Master of Science (MSc) in Forensic Biology

EUROPEAN FORENSIC INSTITUTE

PgC - 30 ECTS	ECTS	Compulsory / Elective	Teaching	Assessment
Crime Scene Science Overview	4	C	Online & In-person Classroom, Laboratory	Research Assignment (60%), Presentation (20%) , Laboratory Report (20%)
Evidence Identification, Enhancement and Recovery	4	C	Online & In-person Classroom, Laboratory	Research Assignment (60%), Presentation (20%), Laboratory Report (20%)
Quality and Presentation of Biological Evidence	4	C	Online Classroom	Court Report (80%), Oral Testimony (20%)
Fundamentals of Forensic Biology	4	C	Online Classroom	Written Assessment (60%), Research Assignment (20%) Presentation (20%)
Law and Ethics in Forensic Biology	4	C	Online Classroom	Case Study Report (80%), Presentation (20%)
Simulated Crime Scene Exercise	4	C	Online & In-person Classroom, Laboratory	Laboratory Report (60%), Presentation (20%), Practical work performance (20%)
PgC Independent Research	6	C	Online Classroom	Dissertation Content (80%), Presentation (20%)

PgD - 30 ECTS	ECTS	Compulsory / Elective	Teaching	Assessment
Forensic DNA Analysis I	4	C	Online & In-person Classroom, Laboratory	Written Assessment (60%), Research Assignment (20%), Laboratory Report (20%)
Forensic Entomology	4	C	Online & In-person Classroom, Laboratory	Written Assessment (60%), Research Assignment (20%), Laboratory Report (20%)
Forensic Toxicology	4	C	Online & In-person Classroom, Laboratory	Written Assessment (60%), Research Assignment (20%), Laboratory Report (20%)
Forensic Pathology	4	C	Online Classroom	Written Assessment (60%), Research Assignment (20%), Presentation (20%)
Forensic Anthropology	4	C	Online & In-person Classroom, Laboratory	Written Assessment (60%), Research Assignment (20%), Laboratory Report (20%)
Forensic Serology	4	C	Online Classroom	Written Assessment (60%), Research Assignment (20%), Presentation (20%)
PgD Independent Research	6	C	Online Classroom	Dissertation Content (80%), Presentation (20%)

Master's - 30 ECTS	ECTS	Compulsory / Elective	Teaching	Assessment
Statistics for Forensic Biology	4	C	Online & In-person Classroom, Laboratory	Written Assignment (80%), Laboratory Report (20%)
Forensic Genealogy	4	C	Online & In-person Classroom, Laboratory	Written Assessment (60%), Research Assignment (20%), Laboratory Report (20%)
Forensic DNA Analysis II	4	C	Online & In-person Classroom, Laboratory	Written Assessment (60%), Research Assignment (20%), Laboratory Report (20%)
Master's Independent Research and Final Dissertation	18	C	Online Classroom	Dissertation Content (80%), Presentation (20%)

1. **Official Qualification** - Educational Programme/s: Master of Science (MSc) in Forensic Biology
2. **Higher Education Provider**: European Forensic Institute
3. **Accredited status**: Accredited by the Malta Further and Higher Education Authority (MFHEA) – Higher Education Institution, License n. 2018-014
4. **Level of qualification**: Level 7 MQF and Level 7 EQF
5. **Type of Course/s**

    Qualifications:

    a. Master's in forensic biology (90 ECTS)
    b. Post Graduate Diploma in Forensic Biology (60 ECTS)
    c. Post Graduate Certificate in Forensic Biology (30 ECTS)

    Awards: in individual modules (more information available in Course Outline)

6. **Delivery Method**: Online; In-presence Sessions.
7. **Hours of total learning**: 2250 hours (contact hours, self-study hours, supervised placement, practice hours and assessment hours). Please refer to Course Outline for details
8. **Total credits**: 90 ECTS
9. **Attendance**: Full-time
10. **Programme Duration**: 18 months Full-Time
11. **Target audience & group**

    Students: 19-30

    Professionals: 31-65

12. **Language**: English [programme will run if we meet the minimum student number]
13. **Entry requirements**: Bachelor's Degree at MQF/EQF Level 6 or equivalent
14. **Learning Outcomes**:

Knowledge. The learner will be able to:

a) Demonstrate capability in using Forensic biological knowledge and skills, and adapt to the fast paced and fast changing work environment of Forensic Biology.
b) Comprehensively describe and conduct various crime scene processes used to identify, document, recover and store biological evidence.
c) Have specialized theoretical and practical knowledge of various laboratory techniques and processes that are used to evaluate biological evidence.
d) Follow Standard Operating Procedures, as governs the various processes employed both at the crime scene and at the laboratory.
e) Have knowledge of and be able to follow quality control and quality assurance practices governing processes applicable and related to Forensic Biology.
f) Demonstrate knowledge and not infringe on ethical issues relevant to the processes of Forensic Biology.
g) Communicate scientific information through a written Forensic Laboratory Report adequate for submission to court, as a court expert, as part of a criminal or civil case.
h) Have critical awareness of legislative requirements and ethical regulations that govern the various aspects for forensic biology.

