



MSc Forensic Toxicology
Postgraduate Diploma in Forensic Toxicology
Postgraduate Certificate in Forensic Toxicology

2019/2020

Course leader: Philip Houldsworth

School of Forensic and Applied Sciences

Accredited by Chartered Society of Forensic Sciences (2016)



Please read this Handbook in conjunction with the University's Student Handbook.

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1. Welcome to the course

Murder by poisoning is one of the most difficult to prove as unlike other modes of murder they leave no external trace. It's said there are probably more victims of murder by poisoning buried than actually investigated. The course lifts the veil of invisibility surrounding death by poisoning.

However, modern forensic toxicology has moved on since the days of Palmer, Cream and Crippen. The subject now covers criminal toxicology, sports toxicology and workplace drug testing. All of these areas are covered along with laboratory management, quality assurance, the giving of expert evidence in court and instrumental methods of analysis.

Experience will be gained in drug testing by working at the Drugs Unit of Lancashire Constabulary based at Hutton, Nr. Preston. The Drugs Unit is able to offer suitable research projects in the 3rd semester, it may also be possible to carry out research in other universities around the world.

The School of Forensic and Applied Sciences at the University of Central Lancashire provides undergraduate and postgraduate education in the areas of Chemical Science, Forensic Science, Archaeological Science, Police / Criminal Investigation and Fire. It offers six main areas of specialist education within these programmes: forensic investigation (crime scene investigation, laboratory analysis and evidence interpretation), forensic biology, forensic anthropology, chemistry, policing and fire. It has invested significantly in staff and physical resources in these six areas since its establishment (initially as the Centre for Forensic Science) in September 2000. In the time since its inception, it has successfully established itself as the largest provider of higher education in this field in the UK and now hosts some 1,500 undergraduate students and over 90 academic members of staff. Its specialist facilities, laboratories and equipment resources are arguably the best of any UK University.

The School has expanded its educational provision to the taught postgraduate arena through the validation and delivery of one-year MSc programmes in areas of particular staff expertise. The areas currently offered include Criminal Investigation, DNA Profiling, Document Analysis, Fire Investigation, Forensic Toxicology and Forensic Anthropology, Instrumental Analysis, Synthetic Organic Chemistry to name but a few. I am pleased to welcome you to the start of your studies on these courses and also to the School. We are proud of our staff, courses and our students and I hope that, as well as benefiting from your postgraduate education, you will enjoy your time with us in the School.

This booklet contains, in addition to academic information, details of formal routes by which you can make your views of your educational provision known to us, but we also welcome more informal feedback and communication from our students. Please be assured that I and the other staff of the School will do our best to be available to you and responsive to your needs. As you come to know us over the next few weeks and months, I hope you will find us and the School provide a friendly and supportive environment for you and your studies. Welcome.

1.1 Rationale, aims and learning outcomes of the course

This list of the major learning outcomes of the programmes will give you an idea of the global learning goals. However, in the module booklets you will see the syllabuses of the individual modules and their learning outcomes that will give you more information. You could also refer to the module descriptions, which are in effect summaries of the module booklets and are available on BlackBoard.

Aims

The programme has been designed to provide an in-depth study of a particular topic and develop critical and analytical skills involving the principles, practices and techniques of that specialist topic. The aims of the programme are to:

- To extend students' comprehension of key chemical concepts and so provide them with an in-depth understanding of forensic toxicology and its application
- To provide students with the ability to plan and carry out experiments independently and assess the significance of outcomes in a forensic investigative concept
- To develop in students, the ability to adapt and apply methodology to the solution of unfamiliar types of problems in instrumental analysis of forensic toxicology samples
- To develop competence in the presentation of information as would be expected of an expert witness.
- To instil a critical awareness of advances at the forefront of forensic toxicology research and application
- To prepare students effectively for professional employment or doctoral studies in the area of forensic toxicology

Learning Outcomes

The programme provides opportunity for learners to achieve the following outcomes:

Knowledge and Understanding

- Appraise an unfamiliar problem in forensic toxicology and be able to design and implement a suitable solution.
- Present scientific information clearly and concisely
- Research information from literature/manuals/internet.
- Effectively plan a project and record data and their critical analysis.
- Design, plan and implement research questions to problems in forensic toxicology including evaluation of hazards and environmental effects.
- Critically evaluate and create strategies for forensic toxicology including the identification of additional information required and problems where there is not a unique solution.

Subject Specific Skills

- Select appropriate techniques and procedures for the analysis of specific drugs and metabolites
- Demonstrate competence in the planning, design and execution of experiments
- Critically evaluate different potential solutions to an unfamiliar problem

- Work independently, under minimum supervision, and be self-critical in the evaluation of risks, experimental procedures and outcomes
- Use an understanding of the limits of accuracy of experimental data to inform the planning of future work

Thinking Skills

- Critically evaluate technical and theoretical information
- Adapt and apply methodology to the solution of unfamiliar problems.
- Assimilate, evaluate and present research results objectively.
- Undertake an individual research project, the outcome of which is potentially publishable.
- Critically assess the success of such a project

Other skills relevant to employability and personal development

- Problem-solving skills including the demonstration of self-direction and originality
- Communicate and interact with professionals from other disciplines
- Ability to exercise initiative and personal responsibility
- Ability to make decisions in complex and unpredictable situations
- Independent learning ability required for continuing professional development.
- Work independently under minimum supervision.
- Develop and write a research project within guidelines and be able to assess the success of such a project.
- Communicate in a manner that would be expected of an expert witness

It is often useful to know which learning outcomes will be covered in the different modules; hence it is highly recommended to see Appendices A where you can see a table containing the curriculum skill map.

