OFFICE USE ONLY	
Date of validation event:	04 February 2019
Date of approval by Academic Board:	07 May 2019
Approved Validation Period:	*5 years from September 2019*
Date and type of revision:	14/06/2022 APSC approval to amend the entry requirement statement for Sept 2022 entry and beyond. Removal of pre-entry bridging course

PROGRAMME SPECIFICATION

MRes Forensic Anthropology & Bioarchaeology
MRes Forensic Anthropology & Bioarchaeology (Top-Up)
MRes Analytical & Forensic Chemistry

1	**Awarding body**
	Glyndŵr University
2	**Programme delivered by**
	Glyndŵr University
3	**Location of delivery**
	Plas Coch Campus
4	**Faculty/Department**
	FAST
5	**Exit awards available**
	PG Cert Analytical & Forensic Chemistry PG Cert Forensic Anthropology & Bioarchaeology
6	**Professional, Statutory or Regulatory Body (PSRB) accreditation**
	The proposed programme encompasses the broad subject area of Chemistry and Forensic Science and therefore does not meet the full requirements of each accrediting body, but guidance has been sought from both Royal Society of Chemistry and the Chartered Society of Forensic Sciences in order to use the standards to benchmark and design the programme learning outcomes.
7	**Accreditation available**
	N/A
8	**Please add details of any conditions that may affect accreditation (e.g. is it dependent on choices made by a student?)**
	N/A
9	**JACS3 / HECoS codes**
	JACS F180- Analytical Chemistry JACS F410 - Forensic Science

JACS F400 – Forensic & Archaeological Sciences
JACS L620 – Physical & Biological Anthropology
HECoS 100413 – Analytical Chemistry
HECoS 100388 – Forensic Science
HECoS 101218 – Forensic Anthropology
HECoS 101219 – Forensic Archaeology

10 UCAS **code**

N/A

11 **Relevant QAA subject benchmark statement/s**

The QAA Chemistry Benchmark Statement 2014, which states aims of Master's degree programmes in Chemistry in sections:
3.3-3.4-Aims of degree programmes in chemistry,
4.3-4.5-Subject knowledge and understanding,
5.4-Chemistry related cognitive abilities and skills,
5.6-Chemistry-related practical skills,
5.8-Professional skills,
6.6-Teaching, learning and assessment
7.3-7.4-Subject benchmark standards.

The QAA Forensic Science Benchmark Statement 2012, which states aims of Master's degree programmes in Forensic Science in sections:
3.2- Aims of degree programmes in forensic science,
4.7-4.10- Subject knowledge and understanding,
5.3-Scientific and laboratory skills,
5.5-Forensic science skills,
5.7-Generic graduate skills,
5.8- Ethical behaviour,
6.4-6.6 Teaching, learning and assessment,
7.12 Subject benchmark standards.

Guidance has also been taken from the undergraduate subject benchmarks anthropology or archaeology as there are no QAA Level 7 subject benchmark statements available for these areas.

12 **Other external and internal reference points used to inform the programme outcomes**

The programme content has been developed with reference to the requirements of the Royal Society of Chemistry Accreditation guidelines and the Chartered Society of Forensic Sciences where possible. New standards and codes of practice in both Forensic Anthropology and Forensic Toxicology set by the Forensic Science Regulator have also been incorporated.

13 **Mode of study**

Full time and part time delivery

14 **Normal length of study** for each mode of study
Note that students are not eligible for funding for a postgraduate qualification if the duration of the part time route is more than double the duration of the full time route.

F/T 1 year P/T 2 years

15 **Maximum length of study**

Two years full time or five years part time

16 Language of study

English

17 Criteria for admission to the programme

Standard entry criteria

Entry requirements are in accordance with the University's admissions policy https://www.glyndwr.ac.uk/en/media/FINAL%20ADMISSIONS%20POLICY%202020 17.pdf

The University's entry requirements are set out at http://www.glyndwr.ac.uk/en/Undergraduatecourses/UCAStariffchange2017/

These figures are intended as a general guide. Each application is considered individually.

International entry qualifications are outlined on the National Academic Recognition and Information Centre (NARIC) as equivalent to the relevant UK entry qualification.

In addition to the academic entry requirements, all applicants whose first language is not English or Welsh must demonstrate English language proficiency.

European students are able to provide this evidence in a number of ways (please see http://www.glyndwr.ac.uk/en/Europeanstudents/entryrequirements/ for details), including IELTS.

International students require a UKVI Approved Secure English Language Test (SELT) (please see http://www.glyndwr.ac.uk/en/Internationalstudents/EntryandEnglishLanguageRequirements/ for details).
The entry requirements for the Masters Framework are drawn up in accordance with the University's regulations.

a) A candidate must satisfy one, or combination, of the following conditions;

Hold one of the following prior to commencement of the Programme:

I. An initial honours degree of Glyndŵr University or another approved degree awarding body with a minimum of 2:2 honours degree* which has a significant content of:
   - Chemical, Forensic or Analytical Science for the MRes in Analytical & Forensic Chemistry, equivalent to SCI509 Analytical Methods and SCI512 Instrumental Analysis
   - Forensic Science, Crime, Archaeology, Anthropology or Biology for the MRes in Forensic Anthropology or Bioarchaeology

II. Equivalent qualifications of another overseas country which are deemed satisfactory by the programme team.

*Students who have scored less than 60% (or 2.1 equivalent) in their undergraduate dissertation or equivalent research project module will be offered an interview prior to any place being offered.

b) In a case where there is lack of clarity or need to gain deeper insight into a candidate's suitability for the programme of study an informal interview with the candidate may be held, which may be undertaken via Skype or other distance communication technology. This will allow the candidate an opportunity to provide evidence to the satisfaction of the interview panel of his/her ability to complete academic work of the required standard in the subject area and to complete successfully the scheme of study proposed.

MRes Forensic Anthropology & Bioarchaeology (top-up)
The top-up route is available to students from the PG Dip in Forensic Anthropology and Bioarchaeology at the Cyprus Institute of Science and Humanities (CYPISH).

a) For entry on to the top-up a candidate must satisfy the following conditions:
i. Hold a PG Dip in Forensic Anthropology & Bioarchaeology having successfully completed the following CYPISH Modules:
- Advance Research Skills
- Human Osteology and Analytical Methods
- Skeletal & Dental Pathology
- Negotiated Learning
- Work Placement

ii. Provide copies of a Research Proposal, Pilot Study and intentions for a Dissertation Research Project for approval by the programme team.

b) In a case where there is lack of clarity or need to gain deeper insight into a candidate's suitability for the programme of study an informal interview with the candidate may be held, which may be undertaken via Skype or other distance communication technology. This will allow the candidate an opportunity to provide evidence to the satisfaction of the interview panel of his/her ability to complete academic work of the required standard in the subject area and to complete successfully the scheme of study proposed.

DBS Requirements

DBS checks will not be required as standard.

In some exceptional circumstances students undertaking a placement or research project (dissertation) may be required to obtain a relevant DBS. For example, if working within schools, field schools or at museums where contact with children or vulnerable people could be required.

It is the students' responsibility to determine this requirement with the relevant external institution in advance and to contact the Student Programmes Centre to organise for the check to be completed in advance or any placement or research beginning. Any DBS checks required to complete the programme of study will be paid for by the University.

Non-standard entry criteria and programme specific requirements

A non-graduate can be admitted for candidature provided that they have:

I. A non-graduate qualification, which the University deems to be of satisfactory standard for the purpose of post-graduate admission.
AND
II. Relevant work experience at a level that is deemed to compensate the lack of formal qualifications, ***and*** have held a position of responsibility within the Chemical, Forensic, Archaeological or Policing sector for a minimum of three years within the last five years.

