

Forensic and Investigative Science, Forensic Science

Degrees Offered

- Master of Science
- Doctor of Philosophy

Nature of the Program

M.S. FORENSIC AND INVESTIGATIVE SCIENCE

The objective of the M.S. degree is to prepare students for employment in local, state, and federal forensic science laboratories in several forensic disciplines. The M.S. degree is a rigorous, quantitative, research oriented degree accredited by the Forensic Science Education Programs Accreditation Commission (FEPAC).

The coursework comprises a core of advanced chemistry, biology and pattern evidence courses, including laboratory-based instruction in microscopy, trace evidence, analytical chemistry, DNA, statistics and laboratory management. Further specialization occurs through the student's research. The learning and research environments are supported by state-of-the-art instrumentation and laboratory facilities.

PH.D. FORENSIC SCIENCE

The objective of the Ph.D. program is to prepare students to work as professionals in academia, government laboratories, and private industry as laboratory specialists. Students will learn to critically assess the current state of knowledge within the field, and to solve complex problems at the frontier of the discipline. The major component of the program is research. The coursework comprises a core of advanced chemistry, biology and pattern evidence courses, including laboratory-based instruction in microscopy, trace evidence, analytical chemistry, DNA, statistics and laboratory management.

FACULTY

CHAIR

- Casper Venter - Ph.D. (University of South Africa)

GRADUATE STUDIES COORDINATOR

- Tina Moroosse - M.S. (Marshall University)

PROFESSORS

- Glen Jackson - Ph.D. (West Virginia University)
Ming Hsieh Distinguished Professor, Forensic Chemistry and Mass Spectrometry
- Keith Morris - Ph.D. (University of Port Elizabeth)
Ming Hsieh Distinguished Professor, Impression Evidence, Evidence Interpretation

ASSOCIATE PROFESSORS

- Jaqueline Speir - Ph.D. (Rochester Institute of Technology)
Informatics, Pattern Analysis, Image Analysis
- Casper Venter - Ph.D. (University of South Africa)
Director, Undergraduate Coordinator, Seized Drugs, Latent Fingerprint Development and Comparison
- Tina Moroosse - M.S. (Marshall University)
DNA Analysis and Quality Assurance

ASSISTANT PROFESSORS

- Luis Arroyo - Ph.D. (Florida International University)
Toxicology, Environmental Forensics
- Robin Bowen - Ed.D. (West Virginia University)
Ethics, Bloodstain Pattern Analysis
- Arati Iyengar - Ph.D. (University of South Hampton)
Forensic Genetics, Wildlife Forensics
- Roger Jeffreys - M.S. (West Virginia University)

- Lisa Licata - M.S.
(University of North Texas)
- Rachel Mohr - Ph.D. (Texas A&M University)
Forensic Entomology
- Tiffany Edwards - M.S. Forensic Science (University of Central Oklahoma)
- Tatiana Trejos - Ph.D. (Florida International University)
Trace Evidence, Elemental Analysis

Admissions

The M.S. and the Ph.D. are separate degree programs and students should carefully consider which is the most appropriate for their career goals. The M.S. degree is ideal preparation for work in local, state, and federal forensic laboratory systems. The Ph.D. is geared toward preparing students for research-intensive positions, academic appointments, and laboratory management. Enrollment is limited and competitive. Meeting minimum requirements does not guarantee acceptance.

M.S. IN FORENSIC AND INVESTIGATIVE SCIENCE

Applicants to the M.S. program should possess a bachelor's degree in natural science, Forensic Science, or equivalent, which includes at least one year of the following courses:

- Fundamentals of Chemistry (inclusive of laboratories)
- Organic Chemistry (inclusive of laboratories)
- Biology (inclusive of laboratories)
- Physics (inclusive of laboratories) and
- Calculus

Applicants should have a minimum cumulative GPA of 3.0 and GRE scores of 300 or better (on combined verbal and quantitative reasoning).

PH.D. IN FORENSIC SCIENCE

Students with a B.S. degree can be directly admitted to the Ph.D. program but are encouraged to complete the M.S. degree prior to applying to the Ph.D. program. Students applying to the Ph.D. program are strongly encouraged to contact faculty prior to submission of their application to discuss research interests and space availability in their research group. At least two potential research advisors must be identified as part of the admission process.

Applicants to the Ph.D. program should possess a bachelor's or research based master's degree from an accredited college or university which includes at least one year of the following courses:

- Fundamentals of Chemistry (inclusive of laboratories)
- Organic Chemistry (inclusive of laboratories)
- Biology (inclusive of laboratories)
- Physics (inclusive of laboratories) and
- Calculus

Applicants should have a minimum cumulative GPA of 3.0 and GRE scores of 300 or better (on combined verbal and quantitative reasoning).

Current students in the FIS M.S. program who decide to pursue a Ph.D. must submit a completed application by the deadline to be considered for admission. Current enrollment in the FIS M.S. program **does not** guarantee acceptance into the Ph.D. program. Placement in a specific research group or with a specific faculty member is not guaranteed.

List of Admission Requirements for both programs:

- See the steps to apply for admissions and access the application here (<https://graduateadmissions.wvu.edu/how-to-apply/>).
- Letters of recommendation from persons who can address potential for success in graduate study and research must be submitted (two for M.S. and three for Ph.D.).
- A personal statement the addresses requirement for the program.
 - For the M.S., the statement should address the applicant's desire to pursue graduate studies in Forensic Science, present concept of Forensic Science, academic goals in the M.S. program, professional goals and employment objectives. Additionally, the personal statement must indicate a first and second choice for which faculty members in the department the applicant would most like to work with and the work they would most like to perform. Information on faculty and their research interests can be found here (<https://forensics.wvu.edu/faculty-and-staff/>).
 - For the Ph.D., the personal statement should address the applicant's desire to pursue graduate studies in Forensic Science, present concept of Forensic Science, academic goals in the Ph.D. program, professional goals and employment objectives. Additionally, the personal statement

must indicate a first and second choice for which faculty members in the department the applicant would most like to work with and the work they would most like to do. Information on faculty and their research interests can be found here (<https://forensics.wvu.edu/faculty-and-staff/>).

