FORENSIC SCIENCE

Faculty: Mykal Gernaat, M.A.

Forensic Sciences is the application of scientific principles to matters defined by civil and criminal law. It is a compilation of all the hard core sciences, including the fields of chemistry, biology, physics, geology, and mathematics in the solving of crimes by the evidence left behind at a crime scene. All three of the major tracks and the minor are designed to prepare students with a strong scientific background directed to the recognition, identification, individualization, and evaluation of physical evidence. The major tracks are directed to preparing the student to work either as a crime scene investigator or in a laboratory environment, or to continue their education at the graduate school level. As such, the majors, minor and concentration focuses on the main elements of criminalistics, including analysis of blood, fibers, glass, paint, soils, hair, and the fields of toxicology, DNA analysis, serology, forensic anthropology, human pathology, and numerous other areas germane to the scientific study of evidence. The concentration in the area focuses on assisting those students who want to primarily go into law enforcement as a police officer to be able to use science in the process of solving crimes but do not want to become immersed in the required sciences.

For the Forensic Sciences program, there are three possible tracks: Forensic Sciences for students wanting to be crime scene investigators, to law school or to graduate school, or work outside of a laboratory field mandating extensive chemistry or biology backgrounds (such as Forensic Anthropology or Fingerprint Analysis); Forensic Chemistry for working in laboratory environments dealing with chemistry problems; Forensic Biology for working in laboratory environments specializing in biology problems, particularly DNA analysis.

Forensics Major/Minor Program Outcomes (all tracks)

- Describe connections between science and other disciplines, and express the relevance of science to daily life and health.
- Work effectively in groups, collaborating in team investigations as well as providing constructive feedback to peers, utilizing constructive feedback from peers, and developing self-assessment skills.
- Interpret scientific information accurately, drawing logical conclusions. Interpret laboratory data accurately, and draw logical conclusions.
- Practice analytical laboratory skills. Critique scientific literature thoroughly, and distinguish between credible and non-credible scientific information. Analyze the experiments of other scientists.
- Integrate fundamental scientific knowledge in the solution of scientific and criminal problems, making use of crime scene investigation techniques, evidence collection and preservation methods, and proper techniques of data gathering and analysis.
- Communicate scientific information with clarity, accuracy, and conciseness, both orally and in writing. Critique scientific literature thoroughly, and consider the impact on the lay public of inaccurate or biased communication of scientific information.
- Evaluate actual and hypothetical ethical issues related to science technology, and argue convincingly on more than one side of a given issue, drawing upon scientific knowledge and personal belief systems.

• Evaluate the impact of current technologies on human society and the environment, and consider the questions and problems society will face as technology advances.

Degree Requirements

• Bachelor Degree Requirements

Forensic Science Track (B.S.)

Code	Title	Credits
BIO 151	GENERAL BIOLOGY I	4
BIO 152	GENERAL BIOLOGY II	4
CHM 111	GENERAL CHEMISTRY I	4
CHM 112	GENERAL CHEMISTRY II	4
CRJ 100	INTRO TO CRIMINAL JUSTICE SYST	3
FSC 201	INTRO TO FORENSIC SCIENCE	3
FSC 310	IMPRESSION EVIDENCE LAB ANALYS	3
FSC 320	PATTERNED EVIDENCE LAB ANALYSI	3
FSC 330	BLOOD, BDY FLUID & DNA LB ANAL	3
FSC 340	FORENSIC BIOLOGY & MICROSCOPY	3
FSC 350	FRSC CHEM & INSTRUMENTATION	3
FSC 360	PHYSICAL EVIDENCE LAB ANALY	3
FSC 430	FORENSIC ANTHROPOLOGY W/ LAB	3
FSC 499	SR CAPSTONE SEMINAR	3
MTH 241	CALCULUS I	4
MTH 252	STAT METHODS FOR THE SCIENCES	3
Two of the follow	ing sets:	16
Option 1:		
BIO 251	HUMAN ANATOMY & PHYSIOLOGY I	
BIO 252	HUMAN ANATOMY & PHYSIOLOGY II	
Option 2:		
CHM 261	ORGANIC CHEMISTRY I	
CHM 262	ORGANIC CHEMISTRY II	
Option 3:		
CHM 350	QUANTITATIVE ANALYSIS	
CHM 401	BIOCHEMISTRY I	
Approved FSC Ele	ectives:	3
CRJ 381	INTERVIEWING AND INTERROGATION	
CRJ 392	SPECIAL TOPICS:	
FSC 392	SPECIAL TOPICS	
FSC 495	INTERNSHIP IN FORENSIC SCIENCE	
Total Credits Reg	uired:	72

Forensic Science Biology Track (B.S.)