All non-graduates will be offered a conditional place subject to successful completion of the pre-entry bridging course in Preparing for Academic Success.

18 Recognition of Prior (Experiential) Learning

Applicants may enter the programme at various levels with Recognition of Prior Learning (RPL) or Recognition of Prior Experiential learning (RPEL) in accordance with the University General Regulations. Any programme specific restrictions are outlined below.

Programme specific restrictions

N/A

19 Aims of the programme

The proposed MRes programmes are designed to provide students with the opportunity to build upon, and expand, their existing knowledge and skills in their specialist scientific area. The programme will impart knowledge at the forefront of the academic discipline and develop a critical awareness and comprehensive understanding of the advanced techniques and technologies that are available to conduct research and development in the areas of Analytical and Forensic Chemistry or Forensic Anthropology & Bioarchaeology In providing high quality relevant training to students, it will enable them to better progress within their professional career or equally to proceed on to doctoral study.

In order to achieve this outcome, the aims of the programmes are:

All programmes:

1. To enable students to focus on particular aspects of a broad subject area in which they have prior knowledge or experience through previous study or employment and understand how the boundaries of new knowledge are expanded through research.
2. To encourage critical thinking skills, a knowledge of professional responsibility, integrity and ethics together with the ability to reflect on personal progress as a learner and undertake independent study.
3. To provide graduate students with the opportunity to develop an independent, substantial piece of scholarly research into an area that related to their programme of study.
4. To provide students with advanced scientific research training appropriate for both Level 7 and doctoral research.
5. To develop students' self-management, planning and communication skills.
6. To prepare fully those students with suitable interests for further postgraduate research at the Master/Doctor of Philosophy level and beyond.

MRes Analytical & Forensic Chemistry

7. Introduce the field of analytical and forensic chemistry and enable students to acquire a critical awareness of current issues and developments in the subject.
8. To be informed by, and to contribute to, broader academic debates about the methods, approaches and practices within the Chemical and Forensic Science Sector.
9. Equip students in a wide range of industry standard and novel techniques applicable in forensic analysis.

MRes Forensic Anthropology & Bioarchaeology

7. To enable students to develop an in depth knowledge in the field of forensic anthropology and bioarchaeology and acquire a critical awareness of current issues and developments in the subject.
8. To be informed by, and to contribute to, broader academic debates about the methods, approaches and practices within the Archaeological and Forensic Science Sector
9. Equip students in a wide range of industry standard and novel techniques applicable in the collection and examination of remains.

MRes Forensic Anthropology & Bioarchaeology (top-up)

7. To be informed by, and to contribute to, broader academic debates about the methods, approaches and practices within the Archaeological and Forensic Science Sector.
8. To enable students to apply their in-depth knowledge in the field of forensic anthropology and bioarchaeology to research current issues and developments in the subject.

20 Distinctive features of the programme

The Master of Research (MRes) framework offers flexible programmes with named routes to cater for the learning and personal/professional development needs of individuals working within a specialised scientific area. The programmes are distinctive in that they provide a balance of generality and specificity of content to cater for a wide range of student educational needs. The programmes are to be taught by a highly specialised team with support from external professionals and institutions who offer a range of subject and research expertise. Students will be integrated into the culture of research from enrolment through to graduation where they will interface with researchers from other disciplines. They will work alongside MPhil and PhD students and also Post-doctoral researchers.

In her 2017 Annual Report, the Forensic Regulator identified Forensic Anthropology as a priority area as well as identifying significant issues of quality within the area of Forensic Toxicology and so the development of qualifications which contribute towards these areas will have a significant national impact. Furthermore 2018 saw the release of new standards in both Forensic Anthropology and Forensic Toxicology and therefore these programmes have been designed with both codes of practice in mind.

Core modules within the programmes enable students to actively engage in the discourses surrounding the concepts of forensic science and its standards in the UK and to critically apply their understanding to their own field of specialised science. This

ensures whatever route is taken through the programmes, all students successfully completing it will be thoroughly grounded in ethical and reflective practice, have a sound subject specific and research knowledge base, and be prepared as leaders and to work at an advanced level. The programmes will appeal strongly to individuals seeking to study and practice at an advanced level within their own subject and by incorporating a compulsory placement module within the programmes, it ensures that all students have the essential work and practical skills achieved through placement to equip them for employment success upon graduation.

The blended approach to teaching on the programmes will offer the students better opportunities to study at distance or alongside other commitments such as work. Attendance is flexible, with both full-time and part-time options. All students will be encouraged to undertake all or part of their research projects with relevant local employers and for students already employed in the sector the project may be undertaken in their regular workplace.

Specifically, each programme provides the following distinctive features:

MRes Forensic Anthropology & Bioarchaeology
The MRes Forensic Anthropology & Bioarchaeology programme has been designed to serve graduates wanting to embark on a research degree focussing on the search, recovery or identification of human remains and factors influencing these aspects.

This programme equips graduates with the skills and subject specific knowledge needed to pursue either a research-based career in a variety of academic disciplines or a fieldwork career in commercial or forensic archaeology & anthropology. The programme focuses on field and lab based practical, analytical and research skills, and provides ideal training for students who want to work in industry, or subsequently wish to move onto a PhD programme, or who simply wish to undertake a more significant and flexible amount of research at the Masters level.

Access to the decomposition research facility here at Glyndŵr University is also a unique selling point as there are only 5 such facilities which hold DEFRA licenses across the UK. This taphonomic facility is unprecedented in Wales and will offer students greater opportunities to undertake significant research than if they were to study similar programmes elsewhere in the UK. The structure of the MRes programme will also allow for a different research profile to those offered at many of the other Universities with such facilities as it will allow for projects to run for longer due to the extended research aspect when compared to the traditional MSc route.

Summary
The key benefits to students of studying the programmes may be summarised thus:

- Receive training in handling of skeletal remains from diverse and contemporary contexts.
- Undertake a tailored research project in industry, or through specialised facilitates.
- Develop systematic knowledge of forensic anthropology and bioarchaeology.
- Gain proficiency in application of acquired knowledge to challenging scenarios.
- Build transferable skills enabling career progression and potential for doctoral study.

MRes Analytical & Forensic Chemistry
The proposed MRes Analytical & Forensic Chemistry programme is designed to introduce the students to a wide range of industry standard and novel techniques applicable in forensic analysis. Career opportunities are available not only in the forensic sector, but the key problem-solving and analytical skills developed in forensic

and analytical science are widely sought after in many other industrial sectors including the oil, gas, pharmaceutical, and food industries.

Applied Science in FAST has two well established research centres which can contribute towards the MRes programme; The Centre of Water Soluble Polymers (CWSP) and Advanced Research Composite Centre. CWSP has a range of specialist instrumentation such as: controlled strain and controlled stress rheometry; extensional rheometry; gel texture analysis; micro-differential scanning calorimetry; photon correlation spectroscopy; laser diffraction; flow particle image analysis; electrophoresis; gel permeation chromatography with multiangle laser light scattering detection; MALDI-TOF, isothermal titration calorimetry; electron spin resonance spectroscopy; and static and dynamic surface tensiometry, FTIR, UV spectroscopy; fluorimetry; atomic absorption spectrophotometry (AAS); gas chromatography (GC); and high performance liquid chromatography (HPLC). The Advanced Research Composite Centre (ARCC) has a range of manufacturing, processing and mechanical testing equipment and research is being carried out in the widely growing field of nanomaterials. The centre has strong collaborations with the aviation sector with industrial partners such as Airbus.

Curriculum design is such that students will achieve a demonstrable working knowledge of the discipline through significant exposure to laboratory problem solving tasks and substantial individual project work. The curriculum will enable students to develop in both independence of thought and the ability to work effectively in a team.