Skills. The learner will be able to:

a) Demonstrate comprehensive competency in the identification, documentation, recovery and storage of biological evidence from crime scenes.
b) Exhibit autonomous responsibility to ascertain integrity of the chain-of-custody of evidence.
c) Have the advanced skills to follow Standard Operating Procedures for various laboratory procedures analysing forensic biological evidence.
d) Demonstrate evaluative skills in the selection and application of the correct lab process, contingent to the evidence and investigative strategy.
e) Exhibit strategic skills in results' interpretation and reporting, in line with established protocols and regulations.
f) Display outstanding communication skills in the dissemination of scientific information to both scientifically and non-scientifically versed persons.

15. **Teaching, learning and assessment procedures**: Online sessions delivered through our Institutional platform (MS Teams), access to study material on MS Teams and our Digital Library for independent study. Assessments are online.
16. **Type of Assessment**: Research Assignment (including elements of report writing, critical analysis of case studies, presentations, group work as appropriate), Dissertations and Case Study + Individual Presentation.

[Teaching and learning methodologies available in the Course outlines]

17. **Registration Method**: Online on EFI Admissions Portal
18. **Next Intake**: September every Academic Year
19. **Pass Rate**: > 40% (EFI grading system)
20. **Grading system**

Percentage score	Description	Honours Degree Classification	Other Awards Classification	Qualitative Description
100	Pass	First	High Distinction	Student has clearly defined, given context and provided accurate responses and/or has presented advanced skills for critically results, methodology and conclusions
70-99	Pass	First	Distinction	Student has provided accurate responses and/or shows a good understanding of methodologies and how to critically evaluate results
60-69	Pass	Upper Second	Merit	Student has provided answers not always accurate and/or has provided sufficiently adequate conclusions which are not always critically evaluated
50-59	Pass	Lower Second	Pass	Student has provided answers in a fair manner and/or is able to grasp conclusions and methodologies
40-49	Pass	Third	Pass	Student has provided poorly accurate answers and / or has significant gaps when presenting results and conclusions
Jan-39	Fail	Fail	Fail	Student has significant gaps in understanding concepts and to express contents and/or does not understand conclusions or misinterpret information
0	Fail	Fail	Fail	Student did not answer question, no effort has been made

21. **Registration**: admissions process, a step-by-step-guide and other information are available on our website - https://www.eufor.eu/education/admission/
22. **Identity Malta's VISA requirement for third-country nationals**: https://www.identitymalta.com/unit/central-visa-unit/
23. **Contact Details**: available on our website (https://www.eufor.eu/contact-us/)
24. **Address**: Malta Life Sciences Park, Sir Temi Zammit Buildings – SGN 3000, San Gwann

Crime Scene Science Overview

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Students demonstrate accountability to perform a search and recovery for physical evidence.
b) Understand the potential of evidence recovered from the scene and have in-depth understanding of the ethical considerations involved.
c) Students responsibly handle and collect exhibits using correct techniques. Have awareness on how exhibits should be stored correctly (both for short- and long-term purposes).
d) Competently and accurately recover and develop finger marks and footwear marks, from a variety of substrates, using multiple techniques.
e) Demonstrate the effective use of tools to distinguish between handwritings / signatures produced by different individuals.
f) Critically evaluate the application of diverse search and recovery methods within the forensic crime scene context.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Lessons in contact with the lecturer to learn the theory and the procedural aspects of the discipline, aiming also to understand the importance of techniques to be carried out.
b) Critical awareness of the existence of different crime scene scenarios, even within the same category of crime, and demonstrate ability to adapt knowledge in the varying scenarios.
c) Demonstrate strong aptitude in effective personal research activities to corroborate or negate hypotheses.
d) Diligently follow discussion on and competently analyse information about real case studies.
e) Demonstrate comprehensive knowledge and correction application of practical laboratory procedures covering evidence recovery and packaging; recovery of finger marks and footwear marks; examining diverse handwriting / signatures; explore techniques related to e-forensics.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Advanced and accurate knowledge of procedures used for search and recovery techniques, handling exhibits, collecting and storing evidence.
b) Demonstrate critical awareness on the importance of the maintenance and substantiation of the chain of custody.
c) Exhibit strategic application of learned techniques to develop and recover finger marks and footwear marks.
d) Demonstrate confident application of practical documents to identify and confirm any forgery.
e) Exhibit advanced knowledge of practical techniques related to computer and mobile forensics

Module-Specific Learner Skills:

At the end of the module/unit the learner will be able to

a) Effectively cooperate with professionals belonging to different fields, especially with Judicial Police Officers, lawyers and consultants.

b) Orally express the technical-scientific procedures conducted, their meanings and the conclusions coming from such interpretation, in a concise, coherent and well-focused way, also relying on audio visual systems and dynamics reconstruction programs.

Module-Specific Digital Skills and Competences:

At the end of the module/unit, the learner will be able to

a) Apply advanced knowledge and critical understanding of augmented, virtual and/or mixed reality technology in use for crime scene analysis
b) Be proficient in the application of the proper procedures and practices to access a crime scene, without disturbing or contaminating the evidence.
c) Demonstrate seasoned ability in the use of different types of digital equipment and software to identify physical evidence present at a crime scene.

