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| 4101FSBMOLSemester 1*Forensic science* | FORENSIC SCIENCE RESEARCH METHODS 1(20c) | *Aim:*To enable students to develop a range of academic, research and transferable skills related to their programme of study. | *Learning activities:*Lectures, Practicals, workshops & tutorials | *Assessment:*Self awareness statement (10%) Oral presentation (30%) practical test (60%) |
| 4102FSBMOLSemester 1*Forensic science* | CRIME SCENE INVESTIGATION(20c) | *Aim:*To provide students with the technical and theoretical knowledge and the practical skills related to volume crime scene examinations. Students will develop investigation skills in relation to processing various crime scenes such as a house, or vehicle. They will also develop an understanding of the standard operating procedures along with the ISO requirements associated with comprehensive documentation and quality control. Students will develop practical skills in crime scene photography, fingermark recovery and comparisons, footwear mark recovery, and evidence packaging techniques. | *Learning activities:*Workshops, lectures, practical exercises mimicking typical operations. | *Assessment:*Crime Scene Assessment (40%) Portfolio (60%) |
| 4103FSBMOLSemester 1*Forensic science* | FORENSIC CHEMISTRY(20c) | *Aim:*To provide a basic knowledge of chemistry and chemical analysis important in forensic science. This course aims to provide core material in chemistry relevant to forensic analysis and sufficient for higher level study of this subject. | *Learning activities:*Lectures with activities, workshops and practical sessions including Off site trip to Bootle | *Assessment:*Examination (50%) Report (50%) |
| 4310NATSCISemester 1*Forensic science* | INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY(20c) | *Aim:*This module provides an introduction to the field of biological anthropology, which is the major field from which forensic anthropology derives. Background to all the subfields of biological anthropology is provided. Biological anthropology is used as a case study to introduce the fundamentals of conducting scientific research, particularly report and essay writing. | *Learning activities:*Learning will be supported through lectures, practicals, tutorials, workshops and off-site field work. | *Assessment:*Report on Practical Exercise (50%) Essay (50%) |
| 5101FSBMOLSemester 1*Forensic science* | FORENSIC SCIENCE RESEARCH METHODS 2(20c) | *Aim:*The aims of this module are to provide forensic science students with tutorial and PDP support, theoretical knowledge and practical experience of some key laboratory techniques and prepare students for their Biomolecular Science Project at level 6 by the study and practice of essential research skills. | *Learning activities:*Learning will take place through a variety of classroom and laboratory based activities and independent study. Some activities will involve working alone and others in a small team. Lectures, tutorials, and workshops will provide information and practice on a range of skills appropriate to a research scientist. Students will undertake a number of laboratory based practicals to explore links between theory and practice. | *Assessment:*Critical Analysis of a Paper (50%) Group Poster (50%) |
| 5102FSBMOLSemester 1*Forensic science* | TRACE EVIDENCE ANALYSIS(20c) | *Aim:*This module will provide students with a thorough knowledge of the use of microscopy in trace evidence analysis examining methodologies employed in the laboratory. | *Learning activities:*Lectures, practical sessions and workshopsIn class practical test | *Assessment:*Report (40%) Practice (60%) |
| 5104FSBMOLSemester 1*Forensic science* | MOLECULAR FORENSICS(20c) | *Aim:*The module’s credit rating is 20 credits at level 5. The module is core for the forensic science programme. The content of the module focusses on the genetic basis for forensic identification, commonly used molecular techniques used by DNA analysts and the analyses of forensic data. | *Learning activities:*Lectures, practicals, workshops | *Assessment:*Exam (50%) Report (50%) |
| 5310NATSCISemester 1*Forensic science* | HUMAN OSTEOLOGY(20c) | *Aim:*To introduce the analysis of human bones and their implications for reconstructing identity | *Learning activities:*Material will be delivered through brief lectures followed by workshops and practical sessions. | *Assessment:*Test axial skeleton (40%) Test theory practice (60%) |
| 5314NATSCISemester 1*Forensic science* | HUMAN ANATOMY AND GENETICS(20c) | *Aim:*To introduce human anatomy and physiology that underlie the analysis of human remains in forensic and anthropological context. To examine the genetic techniques used in the filed of human genetics. | *Learning activities:*The module is delivered through lectures, off-site facility visits, laboratory practicals and workshops. | *Assessment:*Test (50%) Scientific report (50%) |