The programme promotes enhancement of technical understanding, with emphasis on problem solving and team / group working, awareness and where possible practice of latest developments in the discipline and increased capability for independent learning and work through case studies and projects. These will encourage students to accept responsibilities, formulating ideas proactively, dealing with open-ended and unfamiliar problems, planning and developing strategies, implementing and executing agreed plans, leading and managing teams where required, evaluating achievement against specification and plan and decision making. The elements within the curriculum of this programme aim to prepare students for their future.

Summary
The key benefits to students of studying the programmes may be summarised thus:

- Receive training in use of a wide range of high level instrumentation.
- Undertake a tailored research project in industry or Glyndŵr University research laboratories.
- Develop systematic knowledge of analytical and forensic chemistry.
- Gain proficiency in application of acquired knowledge to challenging scenarios.
- Build transferable skills enabling career progression and potential for doctoral study.

21 Programme structure narrative

MRes Forensic Anthropology & Bioarchaeology / MRes Analytical & Forensic Chemistry

The programmes are offered in full-time and part-time modes of attendance. The blended approach of online delivery and scheduled attendance, will mean the students will only have to attend university during specified block delivery weeks for modules requiring practical work or face-to-face sessions. This includes Advanced Research Skills, Forensic Analytical Chemistry and Human Osteology. Students will

typically be expected to attend the university for two or three days of a specified week for each module when studying either full or part-time, in addition to studying in their own time.

Students who have been offered their place with the condition of successfully completing the Preparing for Academic Success module, or those simply wishing to undertake additional study prior to enrolment, will have the opportunity to complete the module before their main programme begins. Courses will be made available during trimesters 2 and/or 3 subject to student numbers and the requirements of the cohort.

Full time students will pursue the programme over one calendar year. There are six modules (including the Dissertation). The year is split into three trimesters. The taught modules Advanced Research Skills, Forensic Analytical Chemistry or Human Osteology and Negotiated Learning will be delivered in Trimester 1. In Trimester 2, students will complete the Professional Practice and Placement module, and the Dissertation: Pilot Study module. The Dissertation: Research Project module, pursued in trimester 3 will complement the prior taught modules by focussing upon a theme or topic from the specialised forensic discipline. In part-time mode, students will engage with the programme for a period of two years. The order of delivery will reflect the full time pathway where possible. Students will study 90 credits in each year.

All students will be enrolled onto the MRes programme however there is the potential for students to exit the programme early with a PG Cert in either programme title upon the successful completion of a minimum of 60 credits at Level 7 and should include as a minimum:

- Advanced Research Methods (both titles)
- Human Osteology (Anthropology & Bioarchaeology only)
- Forensic Analytical Chemistry (Analytical & Forensic Chemistry only)

The remaining 20 credits can come from either:

- Negotiated Learning (both titles)
- Professional Practice and Placement (both titles)
- Dissertation: Pilot Study (both titles – please note this will be an overshoot of 20 credits)

As part of their core module in Professional Practice and Placement all students must undertake a minimum of 100 hours of work placement relevant to their chosen subject discipline and/or career pathway. More specific details of the placement requirements are provided in Section 26.

MRes Forensic Anthropology & Bioarchaeology (top-up)
The programme is offered in full-time and part time attendance. The blended approach of online support and practical attendance will mean that students can work flexibly, independently and at distance on their research.
Full time students will pursue the programme over one trimester completing their MRes Top-Up Dissertation in any of the trimesters September, January or June.
Part time students will complete their MRes Top-Up Dissertation over any two consecutive trimesters.

22 Programme structure diagram

MRes Analytical & Forensic Chemistry Full time delivery structure

	Level 7					
Trimester 1	Mod title	Advanced Research Skills	Mod title	Forensic Analytical Chemistry	Mod title	Negotiated Learning
	Module code	SCI719	Module code	SCI722	Module code	SCI718
	Credit value	20	Credit value	20	Credit value	20
	Core/Option	core	Core/Option	core	Core/Option	core
	Mod leader	Dr Amiya Chaudhry	Mod leader	Dr Jixin Yang	Mod leader	Amy Rattenbury

Trimester 2	Mod title	Professional Practice and Placement	Mod title	Dissertation: Pilot Study
	Module code	SCI724	Module code	SCI720
	Credit value	20	Credit value	40
	Core/Option	core	Core/Option	core
	Mod leader	Amy Rattenbury	Mod leader	Amy Rattenbury

Trimester 3	Mod title	Dissertation: Research Project
	Module code	SCI721
	Credit value	60
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

MRes Analytical & Forensic Chemistry Part time delivery structure

	Level 7			
Tri 1 Y1	Mod title	Advanced Research Skills	Mod title	Forensic Analytical Chemistry
	Module code	SCI719	Module code	SCI722
	Credit value	20	Credit value	20
	Core/Option	core	Core/Option	core
	Mod leader	Dr Amiya Chaudhry	Mod leader	Dr Jixin Yang

Tri 2 Y1	Mod title	Negotiated Learning
	Module code	SCI718
	Credit value	20
	Core/Option	core
	Mod leader	Amy Rattenbury

Tri 3 Y1	Mod title	Dissertation: Pilot Study
	Module code	SCI720
	Credit value	40 credits
	Core/Option	core
	Mod leader	Amy Rattenbury

Tri 1 Y2	Mod title	Professional Practice and Placement
	Module code	SCI724
	Credit value	20
	Core/Option	core
	Mod leader	Amy Rattenbury

Tri 2 Y2	Mod title	Dissertation: Research Project
	Module code	SCI721
	Credit value	60 (1st 30)
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

Tri 3 Y3	Mod title	Dissertation: Research Project
	Module code	SCI721
	Credit value	60 (remaining 30)
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

MRes Forensic Anthropology & Bioarchaeology Full time delivery structure

	Level 7					
Trimester 1	Mod title	Advanced Research Skills	Mod title	Human Osteology	Mod title	Negotiated Learning
	Module code	SCI719	Module code	SCI723	Module code	SCI718
	Credit value	20	Credit value	20	Credit value	20
	Core/Option	core	Core/Option	core	Core/Option	core
	Mod leader	Dr Amiya Chaudhry	Mod leader	Amy Rattenbury	Mod leader	Amy Rattenbury

Trimester 2	Mod title	Professional Practice and Placement	Mod title	Dissertation: Pilot Study
	Module code	SCI724	Module code	SCI720
	Credit value	20	Credit value	40
	Core/Option	core	Core/Option	core
	Mod leader	Amy Rattenbury	Mod leader	Amy Rattenbury

Trimester 3	Mod title	Dissertation: Research Project
	Module code	SCI721
	Credit value	60
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

MRes Forensic Anthropology & Bioarchaeology Part time delivery structure

	Level 7			
Tri 1 Y1	Mod title	Advanced Research Skills	Mod title	Human Osteology
	Module code	SCI719	Module code	SCI723
	Credit value	20	Credit value	20
	Core/Option	core	Core/Option	core
	Mod leader	Dr Amiya Chaudhry	Mod leader	Amy Rattenbury

Tri 2 Y1	Mod title	Negotiated Learning
	Module code	SCI718
	Credit value	20
	Core/Option	core
	Mod leader	Amy Rattenbury

Tri 3 Y1	Mod title	Dissertation: Pilot Study
	Module code	SCI720
	Credit value	40
	Core/Option	core
	Mod leader	Amy Rattenbury

Tri 1 Y2	Mod title	Professional Practice & Placement
	Module code	SCI724
	Credit value	20
	Core/Option	core
	Mod leader	Amy Rattenbury

Tri 2 Y2	Mod title	Dissertation: Research Project
	Module code	SCI721
	Credit value	60 (1st 30)
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