Evidence Identification, Enhancement and Recovery

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Demonstrate expert ability to identify items of evidentiary value at a crime scene.
b) Show strategic decision-making skill to determine appropriate procedures for evidence recovery.
c) Exhibit advanced latent evidence enhancement techniques.
d) Demonstrate a comprehensive knowledge base in the collection and analysis of fibre and hair evidence.
e) Theoretical understanding and strong competency in the search and recovery of biological fluids' evidence.
f) Demonstrate extensive competency in the identification, enhancement and recovery techniques of latent and patent biological fluids, at a crime scene.
g) Discuss key concepts of ethical considerations related to evidence recovery, storage and chain of custody.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Skilled understanding of key aspects in the identification of items of evidence, advanced concepts of evidence collection, and comprehensive apprehension of the techniques to be carried out.
b) Demonstrate competence in the evaluation of information recovered from evidence at a crime scene.
c) Demonstrate proficient competence in research activities to corroborate and / or further attained knowledge.
d) Strategic application of knowledge learned through profound study of case studies for critical reflection.
e) Extensive knowledge of various techniques used for evidence recovery and exhibit critical awareness in the differentiation of the use of each technique.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Demonstrate effective strategic thinking skills in the application of evidence enhancement techniques.
b) Exhibit an appreciation for the limitations that some evidence enhancement techniques have, thus enabling the correct sequence of techniques to be employed.
c) Comprehensive understanding of evidence recovery techniques and proficient use of adequate evidence storage methods.
d) Have awareness of and be knowledgeable about novel techniques used in evidence identification, enhancement and recovery.
e) Demonstrate systematic thinking in the application of various techniques for evidence identification, enhancement and recovery.

Module-Specific Learner Skills:

At the end of the module/unit the learner will be able to

a) Demonstrate comprehensive knowledge and skills in novel techniques employed at crime scenes for evidence identification, enhancement and recovery.
b) Exhibit advanced competence to carry out additional research on emerging scientific fields, new forensic instrumental developments and innovative research topics, through continuous learning from highly complex technical-scientific books, and scientific periodicals.

Module-Specific Digital Skills and Competences:

At the end of the module/unit, the learner will be able to

a) Write a report using computer and editing software.
b) Confidently operate various digital imaging equipment and videos.
c) Expertly conduct web research on standards and materials.

Quality and Presentation of Biological Evidence

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Have comprehensive knowledge and demonstrate advanced ability of contemporaneous notetaking, drawing good-quality sketches and documenting crime scene notes, whilst at a crime scene.
b) Confidently distinguish between and identify processes of quality control and quality assurance.
c) Critical evaluative skills of processes will allow learner to develop and establish adequate Standard Operating Procedures (SOPs).
d) Complete familiarisation of ISO standards e.g., ISO 9001 and ISO 17025 and the strategic application of information from these documents.
e) Demonstrate skillful competence in producing detailed and adequate Crime Scene Reports and Expert Witness Statements.
f) Exhibit confidence in communication skills required when testifying in court cases as Expert Witnesses.
g) Ability for autonomous development of communication skills through further experience, as part of continuous development.
h) Comprehensive understanding of the role of a forensic practitioner practicing within a context of quality management system.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Demonstrate sound knowledge of the key aspects of notetaking at a crime scene, describing evidence identified, its condition, location, relative position, etc. The results of any presumptive tests carried out at the crime scene will also be documented as well as any enhancement techniques carried out.
b) Systemic understanding of the legal requirements that govern note taking, crime scene sketching and contemporaneous note taking, at a crime scene.
c) Demonstrate advanced and comprehensive skills in producing contemporaneous crime scene notes, sketches and adequate note taking.
d) Competent ability to do personal research activities enabling autonomous development, through further study.
e) Critical understanding of issues related to conflict of interest, data protection, confidentiality and legal privilege.
f) Critical evaluation of case studies, including learners' own interpretations through reflection.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Exhibits advanced skills in producing high-quality and accurate descriptions of a crime scene.
b) Have critical understanding of accurate documentation requirements, proficient with procedures and demonstrate strategic evaluation of any test results / enhancement techniques at a crime scene.
c) Expertly apply learned techniques to write forensic reports.
d) Have critical awareness of the differences between quality control and quality assurance processes.
e) Have advanced understanding of the way an expert witness presents their own reports, during the court session.
f) Demonstrates confident execution of oral testimony of self-prepared reports.

Module-Specific Learner Skills:

At the end of the module/unit the learner will be able to

a) Write technical-scientific reports for the legal and/or court system, understandable to non-professional figures, but complying with technical-scientific augmentation.
b) Exhibit deep insight about International standards such as ISO documents and their importance within the Forensic Science field.
c) Demonstrate extensive knowledge of the quality management system that applies to the forensic science field.

Module-Specific Digital Skills and Competences:

At the end of the module/unit, the learner will be able to

a) Exhibit advanced skills in report writing using computer and editing software.
b) Conduct web research on standards and materials.
c) Demonstrate advanced skills in presentation of reported material.

