forensic scientist as an expert witness in the court.

Laboratory work features strongly across all years of the programme both to enable students to better understand the application of theoretical principles and to acquire a wide range of practical skills, including, in particular, the use of analytical instrumentation. Skills development is expanded, to include, in addition, a wide range of transferrable skills, through the team project in year 3 and the individual extended project all students undertake in the final year of the programme.

4. Aims of the programme

The broad educational aims of the programme are informed by the QAA Benchmark Statement for Forensic Science and are given here according to three generic categories:

Knowledge

Overall the programme aims to:

- engender and develop an enthusiasm for forensic and analytical science and provide an intellectually stimulating and beneficial learning experience
- provide an education to master's level in key areas of analytical science, forensic chemistry, forensic biology and criminalistics
- enable development of a deep knowledge and experience of techniques relevant to the forensic and analytical sciences and their practical application across a range of relevant materials and samples
- engender a sound understanding of continuity of evidence and how the crime scene, the laboratory and the court contribute to the forensic and legal process
- foster a critical awareness of and engagement with current methods and techniques within the forensic and analytical sciences, some of which are at, or informed by, the forefront of the discipline

Skills

The programme will provide all students with opportunities to:

- develop practical, analytical, problem-solving and quantitative skills, including those related to experimental data analysis and the evaluation of evidence, within the forensic and analytical sciences, to master's level
- develop written and oral reporting skills to a level appropriate to the professional forensic or analytical scientist and the ability to convey scientific outcomes to non-scientists
- research, devise, plan, execute and report on an original investigation or research project within the discipline, both as an individual and as part of a team

Employment

The programme will enable all students to:

- acquire a clear understanding of the context within which the professional forensic scientist operates and recognition of the constraints and opportunities which that implies, including legal and ethical issues
- develop subject-specific knowledge and a range of technical and transferrable skills to enable entry to professional employment or doctoral level study
- develop a range of generic skills appropriate to the professional scientist including the ability to engage in independent learning appropriate to continuing professional development

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:

- Describe and explain in depth the principles of forensic chemistry, criminalistic science, analytical science and selected topics in forensic biology and possess competence in applying these principles to appropriate areas of the discipline.
- Critically assess a wide range of instrumental and other techniques relevant to the forensic and analytical sciences and use them competently to analyse a range of relevant materials and with regard to quality assurance issues
- Solve problems within forensic science by drawing on their scientific understanding and knowledge, and experience of experimental techniques
- Maintain an awareness of and engagement with current methods and techniques within the forensic and analytical sciences, some of which are at, or informed by, the forefront of the discipline
- Describe the place of forensic science within the legal framework and the role of the expert witness in court
- Engage effectively with the research literature across forensic and analytical science, use it to advance their understanding and apply it in practice
- Describe the legal and ethical issues which constrain the practice of the professional forensic or analytical scientist

Subject specific skills

Successful students will be able to:

- Execute practical work and critically analyse the results from experiments or investigations and draw valid conclusions.
- 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
- Prepare a written statement of expert testimony and defend it under cross-examination in a court setting
- Research, devise, plan, execute and report on an original investigation or research project within the discipline, both as an individual and as part of a team
- Work safely in the laboratory and manage risk assessments and other practices in a competent fashion.
- Select and utilise appropriate software, databases and other digital resources for the analysis and interpretation of instrumental and other laboratory data

Key or transferable skills (including employability skills)

Successful students will be able to:

- Solve familiar, unfamiliar and complex problems with self-direction and originality, by clearly formulating the problem, identifying the key issues and generating different approaches to its solution
- Analyse, synthesise and summarise data and information critically and appreciate its limitations
- Assess the merits of contrasting theories, explanations and strategies
- Make critical judgements by acquiring a range of evidence and information then formulating and testing hypotheses
- Present complex concepts and information in a clear and concise manner, both orally, in writing and by other means and to interact and communicate effectively within a wide range of professional environments, including to non-scientific audiences
- Work both independently and as part of a team, to plan, organise and perform work efficiently and conscientiously in a timely way, and meet appropriate deadlines
- Take responsibility for their own learning and develop a habit of critical reflection upon that learning
- Utilise a wide range of ICT skills, including the use of databases, software packages and modern methods of communication
- Work within an ethical framework and according to ethical, honest and acceptable practices
- Develop confidence in their own understanding and skills as well as a self-critical attitude to their own work and achievements
- Develop an adaptable and flexible approach to study, work and work-life balance

- Identify and work towards targets for ongoing professional development

The 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 and ethical awareness**. 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?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module and generally involve a blend of in-situ and digital approaches . They include the following:

- Lectures, including those from guest speakers from the profession
- Tutorials
- Practical laboratory classes
- Practical simulated crime scene examination (indoor and outdoor)
- Problems classes
- Oral presentations Poster presentations
- Presentation and cross-examination in a mock court setting or online
- Mini-projects
- Group/ team work Independent project work
- Literature research tasks
- Expert witness statement preparation
- Case studies
- Workshops
- Problem-based learning
- Directed reading Independent study
- Use of e-learning/the Keele Learning Environment (KLE) (Blackboard) and MS Teams

The lectures describe, explain and map out the academic content of modules as well as engendering and developing an enthusiasm for forensic and analytical science. Through examples and case studies discussed in the lectures, students develop critical skills in reviewing ideas, principles and applications. Informal tutorials provide occasional small group support to material discussed in lectures and problem classes have a dual role, firstly in enabling students to apply theoretical ideas to new problems and secondly, to allow the tutor to provide formative feedback on the students' learning during these activities.

Forensic and analytical sciences are laboratory-based disciplines and practical work is closely tied to the lectures thus enabling students to gain competence and confidence in the investigation and analysis of forensic evidence, using laboratory instrumentation as well as developing a critical awareness of the range of techniques available, their capabilities and limitations. Students working in the laboratory quickly gain an understanding of health and safety issues, manage risk assessments, maintaining accurate and informative laboratory notes and working with others in a safe and productive fashion. In a similar way, through small-group, tutor-guided exercises and team-led investigations in indoor and outdoor simulated crime scenes, students apply the principles and procedures of crime scene investigation to novel incidents, develop practical skills and learn how to implement a forensic strategy and ensure a rigorous chain of custody.