Tri 3 Y3	Mod title	Dissertation: Research Project
	Module code	SCI721
	Credit value	60 (remaining 30)
	Core/Option	core

MRes Forensic Anthropology & Bioarchaeology (top-up) Full time delivery structure

Trimester 3	Mod title	Dissertation: MRes Top-Up
	Module code	SCI725
	Credit value	90
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

MRes Forensic Anthropology & Bioarchaeology (top-up) Part Time delivery structure

Trimester 1, 2 or 3	Mod title	Dissertation: MRes Top-Up
	Module code	SCI725
	Credit value	90 (1st 45)
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

Trimester 2, 3 or 1	Mod title	Dissertation: MRes Top-Up
	Module code	SCI725
	Credit value	90 (2nd 45)
	Core/Option	core
	Mod leader	Dr Ian Ratcliffe

23 Intended learning outcomes of the programme

Analytical & Forensic Chemistry
The programme will provide opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes. The programme emphasises emerging and state-of-the-art techniques and technologies within the discipline and will deliver a range of course materials to cover forensic chemistry issues. It will provide an opportunity for students to gain comprehensive theoretical knowledge, improve their analytical and practical skills, and allow students to further develop skills and knowledge whilst giving the flexibility to investigate areas of interest in more depth.

PG Cert	
	Knowledge and understanding
A1	Critically evaluate methodologies and methods which create and interpret detailed knowledge of research selecting the most appropriate for their specific research area.
A2	Give a critical account of current and emerging developments in forensic science and other relevant areas.
A3	Appreciate and evaluate an appropriate selection of underlying physical principles, the individual limitations of various analytical techniques and their application in new or original ways
	Intellectual skills
B1	Provide a professional basis for continued understanding and development of the scientific process, including the ability to read, evaluate and write scientific reports with a focus on challenging thinking.
B2	Work with self-direction and originality in identifying and dealing with complex problems related to aims and desired outcomes, identifying possibilities for originality or creativity, and applying and adapting problem-solving skills to unfamiliar, complex and open-ended situations.
B3	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge utilising strategies appropriate for the subject to advance own knowledge.
	Subject skills
C1	Identify the features of and tackle problems of an unfamiliar nature with appropriate methodology and awareness of risk
C2	Identify, select, plan for, use and evaluate ICT skills, including the use of databases, software packages and modern communications methods to enhance the achievement of aims and desired outcomes.
C3	Select, perform and evaluate analytical techniques, concerned with the identification of materials and the determination of their composition.
Practical, professional and employability skills	
D1	Comply with safe working practices, both for self and others by agreeing resources and support methods, identifying appreciating the serious consequences of careless or substandard practices.
D2	Present complex concepts and information in a clear and concise manner, both orally and in writing, and the ability to interact and communicate effectively within a wide range of professional environments.
D3	Work both independently and as part of a team in order to plan, organise and perform work efficiently, identify who and how others may help in achieving aims and desired outcomes and putting plans into action with clarity in roles and responsibilities conscientiously in a timely way, meeting deadlines where necessary.
D4	Take full responsibility for managing safety effectively in a laboratory; this includes competent risk assessment, following documented procedures, ensuring calibration, and reliable recording of methods and results.

MRes	
Knowledge and understanding	
A1	Critically evaluate methodologies and methods which create and interpret detailed knowledge of research selecting the most appropriate for their specific research area.
A2	Give a critical account of current and emerging developments in forensic science and other relevant areas.
A3	Appreciate and evaluate an appropriate selection of underlying physical principles, the individual limitations of various analytical techniques and their application in new or original ways
A5	Demonstrate a wide knowledge and critical awareness of the current research in whole subject discipline by drawing heavily on academic publications and appropriate primary resources, evaluating the sources, collection methods and data
A6	Identify opportunities to improve by develop a sound knowledge of science and of laboratory and other transferable skills which are of value in areas of employment other than forensic science, such as schools, hospitals, analytical science-based companies, the pharmaceutical industry, the Home Office and other government agencies.
A7	Identify and evaluate the ethical, legal and commercial responsibilities of a forensic science practitioner, and of the quality assurance and validation requirements where appropriate to professional competency.
A8	Demonstrate a comprehensive and deep specialist knowledge within a particular area of forensic or analytical chemistry selecting and explaining an appropriate range of complex and conceptually challenging facts, exploring implications on uncertain, ambiguous, limited or contradictory aspects within which their advanced research project is carried out.
Intellectual skills	
B1	Provide a professional basis for continued understanding and development of the scientific process, including the ability to read, evaluate and write scientific reports with a focus on challenging thinking.
B2	Work with self-direction and originality in identifying and dealing with complex problems related to aims and desired outcomes, identifying possibilities for originality or creativity, and applying and adapting problem-solving skills to unfamiliar, complex and open-ended situations.
B3	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge utilising strategies appropriate for the subject to advance own knowledge.
B4	Undertake a substantial research project at the forefront of their specialised discipline which involves an analytical, rigorous and critical approach to problem identification, solution and evaluation that is completed effectively.
B5	Devise and sustain an argument supported by valid evidence demonstrating initiative and flexibility to the development of new and emerging procedures and techniques which may offer new insights relevant to forensic science.
Subject skills	
C1	Identify the features of and tackle problems of an unfamiliar nature with appropriate methodology and awareness of risk
C2	Identify, select, plan for, use and evaluate ICT skills, including the use of databases, software packages and modern communications methods to enhance the achievement of aims and desired outcomes.
C3	Select, perform and evaluate analytical techniques, concerned with the identification of materials and the determination of their composition.
C5	Identify desired communication outcome to present research data effectively adapt the appropriate format so as to select and use a style appropriate for engagement with academic or professional audiences.
C6	Plan, execute, and report the results of a scientific investigation using appropriate methods to critically analyse the data and evaluate the level of its uncertainty.
C7	Exercise the competent, accurate and appropriate use of advanced experimental techniques and instrument-specific software adapting processes to be capable of yielding new data and knowledge

Practical, professional and employability skills	
D1	Comply with safe working practices, both for self and others by agreeing resources and support methods, identifying appreciating the serious consequences of careless or substandard practices.
D2	Present complex concepts and information in a clear and concise manner, both orally and in writing, and the ability to interact and communicate effectively within a wide range of professional environments.
D3	Work both independently and as part of a team in order to plan, organise and perform work efficiently, identify who and how others may help in achieving aims and desired outcomes and putting plans into action with clarity in roles and responsibilities conscientiously in a timely way, meeting deadlines where necessary.
D4	Take full responsibility for managing safety effectively in a laboratory; this includes competent risk assessment, following documented procedures, ensuring calibration, and reliable recording of methods and results.
D6	Set studies within a context required for continuing professional development, synthesising information and creating links between aspects of independent learning
D7	Identify and evaluate the constraints and opportunities of the environment in which professional forensic science is carried out.
D8	Make and justify decisions having confidence in their ability to interpret complex technical information and to communicate it in a wide variety of professional situations.
D9	Demonstrate project management skills including the implementation of plans and activities within a time scale, monitoring and reviewing progress making appropriate adaptations and amendments
D10	Make informed judgements in order to justify a personal development plan, building on their knowledge and skills with the ability to identify and reflect on where further training or skill acquisition is necessary for self-improvement or potential employer's benefit.

Forensic Anthropology & Bioarchaeology

The programme will provide opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes. The programme emphasises a diverse range of established and developing techniques and application within the discipline and will deliver a range of course materials to cover issues relating to the search, recovery and identification of remains. It will provide an opportunity for students to gain comprehensive theoretical knowledge, improve their practical skills, and allow students to further develop skills and knowledge whilst giving the flexibility to investigate areas of interest in more depth.