| 6101FSBMOLSemester 1*Forensic science* | ADVANCED FORENSIC METHODS(20c) | *Aim:*To provide students with a thorough knowledge of advanced types of crime scene investigation. To introduce new and novel research in forensic science and to be able to use advanced statistical methods for evaluating forensic evidence. | *Learning activities:*Practicals, lectures, seminars, workshops, case studies, and table top exercises | *Assessment:*Portfolio (100%) |
| 6102FSBMOLSemester 1*Forensic science* | DRUG ANALYSIS AND TOXICOLOGY(20c) | *Aim:*To develop knowledge and practical experience of toxicological and controlled drug analysis within the context of forensic science. | *Learning activities:*LecturesPracticalsSeminarsProblem based learning | *Assessment:*Exam (50%) Report (50%) |
| 6310NATSCISemester 1*Forensic science* | PALAEOPATHOLOGY(20c) | *Aim:*To examine the evidence for disease in human skeletal remains and place it in the appropriate forensic context. | *Learning activities:*The module is delivered through lectures, laboratory practicals and workshops. | *Assessment:*Online test (40%) Skeleton Report (60%) |
| 6311NATSCISemester 1*Forensic science* | FORENSIC ANTHROPOLOGICAL GENETICS(20c) | *Aim:*This module will explore the uses of genetic techniques in the field of forensic science and anthropology from a theoretical and practical perspective. | *Learning activities:*Learning will be delivered through a series of lectures, both from expert staff and invited speakers. Theory will be complemented with laboratory practicals and workshops. | *Assessment:*Casework report (50%) Interpretative Test (50%) |
| 7101NATSCISemester 1*Forensic science* | ADVANCED OSTEOLOGY AND SKELETAL PATHOLOGY(20c) | *Aim:*The aims of this module are to provide students with an advanced knowledge of the human skeleton and the ability to identify animal bones, methods of curation of skeletal collections and understanding of pathological processes and how these relate to identification issues or population studies. | *Learning activities:*Lectures, workshops, practical sessions | *Assessment:*Bone quiz (40%) Skeletal report (60%) |
| 7103FSBMOLSemester 1*Forensic science* | ADVANCED DRUG ANALYSIS AND TOXICOLOGY(20c) | *Aim:*The aim of this module is to provide students with an in-depth understanding on the theoretical and practical aspects of drug and toxicological analysis using the appropriate analytical techniques. Laboratory work will be based upon case work studies providing experience of the required role of the forensic analyst. Laboratory problems will be enquiry/problem-based to further develop skills in team work and independent learning. The generation of the appropriate documentation will be utilised as would be expected for a professional forensic practitioner. | *Learning activities:*Lectures Lab based work – enquiry/problem basedResearch – reading encouraged throughout the module | *Assessment:*Examination (50%) Practical reports (50%) |
| 7104NATSCISemester 1*Forensic science* | DENTAL ANTHROPOLOGY(20c) | *Aim:*The aims of this module are to provide students with the theoretical knowledge and practical experience required by a bioarchaeologist or forensic anthropologist to identify and examine human teeth, and to use them to characterise and compare both samples and individuals. In addition, the ability to discuss, appraise and assess the results is obtained.This course deals with a wide range of dental anthropological topics. Students will study actual human teeth and dental casts (of themselves and others), and learn about dental anatomy, metrics, morphology, pathology, forensics, embryology, teeth and behaviour (including use), genetics, evolution, affinity assessment, and a variety of bioarchaeological and quantitative applications. | *Learning activities:*Material will be delivered through lectures, followed by workshops using actual dentitions and casts, as well as lab practical and seminar presentations of student work. | *Assessment:*Dentition Practical (40%) Project Report (60%) |
| 7105FSBMOLSemester 1*Forensic science* | FORENSIC BIOSCIENCE(20c) | *Aim:*The aims of this module are to allow students to critically appraise the use and analysis of biological material within a forensic context, demonstrating an understanding of the importance and limitations of such analysis. They should be able to perform a wide range of laboratory investigations pertinent to this area of study and interpret the results in a timely and appropriate fashion. Additionally, students should be able to review current literature in the area and discuss the limitations of a range of case studies, suggesting newer and/ or more appropriate methods of investigation. | *Learning activities:*Lectures, workshops, seminars and practicals | *Assessment:*Laboratory portfolio (50%) Seminar presentation (50%) |
| 7106FSBMOLSemester 1*Forensic science* | LAW AND COURT ROOM SKILLS(20c) | *Aim:*To provide students with a comprehensive understanding of British law including the role of the expert witnessTo enable students to write thorough and coherent expert witness statements and defend their opinions and findings in a court room settingTo discuss regulation, validation and potential bias within the forensic field. | *Learning activities:*Lectures, practical sessions including mock court proceedings, workshops and seminars (including debates). | *Assessment:*Essay (40%) Court room presentation (60%) |