In working with laboratory data, students develop skills and confidence in data analysis, the use of software tools and databases and in communicating the outcomes of such work in the form of reports, oral presentations and as conference posters. They will also develop skills in working within small groups of various sizes in laboratory mini-projects, CSI teams, a fieldwork exercise and a large scale team project.

In preparing expert witness statements and through the presentation and cross-examination within the mock court, students develop understanding of the place of the forensic and investigative sciences within the legal framework, the role of the expert witness in court and some of the legal and ethical issues which constrain the practice of the professional forensic scientist.

By engaging in literature research tasks and through directed reading, students will advance their own understanding of the discipline, develop critical abilities, appreciate the limitations of information and assess the merits of contrasting theories, explanations and strategies. Through working on all assignments, students will develop organisational skills, efficient working practices and the ability to meet appropriate deadlines.

Through project work, students will research, devise, plan, execute and report on an original investigation within

the discipline either as an individual or as part of a team. They will work safely in the laboratory and engage in ethical, honest and acceptable practices throughout. At level 6 the team project focuses on developing these skills within the context of the research aims of the group as a whole and team members will be encouraged to engage with and support each other to facilitate the achievement of these aims. At level 7 the project work is undertaken on an individual basis with the expectation that each student will continue to develop as an independent learner, with supervisory support.

Throughout the programme students will undertake independent study that will require them to develop an adaptable and flexible approach to study, work and work-life balance. They will need to work towards identified targets for their own academic development, take responsibility for their own learning and thereby develop confidence in their own understanding and acquire a self-critical attitude to their own work and achievements. Consequently each student will develop practices which will enable them to engage with ongoing professional development throughout their careers.

All staff use the Keele Learning Environment and/or MS Teams to post learning resources for the modules on which they teach; these include lecture notes, recorded lectures and screencasts, module and laboratory handbooks, problem sheets, past exam papers, web- links to external resources, assignment briefs, assignment feedback and in some cases quizzes. Staff also use the KLE for electronic submission of work, marking and feedback and MS Teams to hold online tutorials, lectures and problem classes.

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.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways.

7. Teaching Staff

There are a number of additional guest lecturers from the 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, fire scene investigation and forensic toxicology. The Forensic Science academic staff have expertise and interests across the forensic sciences as well in chemistry and earth sciences. Most academic staff are active researchers in the forensic, analytical and chemical sciences and many have a distinguished track record in publication, the generation of grant income, industrial collaboration and as research journal reviewers. Several staff have particular interests in the development of teaching and learning methods within forensic and chemical sciences education and some are members of and active in the professional bodies for the forensic and chemical sciences. A number of staff are Fellows of the Higher Education Academy, have held Keele Teaching and Learning Awards and, within the School, several have been awarded the University Teaching Excellence Award. Additionally, the majority of staff contribute to widening participation and science outreach activities, and have demonstrated innovation and good practice in teaching and learning to take into account the diverse needs of all students.

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 programme to programme, 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 module 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.

Optional modules include Global Challenge Pathways - a choice of modules from different subject areas that count towards the overall credit requirement but not the number of subject-related credits.

Global Challenge Pathways can either be taken as one 15-credit module at Levels 4, 5 and 6, or one 15-credit module at Levels 5 and 6 (except for the TESOL pathway). **Information about Global Challenge Pathways**

can be found after the module lists for Level 6.

Language modules

Students on this programme will also be able to study language modules offered by the Language Centre, as part of a Global Challenge Pathway. You can enrol on either a Modern Language module [more information available at this [link](#)] (Semester 1 only) Teaching English to Speakers of Other Languages (TESOL) (Semesters 1 and 2) module (ENL-10053), or the Intercultural Explorer pathway (ENL-10057). See the Global Challenges Pathway information under the module lists for more details.

If you choose the Language Specialist pathway, you will automatically be enrolled on a Semester 2 Modern Language module as a continuation of your language of choice as a faculty funded 'additional' module. Undertaking a Modern Languages module in Semester 2 is compulsory if you wish to continue to the Language Specialist Global Challenge Pathway the following academic year.

For further information on the content of modules currently offered, please visit:

<https://www.keele.ac.uk/recordsandexams/modulecatalogue/>

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

Year	Compulsory	Optional	
		Min	Max
Level 5	90	30	30
Level 6	90	30	30
Level 7	90	30	30

The MSci Forensic and Analytical Investigation is a four-year integrated master's programme. In addition to entry at year 1, it is possible to join this programme at years 2 or 3 as long as you are currently studying for a BSc Forensic Science or a combined honours programme that includes a specialism in forensic science in the final year. If you join this programme in year 1 you will study all the compulsory modules listed below. If you join from one of the routes listed above you may not study the following modules depending on the year you transfer: year 1 modules CSC-10037, CRI-10010, FSC-10001; year 2 modules CHE-20047, CHE-20042, CHE-20063 and CHE-20077.

Module Lists

Level 5

Compulsory modules	Module Code	Credits	Period
Forensic Genetics	FSC-20003	15	Semester 1
Spectroscopy and Advanced Analysis	FSC-20005	15	Semester 1
Forensic Anthropology and Taphonomy	FSC-20007	30	Semester 1-2
Criminalistic Methods	FSC-20001	15	Semester 2
Drugs of Abuse	FSC-20009	15	Semester 2

Optional modules	Module Code	Credits	Period
Counterfeits, Fakes and Forgeries	FSC-20011	15	Semester 1
Digital Forensics	FSC-20013	15	Semester 2

Level 5 Module Rules

Students must select at least one of FSC-20011 and FSC-20013

Level 6

At Level 6, students take 90 credits of compulsory modules. The remaining 30 credits may either be used to take a GCP or the optional modules listed below.

Compulsory modules	Module Code	Credits	Period
Evaluation of evidence, explosives and arson	FSC-30007	15	Semester 1
Interpretation, Evaluation and Presentation of Evidence	FSC-30005	30	Semester 1-2
Forensic Science Research Project (30 credit)	FSC-30021	30	Semester 1-2
Forensic Toxicology	FSC-30017	15	Semester 2

Optional modules	Module Code	Credits	Period
Standardised Processes in Evidence Examination	FSC-30033	15	Semester 1
Environmental and Wildlife Forensics	FSC-30029	15	Semester 2
Advanced Forensic Biology	FSC-30031	15	Semester 2
Advanced Forensic Chemistry	FSC-30037	15	Semester 2

Level 6 Module Rules

Students can take EITHER FSC-30029 OR FSC-30037 in SEM2 not both.