1.1 Course team

The course team is responsible for the academic delivery of the programme. The members of the course team are:

Name	Role	Academic profile	Contact
Philip Houldsworth	Course Leader	Philip is an experienced military multi-disciplinary Biomedical scientist. He was the senior forensic scientist for the Army. He helped establish the Compulsory Drug Testing programme used by the MOD. Philip worked as a training consultant to Agilent Technologies for 10 years and has delivered analytical consultancy to various industries worldwide. For the past 20 years he has been the advisor to H.M. Prison Service on all aspects for custodial drug testing and has managed the largest PT scheme for on-site drug testing devices in Europe. He is a Fellow of the Institute of Biomedical Sciences, Fellow of UKIAFT	Pehouldsworth1@uclan.ac.uk Ext:5689 MB130

		and a Fellow of the Royal Anthropological institute.	
Dr. Tapas Sen	Module Tutor	Tapas is a Reader in Nanomaterials Chemistry. He received his PhD in Materials Chemistry from one of the premier research institutions, National Chemical Laboratory, Pune, India. He is a Fellow of the Royal Society of Chemistry and Higher Education Academy (FHEA) in UK and teaches materials chemistry, physical chemistry and inorganic chemistry.	tсен@uclan.ac.uk Ext. 4371 JBF107
Dr. Joseph Hayes	Module tutor	Joe is a lecturer in computational chemistry. After completing his PhD in computational chemistry at Trinity College Dublin, Joe gained post-doctoral experience initially in the USA (Trinity University, San Antonio, Texas) and then in Europe. He has been working at UCLan for the last five years.	jhayes@uclan.ac.uk Ext. 4334 MB59
Dr. Willam Goodwin	Module tutor	Will's background is in the area of molecular genetics, he undertook a BSc at the University of Leicester and followed this with a PhD from the University of Glasgow. Before joining the School he worked in the Department of Forensic Science and Medicine at the University of Glasgow for eight years where he carried out both research and casework. His research interests are in the extraction and analysis of ancient DNA, disaster victim identification and population genetics.	whgoodwin@uclan.ac.uk Ext. 4254 Room:MB
Dr. Sue Carney			
Dr Susan Jones		Susan qualified as an Analytical & Environmental Chemist (2004), then completed a PhD in Materials/Nanoporous Composites Chemistry (2010) both from Surrey University. She has patents (pending and granted) pertaining to materials for use in environmental management (gas capture, ion exchange of pollutants), medical devices and in forensic applications. Her interest in teaching also led to her taking time out to complete a PGCE (Oxford University – 2012) and she has worked as an Analytical Chemist (R&D dept. TATA™), a	shjones@uclan.ac.uk Ext. 4023 Room: MB063

		Composites Chemist (MAST™/Surrey) and for a short time on a research project for the Dstl (MOD). Along with developing materials for forensic applications her main research interest is in using the catalytic properties of her materials to help convert CO and/or CO ₂ to usable fuels (reforming).	
Runji Mao		After he obtained his PhD on heterogeneous catalysis of inorganic reactions at UCLan Runjie has been working here as a postdoctoral research assistant carrying out research/consultancy projects in the areas of catalytic chemistry, analytical chemistry, microwave assisted process and nuclear waste management.	Rmao1@uclan.ac.uk Ext. 4156 Room: CM225
Dr Jioji Tabudravu		Jioji is a lecturer in analytical/organic chemistry. He received his BSc and MSc degrees from the University of the South Pacific in Fiji, PhD in marine natural products chemistry from the University of Aberdeen, Scotland, and postdoctoral experience from the University of Utah, Salt Lake City, USA. He has experience in the Biotechnology Sector (Aquapharm Biodiscovery Ltd (UK)) and in the Pharmaceutical industry (TauRx Therapeutics Ltd (UK)). Before joining UCLAN he was a lecturer in organic chemistry at the University of the South Pacific in Fiji. His research interests are in software development related to drug/compound dereplication and databasing, isolation and structure elucidation of small molecules from bacteria, fungi and plants using 1D/2D NMR, HRMS/MS and CASE (Computer Assisted Structure Elucidation).	Jioji Tabudravu JTabudravu@uclan.ac.uk Ext: JBF111

1.3 Expertise of staff

Most of the course is delivered by university staff but, where appropriate, experts in their own field are brought in to speak with authority from their own experience and expertise.

Staff in the course teaching team have a wealth of teaching and research experience. Each member of the team has held either postdoctoral research positions or industrial posts before joining UCLAN.

1.4 Academic Advisor

You will be assigned an Academic Advisor who will provide additional academic support during the year. They will be the first point of call for many of the questions that you might have during the year. Your Academic Advisor will be able to help you with personal development, including developing skills in self-awareness, reflection and action planning.

1.5 Administration details

Campus Admin Services provides academic administration support for students and staff and are located in the following hubs which open from 8.45am until 5.15pm Monday to Thursday and until 4.00pm on Fridays. The hub can provide general assistance and advice regarding specific processes such as extenuating circumstances, extensions and appeals.

Foster Building

Forensic and Applied Sciences

Telephone: 01772 891990/891991

Email: fosterhub@uclan.ac.uk

1.6 Communication

The University expects you to use your UCLAN email address and check regularly for messages from staff. If you send us email messages from other addresses they risk being filtered out as potential spam and discarded unread. The team may also use Blackboard as a means to contact you or supply course information. Appointments to speak directly with academic staff can be made either in person or by email.

1.7 External Examiner

The University has appointed an External Examiner to your course who helps to ensure that the standards of your course are comparable to those provided at other higher education institutions in the UK. The name of this person, their position and home institution can be found below. If you wish to make contact with your External Examiner, you should do this through your Course Leader and not directly. External Examiner reports will be made available to you electronically. The School will also send a sample of student coursework to the external examiner(s) for external moderation purposes, once it has been marked and internally moderated by the course tutors. The sample will include work awarded the highest and lowest marks and awarded marks in the middle range.

2. Structure of the course

2.1 Overall structure

The course is a three-part full time programme which lasts for 45 weeks. The first two semesters consist of 13 weeks of teaching and correspond to the two University semesters and the third semester of 16 weeks is over the summer period.

There are two intermediate exit points designed into the course. A student who successfully completes three modules may be eligible for a Postgraduate Certificate (PgCert). This is dependent on passing the modules required for the exit award as shown in the programme specification which can be found in the appendix at the back of this handbook.

A student who successfully completes six modules is eligible for a Postgraduate Diploma (PgDip).

2.2 Modules available

The content of the modules are outlined below.