Fundamentals of Forensic Biology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Demonstrate a thorough understanding of the various biological evidence types that can be found at a crime scene.
b) Exhibit advanced understanding of bloodstain patterns.
c) Proficient competency in the concepts of angle of impact, point of convergence and point of origin calculations.
d) Demonstration of expertise in the interpretation of bloodstain pattern analysis.
e) Advanced capability in identifying and classifying fingerprint patterns. Demonstrate extensive knowledge on the factors impacting fingerprint quality.
f) Exhibit critical awareness in the evaluation of hair and fibre evidence.
g) Demonstrate critical thinking skills in the use and result interpretation of biological presumptive tests.
h) Have critical awareness of ethical considerations when working with biological evidence in a forensic context.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Have proficient competence in identifying biological evidence at a crime scene, providing detailed and precise evidence identification, its condition, location, relative position, and properly recovery and package information..
b) Exhibit critical thinking skills in the use of biological presumptive tests.
c) Advanced knowledge of bloodstain pattern analysis.
d) Have awareness of techniques and scientific practices at the forefront of forensic biology.
e) Critical awareness of knowledge issues in the forensic biology field.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Advanced skills in the identification of evidence of a biological nature, how this should be recovered and stored (both short term and long-term storage).
b) Strategic implementation of procedures and competent interpretation of results of any tests / enhancement techniques at a crime scene.
c) Strategic application of appropriate presumptive tests, depending on the given crime scene scenario and conditions.
d) Competent evaluation of results, for tests carried out on biological evidence

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Demonstrate expertise in identifying crime scene evidence of a biological nature, know how to recover, and properly package that evidence.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Exhibit advanced skills in report writing using computer and the appropriate editing software.
b) Operate expertly with digital software used for the analysis of fingerprint patterns.

c) Conduct relevant web research using adequate information sources.

Law and Ethics in Forensic Biology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Have critical awareness that the processing, storage, and use of information from biological sources is governed by legal requirements.
b) Demonstrate competence on how to properly document and use various information from biological samples, from a crime scene, whilst adhering to legal and ethical obligations.
c) Exhibit advanced knowledge of the circumstances under which information retrieved from biological evidence, can be used.
d) Display comprehensive knowledge about the use of databases that may be used for the interpretation of the significance of biological evidence, found at a crime scene.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Extensive knowledge of the various legislative frameworks covering the retrieval, processing, and storage of information from biological evidence, from a crime scene.
b) Have broad awareness of ethical issues that arise with analyses of information obtained from biological material, recovered from a crime scene.
c) Increased evaluative skills to correctly interpret legislative requirements, as applicable in diverse crime scene scenarios.
d) Learners show advanced competence in researching and interpretating relevant legislative or ethical policies, as relates to the forensic field.
e) Comprehensively informed of actual crime scene cases which were instrumental in the establishment of a legislative policy or ethical regulation.

Skills:

At the end of the module/unit the learner will have acquired the following skills

a) Advanced capability to properly interpret findings from biological evidence, within the required legislative and ethical framework.
b) Fundamental understanding of implications of incorrect interpretation of information obtained from biological evidence.
c) Demonstrate confident application of learned techniques to report findings within forensic reports.
d) Exhibit advanced ability to work within the applicable legal framework to recover, process and interpret personal information obtained from biological evidence.

Module-Specific Learner Skills:

At the end of the module/unit the learner will be able to

a) Use advanced skills in the proper strategy to recover, process, document and interpret information obtained from biological material at a crime scene.
b) Have awareness of ethical issues around the use of databases containing personal information, to allow identification of perpetrators of criminal activity.

Module-Specific Digital Skills and Competences:

At the end of the module/unit, the learner will be able to

a) Exhibit advanced skills in report writing using computer and the appropriate editing software.

b) Competently use search functions and information sources to retrieve relevant legislative procedure and ethical regulations as applicable to the forensic field.

Simulated Crime Scene Exercise

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Have extensive awareness of the various practical steps and hands-on techniques required to properly process a crime scene.
b) Demonstrate the proper documentation of the identification of various pieces of physical evidence, in a manner, compliant to legislative frameworks, applicable to the forensic field.
c) Have an open and innovative approach to plan and execute hypotheses with minimal supervision.
d) Learners are able to accurately and confidently document their interpretations and activities carried out on the evidence.
e) Be confident in the ability to interpret detailed technical information in a varied context of investigative situations.
f) Capability to produce a Forensic Laboratory Report, in compliance with judiciary requirements, showing a balanced and unbiased approach to writing and communicating effectively to a varied audience.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Comprehensive knowledge of the practical skills employed during crime scene processing.
b) Have awareness of legislative requirements when compiling forensic laboratory reports recovered from a crime scene. Have advanced competence to apply learned information to different crime scene scenarios.
c) Demonstrates critical reflection in interpreting the crime scene scenario.
d) Exhibit aptitiude to study, assess and interpret a fictitious crime, and adapt learned skills into practice.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Expert ability in the interpretation of findings from evidence, found at a crime scene.
b) Demonstrates profound understanding of implications of incorrectly interpreting and reporting on information obtained from evidence.
c) Assertively apply learned techniques to report findings, test results, interpretations, and final conclusions, from crime scene processing.
d) Exhibit capability to work within the applicable legal framework to recover, process and interpret information obtained from a crime scene.
e) Can engage confidently in professional communications with others, exhibit clear reporting, autonomously and competently.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Demonstrate assertive skills in properly recovering, processing and interpreting evidentiary information obtained from physical evidence at a crime scene.
b) Have awareness of requirements around forensic reports that need to be compiled and presented, to describe evidence collection and processing.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Display advanced skills in report writing using computer and the appropriate editing software.
b) Conduct relevant web research using adequate information sources..