- A writing sample as follow.
 - For the M.S., students must submit an original writing sample (4-6 pages, 1.5 spaced, 12 pt. font) that consists of one or more of the following must also be submitted: a peer-reviewed publication where the applicant was the lead author, an honors thesis, research report or capstone report in which the applicant is the sole author, or an essay discussing one of the following statements:
 - DNA will eventually replace trace evidence as a technique in forensic science.
 - Forensic science will survive criticism about its reliability.
 - The role of NIST OSAC in strengthening forensic practice.
 - Describe ways in which standards approved by the NIST OSAC organization have helped to strengthen the practice of forensic science.
 - Describe the recent developments in the error rates or uncertainty in any chosen domain of forensic science.
 - Forensic laboratories would benefit from reinforcing the silos of forensic science
 - For the Ph.D., students must submit an original writing sample (approximately 4-6 pages) that consists of one or more of the following:
 - a peer-reviewed publication where the student is the lead author;
 - a thesis research converted to a publication-ready document (note that this document must conform to a pre-print to be submitted to a peer reviewed journal [such as JFS or FSI], and should include appropriate subsections and be of reasonable length);
 - a thesis research proposal converted to a white paper (maximum length of 6 pages, single-spaced).
- Curriculum Vitae.
- Official Transcripts and GRE scores.

International Applicants:

- See the steps to apply for admissions and access the application here (<https://graduateadmissions.wvu.edu/how-to-apply/>).
- International applicants should view additional requirements here (<http://catalog.wvu.edu/graduate/graduateeducationatwestvirginiauniversity/#internationaltext>) and here (<https://graduateadmissions.wvu.edu/information-for/international-students/>).
- Language proficiency is required in order to hold a graduate teaching assistantship. See here (<https://elli.wvu.edu/testing-resources/english-proficiency-gtas/>).

Application Deadlines:

- The Department of Forensic and Investigative Science generally admits graduate students for the Fall semester. Admissions for Spring semester may be considered on a case-by-case basis; contact the Coordinator of Graduate Studies before submitting.
- Applications are considered starting in January for admission for the following Fall semester.
- Priority will be given to completed applications received by January 15th; application reviews will be continued past the deadline on a space-available basis.
- Upon receipt and evaluation of the complete application package, suitable candidates may be invited for a final interview with the graduate committee.
- Exceptional applicants to the Ph.D. program may be nominated by the Department of Forensic and Investigative Science for competitive University Fellowships. Late applicants cannot be considered for University Fellowships. Qualified applicants will be notified if they are nominated. More information on WVU fellowships can be found here (<https://graduateeducation.wvu.edu/finances/fellowships/>).

Certain application requirements may be waived based on a preliminary review of an application by the program.

ADMISSION REQUIREMENTS 2024-2025

The Admission Requirements above will be the same for the 2024-2025 Academic Year.

MS Major Code: 1479

PhD Major Code: 14C2

For specific information on the following program, please see the link to the right:

- Forensic and Investigative Science, M.S.

For specific information on the following program, please see the link to the right:

- Forensic Science, Ph.D.

Degree Progress

All students should identify a faculty mentor and research topic as soon as possible. The faculty mentor will work with the student to develop a Plan of Study, constitute an advisory committee, and formulate research plans. Details on the composition and establishment of an advisory committee, timelines, and expectations are provided in the Department's Graduate Student Handbook.

MASTER'S BENCHMARKS

Ideally, the Plan of Study Form should be completed and submitted to the Coordinator of Graduate Studies before the end of the first semester. Failure to complete the Plan of Study by the end of the second semester will result in the student being placed on probation.

The proposal should be successfully defended on or before the last day for defenses as defined by the Eberly college (typically on or before April 15th for fall semester admits). Failure to do so may result in academic probation, and the student may be ineligible for departmental financial support. The student will be required to defend by the end of the summer. If this is not accomplished, steps may be initiated to dismiss the student from the program. For all others, please consult with the Coordinator of Graduate Studies.

Once completed, the proposal defense is valid for a maximum of 4 academic semesters. If the student has not defended the research described by the proposal within 4 academic semesters of the successful proposal defense date, he or she must repeat the proposal defense process, unless given written permission to continue by his or her Primary Investigator (PI) and the Graduate Committee.

DOCTORAL BENCHMARKS

Please refer to Degree Regulations, Time Limits (http://catalog.wvu.edu/graduate/advisingcoursesdegrees/degree_regulations/) in the WVU Graduate Catalog for more information.

The proposal defense should be conducted before the start of the second year of study, assuming completion of the core M.S. coursework. If the research proposal is not successfully defended, the student must reschedule the defense within one semester. Failure to successfully defend or schedule the second defense within one semester may be grounds for dismissal from the program. Once completed, the proposal is valid for a maximum of 6 academic semesters. If the student has not defended the research described by the proposal within 6 academic semesters of the successful proposal defense date, he or she must repeat the proposal defense process, unless given written permission to continue by his or her PI and the Graduate Committee.

Students should schedule their oral qualifying examination by the end of the fall of the second year (3 academic semesters, assuming successful completion of all core M.S. coursework). If unsuccessful in the first attempt of their oral examination, this examination must be repeated within one semester. Failure to successfully qualify or schedule the second oral examination within one semester is grounds for dismissal from the program.

Please refer to the Forensic and Investigative Science Graduate Handbook for more information.