FZ4001 Research Methods

Scientists are required to have a wide range of skills beyond the expertise in their specialist subject. This module provides the necessary skills in technical documentation, project management, data analysis and retrieval etc. that are required.

FZ4002 Expert Witness in the Legal Process

Communication skills are vital for a forensic scientist to pass on important information. Nowhere is this more important than when acting in the capacity of an expert witness. This module provides background and training in these important areas.

FZ4003 Research Project

You will spend 16 weeks undertaking a project which uses and enhances many of the skills learnt on the course. The majority of students will undertake their project at the University, but the opportunity will exist for students to do their project at other relevant institutions. Following the conclusion of the work, you will complete a report on the project and prepare a paper for publication, if applicable.

FZ4601 Separation Science and Mass Spectrometry

In this module you will develop understanding of the underlying principles of current separation technologies and mass spectrometry. You will also develop an important skill where you will be able to critically appraise scientific methods and data.

FZ4603 Molecular Spectroscopy

In this module you will develop a systematic understanding and critical awareness of the full analytical potential of the interaction of each part of the electromagnetic spectrum with matter.

FZ4607 Advanced Forensic Toxicology

In this module, students will study forensic toxicology towards gaining a comprehensive understanding of the illicit manufacture, distribution and harmful effects of drug of abuse. Analytical methods used for their detection will be discussed, performed and critically reviewed. The role of the forensic regulator and the accredited laboratory will be examined and the concepts of quality assurance and quality control will be introduced. The students will use spectroscopic, GC, HPLC, GCMS, HPLCMS and UPLCMS techniques for the analysis of drugs.

FZ4608 Forensic Toxicology

In this module, you will study post mortem toxicology, sports toxicology, workplace drug testing and criminal toxicology. You will be introduced core concepts of disposition and metabolism of drugs before setting the work in the context of current legislation and providing in-depth case studies to show the theory and practice. At the end of the module you will have an understanding of toxicology and practical knowledge of the analytical methods used by toxicologists.

Delivery method

Most of the modules that you will study in Semesters 1 and 2 of the Programme will consist of lectures and practical sessions/tutorials. Typically, as a full time student you are expected to study for 12 hours per week per module which may be broken down into lectures, practical classes, seminars, tutorials and independent study (in the library, laboratory or at home). This amounts to a minimum of 36 hours per week. **Any lesser commitment than this is unlikely to produce a good degree.**

Students should bear this in mind if you are going to undertake part-time employment. Students' first commitment must be to the course: if you are a **full-time** student it means just that.

Semester 3 of the course is the Research Project when students will be expected to spend approximately 14 weeks undertaking a project either at the University or on the premises of another suitable establishment. Whilst conducting your project, you will be expected to normally work on your project for at least 36 hours per week.

The amount of time spent in private study will vary from student to student and will depend on your academic ability. The recommended time should therefore in practice be taken as a minimum value.

Tabular presentation of programme delivery

The following table presents a delivery of several modules in various semesters throughout the year of MSc Forensic Toxicology programme

Semester 1	Semester 2	Semester 3
FZ4001 Research Methods (lectures)	FZ4001/FZ4003 Submission of assignment entitled "Research Project Proposal" which is also a part of FZ4003	FZ4003 Experimental work of the Research Project
FZ4601 Separation Science and Mass Spectrometry	FZ4002 Expert Witness in the Legal Process	
FZ4608 Forensic Toxicology	FZ4607 Advanced Forensic Toxicology	
	FZ4603 Molecular spectroscopy	

 Indicate the modules spread over more than one semester

2.3 Course requirements

Specific entry requirements for this course are that a student must hold one of the following qualifications:

Honours degree of the level 2.2 or above from a United Kingdom university or its equivalent.
Degree or HNC or HND in an appropriate discipline, together with appropriate professional experience.

Qualification or experience deemed to be equivalent to any of the above.

Applications from individuals with non-standard qualifications or relevant work / life experience who can demonstrate the ability to cope with and benefit from masters-level studies are especially welcome to apply, and may be interviewed.

2.4 Module Registration Options

Modules on the programme are compulsory over a single year, therefore module registration options do not apply to this course.

2.5 Study Time

2.5.1 Weekly timetable

A timetable will be available once you have enrolled on the programme, through the student portal.

You can check the times and locations of all your classes for each week. The timetable also lists which member of staff will be in charge of the session.

2.5.2 Expected hours of study

20 credits is a standard module size and equals 200 notional learning hours.

The normal amount of work involved in achieving a successful outcome to your studies is to study for 10 hours per each credit you need to achieve – this includes attendance at UCLan and time spent in private study.

You are therefore expected to spend a total of 200 hours on each module. It is important that you allocate time reasonably equally to all modules constantly throughout the academic year if you want to gain a good honours degree.

On average then, you should be planning to do between 36 and 40 hours per week. Any lesser commitment is unlikely to produce a good degree. You should bear this in mind if you intend to undertake part-time employment or pursue other interests outside the curriculum.

2.5.3 Attendance Requirements

You are required to attend all timetabled learning activities for each module. Notification of illness or exceptional requests for leave of absence must be made to: **FOSTER HUB** in a timely fashion.

All UCLan students are monitored on the Student Attendance Monitoring (SAM) system. In chemistry, each student's attendance is reviewed weekly. If you miss classes you may be asked to discuss your progress and commitment with the Course Leader. If you are unable to explain your absences you may be asked to see the Academic Lead. You may wish to check your attendance record through my UCLan.

If you have not gained the required authorisation for leave of absence, do not respond to communications from the University, and if you are absent for four weeks or more, you may be deemed to have withdrawn from the course. If this is the case, then the date of withdrawal will be recorded as the last day of attendance.

Some international students will have their attendance at specific classes monitored closely. If you are in this category under the UK Border Agency (UKBA), Points Based System (PBS) you **MUST** attend your course of study regularly; under PBS, UCLan is obliged to tell UKBA if you withdraw from a course, defer or suspend your studies, or if you fail to attend the course regularly.

Each time you are asked to enter your details on SAM you must remember that the University has a responsibility to keep information up to date and that you must only enter your own details on the system. To enter any other names would result in inaccurate records

and be dishonest. Any student who is found to make false entries can be disciplined under the student guide to regulations.