Code	Title	Credits
BIO 151	GENERAL BIOLOGY I	4
BIO 152	GENERAL BIOLOGY II	4
BIO 221	CELL AND MOLECULAR BIOLOGY	4
BIO 311	GENETICS	4
BIO 499	SENIOR THESIS	3
or FSC 499	SR CAPSTONE SEMINAR	
CHM 111	GENERAL CHEMISTRY I	4
CHM 112	GENERAL CHEMISTRY II	4

Code	Title	Credits
CHM 261	ORGANIC CHEMISTRY I	4
CHM 262	ORGANIC CHEMISTRY II	4
CHM 350	QUANTITATIVE ANALYSIS	4
CHM 401	BIOCHEMISTRY I	4
CRJ 100	INTRO TO CRIMINAL JUSTICE SYST	3
FSC 201	INTRO TO FORENSIC SCIENCE	3
FSC 310	IMPRESSION EVIDENCE LAB ANALYS	3
FSC 320	PATTERNED EVIDENCE LAB ANALYSI	3
FSC 330	BLOOD, BDY FLUID & DNA LB ANAL	3
FSC 340	FORENSIC BIOLOGY & MICROSCOPY	3
FSC 360	PHYSICAL EVIDENCE LAB ANALY	3
MTH 241	CALCULUS I	4
MTH 252	STAT METHODS FOR THE SCIENCES	3
Approved Elective	es for Major	4
BIO 251	HUMAN ANATOMY & PHYSIOLOGY I ((And))	
BIO 252	HUMAN ANATOMY & PHYSIOLOGY II	
BIO 380	MICROBIOLOGY	
BIO 392	SPECIAL TOPICS:	
BIO 400	IMMUNOLOGY	
BIO 405	DEVELOPMENTAL BIOLOGY	
BIO 411	CELL BIOLOGY	
BIO 420	VIROLOGY	
BIO 422	CONSERVATION ECOLOGY	
BIO 490	RESEARCH IN BIOLOGY	
CHM 402	BIOCHEMISTRY II	
FSC 350	FRSC CHEM & INSTRUMENTATION	
FSC 392	SPECIAL TOPICS	
FSC 430	FORENSIC ANTHROPOLOGY W/ LAB	
FSC 495	INTERNSHIP IN FORENSIC SCIENCE	
PHS 241	CLASSICAL & MODERN PHYSICS I (And)	
PHS 300	CLASSICAL & MODERN PHYSICS II	
Total Credits Requ	uired:	75

Total Credits Required:

Forensic Science Chemistry Track (B.S.)

Code	Title	Credits
BIO 151	GENERAL BIOLOGY I	4
BIO 152	GENERAL BIOLOGY II	4
CHM 111	GENERAL CHEMISTRY I	4
CHM 112	GENERAL CHEMISTRY II	4
CHM 261	ORGANIC CHEMISTRY I	4
CHM 262	ORGANIC CHEMISTRY II	4
CHM 350	QUANTITATIVE ANALYSIS	4
CHM 401	BIOCHEMISTRY I	4
CHM 499	SENIOR THESIS	1-3
or FSC 499	SR CAPSTONE SEMINAR	
CRJ 100	INTRO TO CRIMINAL JUSTICE SYST	3
FSC 201	INTRO TO FORENSIC SCIENCE	3
FSC 310	IMPRESSION EVIDENCE LAB ANALYS	3
FSC 320	PATTERNED EVIDENCE LAB ANALYSI	3
FSC 330	BLOOD, BDY FLUID & DNA LB ANAL	3
FSC 350	FRSC CHEM & INSTRUMENTATION	3

Code	Title	Credits
FSC 360	PHYSICAL EVIDENCE LAB ANALY	3
MTH 241	CALCULUS I	4
MTH 252	STAT METHODS FOR THE SCIENCES	3
PHS 241	CLASSICAL & MODERN PHYSICS I	4
PHS 300	CLASSICAL & MODERN PHYSICS II	4
Approved Elective	es for Major	3
FSC 340	FORENSIC BIOLOGY & MICROSCOPY	
FSC 392	SPECIAL TOPICS	
FSC 430	FORENSIC ANTHROPOLOGY W/ LAB	
FSC 495	INTERNSHIP IN FORENSIC SCIENCE	
Total Credits Required:		72-74

Forensic Sciences Minor

Code	Title	Credits
CRJ 100	INTRO TO CRIMINAL JUSTICE SYST	3
CRJ 251	CRIMINAL EVIDENCE & PROCEDURE	3
FSC 201	INTRO TO FORENSIC SCIENCE	3
FSC 310	IMPRESSION EVIDENCE LAB ANALYS	3
FSC 320	PATTERNED EVIDENCE LAB ANALYSI	3
FSC 330	BLOOD, BDY FLUID & DNA LB ANAL	3
Approved FSC elective		3
Total Credits Required:		21

Approved Forensic Science Minor Electives

Code	Title	Credits
CRJ 381	INTERVIEWING AND INTERROGATION	3
CRJ 392	SPECIAL TOPICS:	1-3
FSC 392	SPECIAL TOPICS	1-3
FSC 430	FORENSIC ANTHROPOLOGY W/ LAB	3
FSC 495	INTERNSHIP IN FORENSIC SCIENCE	1-15

Forensic Investigation Concentration

(only available with a major in Criminal Justice)

Code	Title	Credits
CRJ 100	INTRO TO CRIMINAL JUSTICE SYST	3
CRJ 261	PATROL OPERATIONS & PROCEDURES	3
CRJ 451	CRIMINAL INVESTIGATION	3
FSC 201	INTRO TO FORENSIC SCIENCE	3
FSC 300	PHYSICAL EVIDENCE	3
FSC 310	IMPRESSION EVIDENCE LAB ANALYS	3
FSC 320	PATTERNED EVIDENCE LAB ANALYSI	3
FSC 430	FORENSIC ANTHROPOLOGY W/ LAB	3
Total Credits Required:		24