PG Cert	
	Knowledge and understanding
A1	Critically evaluate methodologies and methods which create and interpret detailed knowledge of research selecting the most appropriate for their specific research area.
A2	Give a critical account of current and emerging developments in forensic science and other relevant areas.
A4	Extend and improve knowledge of the role of human osteology, forensic anthropology and bioarchaeology by applying and adapting methods and techniques to identification of human remains in forensic of historic contexts.
	Intellectual skills
B1	Provide a professional basis for continued understanding and development of the scientific process, including the ability to read, evaluate and write scientific reports with a focus on challenging thinking.
B2	Work with self-direction and originality in identifying and dealing with complex problems related to aims and desired outcomes, identifying possibilities for originality or creativity, and applying and adapting problem-solving skills to unfamiliar, complex and open-ended situations.
B3	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge utilising strategies appropriate for the subject to advance own knowledge.
	Subject skills
C1	Identify the features of and tackle problems of an unfamiliar nature with appropriate methodology and awareness of risk
C2	Identify, select, plan for, use and evaluate ICT skills, including the use of databases, software packages and modern communications methods to enhance the achievement of aims and desired outcomes.
C4	Interpret and communicate forensic or historic evidence in the context of casework using new skills techniques as required.
Practical, professional and employability skills	
D1	Comply with safe working practices, both for self and others by agreeing resources and support methods, identifying appreciating the serious consequences of careless or substandard practices.
D2	Present complex concepts and information in a clear and concise manner, both orally and in writing, and the ability to interact and communicate effectively within a wide range of professional environments.
D3	Work both independently and as part of a team in order to plan, organise and perform work efficiently, identify who and how others may help in achieving aims and desired outcomes and putting plans into action with clarity in roles and responsibilities conscientiously in a timely way, meeting deadlines where necessary.
D5	Demonstrate a critical awareness of ethical and legal issues associated with anthropological and archaeological methods and theories, including those involved with the recovery, storage, handling, retention, investigation, analysis and disposal of human or other biological tissues.

MRes	
Knowledge and understanding	
A1	Critically evaluate methodologies and methods which create and interpret detailed knowledge of research selecting the most appropriate for their specific research area.
A2	Give a critical account of current and emerging developments in forensic science and other relevant areas.
A4	Extend and improve knowledge of the role of human osteology, forensic anthropology and bioarchaeology by applying and adapting methods and techniques to identification of human remains in forensic or historic contexts
A5	Demonstrate a wide knowledge and critical awareness of the current research in whole subject discipline by drawing heavily on academic publications and appropriate primary resources, evaluating the sources, collection methods and data
A6	Identify opportunities to improve by develop a sound knowledge of science and of laboratory and other transferable skills which are of value in areas of employment other than forensic science, such as schools, hospitals, analytical science-based companies, the pharmaceutical industry, the Home Office and other government agencies.
A7	Identify and evaluate the ethical, legal and commercial responsibilities of a forensic science practitioner, and of the quality assurance and validation requirements where appropriate to professional competency.
A9	Demonstrate a comprehensive and deep specialist knowledge within a particular area of forensic anthropology or bioarchaeology selecting and explaining an appropriate range of complex and conceptually challenging facts, exploring implications on uncertain, ambiguous, limited or contradictory aspects within which their advanced research project is carried out.
Intellectual skills	
B1	Provide a professional basis for continued understanding and development of the scientific process, including the ability to read, evaluate and write scientific reports with a focus on challenging thinking.
B2	Work with self-direction and originality in identifying and dealing with complex problems related to aims and desired outcomes, identifying possibilities for originality or creativity, and applying and adapting problem-solving skills to unfamiliar, complex and open-ended situations.
B3	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge utilising strategies appropriate for the subject to advance own knowledge.
B4	Undertake a substantial research project at the forefront of their specialised discipline which involves an analytical, rigorous and critical approach to problem identification, solution and evaluation that is completed effectively.
B5	Devise and sustain an argument supported by valid evidence demonstrating initiative and flexibility to the development of new and emerging procedures and techniques which may offer new insights relevant to forensic science.
Subject skills	
C1	Identify the features of and tackle problems of an unfamiliar nature with appropriate methodology and awareness of risk
C2	Identify, select, plan for, use and evaluate ICT skills, including the use of databases, software packages and modern communications methods to enhance the achievement of aims and desired outcomes.
C4	Interpret and communicate forensic or historic evidence in the context of casework using new skills techniques as required.
C5	Identify desired communication outcome to present research data effectively adapt the appropriate format so as to select and use a style appropriate for engagement with academic or professional audiences.
C6	Plan, execute, and report the results of a scientific investigation using appropriate methods to critically analyse the data and evaluate the level of its uncertainty.
C8	Evaluate the impact core concepts and techniques which underpin anthropology and archaeology in a forensic or historic context (such as stratigraphy, taphonomy, depositional process, surveying, recording and recovery procedures).

Practical, professional and employability skills	
D1	Comply with safe working practices, both for self and others by agreeing resources and support methods, identifying appreciating the serious consequences of careless or substandard practices.
D2	Present complex concepts and information in a clear and concise manner, both orally and in writing, and the ability to interact and communicate effectively within a wide range of professional environments.
D3	Work both independently and as part of a team in order to plan, organise and perform work efficiently, identify who and how others may help in achieving aims and desired outcomes and putting plans into action with clarity in roles and responsibilities conscientiously in a timely way, meeting deadlines where necessary.
D5	Demonstrate a critical awareness of ethical and legal issues associated with anthropological and archaeological methods and theories, including those involved with the recovery, storage, handling, retention, investigation, analysis and disposal of human or other biological tissues.
D6	Set studies within a context required for continuing professional development, synthesising information and creating links between aspects of independent learning
D7	Identify and evaluate the constraints and opportunities of the environment in which professional forensic science is carried out.
D8	Make and justify decisions having confidence in their ability to interpret complex technical information and to communicate it in a wide variety of professional situations.
D9	Demonstrate project management skills including the implementation of plans and activities within a time scale, monitoring and reviewing progress making appropriate adaptations and amendments
D10	Make informed judgements in order to justify a personal development plan, building on their knowledge and skills with the ability to identify and reflect on where further training or skill acquisition is necessary for self-improvement or potential employer's benefit.

MRes Forensic Anthropology & Bioarchaeology (top-up)

MRes Top Up	
	Knowledge and understanding
A1	Critically evaluate methodologies and methods which create and interpret detailed knowledge of research selecting the most appropriate for their specific research area.
A2	Give a critical account of current and emerging developments in forensic science and other relevant areas.
A5	Demonstrate a wide knowledge and critical awareness of the current research in whole subject discipline by drawing heavily on academic publications and appropriate primary resources, evaluating the sources, collection methods and data
A9	Demonstrate a comprehensive and deep specialist knowledge within a particular area of forensic anthropology or bioarchaeology selecting and explaining an appropriate range of complex and conceptually challenging facts, exploring implications on uncertain, ambiguous, limited or contradictory aspects within which their advanced research project is carried out.
	Intellectual skills
B1	Provide a professional basis for continued understanding and development of the scientific process, including the ability to read, evaluate and write scientific reports with a focus on challenging thinking.
B2	Work with self-direction and originality in identifying and dealing with complex problems related to aims and desired outcomes, identifying possibilities for originality or creativity, and applying and adapting problem-solving skills to unfamiliar, complex and open-ended situations.