3. Approaches to teaching and learning

3.1 Learning and teaching methods

The programme is designed to produce graduates with both general and specific skills pertinent to the area studied. The course is assessed by both coursework and examination to ensure that your knowledge and abilities are fully evaluated.

The course will be delivered by lectures, tutorials and practical sessions. The practical sessions will be dependent upon the particular programme being followed and specialist laboratories will be used when appropriate. Some specialist equipment may only be available in certain rooms. Rooms will generally be open during normal university working hours, i.e. Monday to Friday, 0800-1700.

Semester 1 of the course consists of three modules. FZ4001 (Research Methods) module is common to all three MSc Forensic Science taught programmes. FZ4601 (Separation Science and Mass Spectrometry) will be taught in the first semester along with FZ4608 (Forensic Toxicology).

Topics will be briefly introduced using a lecture or PowerPoint presentation format (available on BlackBoard) and *via* case studies/research papers under the Research method module (FZ4001).

Separation Science and Mass Spectrometry (FZ4601) module will be delivered *via* a lecture, a practical session each week and a journal club alternate weeks during the semesters 1 and 2.

Forensic toxicology (FZ4608) will be delivered in lectures and practical sessions will be used to underpin the lectures.

Semester 2 of the course consists of three modules (FZ4002, FZ4004 and FZ4607). You can clearly see that FZ4607 (Advanced Forensic Toxicology) module has been deliberately kept in the second semester in order for you to gain the basic knowledge of Forensic Toxicology (FZ4608) in the first semester.

Molecular spectroscopy module (FZ4603) will be delivered in the second semester as a series of lectures, which will develop your ability to assimilate information quickly and contribute meaningfully to discussions about recent developments in the field. The lectures will be underpinned by tutorial and practical sessions which will involve challenging exercises requiring a significant degree of initiative, problem solving, research and self-management skills.

During this semester, you will also have to work on the research project plan as a part of assignment of FZ4001 but also as a part of your final semester research project module (FZ4003).

The Expert Witness in the Legal Process module (FZ4002) in semester 2 will help provide you with a background to forensic science work and hence continue to ensure that you feel part of the School. In the other Specialist Topic modules you will move on to more advanced concepts. The learning skills developed in semester 1 will permit you to start working in an

independent manner which will be encouraged by structuring these topics so that you are working in this style as soon as possible. Forensic Toxicology (FZ4607) will be delivered in semester 2 by a combination of lectures, seminars and practical sessions. The lectures will provide the framework of academic information, which will be supported by seminars.

The final semester (3rd) has been solely kept for your research project in order to work independently, under minimum supervision, and be self-critical in the evaluation of risks, experimental procedures and outcomes. The nature of the work and the interaction with other researchers that is needed to complete the project will all contribute to the experience.

You will find that the pace of delivery and demands of practical sessions will increase as you progress through the modules in semester 1.

The assessment strategies of the course have been developed so that you are assessed in the way that is the most appropriate to the area of study. Therefore some modules will be assessed by coursework only whilst others will have formal examinations where this is the best way to assess your knowledge and understanding of the subject area and your ability to apply it.

3.2 Study skills

General study skills are taught early in the degree: you will be taught how to take advantage of the resources available through the library, including a huge array of online materials.

For general study skills, there are a variety of services to support students; these include: WISER https://portal.uclan.ac.uk/webapps/portal/frameset.jsp?tab_tab_group_id=_33_1
LIS https://portal.uclan.ac.uk/webapps/portal/frameset.jsp?tab_tab_group_id= 25 1

3.3 Learning resources

3.3.1 Learning Information Services (LIS)

Extensive [resources](#) are available to support your studies provided by LIS – library and IT staff. Take advantage of the free training sessions designed to enable you to gain all the skills you need for your research and study.

LIS provide access to a huge range of electronic resources – e-journals and databases, e-books, images and texts.

3.3.2 Electronic Resources

LIS provide access to a huge range of electronic resources – e-journals and databases, e-books, images and texts.

Lecturers and relevant module tutors will make material relevant to their modules available on Blackboard, the University's online learning platform. This material could include lecture notes, tutorial examples and solutions, past exam papers, links to online resources, and so on.

3.4 Personal development planning

While you are at university, you will learn many things. You already expect to learn lots of facts and techniques to do with chemistry, but you will also learn other things of which you might be unaware. You will learn how to study, how to work with other people, how to manage

your time to meet deadlines, and so on. If you are to be an employable graduate it is vital that you can list in your CV the skills that employers value.

Employers are looking for skills such as:

- self-organisation
- team work
- good written communication
- good oral communication
- problem solving

To help you, we have introduced a system that aims to:

- **help you to identify the skills you should be developing,**
- help you to **identify** the ones you are weak in, and
- to take **action** to improve those skills.

This approach can broadly be described as **Personal Development Planning**, and can be defined as:

A structured and supported process undertaken by an individual to reflect upon their own learning, performance and/or achievement and to plan for their personal, educational and career development.

The University puts a high priority on your personal development, and so keeping a record of your achievements is encouraged and will help when you are applying for jobs. When you ask staff for a reference, they could use this information to help them provide more rounded detail.

3.5 Preparing for your career

Your future is important to us, so to make sure that you achieve your full potential whilst at university and beyond, your course has been designed with employability learning integrated into it. This is not extra to your degree, but an important part of it which will help you to show future employers just how valuable your degree is. These “Employability Essentials” take you on a journey of development that will help you to write your own personal story of your time at university:

- To begin with, you will explore your identity, your likes and dislikes, the things that are important to you and what you want to get out of life.
- Later, you will investigate a range of options including jobs and work experience, postgraduate study and self-employment,
- You will then be ready to learn how to successfully tackle the recruitment process.

It's your future: take charge of it!

[Careers](#) offers a range of support for you including:-

- career and employability advice and guidance appointments
- support to find work placements, internships, voluntary opportunities, part-time employment and live projects
- workshops, seminars, modules, certificates and events to develop your skills

Daily drop in service available from 09:00-17:00 for CV checks and initial careers information. For more information come along and visit the team (in Foster building near the main entrance) or access our careers and employability resources via the Student Portal.