PgC Independent Research

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Demonstrate administrative design for original content of research
b) Undertake further studies with a fair degree of autonomy including searching for and studying existing research papers on relevant field and appropriately citing the source

Knowledge:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Use theories and principles in chosen field of research
b) Apply methods and tools available to accomplish their research goal.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

Applying knowledge and understanding

The learner will be able to:

a) Communicate ideas, problems and solutions using a range of techniques involving qualitative and quantitative information in a written report suitable for a professional in the field
b) Evaluate own learning and identifies learning needs

Judgment Skills and Critical Abilities

The learner will be able to:

a) Critically evaluate and interpret the results of the personal analysis
b) Analyse, identify key issues, carry out an independent investigation using multiple information sources and apply critical judgement to construct logical arguments

Module-Specific Communication Skills

The learner will be able to:

a) Explain in a clear and simple way the chosen procedure and the reached conclusions.
b) Write a report in a correct and clear way, relevant and understandable to professionals in the field
c) Submit findings before the set deadline and answer any question that may rise about the research in a professional and confident manner

Module-Specific Learner Skills

The learner will be able to:

a) Conduct a research on chosen field using cross-disciplinary knowledge acquired in the previous months

Module-Specific Digital Skills and Competences

a) The learner will be able to: b) Write a 15-20 (3750-5000 words) pages long paper using IT instruments

b) Use the internet to find information Where relevant, use applicable software for different needs throughout stages of research

Forensic DNA Analysis I

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Have awareness of the various steps and processes required to extract and process DNA material.
b) Students are able to discuss the concepts governing different biological materials required for diverse processes for DNA extraction.
c) Students have advanced knowledge on the source and components of different types of DNA molecules.
d) Students understand the potential and can describe the limitations of the various processes described in this module.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Demonstrate thorough understanding of the DNA extraction, quantitation, PCR and gel / capillary electrophoresis process.
b) Exhibit complex competence of various DNA extraction methods, and their preferred specific uses.
c) Advanced ability to discuss concepts of PCR including intricate knowledge of PCR inhibitors and other limitations and how these deficiencies can be mitigated.
d) Sound knowledge of the gel electrophoresis process, substantiated with practical experience.
e) Demonstrate an appreciation and deep understanding of key processes of the capillary electrophoresis, potential limitations of the process and improvements to overcome such limitations.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Expert ability to describe the processes involved in DNA Analysis.
b) Display complex understanding of the implications of incorrectly processing DNA material obtained from biological evidence.
c) Have critical awareness of the applicable legal framework to recover, process and interpret personal information obtained from biological evidence.
d) Critical evaluative skills required when changes to standard procedures are required.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Use extensive knowledge of the processes involved in the processing of the DNA molecule.
b) Have comprehensive awareness of software that is used to process DNA analysis' results.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Exhibit advanced skills in report writing using computer and editing software.
b) Demonstrate expert ability in conducting web research on standards and materials, using reliable information sources.

Forensic Entomology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Students have advanced awareness of the role Forensic Entomology plays in Forensic Science.
b) Students are highly knowledgeable about different environmental factors that impact the entomological findings, and in what way the latter are impacted.
c) Students display competence on how Forensic Entomological findings can be used to determine the Post-Mortem Interval (PMI).
d) Can describe and direct the use of equipment and collection methods used, in Forensic Entomology.
e) Critically evaluate ethical considerations and their impact, during the work of forensic entomology.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Comprehensive proficiency of the various aspects of Forensic Entomology and their importance in the field.
b) Critical awareness of different processes and techniques adopted for obtaining Post-Mortem Interval information.
c) Extensive practice of personal research activities assigned and discussed with the lecturer.
d) Discussion and analysis of real case studies with the lecturer during theoretical lessons.
e) Varied opportunities to study, assess and interpret all learned skills, as part of practical sessions.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Advanced ability to describe the processes involved in Post-Mortem Interval determination.
b) Exhaustive understanding of how changes in the environmental impact entomological findings.
c) Progressive competence of the applicable legal and ethical framework to recover, process and interpret personal information obtained from Forensic Entomology.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Exhibit extensive knowledge of the processes involved in the process of obtaining information from the study of Forensic Entomology.
b) Have critical awareness of the different methods used in Post-Mortem Interval determination.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Demonstrate advanced skills in report writing using computer and editing software.
b) Expertly conduct web research on standards and materials.

Forensic Toxicology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Students exhibit detailed knowledge about the different ways in which drugs can be tested for in the human body.
b) Students are able to describe different methods of drug intake impact rates of drug metabolism.
c) Students can manage the selection of different testing methods on diverse biological fluids can be done to calculate amount of drug intake.
d) Exhibit competent collaboration with Medical Examiner role about
e) Students demonstrate proper calculations of original amount of drug consumed, accounting for metabolism, time, method in intake, etc.
f) Advise on ethical considerations that a forensic toxicologist encounters during work responsibilities.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Demonstrate complex knowledge of the various aspects of Forensic Toxicology and the various methods in which the presence of drugs, can be identified.
b) Exhibit proficient competency on the calculations of the original quantity of drug consumed.
c) Profound understanding of the various routes of exposure, effects of dose and duration.
d) Extensive knowledge of pharmacokinetics and pharmacodynamics.
e) Discuss key concepts of drug effects and drug interactions.
f) The students understand the collaboration required between the forensic toxicologist and medical examiner.
g) Critical awareness of the ethical considerations that the forensic toxicologist needs to observe.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Advanced ability to calculate the original quantity of drugs consumed over a period of time.
b) Comprehensive understanding on how metabolic processes and drug interactions impact a person's behaviour.
c) Extensive awareness of the applicable legal framework to recover, process and interpret personal information obtained from Forensic Toxicology.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Exhibit detailed knowledge of the processes involved in the process of obtaining information from the study of Forensic Toxicology.
b) Have critical awareness of the different methods used in calculating the original drug quantity consumed.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Display advanced skills in report writing using computer and editing software.
b) Expertly conduct web research on standards and materials, using reliable information sources.