Global Challenge Pathways (GCPs)

Students have the option of taking a Global Challenge Pathway, which includes one 15-credit module at Levels 4, 5 and 6, or one 15-credit module at Levels 5 and 6. Students who started a Global Challenge Pathway at Level 4 will continue with the same pathway at Level 5. Students joining Global Challenge Pathways at Level 5 can join any pathway (except TESOL). Students at Level 6 will continue with the same Global Challenge Pathway they studied at Levels 4 and/or Level 5.

Global Challenge Pathways offer students the chance to fulfil an exciting, engaging route of interdisciplinary study. Choosing a pathway, students will be presented with a global issue or 'challenge' which directly relates to societal issues, needs and debates. They will be invited to take part in academic and external facing projects which address these issues, within an interdisciplinary community of students and staff. Students completing a Global Challenge Pathway will receive recognition on their degree certificate.

<p>Digital Futures</p>	<p>The Digital Futures pathway offers you the opportunity to take an active role in current debates, cutting-edge research, and projects with external partners, addressing both the exciting potential and the challenges of disruptive digital transformation across all spheres of life.</p> <p>Part of a diverse and interdisciplinary pathway community, you will engage in exciting, impactful collaborative project work in innovative formats on areas that matter most to you. Engaged in real-world scenarios as digital citizens, you will expand, deepen, and mobilise knowledge and skills to drive inclusive, empowering, and sustainable change at local and global levels.</p> <p>Level 4 Module: A digital life: challenges and opportunities (GCP-10005)</p> <p>Level 5 Module: Digital World - People, Spaces, and Data (GCP-20005)</p> <p>Level 6 Module: Digital Citizenship and Sustainable Futures (GCP-30005)</p>
<p>Climate Change & Sustainability</p>	<p>Through the Climate Change & Sustainability pathway you will develop the skills, understanding and drive to become agents of change to tackle climate change and wider sustainability challenges.</p> <p>You will hear from international partners to learn about climate change and sustainability in different international contexts; lead your own projects to drive real change in your communities; and be part of educating and supporting others to help achieve a more sustainable future.</p> <p>Level 4 Module: Climate Change and Sustainable Futures: Global Perspectives (GCP-10009)</p> <p>Level 5 Module: Climate Change and Sustainability: Action and Activism (GCP-20009)</p> <p>Level 6 Module: Skills for Sustainability (GCP-30009)</p>
<p>Social Justice</p>	<p>The Social Justice pathway is based upon a transformative methodology which centres the student's role as 'agents of change' to reflect upon decolonising and feminist, perspectives on social justice, to forge critical outputs to transform the Sustainable Development Goals.</p> <p>You will develop research and engagement skills with local, national, and international partners from Universities, NGOs, International Human Rights frameworks. You will engage with key societal challenges focused upon the Sustainable Development Goals, to develop an intersectional response from identity-based perspectives on race, gender, sexualities and disabilities. The pathway will allow you to monitor and critically evaluate policies and human rights treaties, and produce and disseminate digitally fluent, international and sustainable project findings.</p> <p>Level 4 Module: Reflections on Social Injustices, Past and Present (GCP-10003)</p> <p>Level 5 Module: Strategic Interventions for Social Justice (GCP-20003)</p> <p>Level 6 Module: Transforming Social Justice; Global Perspectives (GCP-30003)</p>

<p>Enterprise & the Future of Work</p>	<p>In order to meet the challenges set out in the UN's Sustainable Development Goals we need to understand the power of enterprise and prepare for the future contexts of work, creativity and disruption. By providing you with the skills, knowledge and understanding of global challenges this pathway will prepare you to be part of future-facing solutions. This module will support you in developing creative, original thinking, allowing you to collaborate on projects that persuade and effect change, setting you up to thrive in future environments of work and innovation.</p> <p>Level 4 Module: Enterprise and the Future of Work (GCP-10007)</p> <p>Level 5 Module: Enterprise and the Future of Work: Collaborate to Innovate (GCP-20007)</p> <p>Level 6 Module: Enterprise and the Future of Work: Designing Change (GCP-30007)</p>
<p>Global Health Challenges</p>	<p>By taking the global health challenge pathway you will develop solutions to improve the health and quality of life for particular people and communities, engaging with these groups to co-design interventions.</p> <p>This pathway will provide you with skills that go beyond a focus on health and will allow you to develop your ability to work in a team and lead change in society. The knowledge, skills and work experience will complement your core degree and enhance your career opportunities and graduate aspirations.</p> <p>Level 4 Module: Key concepts and challenges in global health (GCP-10001)</p> <p>Level 5 Module: Using Evidence to Improve Global Health (GCP-20001)</p> <p>Level 6 Module: Working to Improve Global Health (GCP-30001)</p>

<p>Languages & Intercultural Awareness</p>	<p>Communication within and across cultures is inseparable from language, and development of intercultural awareness can enable you to actively contribute to the shaping of an international future. The Language and Intercultural Awareness pathway allows you to engage in genuine interdisciplinary and international exchange and to understand and explore the link between language, culture and communication. Each of the strands we offer provides you with skills and direct experience for active engagement in working to face global challenges.</p> <p>The Language Specialist: Become a specialist in one of our languages and graduate with a degree title that includes '... with competency in (Language)' or '... with advanced competency in (Language)'.</p> <p>The Language Taster: Explore a new language every year.</p> <p>The Certificate in TESOL (Teaching English to Speakers of Other Languages): (NB: only available if starting from Level 4) Enhance your undergraduate degree by studying the Trinity College Certificate in Teaching English to Speakers of Other Languages (TESOL). As an internationally recognised qualification, you can teach around the world, enabling you to travel whilst helping people develop their English Language Skills. You will also develop many transferable skills which will enhance your future employability.</p> <p>The Intercultural Explorer: Through an interdisciplinary understanding of intercultural communication - as both an academic discipline and as a tool to promote and engage in global activity, you will explore the concept of culture. Module content and assessments allow you to examine in-depth the role of both culture and language in, for example, the UN sustainability goals.</p> <p>Modules available:</p> <p>The Language Specialist:</p> <p>Any Semester 1 Language Module (the level at which you enter will be determined by your previous language learning experiences).</p> <p>The Language Taster:</p> <p>Any Semester 1 Language Module (the level at which you enter will be determined by your previous language learning experiences)</p> <p>The Certificate in TESOL (NB: only available if starting from Level 4):</p> <p>ENL-10053 TESOL 1</p> <p>ENL-20007 TESOL 2</p> <p>ENL-30009 TESOL 3</p> <p>The Intercultural Explorer:</p> <p>ENL-10057 The stories we live by</p> <p>ENL-20009 Who do you think you are?</p>
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Information on Global Challenge Pathways can be found here:
<https://www.keele.ac.uk/study/undergraduate/globalchallengepathways/>