On completing of postgraduate degree from University with a degree in Forensic Toxicology the possibilities are almost endless. Obviously, the prospective material rewards (and security

of employment) are of importance but what of the chance to make contributions that impact on Society?

Your employment potential with an MSc in Forensic Toxicology degree should be very high, whether or not you exploit your qualifications explicitly, and a career actually involving Chemistry would certainly be relevant and meaningful. Your course leader will guide you to identify a range of forensic laboratories in UK and outside UK along with the potential opportunity for further study as a PhD student at the University of Central Lancashire or outside UCLan.

Your University experience is not only about achieving your chosen award, it is also about developing as a person and realising your potential. We want you to gain the skills and attitudes that will help you to achieve your goals and aspirations.

4. Student Support

Your primary contact for advice on general academic matters is your academic advisor. They will advise you on matters like progression, modules, and so on. They also have a role in pastoral care, and can advise you on who to talk to in the university about a range of problems. In addition, there is the general advice desk for students called 'The i' – this is described below.

[The 'i'](#) is a central Student Information Centre and your first point of contact. You can obtain information on a wide range of topics including Council Tax Exemption Certificates, Bank and Confirmation of Study Letters, Portable Financial Credits, (continuing students only, Printing and Printer Credit, UCLan Cards, the 'i' shop and UCLan Financial Support Bursary (first year students only).

4.1 Academic Advisors

Your primary contact for advice on general academic matters is your academic advisor. They will advise you on matters like progression, modules, and so on. They also have a role in pastoral care, and can advise you on who to talk to in the university about a range of problems. In addition, there is the general advice desk for students called 'The i' – this is described below.

4.2 Students with disabilities

If you have a disability that may affect your studies, please either contact the Disability Advisory Service - disability@uclan.ac.uk - or let one of the course team know as soon as possible. With your agreement information will be passed on to the Disability Advisory Service. The University will make reasonable adjustments to accommodate your needs and to provide appropriate support for you to complete your study successfully. Where necessary, you will be asked for evidence to help identify appropriate adjustments.

The School has a named lead for students with disabilities – Mark Toogood. Mark can be contacted directly for further advice at MTtoogood@uclan.ac.uk or on extension 3528.

Assessment arrangements for students with a disability

Arrangements are made for students who have a disability/learning difficulty for which valid supporting evidence can be made available. Contact the Disability Adviser for advice and information, disability@uclan.ac.uk

4.3 Students' Union

The Students' Union offers thousands of volunteering opportunities ranging from representative to other leadership roles. We also advertise paid work and employ student staff on a variety of roles. You can find out more information on our website:

<http://www.uclansu.co.uk/>

5. Assessment

5.1 Assessment Strategy

Please note that all modules will be assessed. You are expected to attempt all required assessments for each module for which you are registered, and to do so at the times scheduled unless authorised extensions, special arrangements for disability, or extenuating circumstances allow you to defer your assessment.

Several different types of assessment are used in the course including reports, log book/diaries, problem solving, oral presentations, dissertations etc. In each case there are a number of common elements. The criteria listed in the following pages are the main ones used for marking. Different assessment types will contain different balances of criteria.

Classification	Methods	Problem-solving	Conceptual understanding
Outstanding/ Excellent/Very Good 70-100%	Error-free Application of methods to a range of easy and hard problems	Thorough grasp of complex problems, possible solutions and their limitations	Thorough grasp of the underlying concepts
Good (above average) 60-69%	Some errors in complex problems	Thorough grasp of problems but incomplete understanding of limitations of solutions	A grasp of most of the underlying concepts
Average 55-59%	Able to apply methods to a range of problems, some non- standard	Able to solve some complex problems, with some indication of limitations	A superficial understanding of the concepts with indications of the students limitations
Satisfactory (below average) 50-54%	Able to apply methods to a range of simple problems	Able to produce simple solutions to easy problems	Limited conceptual understanding
Bare minimal pass 50%	Able to apply methods to some simple problems; often with errors	An understanding of simple problems, with some idea of appropriate solutions	An understanding of only very simple concepts with conceptual gaps and misunderstandings
Fail <50%	Failure to apply methods to simple problems, or many errors	Failure to understand the nature of the problem	No grasp of even the simplest concepts

Classification	Relevance	Knowledge	Analysis
Outstanding/ Excellent/ Very Good 70-100%	Directly relevant to the title; able to address the implications, assumptions and nuances of the title	Makes effective use of excellent knowledge and thorough understanding of the relevant material	A very good analysis of the evidence, arguments or results, giving clear illuminating conclusions
Good (above average) 60-69%	Directly relevant to the title	A substantial knowledge and understanding of the relevant material	Good analysis, clear and orderly
Average 55-59%	Some attempt to address the title, may drift away from the title in the less focussed passages	Adequate knowledge of a fair range of the relevant material with intermittent evidence of understanding	Some analytical treatment but may be prone to description or lacking in analytical purpose
Satisfactory (below average) 50-54%	Some significant degree of irrelevance to the title is common	Basic understanding of a limited range of material	Largely descriptive with little evidence of analytical skill
Bare minimal pass 50%	Relevance to the title may be intermittent; the topic may be reduced to its vaguest and least challenging terms	A limited understanding of a narrow range of material	Mainly descriptive with little analytical content
Fail <50%	Outright irrelevance to the title	Lack of basic knowledge necessary for an understanding of the topic	Inadequate description and no analysis

Classification	Structure	Originality	Presentation
Outstanding/ Excellent/ Very Good 70-100%	Coherently and logically structured, making use of appropriate standard formats	Distinctive work showing independent thought and critical judgement	Very well presented on good English and correct spelling and syntax; creative use of IT and inclusion of bibliography and clear instructive diagrams
Good (above average) 60-69%	Generally coherent and logical structure	May contain some distinctive or independent work and some evidence of critical judgement	Well written, with good style, spelling and syntax, acceptable use of IT, diagrams and bibliography
Average 55-59%	Some attempt at using a logical structure and/or standard format	Sound work but showing no distinctive elements; conforming to standard patterns of approach	Competently written with only minor errors of spelling and syntax. Acceptable use of IT, diagrams and bibliography
Satisfactory (below average) 50-54%	A basic argument may be evident, but tends to lack clarity	Largely derivative showing little originality of approach	Rather poorly written with numerous lapses of spelling and syntax; poor diagrams, use of IT and bibliography
Bare minimal pass 50%	Little evidence of a logical structure	Mostly derivative	Poorly presented with numerous lapses of spelling, syntax and poor diagrams
Fail <50%	No evidence of clear and logical structure	No originality shown	Garbled and negligently presented