MRes Top Up	
Knowledge and understanding	
B3	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge utilising strategies appropriate for the subject to advance own knowledge.
B4	Undertake a substantial research project at the forefront of their specialised discipline which involves an analytical, rigorous and critical approach to problem identification, solution and evaluation that is completed effectively.
B5	Devise and sustain an argument supported by valid evidence demonstrating initiative and flexibility to the development of new and emerging procedures and techniques which may offer new insights relevant to forensic science.
Subject skills	
C1	Identify the features of and tackle problems of an unfamiliar nature with appropriate methodology and awareness of risk
C2	Identify, select, plan for, use and evaluate ICT skills, including the use of databases, software packages and modern communications methods to enhance the achievement of aims and desired outcomes.
C5	Identify desired communication outcome to present research data effectively adapt the appropriate format so as to select and use a style appropriate for engagement with academic or professional audiences.
C6	Plan, execute, and report the results of a scientific investigation using appropriate methods to critically analyse the data and evaluate the level of its uncertainty.
Practical, professional and employability skills	
D1	Comply with safe working practices, both for self and others by agreeing resources and support methods, identifying appreciating the serious consequences of careless or substandard practices.
D2	Present complex concepts and information in a clear and concise manner, both orally and in writing, and the ability to interact and communicate effectively within a wide range of professional environments.
D3	Work both independently and as part of a team in order to plan, organise and perform work efficiently, identify who and how others may help in achieving aims and desired outcomes and putting plans into action with clarity in roles and responsibilities conscientiously in a timely way, meeting deadlines where necessary.
D5	Demonstrate a critical awareness of ethical and legal issues associated with anthropological and archaeological methods and theories, including those involved with the recovery, storage, handling, retention, investigation, analysis and disposal of human or other biological tissues.
D6	Set studies within a context required for continuing professional development, synthesising information and creating links between aspects of independent learning
D8	Make and justify decisions having confidence in their ability to interpret complex technical information and to communicate it in a wide variety of professional situations.
D9	Demonstrate project management skills including the implementation of plans and activities within a time scale, monitoring and reviewing progress making appropriate adaptations and amendments

24 Curriculum matrix

For successful completion of PG Cert Analytical & Forensic Chemistry, students will achieve the following learning outcomes:

	Module Title	Core or option?	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	D4
Level 7	Advanced Research Skills	Core	■	■	□	■	■	■	□	■	□	□	■	■	□
	Professional Practice &Placement	Core	□	□	□	□	■	□	■	■	□	■	■	■	□
	Negotiated Learning	Core	■	■	■	■	■	■	□	■	□	■	■	■	■
	Dissertation: Pilot Study	Core	■	■	■	■	■	■	□	■	□	■	■	■	■
	Forensic Analytical Chemistry	Core	□	■	■	■	■	□	■	■	■	■	■	■	■

For successful completion of MRes Analytical & Forensic Chemistry, students will achieve the following learning outcomes:

	Module Title	Core or option?	A1	A2	A3	A5	A6	A7	A8	B1	B2	B3	B4	B5	C1	C2	C3	C5	C6	C7	D1	D2	D3	D4	D6	D7	D8	D9	D10
Level 7	Advanced Research Skills	Core	■	■	□	■	□	□	■	■	■	■	■	■	□	■	□	■	■	□	□	■	■	□	□	□	■	■	□
	Professional Practice &Placement	Core	□	□	□	□	■	■	□	□	■	□	□	□	■	■	□	□	□	□	■	■	■	□	■	■	■	□	■
	Negotiated Learning	Core	■	■	■	■	■	□	■	■	■	■	■	■	□	■	□	■	■	■	■	■	■	■	■	■	■	■	■
	Dissertation: Pilot Study	Core	■	■	■	■	■	□	■	■	■	■	■	■	□	■	□	■	■	■	■	■	■	■	■	■	■	■	■
	Dissertation: Research Project	Core	■	■	□	■	□	□	■	■	■	■	■	■	□	■	□	■	■	■	■	■	■	■	■	□	■	■	□
	Forensic Analytical Chemistry	Core	□	■	■	■	□	■	□	■	■	□	□	□	■	■	■	□	□	■	■	■	■	■	□	□	■	□	□

For successful completion of PG Cert Forensic Anthropology & Bioarchaeology, students will achieve the following learning outcomes:

	Module Title	*Core or option?*	***A1***	***A2***	***A4***	***B1***	***B2***	***B3***	***C1***	***C2***	***C4***	***D1***	***D2***	***D3***	***D5***
Level 7	*Advanced Research Skills*	Core	■	■	□	■	■	■	□	■	□	□	■	■	■
	Professional Practice &Placement	Core	□	□	□	□	■	□	■	■	□	■	■	■	■
	Negotiated Learning	Core	■	■	■	■	■	■	□	■	□	■	■	■	■
	Dissertation: Pilot Study	Core	■	■	■	■	■	■	□	■	□	■	■	■	■
	Human Osteology	Core	□	■	■	■	■	□	■	■	■	■	■	■	■

For successful completion of MRes Forensic Anthropology & Bioarchaeology, students will achieve the following learning outcomes:

	Module Title	*Core or option?*	***A1***	***A2***	***A4***	***A5***	***A6***	***A7***	***A9***	***B1***	***B2***	***B3***	***B4***	***B5***	***C1***	***C2***	***C4***	***C5***	***C6***	***C8***	***D1***	***D2***	***D3***	***D5***	***D6***	***D7***	***D8***	***D9***	***D10***
Level 7	*Advanced Research Skills*	Core	■	■	□	■	□	□	■	■	■	■	■	■	□	■	□	■	■	□	□	■	■	■	□	□	■	■	□
	Professional Practice &Placement	Core	□	□	□	□	■	■	□	□	■	□	□	□	■	■	□	□	□	□	■	■	■	■	■	■	■	□	■
	Negotiated Learning	Core	■	■	■	■	■	□	■	■	■	■	■	■	□	■	□	■	■	■	■	■	■	■	■	■	■	■	■
	Dissertation: Pilot Study	Core	■	■	■	■	■	□	■	■	■	■	■	■	□	■	□	■	■	■	■	■	■	■	■	■	■	■	■
	Dissertation: Research Project	Core	■	■	□	■	□	□	■	■	■	■	■	■	□	■	□	■	■	■	■	■	■	■	■	□	■	■	□
	Human Osteology	Core	□	■	■	■	□	■	□	■	■	□	□	□	■	■	■	□	□	■	■	■	■	■	□	□	■	□	□

For successful completion of MRes Forensic Anthropology & Bioarchaeology Top-Up students will achieve the following learning outcomes:

	Module Title	*Core or option?*	***A1***	***A2***	***A5***	***A9***	***B1***	***B2***	***B3***	***B4***	***B5***	***C2***	***C5***	***C6***	***C8***	***D1***	***D2***	***D3***	***D5***	***D6***	***D8***	***D9***
	Dissertation: MRes Top-Up	Core	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

25 Learning and teaching strategy

The programmes will be delivered via blended learning. Each module takes the form of a learning package consisting of online resources such as videos, articles, quizzes, websites, discussion boards, *etc.* (accessed via the module space on Moodle), tutorial support meetings and, where appropriate, practical workshops. This approach is favourable with employers, and will enable timetabling to fit around current teaching modules.

The curriculum is designed to encourage an appreciation for learning. The overall strategy for teaching is to impart upon the student a broad overarching knowledge in the specialised scientific subjects, research skills and the development of transferable skills. The applied science subjects are amenable to the full range of teaching methodologies and as the programmes include common and specialist elements this necessitates the use of a variety of teaching techniques to ensure that students remain engaged, motivated and challenged to learn. The scientific profession requires graduates who are safe and competent practical workers and so it is crucial that there is a substantial laboratory or fieldwork based practical component.

Teaching will encompass both online and classroom based delivery, guest talks, tutorials, and laboratory workshops. Attendance at external events will be made available when they are appropriate and practicable. Some modules include group and small-scale project work, with student-led seminars and presentations. Moodle will be used to support teaching. These modes of contact provide students with the ability to develop and practice the range of learning outcomes associated with the programme, ranging from the theoretical to the practical. The contributing research centres will provide practical and analytical facilities; students will have to travel between sites by their own means.