Level 7

At Level 7, students take 90 credits of compulsory modules. The remaining 30 credits may either be used to take optional modules listed below.

Compulsory modules	Module Code	Credits	Period
Research Skills for Analytical Science	FSC-40009	15	Semester 1
MSci Independent Project	FSC-40011	60	Semester 1-2
Forensic Evidence: At the crime scene and in the court	FSC-40007	15	Semester 2

Optional modules	Module Code	Credits	Period
Advanced Topics in Forensic Science	FSC-40027	15	Semester 1-2
Advanced Analytical Science	FSC-40033	15	Semester 1-2
Advanced Topics in Skeletal Remains Recovery and Analysis	FSC-40021	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 5

Subject Knowledge and Understanding	
Learning Outcome	Module in which this is delivered
know and critically understand the well-established principles of forensic and analytical science, their development, the limits of that knowledge and how that influences analyses and interpretations based on that knowledge	Forensic Genetics - FSC-20003 Drugs of Abuse - FSC-20009 Criminalistic Methods - FSC-20001 Spectroscopy and Advanced Analysis - FSC-20005 FSC-20001, FSC-20003, FSC-20005, FSC-20009
know the main methods of enquiry in forensic and analytical science and be able to critically evaluate different approaches to solving problems	Forensic Genetics - FSC-20003 Spectroscopy and Advanced Analysis - FSC-20005 Drugs of Abuse - FSC-20009 Criminalistic Methods - FSC-20001 FSC-20001, FSC-20003, FSC-20005, FSC-20009
exercise personal responsibility and decision-making	Spectroscopy and Advanced Analysis - FSC-20005 Forensic Genetics - FSC-20003 Drugs of Abuse - FSC-20009 Criminalistic Methods - FSC-20001 FSC-20001, FSC-20003, FSC-20005, FSC-20009
know and critically understand the well-established principles of forensic and analytical science, their development, the limits of that knowledge and how that influences analyses and interpretations based on that knowledge	Drugs of Abuse - FSC-20009 Spectroscopy and Advanced Analysis - FSC-20005 Forensic Genetics - FSC-20003 Criminalistic Methods - FSC-20001 FSC-20001, FSC-20003, FSC-20005, FSC-20009
describe and explain the postmortem process of human decomposition and identify the variables which influence it	Forensic Anthropology and Taphonomy - FSC-20007
describe human teeth including dental anomalies, traits and pathological conditions	Forensic Anthropology and Taphonomy - FSC-20007
discuss how digital forensics investigations are carried out and describe how evidence is collected using digital tools and appropriate software	Digital Forensics - FSC-20013
describe, explain and critically review the principles and practices used for the examination of documents, counterfeit goods and forgeries in the forensic science and security contexts	Counterfeits, Fakes and Forgeries - FSC-20011
Awareness of GCP challenges	GCP modules

Subject Specific Skills	
Learning Outcome	Module in which this is delivered
apply underlying concepts in and principles of forensic and analytical science outside the context in which they were first studied	Forensic Genetics - FSC-20003 Drugs of Abuse - FSC-20009 Criminalistic Methods - FSC-20001 Spectroscopy and Advanced Analysis - FSC-20005 FSC-20001, FSC-20003, FSC-20005, FSC-20009
use a range of forensic and analytical techniques to undertake a critical analysis and to propose solutions based on the outcome of that analysis	Forensic Genetics - FSC-20003 Drugs of Abuse - FSC-20009 Spectroscopy and Advanced Analysis - FSC-20005 Criminalistic Methods - FSC-20001 FSC-20001, FSC-20003, FSC-20005, FSC-20009
apply underlying concepts in and principles of forensic and analytical science outside the context in which they were first studied	Criminalistic Methods - FSC-20001 Spectroscopy and Advanced Analysis - FSC-20005 Forensic Anthropology and Taphonomy - FSC-20007 Forensic Genetics - FSC-20003 FSC-20001, FSC-20003, FSC-20005, FSC-20009
use a range of techniques and methods to determine post-mortem interval	Forensic Anthropology and Taphonomy - FSC-20007 FSC-20007
identify the stages of decomposition and the variables that affect this both environmental and related to the body	Forensic Anthropology and Taphonomy - FSC-20007 FSC-20007
identify examples of species of insects most frequently found at crime scenes	Forensic Anthropology and Taphonomy - FSC-20007 FSC-20007
practice and evaluate anthropological methods used to create a biological profile and identify an individual	Forensic Anthropology and Taphonomy - FSC-20007 FSC-20007
discuss, select and apply appropriate analytical techniques for the physicochemical examination of various document related materials, including inks and paper, as well as drug, food and heritage specimens	Counterfeits, Fakes and Forgeries - FSC-20011 FSC-20011
communicate effectively and critically discuss the findings from the examination of documents, heritage specimens, counterfeit medicine and fraudulent food, both in the form of written reports and through oral presentation	Counterfeits, Fakes and Forgeries - FSC-20011 FSC-20011

Key or Transferable Skills (graduate attributes)	
Learning Outcome	Module in which this is delivered
effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences in an effective manner	All modules
work as part of a team	All modules
write scientific reports that describe and evaluate the operation and outcome of a particular experiment	All modules
maintain accurate records of laboratory work and use these to interpret the findings of an examination	All modules