5.2 Notification of assignments and examination arrangements

Because different modules will be assessed in different ways, there is no central rule for when or how assessments should be submitted. For each module, when there is an assessed piece of work to be done the module tutor will give you an assignment brief which tells what, when and how to submit the resulting work. The tutor will also give some indication of how the work will be marked. The majority of assessments will be submitted via Turnitin on Blackboard. Most of the submitted assignments will be marked *via* blackboard using Grade mark hence students will be able to see the assignment feedback online *via* blackboard.

Reassessment

If you fail a module you may be offered reassessment for a maximum of 50%. However, these students, along with those who do not seek reassessment or who fail reassessment may be considered for the awards of PgCert or PgDip.

Feedback on assessments

UCLan is committed to giving you clear, legible and informative feedback for all your assessments ([Academic Regulations](#)). You are expected to review and reflect on your feedback and learn from each experience to improve your performance as you progress through the course.

You will be provided with generic feedback for in-module formative and summative elements of assessment which contribute to a module within 15 working days of the scheduled submission or examination date. Generic feedback on end of module assessment and dissertations will be made available within 15 days of publication of results. Feedback may be oral, written, posted on a website or other.

5.3 Referencing

The main referencing system chemists use is numerical (Vancouver) referencing. More information can be found in "Study and Communication Skills for the Chemical Sciences" by Overton, Johnson & Scoot which is available in the UCLan Library.

5.4 Confidential material

Within your course you are unlikely to have access to confidential information during the course. However, if you do, it is important to respect confidentiality. Any students who have to deal with confidential material will be briefed on this by their tutor at the time.

5.5 Cheating, plagiarism, collusion or re-presentation

Please refer to the information included in section 6.6 of the University Student Handbook for full definitions. The University uses an online Assessment Tool called Turnitin. A pseudo-Turnitin assignment will be set up using the School space on Blackboard to allow students to check as many drafts as the system allows before their final submission to the 'official' Turnitin assignment. Students are required to self-submit their own assignment on Turnitin and will be given access to the Originality Reports arising from each submission. In operating Turnitin, Schools must take steps to ensure that the University's requirement for all summative assessment to be marked anonymously is not undermined and therefore Turnitin reports should either be anonymised or considered separately from marking. Turnitin may also be used to assist with plagiarism detection and collusion, where there is suspicion about individual piece(s) of work.

6. Classification of Awards

The University publishes the principles underpinning the way in which awards and results are decided in [Academic Regulations](#). Decisions about the overall classification of awards are made by Assessment Boards through the application of the academic and relevant course regulations.

To be eligible for the award of MSc you must normally:

- (i) Pass a total of nine modules (FZ4003 is a triple module) with an overall APM of 50% or better.
- (ii) Obtain a percentage mark of 50% or better in the MSc Research Project module.

The award will be an MSc in Forensic Toxicology

The APM is calculated using a rather complicated formula as stated in academic regulations.

$$\text{APM} = \frac{m_1 l_1 c_1 + m_2 l_2 c_2 + \dots + m_n l_n c_n}{l_1 c_1 + l_2 c_2 + \dots + l_n c_n}$$

Put simply, the APM calculation takes into account the mark you got in a module (m), the size or credit of the module (c) and also the level of the module (l).

Your APM is calculated using all nine modules you studied.

Candidates who are considered by the Board of Examiners to have shown exceptional levels of performance may be awarded an **MSc with Distinction**. Normally this would require:

- (i) Pass a total of nine modules with an overall APM of 70% or better.
- (ii) Obtain a percentage mark of 70% or better in the MSc Research Project module.

If the above is not achieved, the award of an **MSc with Merit** may be considered by the Board of Examiners. Normally this would require:

- (i) Pass a total of nine modules with an overall APM of 60% or better
- (ii) Obtain a percentage mark of 60% or better in the MSc Research Project module

Exit Awards

Postgraduate Diploma (PgDip)

In the event of failing to pass all modules after a reassessment you will be eligible for the award of a Postgraduate Diploma in Instrumental Analysis as long as you have achieved 120 credits.

Postgraduate Certificate (PgCert)

A Postgraduate Certificate in Instrumental Analysis may be awarded for only completing 60 credits.

Reassessment

Candidates who fail any of the modules are normally entitled to one reassessment. The conditions for passing a module are explained in the *Assessment Strategy* of each of the modules.

The grade allocated to a passed reassessed module will not exceed a percentage mark of 50%.

The timing of the reassessment will be determined by the Progress Review or Examination Boards.

Appeals

If you consider that you have a reason to appeal against an assessment board decision, please bear in mind that your reasons must fall within the grounds specified in the University [Academic Regulations](#): Section I. You cannot appeal simply because you disagree with the mark given. The specified grounds for appeal are:

1. that an Assessment Board has given insufficient weight to extenuating circumstances;
2. that the student's academic performance has been adversely affected by extenuating circumstances which the student has, **for good reason**, been unable to make known to the Assessment Board;
3. that there has been a material administrative error at a stage of the examining process, or that some material irregularities have occurred;
4. that the assessment procedure and/or examinations have not been conducted in accordance with the approved regulations.

If you want to appeal, then you must do so within 14 days of your results being published. The onus is on you to find out your results and submit your appeal on time. Contact the [Students' Union Advice and Representation Centre](#) by emailing: suadvice@uclan.ac.uk for support and guidance.

The dates for the publication of results can be found on the [academic calendar](#).

7. Student Feedback

You can play an important part in the process of improving the quality of this course through the feedback you give.