Lectures: This is usually a formal discourse for the purpose of dissemination of information, the demonstration of techniques and the discussion of supporting ideas and consequences. The lecture is supported by a full range of equipment including whiteboard, video and computer projection facilities where appropriate. For online delivery, Panopto lecture capture will be used. Although this type of presentation is suitable for a one-sided discourse ample opportunity exists for questions, interaction and discussion in classrooms and online VLE forums.

Seminar and Tutorials: These activities encompass a wide range of activities, each suited to the particular module. Some tutorials will consist of the staff supporting students engaged in problem solving. Alternatively, a tutorial may involve group exercises where each group is encouraged to allocate responsibilities, tasks *etc.* Student-Centred Active Learning Environment (SCALE-UP) classrooms will be used for this type of delivery. Generally, this type of teaching is used to support the lecture, clarify the material and experiment with the techniques and skills required.

Laboratory: The nature of the chemistry elements of the programme requires students to gain practical skills in the use and safe handling of chemical substances and analytical techniques/equipment. There are specialist laboratories at both Wrexham and Broughton. Activities including demonstrations, practical sessions and problem solving activities take place in the laboratories and are supported by a staff member, practising skills in the use of sophisticated analytical techniques and essential safe laboratory practice. In both the specialised modules, Human Osteology and Forensic Analytical Chemistry, students will be allocated additional lab time in which to undertake a variety of specially designed scenarios on an independent basis which

will supplement their learning and allow them to become competent and proficient in the required practical skills.

Dissertation: Research Project: The research project serves the primary purpose of integrating technological and research strands, and does so in a context of a piece of substantial research. Assessment of the dissertation will be crucial in determining whether master's level learning outcomes have been achieved. The research project typically involves the student applying their knowledge of chemistry to the solution of an unfamiliar problem. The problem is original to the student and its solution therefore requires the innovative application of knowledge and techniques either studied in the previous taught stage or acquired through independent research of recent and relevant literature. The research project provides a means for integrating specialist chemical/taphonomic knowledge with analytical, problem solving, managerial and communication skills. All of these are exercised and evidenced through the execution and outcomes of the research project, which include: a project proposal, pilot study and dissertation. Students will be encouraged, wherever possible, to undertake their research project in an industrial setting, but this is not a formal requirement of the programme, but an opportunity to enhance the student experience.

Assessment feedback: Feedback is provided continuously to students through informal contact with subject lecturers and tutors in the seminar/tutorial and laboratory sessions and with formal contact with their project supervisor. In accordance with University Guidance, feedback is provided on assessed practical work normally within three weeks of submission of the work.
FAST also makes extensive use of the Moodle intranet system for the provision of feedback, including online feedback for in-course assessments. Class discussion boards are also used in some modules to facilitate the development of collaborative online group learning environments, supporting taught content and laboratory sessions. Similar online discussion groups, including the ones based on Facebook and Twitter are also used to support learning.

26 Work based/placement learning statement

A compulsory element of the full MRes programmes is the work based element which is assessed through a reflective journal as part of the Professional Practice and Placement Module. Placements can be undertaken in a variety of different industries such as: laboratories, hospitals, museums, field schools, education institutions or the police. The responsibility of organising a suitable placement lies with the student although support and advice will be given by the programme team who hold substantial connections with various relevant organisations. All placements must be approved by the Module Leader prior to commencement. In exceptional circumstances, where a student has been unable to organise a suitable placement or a placement has fallen through with short notice, a small number of placements will be made available within the University. These will not be available as standard and students should not rely on these placements as an alternative to finding their own.

The work placement will be a minimum of 100 hours and this will ideally be arranged during trimester 1 for commencement in trimester 2 for both full time and part time students. In some circumstance it may be possible to begin the placement early subject to approval by the Module Leader. It is advised that students plan to undertake all their placement hours within the same organisation so as to gain a robust understanding of the role. However, in certain circumstances, such as where a student's research or career interests are better supported by a number of smaller placements, these can be approved by the module leader. Students must identify a

supervisor at their placement organisation and provide contact details for this individual so that the module leader can perform the necessary checks and reviews required to assess the module. A guidance document will be provided to the supervisor so that they are aware of the placement requirements and University expectations.

Placements can be paid or voluntary and completed on a full time, part time or ad-hoc basis provided they allow for adequate time to complete the assessments before the end of trimester 2. For students currently working in a relevant sector it is acceptable for their placement to be completed in the work place although it is expected that the placement hours should show a difference from their standard role. This could be demonstrated by an increase in responsibility, as part of a secondment to a different role or through an advancement in the quality of the work undertaken or produced consistent with the expectation of a Masters level student. There is no restriction on where the placement is to be completed and students are encouraged to investigate a wide range of possibilities including international roles. Where suitable, advice will be given to students on funding initiatives to support placements such as the GoWales and Erasmus+ funding.

27 Welsh medium provision

The programmes will be delivered through the medium of English. Students are entitled to submit assessments in the medium of Welsh. Students are also encouraged to engage in placement which support welsh medium where available and appropriate. In future years the programme look to expand the Welsh medium provision with a specific focus on the availability of online learning resources in Welsh.

28 Assessment strategy

The assessment strategy for this programme provides a framework for the assessment of students' competence, knowledge and understanding. It allows staff to give feedback to students and to evaluate the effectiveness of their own teaching. This strategy will be closely adhered to in the delivery of the programme and is guided by the QAA Chemistry and Forensic Science benchmark statements (2014, 2012), Credit and Qualification Framework Wales (CQFW) and Glyndŵr University Assessment Guidelines. A range of assessment strategies are used namely:
formal examination, portfolio, reports, poster presentation, oral presentations, research and learning logs. These have been designed to reflect work place requirements and developing technologies where appropriate.

Students will receive formative assessment, particularly during the practical and self-study elements of the programme to ensure they can keep track of their progress and development. This will also be a key factor in ensuring student engagement and retention on the programme of study.

There will be emphasis placed on students to undertake independent study and research activities, in particular when completing the research project element of the programme. The dissertation will be facilitated by a traditional summative assessment approach at the culmination of the work. However, there will be extensive use of formative feedback, milestones, and guidance from staff during this and other independent study and research-based assessment undertaken by students. This is common practice for such modes of study and is in line with the approach taken by postgraduate programmes in other HE institutions.

All assessments will be approved by the programme leader, academic head and the external examiners in line with University regulations, to ensure that each assessment is explicit in its intent, and that it is valid and reliable. Grade related criteria will be used to assess the students' work, with feedback provided to facilitate individual and group development. All assessment will be internally and externally moderated in line with University regulations, to ensure that assessment is fair and consistent.

Module leaders will collate work and are responsible for presenting this at assessment boards, to enable ratification of results in line with the University's assessment regulations. External examiners with due regard will attend assessment boards and contribute to the process, to ensure external validity of assessment. Students will be informed of provisional results prior to an assessment board, and in writing following ratification of the results, with re-submission dates if needed.

Assessment will be made clear, and module leaders will provide assignment briefs in written (paper and electronic format) and/or audio format (which has proved extremely popular for other programmes in the University), with clear links to module learning outcomes. Assessment criteria/briefs will be discussed face to face and/or in electronic format through Moodle, to enable the students to understand the nature of the assessment and raise any concerns/areas for clarification.

External Examiners: The appointment and responsibilities of the External Examiner for this programme conform to the current Glyndŵr University Academic Regulations.

Assessment / Awards Boards: The Module Assessment Boards and Award / Progression Assessment Boards for this programme will be carried out in accordance with the current Glyndŵr University Academic Regulations.