Forensic Pathology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Highly knowledgeable about the identification of different types of death.
b) Students identify and describe different types of autopsy procedures and the objectives of each.
c) Students able to evaluatively describe how time of death can be determined or estimated during the autopsy.
d) Students have critical awarenes of the guidelines, authorisation and consent, and legislative requirements for an autopsy.
e) Demonstrate acute awareness of ethical considerations, applicable to the forensic pathologist role.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Advanced knowledge on the various aspects of Forensic Pathology including the time of death determination and legislative requirements.
b) Comprehensive instruction about the medicolegal aspect of forensic autopsies.
c) Detailed study of the objectives of an autopsy and different autopsies.
d) Sound knowledge of the medicolegal casework involved in the field of forensic pathology.
e) Evaluative discussions and analysis of real cases with the lecturer during theoretical lessons.
f) Gain critical evaluative skills allowing the opportunity to study, assess and interpret all learned skills, as part of case studies.
g) Critical awareness of the ethical considerations that the forensic pathologist needs to observe.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Advanced ability to identify different stages of decomposition.
b) Thorough understanding of which biological samples need to be recovered for further testing, conditional to the circumstances surrounding the death.
c) Comprehensive awareness of the applicable legal framework to recover, process and interpret personal information obtained from Forensic Pathology.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Express detailed knowledge of the actions involved in the process of obtaining information from the study of Forensic Pathology.
b) Demonstrate critical awareness of the different methods used in Time of Death determination or estimation.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Demonstrate expert skills in report writing using computer and editing software.
b) Conduct thorough web research on standards and materials, using reliable information sources.

Forensic Anthropology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Students are highly knowledgeable about the normal human skeletal form and variations exist between and within different populations.
b) Exhibit complex understanding of the techniques used to search for and recover human remains. Ability to assist with the identification of human remains.
c) Display comprehensive understanding of forensic taphonomy and on the decomposition process and its impact on human remains.
d) Discuss systematically the identification and differentiation of pathological and traumatic features on bone.
e) Demonstrate extensive knowledge on how sex and ancestry estimation can be determined in unknown, skeletal remains.
f) Students are aware of how the role of the forensic anthropologist fits within the medicolegal community and the jurisprudence system, and critically evaluate the application of anthropological methods within the forensic context.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Demonstrate comprehensive knowledge of the human skeleton, biological processes that regulate bone production and remodelling, and of physiological and structural interactions between soft and hard tissue.
b) Have sound understanding of methods of differentiating bone which may be of forensic significance from bone of historical or ancient context.
c) Advanced ability to accurately perform a range of techniques for determining biological sex, age-at-death, ancestry and stature from human skeletal remains.
d) Understand the potential and can discuss the limitations of advanced analytical techniques that may be applied to the skeleton to collect more information relevant to the identification in the forensic context.
e) Evaluative skills for the application of medicolegal information from forensic anthropology procedures, to the law enforcement or judiciary system.Critical evaluative skills are demonstrated in ethical considerations of anthropology in the forensic context.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Advanced ability to identify different methods of data gathering, data analysis and data interpretation.
b) Demonstrate evaluative understanding of the details and differences that are important in sex and age estimation in unknown, skeletal remains.
c) Have critical awareness of the applicable legal framework to recover, process and interpret personal information obtained from Forensic Anthropology.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Exhibit advanced knowledge of the processes involved in the process of obtaining information from the study of Forensic Anthropology.

b) Demonstrate critical awareness of the different methods used in data gathering and analysis, scene survey and remains' recovery.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Demonstrate competent skills in report writing using computer and editing software.
b) Proficiently conduct web research on standards and materials, using reliable information sources.

Forensic Serology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Students have advanced knowledge in serological tests and techniques and their sequential use within Forensic Science.
b) Students demonstrate extensive knowledge on how to evaluate possible outcomes of blood group types, using a Punnett Square. Demonstrate evaluative skills on results from rhesus factors and secretor status information, and the application of this information within the forensic context.
c) Students exhibit exhaustive knowledge on antigen and antibody interactions, and the implementation of this information in Forensics.
d) Show detailed competency in the application of presumptive and confirmatory tests for various biological fluids. Can communicate detailed information on the process of distinguishing between human and non-human blood.
e) Students have critical awareness of how the role of the forensic serologist can support law enforcement within a forensic investigation.
f) Demonstrate self-direction in the consideration of the ethical aspects of forensic serology.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Demonstrate extended knowledge on the various presumptive and confirmatory tests used in forensic serology. The sequential process in the use of these tests will be known.
b) Exhibit advanced knowledge about the various applications of immunoassay techniques for results within the Forensics field.
c) Understand the details and can direct the operation of various serological tests, in use in Forensics.
d) Have critical awareness about monoclonal antibodies and their application to forensic serology.
e) Demonstrate extensive knowledge of the potential and describe the limitations of forensic serology tests and applications.
f) Have critical awareness of the legislative and ethical requirements governing the forensics field.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Exhibit advanced competency to identify different testing methods for various suspected biological fluids.
b) Have extended understanding of the details and operational steps of various serological tests, in use in Forensics' context.
c) Have critical awareness of the applicable legal framework to interpret evidentiary information as supported by the results of serological tests.
d) Demonstrate evaluative skills in the processing of information obtained from forensic serology in consideration of ethical concerns and applicable regulations.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Use comprehensive knowledge of the processes involved in the process of obtaining supporting information from serology tests on biological evidence.
b) Have critical awareness and extensive understanding of the different serological tests and techniques available and their use in Forensics.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Exhibit critical skills in using applicable software to analyse results from relevant serological tests.
b) Show advanced skills in report writing using computer and editing software.
c) Expertly conduct web research on standards and materials, using reliable information sources.