| 4104FSBMOLSemester 2*Forensic science* | FORENSIC SCIENCE(20c) | *Aim:*To introduce students to a wide range of scientific areas and methods used in forensic science. Information on relevant legislation and interpretation will be presented. | *Learning activities:*lectures, problem based learning workshops, practical classes, self-study, site visit | *Assessment:*Exam (50%) Portfolio (50%) |
| 4105FSBMOLSemester 2*Forensic science* | MOLECULAR BIOSCIENCE FOR FORENSIC SCIENCES(20c) | *Aim:*To introduce biomolecular science to forensic science students providing the building blocks for further study in this area. | *Learning activities:*lectures, problem based learning workshops, practical classes, self-study | *Assessment:*exam (60%) Practice (40%) |
| 4307NATSCISemester 2*Forensic science* | INTRODUCTION TO ARCHAEOLOGY(20c) | *Aim:*This module will provide an introduction to the discipline of archaeology. Students will be introduced to the concepts of science based archaeology and cultural history. An introduction to fieldwork will be provided. | *Learning activities:*The learning activities in this module will consist of lectures, practicals, a workshop and excavation field work. | *Assessment:*Examination (100%) |
| 4308NATSCISemester 2*Forensic science* | FORENSIC FIELD SKILLS(20c) | *Aim:*To introduce basic legal concepts, rules of evidence handling, basic archaeologicaltechniques and outdoor crime scene protocols | *Learning activities:*Material will be delivered through lectures, practicals workshops, a seminar and a residential fieldtrip | *Assessment:*Notebook (60%) online test (40%) |
| 4311NATSCISemester 2*Forensic science* | INTRODUCTION TO ARCHAEOLOGY(20c) | *Aim:*This module will provide an introduction to the discipline of archaeology. Students will be introduced to the concepts of science based archaeology and cultural history with a regional focus on the archaeology of the British Isles. An introduction to archaeological fieldwork and GIS software will be provided. | *Learning activities:*The learning activities in this module will consist of lectures, practicals, tutorials, workshops and visits to archaeological sites and museums. | *Assessment:*Examination (45%) Presentation (45%) Career Smart (10%) |
| 5103FSBMOLSemester 2*Forensic science* | ANALYTICAL FORENSIC SCIENCE(20c) | *Aim:*The aims of this module are to build on the theory, and provide further practical experience of the forensic analytical techniques taught in the forensic chemistry module at level 4. In addition to this, the module aims to provide students with more experience of interpreting different types of chromatograms and spectra and further analytical chemistry knowledge to provide background information for the chemistry based modules offered at level 6. | *Learning activities:*Interactive lectures, practical sessions workshops and tutorials | *Assessment:*Exam (50%) Report (50%) |
| 5105FSBMOLSemester 2*Forensic science* | FORENSIC METHODS(20c) | *Aim:*To develop practical skills in crime scene processing and investigation, recovery and packaging of evidence within current policy requirements. | *Learning activities:*Workshops, lectures, practicals, off site, | *Assessment:*Practice (50%) portfolio (50%) |
| 5312NATSCISemester 2*Forensic science* | EXCAVATION AND ANALYTICAL TECHNIQUES(20c) | *Aim:*To provide an introduction to field-based project management and research skills | *Learning activities:*This module will consist of lectures, practicals, workshops, group work and fieldexcavation and post excavation work. | *Assessment:*Statistics report (30%) Group work Portfolio (40%) Fieldwork report (30%) |
| 5313NATSCISemester 2*Forensic science* | FORENSIC HUMAN IDENTIFICATION(20c) | *Aim:*To examine the causes and extent of genetic and phenotypic variation in modern human populations. To examine the methods used to reconstruct life patterns and individual identification from skeletal remains. | *Learning activities:*The module is delivered using lectures, workshops and practicals. | *Assessment:*Online practical assessment (50%) Essay (50%) |
| 6103FSBMOLSemester 2*Forensic science* | EXPERT WITNESS(20c) | *Aim:*This module looks at forensic science and related professions and the role of the expert witness.  The aim of this module is to develop knowledge and practical experience of the role of an expert witness within the context of Forensic Science. | *Learning activities:*LecturesPractical based sessionsCourtroom presentationCase StudiesProblem based learning | *Assessment:*report (50%) presentation (50%) |
| 6104FSBMOLSemester 2*Forensic science* | Modern Technology in Forensic Science(20c) | *Aim:*To provide students with the technical and theoretical knowledge and the practical skills relating to state of the art modern technologies as applied to forensic science. Typical content will include current and emerging forensic technologies such as photography, audio, cybercrime, and drone surveillance. | *Learning activities:*This module consists of workshops, lectures, practical exercises mimicking typical operations and user demonstrations. | *Assessment:*Practical report (50%) Exam (50%) |