Module code & title	Assessment type and weighting	Assessment loading	Indicative submission date
SCI719 Advanced Research Skills	*75% Coursework* *25% Poster presentation*	*3000 words* *1000 words*	Wk 9, Tri 1 Wk 11, Tri 1
SCI722 Forensic Analytical Chemistry	*50% Report* *50% Examination*	*1500 words* *2 hours*	Wk 10, Tri 1 Exam week, Tri 1
SCI723 Human Osteology	*50% Simulation* *50% Report*	*2.5 hours* *2500 words*	Wk 8 Tri 1 Wk 12 Tri 1
SCI718 Negotiated Learning	30% Negotiated Learning 70% Portfolio	1500 words 3000 words	Wk 4 Tri 1 Wk 13, Tri 1
SCI724 Professional Practice and Placement	60% Learning Logs/Journals 40% Portfolio	2000 words N/A	Wk 43 Tri 2 Wk 43 Tri 2
SCI720 Dissertation: Pilot Study	70% Project 30% Presentation	3000 words 10 mins	Wk 36, Tri 2 Wk 41, Tri 2
SCI721 Dissertation: Research Project	*80% Dissertation or article* *20% Oral*	*12,000 or 3,000 words* *30 minutes*	Wk 52 Tri 3 Wk 4, Tri 1 following academic year
SCI725 Dissertation: MRes Top-Up	*70% Dissertation or article* *20% Oral* *10% Reflective Practice*	*12,000 or 3,000 words* *30 minutes* *10 minutes*	

30 Assessment regulations

The Regulations for Masters of Research apply to both programmes.

Derogations

N/A

Non-credit bearing assessment

N/A

Prerequisites for proceeding to the research component (for MRes programmes only)

The following modules must be studied prior to proceeding to the Dissertation:
Research Project module:
Advanced Research Skills
Dissertation: Pilot Study

31 Programme Management

Programme leader

Dr Amiya Chaudhry – MRes Analytical & Forensic Chemistry
Amy Rattenbury – MRes Forensic Anthropology & Bioarchaeology

Module Leaders

Dr Amiya Chaudhry
Dr Jixin Yang
Dr Ian Ratcliffe
Amy Rattenbury

32 Quality Management

Programme board meetings are held three times a year. The board consists of the programme team noted above. In addition to the matters raised by the programme team, the meetings consider the minutes from Student Voice Forum (SVF) meetings which are held two times a year, and are attended by student representatives from the programme. Minutes of the SVF meetings and team responses to the outcomes raised are published on Moodle available to all students.

The formal mechanisms used to evaluate student perception of quality include the Student Evaluation of Module (SEM) form on each module and the feedback from the SVF meetings noted above. Information from each of these is considered firstly at the programme board, and can if necessary also go to the faculty board. Student engagement with the SEM will be encouraged through timetabling specific slots for completion at appropriate time intervals throughout the programme.

Quality is also monitored by the programme leader's annual monitoring report (AMR) and by the report of the external examiner. Issues arising from the examiner's report and from the above evaluations of student perception are responded to with actions in the AMR. This is considered by the programme team and the Associate Dean of the Faculty at an annual meeting, and the report and minutes of the meeting are forwarded to the academic quality assurance unit of the university.

33 Research and scholarship activity

All members of the programme team are actively involved in frontline research and scholarly activities that have informed and underpinned both the module content and the structure of the proposed programme.

Students will benefit from the expert knowledge of tutors to expand the scope of their learning, and for example, the quality of their final year research project. Collaborative research with academics from other universities, both national and international, facilitates student's access to visiting subject specialists. Typically this is by means of guest lectures either as part of the formal teaching provision or an informal programme.

34 Learning support

Institutional level support for students

The University has a range of departments that offer the support for students as:

- Library & IT Resources
- The Assessment Centre
- DisAbility Support Team
- Irlen Centre
- Careers Centre and Job Shop
- Zone Enterprise hub
- Chaplaincy
- Counselling & Wellbeing
- Student Funding and Welfare
- International Welfare
- Student Programmes Centre
- Glyndŵr Students' Union

Faculty support for students

All students at Glyndŵr University are allocated a Personal Tutor whose main responsibility is to act as the first point of contact for their personal students and to provide pastoral and academic support throughout their studies at the University. It is a vital role to support student engagement and retention, and to help every student to success to the best of his or her ability.

Programme specific support for students

Personal & Professional Support

All students on the programme will have the opportunity to discuss their application with staff, and receive appropriate advice and guidance prior to admission. This will include a review of expectations of the programme and clarification of workload and requirements. Students with lower entry profiles (particularly in research aspects) and those from non-traditional entry routes will be required to enrol on to a level 6 bridging course in 'Preparing for Academic Success' to meet the entry requirements of the programme.

New students on the programme will undergo an induction programme that will provide them with a full introduction to the programme, and will include elements of work on study skills and professional development.

All students on the programme will receive a Student Handbook which will contain details and guidance on all aspects of the programme and forms of student support and guidance, programme-based, and faculty-based.

Applied Science operates an Open Door policy, meaning that academic staff are readily and easily accessible and approachable for students outside of scheduled learning and teaching hours. Staff can be approached without the need for a formal appointment to be made.

Student attendance will be subject to regular monitoring through registers, and this will be a means of addressing issues of student support. There will also be regular reviews for each student with personal tutors. The University expects all students to promptly attend 100% of all scheduled sessions. Failing to attend compulsory or optional taught sessions is likely to adversely affect student ability to successfully complete projects/assignments. Students, as independent learners, have responsibility for their attendance at taught sessions. All students should ensure they are aware of their programme and module attendance requirements, particularly where attendance forms part of assessment marks or professional accreditation. Due to high level of online content extensive monitoring of students' Moodle activity is carried out in order to ensure that students do not fall behind. The Personal Tutor (allocated to students on arrival to the University) is the first point of contact with academic issues or matters affecting personal study and will refer students to appropriate services for personal support. The Programme Leader is the first point of contact with issues about the programme.

E-learning Resources

The electronic resources available are an important part of the programme. A number of electronic books and journals are available for students as well as the lecture material which is available on Moodle. Students are encouraged to utilise all the resources and are expected to submit their assignments through the text matching tool, Turnitin. The use of Turnitin as a diagnostic tool to support students in their writing is an effective method.

Several modules make use of formative online tests and quizzes embedded within Moodle pages, including a mix of multiple choice and short-answer questions that are aligned to similar types of questions used in module assessment, or that consolidate understanding from laboratory classes prior to the submission of summative assessments.

Research & Laboratory Facilities

Glyndŵr University has a number of well stocked teaching and research areas for the Crime Scene, Forensic Science and Chemistry. Alongside the traditional teaching and research labs we have a Crime Scene House which can be used by students for a range of simulated activities. We host a decomposition research facility here at Glyndŵr University one of only 5 such facilities which hold DEFRA licenses across the UK. The University also hosts the Centre of Water Soluble Polymers (CWSP).

Library Facilities

The library has a discovery tool, Resource Finder, providing access to books and eBooks, as well as over 30 journals related to Forensic Sciences and over 200 journals in related disciplines. Reading lists are made available to students through module pages on the VLE. Titles on reading lists are checked regularly for currency, and the Learning Resources Advisors work closely with academic staff to ensure the relevancy of the collection

35 Equality and Diversity

Glyndŵr University is committed to providing access to all students and promotes equal opportunities in compliance with the Equality Act 2010 legislation. This programme complies fully with the University's Equality and Diversity Policy https://www.glyndwr.ac.uk/en/AboutGlyndwrUniversity/EqualityandDiversity/ ensuring that everyone who has the potential to achieve in higher education is given the chance to do so.