Level 6

Subject Knowledge and Understanding	
Learning Outcome	Module in which this is delivered
systematically understand key aspects of forensic and analytical sciences, including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of a discipline	All modules
devise and sustain arguments, and/or to solve problems in the forensic science, using ideas and techniques, some of which are at the forefront of a discipline	All modules
appreciate the uncertainty, ambiguity and limits of knowledge	All modules
describe and comment upon particular aspects of current research, or equivalent advanced scholarship, in the discipline	All modules

Subject Specific Skills	
Learning Outcome	Module in which this is delivered
can apply the methods and techniques that they have learned, to review, consolidate, extend and apply their knowledge and understanding, and to initiate and carry out projects	Interpretation, Evaluation and Presentation of Evidence - FSC-30005
carry out a planned programme of investigative laboratory work, continually analysing the data obtained, enabling informed decisions to be made	Forensic Science Research Project (30 credit) - FSC-30021
describe the processes of fire scene investigation and the forensic analysis of fire scene evidence	Evaluation of evidence, explosives and arson - FSC-30007
describe and explain the principles of and be able to critically select and apply appropriate statistical approaches to the logical interpretation of evidence	Evaluation of evidence, explosives and arson - FSC-30007 Environmental and Wildlife Forensics - FSC-30029 Advanced Forensic Biology - FSC-30031 Interpretation, Evaluation and Presentation of Evidence - FSC-30005 Standardised Processes in Evidence Examination - FSC-30033
discuss, select and apply analytical techniques to the analysis of explosives and explosive residues as well as calculate the physical and thermochemical processes occurring in an explosion, combustion and in fires	Evaluation of evidence, explosives and arson - FSC-30007
make informed judgements about the issues, limitations and current knowledge in forensic science within the specialist areas, with particular emphasis on crime scene examination/ evidence in court issues	Standardised Processes in Evidence Examination - FSC-30033
initiate a programme of investigation into a clearly defined topic and summarise the project aims and key primary sources; communicate verbally and discuss the project aims, key findings and conclusions with other specialists	Forensic Science Research Project (30 credit) - FSC-30021
devise and execute appropriate analytical and other methods for the examination of forensic materials, including setting up casework experiments	Interpretation, Evaluation and Presentation of Evidence - FSC-30005
interpret critically data from forensic analysis in a meaningful and structured manner, including the use of statistical tests and databases where appropriate	All modules
report the results of forensic analysis both as a written report and orally in a form appropriate to a court of law and defend the conclusions under cross-examination	Interpretation, Evaluation and Presentation of Evidence - FSC-30005
be familiar with the processes of handling soft tissue remains and trauma in a forensic setting	Advanced Forensic Biology - FSC-30031
have an advanced understanding of estimating PMI from biological evidence	Advanced Forensic Biology - FSC-30031

Key or Transferable Skills (graduate attributes)	
Learning Outcome	Module in which this is delivered
can manage their own learning, and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to forensic science)	All modules
evaluate arguments, assumptions, abstract concepts and data (that may be incomplete) in a critical fashion , to make judgements, and to frame appropriate questions to achieve a solution - or identify a range of solutions - to a problem	All modules
exercise initiative and personal responsibility, exercise decision-making in complex and unpredictable contexts and appreciate need to undertake professional development	Interpretation, Evaluation and Presentation of Evidence - FSC-30005
communicate information, ideas, problems and solutions to both scientific and non-scientific audiences	Forensic Toxicology - FSC-30017 Standardised Processes in Evidence Examination - FSC-30033 Interpretation, Evaluation and Presentation of Evidence - FSC-30005
critically evaluate written scientific evidence	Forensic Toxicology - FSC-30017 Forensic Science Research Project (30 credit) - FSC-30021
plan and initiate a programme of practical work into a clearly defined area of the proposed forensic project	Forensic Science Research Project (30 credit) - FSC-30021
critically appraise information of relevance to the project (general) and specific area (individual) obtained from a variety of sources	Forensic Science Research Project (30 credit) - FSC-30021
communicate verbally the project aims, key literature findings, and plans for practical work	Forensic Science Research Project (30 credit) - FSC-30021
identify any ethical considerations related to a planned experiment	Forensic Science Research Project (30 credit) - FSC-30021
work as part of a team	Environmental and Wildlife Forensics - FSC-30029 Forensic Science Research Project (30 credit) - FSC-30021
critically appraise information of relevance to the topic obtained from a variety of sources including scientific literature, forensic science databases and other primary sources	Forensic Science Research Project (30 credit) - FSC-30021
produce a comprehensive dissertation outlining the project background, a critical summary of research, and conclusions drawn; demonstrate a systematic understanding of key aspects of the selected topic	Forensic Science Research Project (30 credit) - FSC-30021
set up examples of standard analytical instrumentation (including calibration), prepare appropriate samples and carry out straightforward laboratory measurements	Advanced Forensic Chemistry - FSC-30037
critically appraise the scale and nature of national and international environmental and wildlife crime and links to other types of serious crime	Environmental and Wildlife Forensics - FSC-30029
critically evaluate and apply the methods and procedures used in environmental and forensic wildlife crime scene investigation	Environmental and Wildlife Forensics - FSC-30029

Subject Knowledge and Understanding	
Learning Outcome	Module in which this is delivered
evaluate the range of techniques available to the analytical scientist and discuss their application and limitations to the analysis of a range of materials and samples	Advanced Analytical Science - FSC-40033
critically review a specific technique and its range of applications and communicate these findings to an audience of peers	Advanced Analytical Science - FSC-40033 Advanced Topics in Forensic Science - FSC-40027
critically appraise a methodology and select an appropriate analytical strategy for its examination	Advanced Analytical Science - FSC-40033
critically discuss current methods and techniques within the analytical sciences, some of which are at, or informed by, the forefront of the discipline	Advanced Analytical Science - FSC-40033