| 6312NATSCISemester 2*Forensic science* | ADVANCED FORENSIC ANTHROPOLOGY(20c) | *Aim:*To provide practical and theoretical experience in anthropological techniques. | *Learning activities:*Material will be delivered through a selection of lectures, practicals, and workshops | *Assessment:*Lab Practical/Test (50%) Skeletal Report and Discussion (50%) |
| 7101FSBMOLSemester 2*Forensic science* | TRACE EVIDENCE ANALYSIS(20c) | *Aim:*Trace Evidence such as diatoms and pollen play a pivotal role in criminal investigations. It is essential for forensic scientists to be able to identify, differentiate and analyse different types of trace evidence as well as to be able to interpret the results of their analysis. Analysis of the majority of trace evidence begins with advanced microscopic methods and in some cases can end with chemical composition determination.The aims of this module are to provide students with the theoretical knowledge and practical experience required by a forensic scientist to identify and examine trace evidence. In addition to, the ability to discuss, appraise and assess the results obtained. | *Learning activities:*Lectures, Mini Project, Practical, Workshops, Tutorial, Case Study | *Assessment:*Mini Project Report (50%) Case Study Presentation (50%) |
| 7102FSBMOLSemester 2*Forensic science* | FIRE INVESTIGATION(20c) | *Aim:*Understand fundamental scientific principles of fire science, fire dynamics and material science and demonstrate their application to fire investigation.Critical consideration of all potential ignition sourcesInterpretation of the physical evidence remaining after a fire and determination of the origin and cause of a fire - interpretation of smoke/ fire damage patterns. Current best practice for Fire Scene Examination and documentation.Evidence identification and correct methods for preservation, collection and packaging.Laboratory analysis and interpretation of case samples. | *Learning activities:*LecturesPracticalsPortfolio from practicalsAnalysis of evidence and report writing | *Assessment:*exam (40%) portfolio (60%) |
| 7103NATSCISemester 2*Forensic science* | EXCAVATION(20c) | *Aim:*This course aims to teach students the key skills and perspectives required to gather, assess and present forensic evidence from fieldwork centred on excavation. It will provide them with transferable skills in forensic field survey, site management, excavation and related data analysis. | *Learning activities:*Field course, Lectures, Practicals and Seminars | *Assessment:*Field Notebook (50%) Report presentation (50%) |
| 7104FSBMOLSemester 2*Forensic science* | BIOANALYTICAL TECHNIQUES(20c) | *Aim:*To provide students with an understanding of advanced molecular techniques relevant to forensic science including DNA and RNA based techniques. To enable students to understand and perform appropriate interpretation methodsTo develop critical awareness of the limitations of these techniques and their use in the criminal justice system. | *Learning activities:*Lectures, laboratory investigations, workshops and seminars. Private study | *Assessment:*Journal style report (50%) Examination (50%) |
| 7105NATSCISemester 2*Forensic science* | TAPHONOMY AND TRAUMA ANALYSIS(20c) | *Aim:*The aims of this module are: to provide students with an extensive understanding of the human bones’ biomechanics and the bones reaction to forces and different kinds of environments for a taphonomic history of the remains.It provides the student with a broad appreciation of different types of weapons to reconstruct the dynamic of a traumatic event by the skeletal evidence. In addition the student will learn how to cast bones and evidence of trauma for disposal both in museums and in courtroom. | *Learning activities:*In addition to lectures, the students will be involved in seminars where they will read and discuss recent papers related to the main topics of the programme.Practical sections will be provided to practise and test the skills learned during the module | *Assessment:*Oral presentation 1 (40%) Oral presentation 2 (60%) |
| 7106NATSCISemester 2*Forensic science* | HUMAN IDENTIFICATION AND FORENSIC DNA(20c) | *Aim:*The students comprehensively analyse the problems related to the identification of an unknown subject from both skeletal and genetic features.The module provides an in-depth critical understanding of the techniques and the methodology involved in the skeletal identification of human remains in the field of Forensic Anthropology. The aim of this module is also to introduce the students in the use of a DNA typing approach for the identification of human remains. | *Learning activities:*In addition to lectures, the students will be involved in seminars where they will read and discuss recent papers related to the main topics of the programme.Practical sessions and workshops will be provided to practise and test the skills learned during the module | *Assessment:*Oral presentation (60%) Genetics portfolio (40%) |