Forensic and Investigative Science

Degrees Offered

• Master of Science

Nature of the Program

The Forensic and Investigative Science Program offers graduate studies leading to a Master of Science degree. The degree is rigorous, quantitative, and science-based. Students are required to complete an approved thesis. Coursework focuses on advanced forensic science classes including pattern evidence, trace evidence, forensic chemistry, DNA analysis, and laboratory management. The Master of Science Program is fully accredited by FEPAC.

FACULTY

DIRECTOR
• Keith Morris - Ph.D. (University of Port Elizabeth)
  Impression Evidence, Evidence Interpretation

ASSOCIATE PROFESSORS
• Suzanne Bell - Ph.D. (New Mexico State University)
  Forensic Chemistry
• Glen Jackson - Ph.D. (West Virginia University)
  Forensic Chemistry

ASSISTANT PROFESSOR
• Jacqueline Speir - Ph.D. (Rochester Institute of Technology)
  Forensic Informatics

CLINICAL ASSISTANT PROFESSOR
• Patrick Buzzini - Ph.D. (University of Lausanne)
  Trace Evidence

TEACHING ASSISTANT PROFESSOR
• Tina Moroose - M.S. (Marshall University)
  Graduate Studies Coordinator, Forensic Biology

LECTURERS
• Rachel Mohr - PhD (Texas A&M)
  Forensic Entomology
• Casper Venter - M.S. (North West University)
  Forensic Drug Chemistry

Prerequisites

Applicants for graduate studies in forensic science must have a bachelors degree in natural science, forensic science, or equivalent and an overall grade point average of at least 3.0. A GRE score of 300 on the new scoring system or 1000 on the old system is required. All applicants must have completed the following courses: one year of fundamentals of chemistry (inclusive of laboratories), one year of organic chemistry (inclusive of laboratories), one year of biology (inclusive of laboratories), one year of physics (inclusive of laboratories), and one year of calculus.

Program Requirements

The WVU general requirements for the master of science degree are outlined elsewhere in this catalog. Graduate students in the M.S. program in Forensic and Investigative Science are required to submit a research thesis. Students must apply a minimum of six hours of research credit toward the forty-hour degree requirement. Of the remaining credit hours, twenty-four hours must be earned in the required core courses, at least six credit hours in approved electives, and four credit hours in graduate seminar. Failure to make satisfactory progress in the Program will be grounds for probation, suspension, or dismissal. In addition, all students must successfully complete a cumulative examination. Each student will be given a maximum of three
attempts to complete the cumulative examination. Any semester in which a student enrolls for a course, they must also enroll for FIS 696 Graduate Seminar irrespective of the number of times they have taken this class.

GPA Requirements

During graduate study, a minimum grade point average of 3.0 must be maintained in all required courses. A student who fails to maintain the required average at the completion of any semester will be placed on probationary status and allowed one academic year (two semesters) to attain the required average. If unsuccessful, the student will be dropped from enrollment in the graduate program. Any student who receives a grade lower than a "C" will also be placed on probation. A second grade below "C" in the same course will result in the student being dropped from the program.

Thesis Research

All students should identify a faculty mentor and research topic as soon as possible. In order to register for FIS 697 Research, the student must have successfully completed his or her thesis proposal defense. Each student is responsible to ensure that, with the assistance of the Graduate Studies Coordinator, his or her committee is correctly constituted. Normally, a student will begin laboratory work in the third semester. Upon successful completion of the research, the candidate will present his or her results in a thesis and at the appropriate time defend the work in a final oral examination according to the rules of the College and University.

DEGREE REQUIREMENTS

Degree Requirements

A minimum GPA of 3.0 is required in all courses.

Major Requirements

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<td>Approved Elective Courses *</td>
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<td><strong>Total Hours</strong></td>
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* Approved Electives can include any 400 level Biology, Chemistry, or Forensic and Investigative Science course as well as FIS 604, FIS 610, FIS 615 or any 700 level Pharmacy course.

COURSES

FIS 501. Foundations of Criminalistics. 3 Hours.
This course reviews the core theories and fundamental principles of criminalistics. Particular attention will be dedicated to problems of interpreting physical evidence. Aspects on research, scientific method, and ethics will also be addressed.

FIS 502. Forensic Laboratory Management. 3 Hours.
This course provides an overview of management issues in forensic science laboratories, including personnel and human resources, project management, leadership, organization, communication, strategy and budgeting.

FIS 592A-Z. Directed Study. 1-6 Hours.
PR: Consent. Directed study, reading, and/or research.

FIS 602. Forensic Informatics. 3 Hours.
This course will cover data management in forensic laboratories (procedural and scientific). Topics such as quality, legal environment, laboratory information systems, and forensic intelligence will be developed. This course includes a laboratory component.
FIS 604. Forensic Fingerprint Examination. 3 Hours.
This course presents the fundamental and advanced aspects of fingerprint comparisons using ACE-V methodology. Specific topics such as Daubert requirements, friction ridge identification; poroscopy, palm prints will be covered. This course includes a laboratory component.

FIS 610. Firearms Examination. 3 Hours.
This course presents the fundamentals and advanced aspects of firearms related to evidence. Topics include the design, mechanism, and manufacture of firearms as well as interior, exterior and terminal ballistics. This course includes laboratory component.

FIS 614. Trace Evidence Examination. 3 Hours.
PR: CHEM 314 or FIS 314. This course will develop the theories of transfer (such as hairs, fibers, paints, gunshot residues and glass). Topics such as microscopy, spectroscopy, and chromatography will be applied. This course includes a laboratory component.

FIS 615. Questioned Document Examination. 3 Hours.
This course will focus on handwriting comparisons, signatures, typewriting, and typescripts. Topics include erasures, additions and alterations, printed and photocopied documents and ink analysis. This course includes a laboratory component.

FIS 620. Forensic Casework Practicum. 3 Hours.
Students will manage mock cases involving multiple types of evidence. They will collect, analyze and interpret the evidence. Written reports on the case will be submitted to evaluation during a mock trial.

FIS 632. Advanced Forensic Biology. 3 Hours.
This course will provide students with the knowledge and skills to perform forensic DNA analyses. Topics include analytical methods and procedures, result interpretation and evidence assessment. This course includes a laboratory component.

FIS 660. Advanced Forensic Chemistry. 3 Hours.
This course covers the chemical analysis of a wide variety of forensic evidence types. Topics include statistics, sampling, data quality, calibration, sample preparation, instrumentation; drug analysis, toxicology and explosives. This course includes a laboratory component.

FIS 695. Independent Study. 1-6 Hours.
Faculty Supervised study of topics not available through regular class offerings.

FIS 696. Graduate Seminar. 1 Hour.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

FIS 697. Research. 1-15 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)