Subject Specific Skills	
Learning Outcome	Module in which this is delivered
set up examples of standard analytical instrumentation (including calibration), prepare appropriate samples and carry out straightforward laboratory measurements	Advanced Analytical Science - FSC-40033
design, develop and evaluate appropriate methods for data analysis and interpretation and apply these to experimental datasets of varying complexity, using a variety of relevant IT resources	Advanced Analytical Science - FSC-40033
critically review the results of experimental analytical work and draw relevant conclusions	Advanced Analytical Science - FSC-40033
solve problems efficiently with confidence and independence in laboratory work and act autonomously in planning and implementing tasks at a professional or equivalent level	Advanced Analytical Science - FSC-40033

Key or Transferable Skills (graduate attributes)	
Learning Outcome	Module in which this is delivered
Has a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights within the forensic and analytical sciences, much of which is at, or informed by, the forefront of the discipline	MSci Independent Project - FSC-40011 Forensic Evidence: At the crime scene and in the court - FSC-40007 Advanced Topics in Forensic Science - FSC-40027 Research Skills for Analytical Science - FSC-40009
Possess a comprehensive understanding of techniques applicable to their own research and advanced scholarship	MSci Independent Project - FSC-40011 Forensic Evidence: At the crime scene and in the court - FSC-40007 Research Skills for Analytical Science - FSC-40009
Display some originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the forensic and analytical sciences	Forensic Evidence: At the crime scene and in the court - FSC-40007 MSci Independent Project - FSC-40011 Research Skills for Analytical Science - FSC-40009
Has conceptual understanding that enables the student to evaluate critically current research and advanced scholarship in the forensic and analytical sciences and evaluate methodologies	All modules
Be able to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate conclusions clearly to specialist and non-specialist audiences	All modules
Be self-directed in tackling and solving problems, and act autonomously in planning and implementing tasks	MSci Independent Project - FSC-40011 Research Skills for Analytical Science - FSC-40009
Can continue to advance their knowledge and understanding, and to develop new skills to a high level	MSci Independent Project - FSC-40011 Research Skills for Analytical Science - FSC-40009
Possess the qualities and transferable skills necessary for employment including, the exercise of initiative and personal responsibility, decision-making in complex and unpredictable situations and the independent learning ability required for continuing professional development	MSci Independent Project - FSC-40011 FSC-40011
author a set of self-contained Web pages to provide an overview of a contemporary topic in forensic science as well as critically evaluate the importance of the topic to both the discipline and society	Advanced Topics in Forensic Science - FSC-40027
identify, side and name individual bones and teeth in the human skeleton (intact and fragmented) and the landmarks upon them	Advanced Topics in Skeletal Remains Recovery and Analysis - FSC-40021
critically assess and successfully implement appropriate search and recovery methods for buried human remains	Advanced Topics in Skeletal Remains Recovery and Analysis - FSC-40021
make use of associated environmental evidence when processing and interpreting death scenes	Advanced Topics in Skeletal Remains Recovery and Analysis - FSC-40021

9. Final and intermediate awards

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

Master in Science (MSci): Forensic and Analytical Investigation	480 credits	You will require at least 120 credits at levels 4, 5, 6 and 7. You must accumulate at least 360 credits in Forensic and Analytical Investigation (out of 480 credits overall) to graduate with a named single honours degree in Forensic and Analytical Investigation.
BSc (Hons) Forensic Science	360 credits	Students require at least 120 credits at Levels 4, 5 and 6 from both compulsory and approved Forensic Science modules as well as any elective modules taken.
BSc (Hons) Forensic Science with a second subject	360 credits	Students require at least 120 credits at Level 4, 5 and 6 or higher. Combined Honours: A minimum of 135 credits in each Principal Subject (270 credits in total), with at least 45 credits at each level of study (Levels 4, 5 and 6) in each of two Principal Subjects (90 credits per year). Your degree title will be X and Y (e.g. 'Forensic Science and Chemistry'). If you choose to study one Principal subject in your final year of study a minimum of 90 credits in that subject is required. Your degree title will be X with Y (e.g. Forensic Science with Chemistry).
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

MSci Forensic and Analytical Investigation with International Year: in addition to the above students must pass a module covering the international year in order to graduate with a named degree in Forensic and Analytical Investigation with international year. Students who do not complete, or fail the international year, will be transferred to the four-year Forensic and Analytical Investigation 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. The following list is representative of the variety of assessment methods used on your programme:

- **Class tests** assess the understanding of concepts and the application of theories to solve familiar and unfamiliar problems. They also allow students to experience time-constrained assessment as well as acting to provide feedback on their progress
- **End of module examinations, open book assessments and case work portfolios** test the ability of the student to describe, explain, and critically discuss the principles of forensic chemistry, criminalistic science, analytical science and selected topics in forensic biology and to demonstrate competence in applying these principles to applications and to solve problems from appropriate areas of the discipline
- **Problems sheets** and **data analysis exercises** assess the student's skills in solving numerical and other problems within forensic science by drawing on their scientific understanding and knowledge, and experience of experimental techniques

Throughout the extensive laboratory and other practical work in this programme, many types of assessment are utilised to achieve the learning outcomes.

- **Laboratory diaries** (notebooks) are used to communicate the results of work accurately and reliably and to encourage good working practice, including managing risk assessments and following safe working practices. Together with **laboratory proformas**, they allow students to demonstrate their skills in the critical analysis and interpretation of data, test the uncertainty in knowledge and show the ability to draw valid conclusions from their work
- **Laboratory reports** communicate the execution of practical work, the ability to describe the results of work accurately and reliably, with structured and coherent arguments and to enable students to evaluate the outcomes of data analysis in a critical fashion
- **Court expert witness statements** enable students to prepare a written statement of expert testimony

and to understand the place of forensic science within the legal framework and the role of the expert witness in court. These reports test the student's ability 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