PgD Independent Research

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Demonstrate administrative design for original content of research
b) Be responsible for work and study contexts that require problems to be solved
c) Undertake further studies with a relevant degree of autonomy including searching for and studying existing research papers on relevant field and appropriately citing the source

Knowledge:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Provide details of theoretical and practical knowledge involving understanding of theories and principles in chosen field of research
b) Understanding methods and tools available including most recent innovation in the field

Skills:

At the end of the module/unit the learner will have acquired the following skills:

Applying knowledge and understanding

The learner will be able to:

a) Communicate ideas, problems and solutions using a range of techniques involving qualitative and quantitative information in a written report suitable for a professional in the field
b) Evaluate own learning and identifies learning needs
c) Devise and sustain arguments to solve problems

Judgment Skills and Critical Abilities

The learner will be able to:

a) Gather and critically evaluate and interpret the results of the personal analysis and of the analysis of other experts involved in the research
b) Investigate and analyse, identify key issues, carry out an independent investigation using multiple information sources and apply critical judgement to construct logical arguments

Module-Specific Communication Skills

The learner will be able to:

a) Communicate to colleagues and co-workers personal ideas regarding procedural choices, made or to be made.
b) Write a report in a correct and clear way, relevant and understandable to professionals in the field being able to write a conclusion of theresearch
c) Submit findings before the set deadline and answer any question that may rise about the research in a professional and confident manner

Module-Specific Learner Skills

The learner will be able to:

a) Conduct a detailed research on chosen field using cross-disciplinary knowledge acquired throughout the year b) Develop in-depth study, be it experimental, conducted alone or in a team.

Module-Specific Digital Skills and Competences

The learner will be able to:

a) Write a 20-30 (5000-7500 words) pages long paper using IT instruments d) Use the internet to find information Where relevant, use applicable software for different needs throughout stages of research.

Statistics for Forensic Biology

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Have advanced knowledge into statistical methods and their use within the Forensic Biology field.
b) Exhibit fundamental skills to propose a null and alternative hypotheses and determine how the results of subsequent tests support or fail to support the null hypothesis.
c) Display comprehensive knowledge on how evidentiary value can be determined by statistical means.
d) Demonstrate advanced skills in the use of statistical software packages such as SPSS or R.
e) Have awareness of how the role of the forensic statistician can support laboratory findings.
f) Sound understanding of ethical implications related to results' interpretation in the forensic context.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Advanced lectures which partake the various aspects of statistics as applicable in Forensic Biology.
b) Progressive knowledge about the various statistical analyses that can be used to support evidence of a biological nature.
c) Elaborate information about diverse statistical software packages and their use.
d) Expertise in the use of statistical software (example SPSS or R)
e) Critical thinking skills in the implementation of statistical results to corroborate or negate hypotheses.
f) Demonstrate critical thinking in the evaluation of statistical results when applied to the forensic context.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Outstanding ability to identify different methods of data analyses and data interpretation.
b) Complete understanding of the details and differences in using various statistical tools.
c) Proficient skills in the use of statistical software packages such as SPSS and / or R.
d) Have awareness of the applicable legal framework to interpret evidentiary information as supported by the correct statistical applications.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Show advanced knowledge of the processes involved in the process of obtaining supporting information from the use of statistical tools.
b) Have awareness of the different statistical tools available and their use in Forensic Biology.
c) Demonstrate extensive ability in the use of statistical software (such as SPSS or R) in the compilation of results for forensic biology.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Competently use software for statistical processes.
b) Exhibit advanced skills in report writing using computer and editing software.

c) Expertly conduct web research on standards and materials.

Forensic Genealogy

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) demonstrate autonomy in understanding data generated for the purpose of genetic genealogy, through comprehensive perception of DNA lineage knowledge.
b) contribute veracious information to professional knowledge, through the correct interpretation of various datasets that the learner may be presented with.
c) exhibit advanced skills in the interpretation and conclusive results of genetic genealogy processes, especially when employed within the forensic environment.
d) displays comprehensive understanding of ethical considerations, applicable legislation and relevant policies, as pertains to the forensic genetic genealogy environment.
e) Has the learning skills to allow continuation to study in a manner that may be largely self-directed or autonomous.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Has comprehensive knowledge and sound understanding of the foundation principles on which genetic genealogy builds, and unerring capability of the core and advanced knowledge that makes up genetic genealogy.
b) Uses specialized theoretical and practical knowledge which is leading this field of study.
c) Critical awareness of latest information in genetic genealogy and shows ability in developing ideas to extrapolate such knowledge into the forensic field.
d) Evaluative perception of knowledge issues in the forensic genetic genealogy field and in the application of information from this field into the court process for criminal cases