7.1 Student Staff Liaison Committee meetings (SSLCs)

Details of the Protocol for the operation of SSLCs is included in section 8.2 of the University Student Handbook.

The purpose of a SSLC meeting is to provide the opportunity for course representatives to feedback to staff about the course, the overall student experience and to inform developments which will improve future courses. These meetings are normally scheduled once per semester.

Your Course Leader will facilitate the meetings using guidelines and provide a record of the meeting with any decisions and / or responses made and / or actions taken as a result of the discussions held. The meetings include discussion of items forwarded by course representatives, normally related to the following agenda items (dependent on time of year).

The course team encourage student feedback in all areas and recognise that additional items for discussion may also be raised at the meeting

- Update on actions completed since the last meeting
- Feedback about the previous year – discussion of external examiner's report; outcomes of National /UCLan student surveys.
- Review of enrolment / induction experience;
- Course organisation and management (from each individual year group, and the course overall);
- Experience of modules - teaching, assessment, feedback;
- Experience of academic support which may include e.g. Personal Development Planning, personal tutoring arrangements and The Card;
- Other aspects of University life relevant to student experience e.g. learning resources, IT, library;
- Any other issues raised by students or staff.

Course representatives are volunteers. If you wish to be considered as a course representative, please contact the course leader.

The dates of SSLC meetings are emailed to the students directly and module tutors and lecturers will also remind students during their lectures; minutes of the meetings are made available through the chemistry blackboard site.

8. Appendix

8.1 Programme Specification

UNIVERSITY OF CENTRAL LANCASHIRE

Programme Specification

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided.

Sources of information on the programme can be found in Section 17

1. Awarding Institution / Body	University of Central Lancashire
2. Teaching Institution and Location of Delivery	University of Central Lancashire Preston Campus
3. University School/Centre	Forensic and Applied Sciences
4. External Accreditation	Chartered Society of Forensic Sciences Awarded 23/11/16
5. Title of Final Award	MSc Forensic Toxicology Postgraduate Diploma in Forensic Toxicology Postgraduate Certificate in Forensic Toxicology
6. Modes of Attendance offered	Full-time
7a) UCAS Code	
7b) JACS Code	F410
8. Relevant Subject Benchmarking Group(s)	http://www.qaa.ac.uk/en/Publications/Documents/Masters-Degree-Characteristics-15.pdf
9. Other external influences	Royal Society of Chemistry Forensic Science Society Chartered Society of Forensic Sciences
10. Date of production/revision of this form	April 2018
11. Aims of the Programme	
<ul style="list-style-type: none"> • To extend students' comprehension of key forensic chemistry concepts and so provide them with an in-depth understanding of forensic toxicology and its application. To provide students with the ability to plan and carry out experiments independently and assess the significance of outcomes in a forensic investigative concept. • To develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems in instrumental analysis of forensic toxicology samples • To develop competence in the presentation of information as would be expected of an expert witness. 	

<ul style="list-style-type: none"> To instil a critical awareness of advances at the forefront of forensic toxicology research and application
<ul style="list-style-type: none"> To prepare students effectively for professional employment or doctoral studies in the area of forensic toxicology.
12. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding
A1. Appraise an unfamiliar problem in forensic toxicology and be able to design and implement a suitable solution. A2. Present forensic chemistry information clearly and concisely A3. Research information from literature/manuals/internet. A4. Effectively plan a project and record data and their critical analysis. A5. Design, plan and implement research questions to problems in forensic toxicology including evaluation of hazards and environmental effects. A6. Critically evaluate and create strategies for forensic toxicology including the identification of additional information required and problems where there is not a unique solution.
Teaching and Learning Methods
Lectures, seminars, structured laboratory classes, practical projects
Assessment methods
Exams, Laboratory reports, project report group and individual presentations
B. Subject-specific skills
B1. Select appropriate techniques and procedures for the analysis of specific drugs and metabolites. B2. Demonstrate competence in the planning, design and execution of experiments B3. Critically evaluate different potential solutions to an unfamiliar problem. B4. Work independently, under minimum supervision, and be self-critical in the evaluation of risks, experimental procedures and outcomes. B5. Use an understanding of the limits of accuracy of experimental data to inform the planning of future work.
Teaching and Learning Methods
Lectures, seminars, structured laboratory classes, directed reading, group and individual projects and presentations.
Assessment methods
Exams, Laboratory reports, project report group and individual presentations
C. Thinking Skills
<ul style="list-style-type: none"> Critically evaluate technical and theoretical information Adapt and apply methodology to the solution of unfamiliar problems. Assimilate, evaluate and present research results objectively. Undertake an individual research project, the outcome of which is potentially publishable. Critically assess the results of such a project
Teaching and Learning Methods
Skills developed through seminars, data interpretation, case studies, practical work, research projects, presentations, problem solving.
Assessment methods
Practical reports, essays and group and individual presentations.
D. Other skills relevant to employability and personal development
<ul style="list-style-type: none"> Problem-solving skills including the demonstration of self-direction and originality Communicate and interact with professionals from other disciplines Ability to exercise initiative and personal responsibility Ability to make decisions in complex and unpredictable situations Independent learning ability required for continuing professional development. Work independently under minimum supervision. Develop and write a research project within guidelines and be able to assess the success of such a project. Communicate in a manner that would be expected of an expert witness