- **Oral presentations, digital presentations and poster presentations** demonstrate the ability of the student to present complex concepts and information in a clear and concise manner, to interact and communicate effectively to a wide range of professional environments, including to both scientific and non-scientific audiences
- **Crime scene investigation and strategic forensic reports** enable students to apply the principles and procedures for crime scene investigation to a scenario, to critically review data and outcomes in light of the chain of custody for evidence and the appropriate forensic strategy, to make critical judgments and to present in a clear and concise manner
- **Essays** and the production of **technical leaflets** enable students to analyse, synthesise and summarise data and information critically, to appreciate its limitations, to assess the merits of contrasting theories, explanations and strategies and to present, in writing, complex concepts and information in a clear and concise manner
- **Dissertation and research paper / literature / critical reviews** enable the student to demonstrate their effective engagement with the research literature across forensic and analytical science and use it to advance their understanding. In this way, the assessment may test their awareness of, and engagement with, current methods and techniques within the forensic and analytical sciences, some of which are at, or informed by, the forefront of the discipline. The assessment enables the student to present complex concepts and information in a clear and concise manner in writing, and to communicate effectively to a wide range of scientific and professional environments
- **Project plans, team project interviews and viva examinations** test the student's skills in working both independently and as part of a team, in planning, organising and carrying out practical and other work efficiently, including making appropriate ethical assessments, and meeting appropriate deadlines
- **Project reports** demonstrate how the student has taken responsibility for their own learning, has critically assessed a wide range of techniques and methodologies relevant to the forensic and analytical sciences and used them competently to analyse relevant materials and has selected and utilised appropriate software, databases and other digital resources for the analysis and interpretation of laboratory data. The report also tests the student's achievement in presenting complex concepts and information in a clear and concise manner in writing and communicating effectively to a scientific audience
- **Presentation and cross-examination** assessments test the student's ability to interpret and evaluate the significance of the results of a forensic investigation in the context of the circumstances of the crime, to demonstrate their understanding of the place of forensic science within the legal framework and the role of the expert witness in court and test their ability to defend a written witness statement under cross-examination in a court setting

Through working on a diverse range of assessments, linked to a curriculum that is in its latter stages closely based around the professional forensic science context, the student will demonstrate confidence in their own understanding and skills as well as a self-critical attitude to their own work and achievements, an adaptable and flexible approach to study, work and work-life balance and the ability to identify and work towards targets for ongoing professional development.

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.

Although there are some explicit formal exercises providing formative assessment throughout the programme, the majority of formative assessment and feedback is generated informally through a variety of tutor-led activities. For example:

- Tutor-led comments on the work in the laboratory notebook or on calculations encountered in data analysis during laboratory classes
- Tutor feedback and advice on calculations undertaken during problems classes
- Tutor-led discussions on project plans, literature reviews and project results during viva interviews
- Written formative feedback on non-summative laboratory work
- Written formative feedback provided from the tutor reading a draft of a major piece of work such as the dissertation or a project report

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)	24%	76%	0%
Year 2 (Level 5)	29.5%	70.5%	0%
Year 3 (Level 6)	36.9%	63.1%	0%
Year 4 (Level 7)	17.2%	82.8%	0%

12. Accreditation

This programme carries full accreditation status from The Chartered Society of Forensic Sciences. Further details on the accreditation requirements for these programmes can be found on the society web page below.

The Chartered Society of Forensic Sciences accreditation web page: <http://www.csofs.org/Accreditation>

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/>

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 6.0 or equivalent.

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?

All the academic staff in Forensic Science operate an open door policy for students; in other words if they are available at any time in the working day then they are happy to discuss any matter a student raises with them; if they are not free then a future meeting will be arranged for a later time.

All students have many opportunities for close contact with the staff - through laboratory sessions, problems classes, tutorials, workshops and other teaching activities, including online sessions. Consequently, students and staff get to know each other fairly quickly and all students should feel free to approach any lecturer, module tutor or other colleagues whom they believe may be able to provide them with help and assistance on any academic issue. Feedback on formative and summative assessment is usually best obtained from the tutor who set and marked the work but after the whole semester's assessment is complete, it may be that the student's Academic Mentor is best placed to discuss their overall progress.

Each year of study has an associated Year Tutor who monitors the students and the modules, to ensure the course is running smoothly and that all students are making progress. The Year Tutor should be regarded as the first point of contact to discuss any topic or issue related to that year (level) of the programme and can provide advice on module content and advise on any matters relating to modules at that level. In addition, the Programme Director for Forensic Science has oversight of all aspects of delivery of the Forensic and Analytical Investigation programme.

Help, support and advice are also available from each student's Academic Mentor who is allocated by the School. Academic Mentors will make contact with each student in their first few days at Keele to arrange an introductory meeting and will contact them at various key points throughout their degree to check on their progress and to determine whether any specific discussion is needed. From the student's perspective, the Academic Mentor should be seen as someone they can approach with confidence for advice on any matter whether academic or personal; if the mentors themselves cannot help directly then they know who within the university should be able to provide the help the student needs. As well as reviewing overall academic progress, the Academic Mentor can advise on general matters relating to the whole programme of study.

16. Learning Resources

Forensic Science at Keele is based in the Lennard-Jones and Central Science Laboratories, which houses modern, well-equipped teaching and research facilities. The teaching laboratories for forensic science and chemical analysis are all well equipped with high quality standard laboratory facilities and modern forensic science and analytical instrumentation, with many multiple sets of commonly used techniques. Our students gain hands-on experience with a wide range of equipment and techniques working with professional and research grade instruments.

These include: document examination equipment, such as VSC-4 and ESDA-2 instruments, many low power stereo microscopes, a comparison microscope and several specialist phase-contrast and polarising microscopes - these include variable temperature stages for glass analysis - and high resolution microspectrophotometer. Finger and palm print analysis may be undertaken on our dedicated AFIS system. There are three well-equipped dark-rooms for forensic imaging together with a range of high specification cameras. The analytical laboratories are fully equipped with multiple sets of FTIR spectrometers, UV-VIS spectrometers, fluorescence spectrometers, HPLC and GC-MS instrumentation, an NMR spectrometers, an Inductively-Coupled Plasma Optical Emission Spectrometer (ICP-OES), and Raman microscope. Forensic and Analytical Investigation students also have

access to XRD, XRF and a scanning electron microscope (with EDX analysis). Students undertaking project work at levels 6 and 7 may have access to further analytical instrumentation within the research laboratories. Investigation scenarios are set up in the dedicated crime scene facility and a range of CSI equipment is available. Forensic biology equipment includes a thermal cycler for PCR, electrophoresis and gel visualisation equipment, autoclaves and micro-centrifuges. Specialist forensic geophysics equipment such as ground-penetrating radar and resistivity equipment is also available.