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Demonstrate specialized knowledge in forensic genetic genealogy that include reflecting on the social and ethical responsibilities linked to the application of the learner's knowledge and judgements.
b) Perform critical evaluations and analysis with incomplete or limited information to solve problems in new or unfamiliar environments and produce original research.
c) Can communicate to both specialist and non-specialist audiences clearly and unambiguously reach conclusions which may be the outcome of research, self-study or experience.
d) Develops new skills in response to emerging knowledge and techniques, and demonstrates leadership skills and innovation in complex and unpredictable work and study contexts.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Demonstrate advanced knowledge of the scientific principles governing DNA lineage and exhibit confident ability in handling data and interpreting results in forensic genealogy.
b) Critically evaluate genetic genealogy skills as applicable to the forensic environment, allowing the learner to confidently progress with autonomous further study and / or research in the field.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Confidently handle and make use of software applicable to genetic genealogy and forensic genetic genealogy.
b) Display advanced skills in report writing using computer and editing software.
c) Conduct web research on standards and materials.

Forensic DNA Analysis II

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Students display advanced knowledge about data interpretation of the DNA electropherogram results.
b) Students have extensive knowledge on how to evaluate possible outcomes of the DNA electropherogram, particularly when DNA mixtures (DNA mixed profiles_ or Low Copy Number DNA is present.
c) Demonstrate extensive knowledge on adequately interpreting the results to support or otherwise, the Likelihood Ratio.
d) Students exhibit elaborate skill on how DNA electropherogram results' interpretation can support law enforcement's crime investigation.

Knowledge:

At the end of the module/unit the learner will have been exposed to the following:

a) Advanced knowledge enabling learning of the details of DNA electropherogram data interpretation.
b) Complex knowledge about the considerations required when DNA mixtures (DNA mixed profile) or Low Copy Number DNA is presented in the DNA electropherogram.
c) Extensive practice of personal research activities assigned and discussed with the lecturer.
d) Discussion and analysis of scenarios with the lecturer during theoretical lessons.
e) Varied opportunities to learn, study and practice learned information, through practice examples.

Skills:

At the end of the module/unit the learner will have acquired the following skills:

a) Unerring ability to identify the presence of a single DNA profile, a mixed DNA profile or a Low Copy Number DNA profile, from the DNA electropherogram results.
b) Comprehensive understanding of the details of how a Forensic DNA profile match is determined between two profiles.
c) Have sound awareness of the applicable legal framework to interpret evidentiary information as supported by the results of DNA electropherogram.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to

a) Elaborate knowledgeably on the processes involved in the process of obtaining supporting information from DNA analyses on biological evidence.
b) Have awareness of the correct interpretation and reporting of DNA Analyses results.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

a) Expertly use software to analyse results from DNA profiling.
b) Display advanced skills in report writing using computer and editing software.
c) Expertly conduct web research on standards and materials.

Master's Independent Research and Final Dissertation

Competences:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Demonstrate administrative design for original content of research
b) Be responsible for work and study contexts that are unpredictable and require that complex problems are solved
c) Undertake further studies with a high degree of autonomy including searching for and studying existing research papers on relevant field and appropriately citing the source

Knowledge:

At the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) Analyse cross-disciplinary knowledge that includes some aspects that will be at the forefront of this field
b) Use theories and principles in chosen field of research
c) Apply methods and tools available including most recent innovation in the field
d) Create a genuine work using specialized anti-plagiarism software (pedagogical approach).

Skills:

At the end of the module/unit the learner will have acquired the following skills:

Applying knowledge and understanding

The learner will be able to:

a) Apply cross-disciplinary knowledge and understanding acquired throughout the programme in a professional manner
b) Communicate ideas, problems and solutions using a range of techniques involving qualitative and quantitative information in a written report suitable for a professional in the field
c) Devise and sustain arguments to solve problems
d) Continuously evaluates own learning and identifies learning needs

Judgment Skills and Critical Abilities

The learner will be able to:

a) Gather and critically investigate relevant data to inform judgements that include reflection on social, scientific and/or ethical issues
b) Critically evaluate and interpret the results of the personal analysis and of the analysis of other experts involved in the research
c) Investigate and analyse, including the ability to formulate problems clearly, identify key issues, carry out a substantial independent investigation using multiple information sources and apply critical judgement to construct logical arguments

Module-Specific Communication Skills

The learner will be able to:

a) Communicate to colleagues and co-workers personal ideas regarding procedural choices, made or to be made
b) Explain in a clear and simple way the chosen procedure and the reached conclusions.
c) Write a report/essay/thesis in a correct and clear way, relevant and understandable to professionals in the field
d) Present findings professionally to a panel and confidently discuss any questions raised

Module-Specific Learner Skills

The learner will be able to:

a) Conduct in-depth study and research on chosen field using cross-disciplinary knowledge acquired throughout the programme Develop projects of innovative research or in-depth study, be it experimental, conducted alone or in a team.

Module-Specific Digital Skills and Competences

The learner will be able to:

a) Write a 30-40 (7500-10000 words) pages long dissertation using IT instruments
b) Use the internet to find information
c) Write a genuine dissertation with the support of anti-plagiarism software