Teaching and Learning Methods				
Skills developed through seminars, data interpretation, case studies, practical work, research projects, presentations, group projects, problem solving exercises.				
Assessment methods				
Exams, Laboratory reports, project report, moot court exercise, group and individual presentations.				
13. Programme Structures*				14. Awards and Credits*
Level	Module Code	Module Title	Credit rating	
Level 7	FZ4001	Research Methods	20	Masters Degree in Forensic Toxicology Requires 180 credits at Level 7
	FZ4002	The Expert Witness in the Legal Process	20	
	FZ4003	Research Project	60	Postgraduate Diploma in Forensic Toxicology Requires 120 credits at Level 7
	FZ4601	Separation Science and Mass Spectrometry	20	
	FZ4603	Molecular spectroscopy	20	
	FZ4607	Advanced Forensic Toxicology	20	Postgraduate Certificate in Forensic Toxicology Requires 60 credits at Level 7
	FZ4608	Forensic Toxicology	20	
	FZ4008	Optional module: Professional Industrial Placement	60 (notional)	Optional professional placement route requires successful completion of FZ4008 which has a notional credit value of 60.
15. Personal Development Planning				
<p>This is a supported process undertaken by an individual to reflect upon their own learning, performance and / or achievement and to plan for their personal, educational and career development.</p> <p>PDP is delivered and monitored through project modules and the academic advisor system. Students are provided with a PDP handbook and an introductory lecture on it during induction week.</p> <p>The topics discussed in meetings are constantly reviewed and updated in response to current practice in the workplace and to feedback from Academic Advisors and students. A completed PDP will be used to assist Academic Advisors when writing references.</p>				
16. Admissions criteria				
*Correct as at date of approval. For latest information, please consult the University's website.				
Applicants will normally be required to have:				
2:2 Hons Degree in Chemistry, Forensic Sciences, Biochemistry, Pharmacology, Biomedical Sciences or equivalent qualifications and experience.				
Applicants will be required to have a minimum level of proficiency in English Language equivalent to IELTS grade 6.5. with no subscore lower than 5.5				
Please consult the UCLAN admissions department for the most up to date requirements.				
17. Key sources of information about the programme				
<ul style="list-style-type: none"> University web site (www.uclan.ac.uk) School website (www.uclan.ac.uk/forensic) Course Leader Admissions tutor 				

18. Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Level	Module Code	Module Title	Core (C), Compulsory (COMP) or Option (O)	Programme Learning Outcomes																								
				Knowledge and understanding						Subject-specific Skills					Thinking Skills					Other skills relevant to employability and personal development								
				A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5	D6	D7	D8	
LEVEL 7	FZ4001	Research Methods	COMP			✓									✓		✓				✓	✓						
	FZ4002	The Expert Witness in the Legal Process	COMP		✓	✓				✓							✓			✓	✓	✓	✓	✓	✓		✓	
	FZ4003	Research Project	COMP	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
	FZ4601	Separation Science and Mass Spectrometry	COMP		✓		✓	✓	✓	✓		✓		✓		✓	✓			✓	✓	✓						
	FZ4603	Molecular spectroscopy	COMP	✓	✓			✓	✓	✓	✓	✓			✓	✓	✓			✓	✓	✓						
	FZ4607	Advanced Forensic Toxicology	COMP	✓	✓	✓	✓		✓	✓	✓			✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓
	FZ4608	Forensic Toxicology	COMP	✓	✓	✓	✓		✓	✓	✓			✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓
	FZ4008	Professional Industrial Placement	O																		✓	✓	✓	✓	✓	✓	✓	✓

Note: Mapping to other external frameworks, e.g. professional/statutory bodies, will be included within Student Course Handbooks

19. LEARNING OUTCOMES FOR EXIT AWARDS:

Learning outcomes for the award of: Postgraduate Certificate in Forensic Toxicology

A. Knowledge and Understanding

- A2. Present forensic chemistry information clearly and concisely
- A3. Research information from literature/manuals/internet.
- A4. Effectively plan a project and record data and their critical analysis.
- A5. Design, plan and implement research questions to problems in forensic toxicology including evaluation of hazards and environmental effects.

B. Subject-specific skills

- B1. Select appropriate techniques and procedures for the analysis of specific drugs and metabolites.
- B2. Demonstrate competence in the planning, design and execution of experiments
- B3. Appraise different potential solutions to an unfamiliar problem.
- B4. Work independently, under minimum supervision, and be self-critical in the evaluation of risks, experimental procedures and outcomes.

C. Thinking Skills

- C1. Evaluate technical and theoretical information
- C2. Adapt and apply methodology to the solution of problems.
- C3. Assimilate, appraise and present research results objectively.
- C4. Undertake an individual research project, the outcome of which is potentially publishable.
- C5. Critically assess the results of such a project

D. Other skills relevant to employability and personal development

- D1. Problem-solving skills including the demonstration of self-direction and originality
- D2. Communicate and interact with professionals from other disciplines
- D3. Ability to exercise initiative and personal responsibility
- D5. Independent learning ability required for continuing professional development.
- D6. Work independently under minimum supervision.
- D8. Communicate in a manner that would be expected of an expert witness

Learning outcomes for the award of: Postgraduate Diploma in Forensic Toxicology

A. Knowledge and Understanding

- A1. Appraise an unfamiliar problem in forensic toxicology and be able to design and implement a suitable solution.
- A2. Present forensic chemistry information clearly and concisely
- A3. Research information from literature/manuals/internet.
- A4. Effectively plan a project and record data and their critical analysis.
- A5. Design, plan and implement research questions to problems in forensic toxicology including evaluation of hazards and environmental effects.
- A6. Evaluate and appraise strategies for forensic toxicology including the identification of additional information required and problems where there is not a unique solution.

B. Subject-specific skills

- B1. Select appropriate techniques and procedures for the analysis of specific drugs and metabolites.
- B2. Demonstrate competence in the planning, design and execution of experiments
- B3. Critically evaluate different potential solutions to an unfamiliar problem.
- B4. Work independently, under minimum supervision, and be self-critical in the evaluation of risks, experimental procedures and outcomes.
- B5. Use an understanding of the limits of accuracy of experimental data to inform the planning of future work.

C. Thinking Skills

- C1. Critically evaluate technical and theoretical information
- C2. Adapt and apply methodology to the solution of unfamiliar problems.
- C3. Assimilate, evaluate and present research results objectively.
- C4. Undertake an individual research project.
- C5. Assess the results of such a project

D. Other skills relevant to employability and personal development

- D1. Problem-solving skills including the demonstration of self-direction and originality
- D2. Communicate and interact with professionals from other disciplines
- D3. Ability to exercise initiative and personal responsibility
- D4. Ability to make decisions in complex and unpredictable situations
- D5. Independent learning ability required for continuing professional development.
- D6. Work independently under minimum supervision.
- D7. Develop and write a research project within guidelines and be able to assess the success of such a project.
- D8. Communicate in a manner that would be expected of an expert witness