Students have access to a wide variety of on-line databases and scientific journals, both in electronic and paper form, through the university library.

17. Other Learning Opportunities

Study abroad (semester)

Students on the programme have the potential opportunity to spend a semester abroad in their second year studying at one of Keele's international partner universities. Please note that students cannot take both a Global Challenge Pathway (GCP) and the semester abroad option.

Exactly which countries are available depends on the student's choice of degree subjects. An indicative list of countries is on the website (<http://www.keele.ac.uk/studyabroad/partneruniversities/>); however this does not guarantee the availability of study in a specific country as this is subject to the University's application process for studying abroad.

No additional tuition fees are payable for a single semester studying abroad but students do 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 to 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.

Whilst students are studying abroad any Student Finance eligibility will continue, where applicable students may be eligible for specific travel or disability grants. 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 for 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.

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 the Annex for the International Year.

18. Additional Costs

Activity	Estimated Cost
<p>Equipment - All PPE equipment (laboratory coats and glasses) are provided by the School at no cost to the student. Students will be required to have two laboratory notebooks, these are 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 2020/21 price for these are listed below:</p> <p>Laboratory Book - £1.50 Laboratory Glasses - £2.00 Laboratory Coat - £10</p> <p>Students will be required to supply appropriate writing equipment but this would be a minimal (<£10) cost. 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. In general we only recommend they purchase the core textbook which is available for approximately £50.</p>	<p>£60</p>

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 National Student Survey (NSS), 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 in all three years of 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/ga/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: Forensic Science (2022) <https://www.qaa.ac.uk/the-quality-code/subject-benchmark-statements/forensic-science>

c. Keele University Regulations and Guidance for Students and Staff: <http://www.keele.ac.uk/regulations>

d. Chartered Society of Forensic Science (CSFS) Accreditation Scheme; Criteria and Standards; available at: <http://www.csofs.org/Accreditation>

21. Annex - International Year

Forensic Science with International Year

International Year Programme

Students registered for Forensic and Analytical Investigation programme may either be admitted for or apply to transfer during their period of study at Level 5 to the International Year programme, providing that they meet the progression criteria outlined in this document. Students accepted onto the International Year programme will have an extra year of study 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 MSci Forensic and Analytical Investigation 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, Level 6 and Level 7 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'Forensic and Analytical Investigation with International Year'.

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 5-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)

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 upon the international nature of crime and describe and discuss differences between investigative approaches taken in different countries.
5. Evaluate the merits and limitations of the different approaches taken to investigating crime in different countries.
6. Apply their experiences abroad to the specific graduate attributes associated with their Forensic Science degree.

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 - Programme-specific regulations

Programme Regulations: MSci Forensic and Analytical Investigation

Final Award and Award Titles	MSci Forensic and Analytical Investigation MSci Forensic and Analytical Investigation with International Year
Intermediate Award(s)	BSc Honours Diploma in Higher Education Certificate in Higher Education
Last modified	December 2022
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.

Additional Requirements

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

Additional requirement 1: Progression criteria

The progression criteria are given in section 10.1 of University Regulation C6: <https://www.keele.ac.uk/regulations/regulationc6/#C6.10>

"10.1 To progress from FHEQ Level 5 of a BSc/Integrated Master's Degree to FHEQ Level 6 of the Integrated Master's Degree a student must:

a) satisfy the normal requirements for progression from FHEQ Level 5 to FHEQ Level 6 as set out in Regulation C3.11.3 and:

b) normally obtain an average of at least 50% across all FHEQ Level 5 modules"

"10.2 To progress from FHEQ Level 6 to FHEQ Level 7 a student must at least satisfy the requirements under Regulation C3 for the award of an Honours Degree in the Lower Second Class Honours category."

10.3 Any student who fails to satisfy the requirements in 10.2 above shall revert to Honours Degree candidature and be considered for the award of an Honours Degree under the provisions of Regulation C3. The honours degree award title shall be such as is specified in the relevant programme specification."

(International students only) Due to UK Home Office Visa (UKVI) restrictions, students who enrol on an integrated master's programme are not able to transfer to an alternative programme without the change meeting UKVI requirements. Where students wish to take an exit award of a Bachelor's Degree at the level 6 boards they are able to do so, but it is recommended to speak with Immigration Compliance and Support (visa@keele.ac.uk) before taking this option as this affects current and future Visa options.

All other students who are considering a course change or find themselves in circumstances where they need to change will need to speak to Immigration Compliance and Support (Student Services Centre) (visa@keele.ac.uk)

first to check eligibility and review the consequences of the transfer and the timings of a new Visa application from outside the UK.

Additional requirement 2: International Year option

Any student who has taken a semester abroad will not normally be eligible for the International Year option.

Additional requirement 3: Transferring from another institution

Any student who is wishing to transfer to this programme from another institution, at Level 5 or above, must demonstrate that they have transferred from a programme that is accredited by The Chartered Society of Forensic Sciences. If the original programme is not accredited the student must demonstrate that they have covered the same material in their Level 4 year as would be covered at Level 4 on this programme.

[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: 04 June 2024

Previous documents

Version No	Year	Owner	Date Approved	Summary of and rationale for changes
1	2023/24	JAMIE PRINGLE	05 April 2023	
1.1	2022/23	JAMIE PRINGLE	22 December 2022	Change to progression threshold from Level 5 to Level 6: reduced from 60% to 50% (agreed by Senate in December 2022)
1	2022/23	RICHARD DARTON	01 February 2022	
1	2021/22	RICHARD DARTON	23 March 2021	
2	2020/21	RICHARD DARTON	07 May 2020	Level 4 module changes - removal of CHE-10038, CHE-10039, CHE-10037 and CHE-10042 and replacement with two 30 credit modules (FSC-10003 and FSC-10005). Removal of two 15 credit optional modules (CRI-10013 and CRI-10014) and introduction of one 30 credit module (FSC-10001). These changes are made to remove repetition between modules and reduce student workload through more efficient teaching and assessment methods.
1	2020/21	RICHARD DARTON	12 December 2019	
1	2019/20	RICHARD DARTON	12 December 2019	