# Studying Forensic Science at UCT

There are many students out there who are interested in forensic science. We refer to it as the "CSI effect" not only because of the popularity of the show but also because it skews the way in which the public perceives forensic science as a subject.

**There is no undergraduate training in forensic science in South Africa** although there are several good places to study at that level in the UK and the USA. UCT and Pretoria both offer post-graduate degrees that involve forensic anthropology.

*'Investigative forensics'* is what is done by the police units. The South African Police Service employs people to work in their forensic laboratories. They are looking for students who have a BSc or BSc (Hons) in chemistry, biochemistry or physics, and these people are given specialised training by the police in the labs to run their forensic labs (DNA, ballistics, etc - all of the stuff you see on CSI with a much smaller budget and huge case loads).

A true forensic scientist does not really exist in South Africa.

Our approach in the University is based on the definition of a forensic scientist who is 'a scientist in one of the disciplines of science who applies his or her knowledge to 'forensic cases'. This means that you are FIRST a chemist, anthropologist, pathologist, engineer, psychiatrist (with an appropriate post-graduate degree) and only after that do you use your knowledge in forensic cases. In our view, such people are primarily researchers rather than applied forensic technicians.

**Forensic pathology is one of those disciplines but it is only accessible as a registered specialty through a medical degree and then a 5 year Masters degree.**

A generalised undergraduate programme in science would be better than a much focused one. Other than the 2nd & 3rd year human biology/physiology, I would strongly suggest some chemistry/biochemistry. Many students take genetics and some even fit in the 2nd year Archaeology course on human evolution. The requirement for Honours is simply a BSc with at least 60%.

**We at UCT have developed a biomedical forensic science course at Masters Level. This is the first such course in South Africa and we would like to position ourselves to train research scientists in forensics.** What is required is a good solid degree in science. The plan is to take students who are already specialising in some branch of science and then to expose them to the various impacts of science on forensic cases. Our entry for the M Phil programme would be a BSc (Hons) degree in life sciences - chemistry, biochemistry, genetics, and physiology. Biological anthropology is not an undergraduate major, but can be done as part of Anatomy at Honours level.

# BRIEF OUTLINE OF THE FORENSIC SCIENCE MASTERS COURSE

## Programme Title: M Phil in Biomedical Forensic Science

This is a 2-year fulltime programme which provides students with forensic science knowledge, attitudes and skills to work in specialised forensic science laboratories, death and crime scenes as well as legal areas dealing with civil and criminal scientific aspects. Graduates will be able to contribute to the international body of research in these areas and be qualified to work internationally based on their local exposure to laboratory and crime scene practical experience. The programme consists of lectures, practicals and tutorials arranged into modules and courses. The prescribed courses and modules are described below.

## Admission requirements

(a) an approved degree of BSc (Hons) and have completed Biochemistry, Chemistry, Microbiology, Biology, Genetics or Physical Anthropology or equivalent at Hons level; or
(b) an approved four year Bachelor Sc; or
(c) holds a qualification deemed by Senate to be equivalent

## Modules for M Phil in Biomedical Forensic Science

**LAB6005F/S FORENSIC PATHOLOGY**
**Course outline:** The course aims to provide students with a good understanding of natural and unnatural deaths, statutory obligations for practitioners in the field, basic traumatology, identification of descendants, explanation of the cause of death and the minimum standards in a forensic pathology laboratory. It also provides an introduction to theories of crime and victimisation, the criminal justice system, legislation regarding human tissues, legal age of consent, termination of pregnancy, sexual offenses. It provides an elementary understanding of criminal trials, the use of scientific evidence in the courtroom, how to conduct oneself as an expert witness testifying in court and withstanding rigorous cross-questioning without undue emotional stress.

**LAB6004F/S FORENSIC ANTHROPOLOGY AND ARCHAEOLOGY**
**Course outline:** This module concerns itself with the retrieval and study of human remains in an advanced state of decomposition or complete skeletonisation. Topics considered are decomposition of soft and hard tissue, archaeological protocols in retrieval of bones and patterns of preservation, identification of age, sex, biological origin and biographic features of human skeletons.

**LAB6006F/S FORENSIC TOXICOLOGY**
**Course outline:** The course enables the student to reliably perform appropriate toxicological specimen collection, transport, preparation, analysis and reporting on a number of platforms and for most major toxic agents.

**PPH7070S QUANTITATIVE RESEARCH METHODOLOGY**

**Course outline**: The course is designed to enable candidates to prepare research proposals on biomedical forensic science on topics that use quantitative methods; and to enable candidates to cooperate as a team in research protocol development.

**PPH7021F BIOSTATISTICS**

**Course outline:** This course provides an introduction to the basic concepts of biostatistical and a guide on how to compute the most commonly used descriptive and inferential statistical procedures using STATA statistical software and for the students to be able to interpret the results.

**LAB6007F/S MOLECULAR FORENSICS**

**Course outline:** This course is comprised of modules of genetics, haematology and medical microbiology. Students are prepared to perform comprehensive chemical, physical and technological analyses on tissue specimens obtained from crime or death scenes. The problem-solving methods and use of complex instruments provides them with the knowledge to provide expert testimony in a court of law.

**LAB6008F/S APPLIED FORENSIC SCIENCE**

**Course outline:** This course is based on the contents of the Forensic Pathology, Forensic Toxicology, Molecular Forensics and Forensic Anthropology and Archaeology courses. Students integrate and apply this knowledge to case simulations from a crime or death scene through to the courtroom appearance.

**LAB6003W MINOR RESEARCH DISSERTATION**

**Course outline:** The student will either select a topic in which he/she has a particular interest or is provided by the staff in the various Divisions. This is to be completed in Year 2.