

# Forensic Chemistry

Department of Chemistry, College of Arts and Sciences



## Major Program

Forensic chemistry deals with the application of chemistry to criminal investigation. In criminal cases, forensic scientists are often involved in the search for and examination of physical evidence that may become useful in establishing or excluding an association between someone suspected of committing a crime and the actual scene of the crime or victim. Such evidence might commonly include blood and other body fluids, hair, textile fibers, building materials (such as paint or glass), footwear, tools, tire marks and flammable substances used to start fires. Other forensic scientists might analyze suspected drugs of abuse, specimens from people thought to have taken these drugs, specimens from individuals thought to have been driving under the influence of alcohol or specimens from individuals thought to have been poisoned. Yet others specialize in firearms, explosives or documents with questionable authenticity. Forensic chemists are also involved in the investigation of crimes against society, such as food adulteration, environmental pollution, use and distribution of unsafe chemicals and dangerous working conditions. This major is recommended for individuals who wish to pursue a career in the laboratory analysis of forensic evidence, or who wish to pursue graduate study in forensic science. Due to the nature of forensic investigations, the forensic chemist requires a strong background in chemical analysis and must be able to effectively communicate the results of laboratory analyses in reports and in the courtroom. The curriculum is designed so that the major provides a strong theoretical and experimental background in chemistry, as well as a strong focus on written and oral communication skills.

## Faculty

Courses in the department are taught by faculty holding doctoral degrees from distinguished universities around the world, such as the State University of New York, Kansas State University, Texas A&M University, Texas Tech University, University of Illinois, University of Victoria (Canada), University of Missouri, University of California–Davis, and Loyola University. All faculty are dedicated educators, skilled in fostering active student participation. They are also active researchers and have to their credit many research publications and presentations in the areas of their specialties.

## Integrated Baccalaureate and Master's Degree in Chemistry

The Integrated Baccalaureate and Master of Science in Chemistry provides an opportunity for outstanding undergraduate chemistry majors to complete both a Bachelor of Science and a Master of Science in chemistry in a single five-year period.

## Scholarships

The department offers many scholarships for chemistry majors. Four are named for the Maurice Peterson Foundation, and four are named for distinguished faculty in the department. The Norbert Goeckner Scholarship is awarded annually to a chemistry major (undergraduate or graduate), with preference given to a Burmese student (if there is no eligible Burmese student, the award will be open to all chemistry majors); the Dr. and Mrs. R. L. Hardin Scholarship is awarded to a junior chemistry major; the F. H. Currens Award is given to an outstanding senior chemistry major; and the Dr. Ben Hughes Scholarship is awarded annually to a chemistry education major. The WIU Department of Chemistry also awards an Incoming Freshman Award to an entering freshman chemistry major and selects a department scholar from outstanding seniors in the department. Additional scholarships are available through the WIU Women in Science program and the Research Inspiring Student Excellence (RISE) program. Detailed information on scholarships is available from the department, (309) 298-1538; Western's Scholarship office, (309) 298-2001; or online at [wiu.edu/chemistry](http://wiu.edu/chemistry) or [wiu.edu/Scholarship](http://wiu.edu/Scholarship).

## Honors in Chemistry

To be eligible for the Centennial Honors College, entering freshmen must have an ACT composite score of at least 28 OR have a 26 or 27 composite ACT and be in the top 15 percent of their graduating class OR have an ACT composite score of at least 24 and be in the top 10 percent of their high school graduating class. A comparable SAT score is acceptable. Transfer and current WIU students who wish to join the Honors College (including the Quad Cities Honors Program) must have a 3.4 grade point average on a 4.0 scale based on 12 or more semester hours. Honors credit is given for honors coursework completed at other accredited institutions. To find out more, visit [wiu.edu/Honors](http://wiu.edu/Honors).

General honors seminars in the humanities, sciences and social sciences provide students with opportunities to explore key academic issues with distinguished faculty members. In the chemistry department, honors students take courses for honors credits and, as seniors, prepare an honors thesis under the direction of a department faculty member.

## Student Activities

For students interested in chemistry, the department offers the Chemistry Club, an association affiliated with the American Chemical Society.

## Special Opportunities

The department offers small classes with accessible faculty and personalized advising in Currens Hall. There are three electronic classrooms and numerous teaching/research laboratories, as well as a Physical Sciences Library that subscribes to more than 60 journals and online literature searching through the Chemical Abstract Service. Undergraduates have access to the department's state-of-the-art equipment and facilities, which are augmented by the existence of a graduate program. The modern instrumentation available for teaching and research includes a FPLC, HPLC, FT-NMR, FT-IR, UV-Vis and GC-MS spectrometers; a capillary electrophoresis and a high-speed centrifuge.

## Undergraduate Research Opportunities

There are many opportunities for students to work with WIU chemistry faculty on research projects that involve inorganic chemistry, organic chemistry, biochemistry, medicinal chemistry, forensic chemistry, analytical chemistry and environmental chemistry. In addition, there are research opportunities for students in physical and food chemistry, as well as with many other projects. Undergraduate students involved in research get to travel to professional conferences, meet professionals from around the country and serve as coauthors on journal article publications.

## After College

The forensic chemistry major will prepare students to work in modern crime laboratories at the local, regional, state or federal levels. These graduates can also work for other law enforcement agencies, such as the Drug Enforcement Administration, Food and Drug Administration, Environmental Protection Agency and Occupational Safety and Health Administration. The program also prepares students to work for private industries in their analytical, environmental, chemical synthesis or toxicology laboratories. In addition, the program provides training to students to pursue graduate work in chemistry, forensic chemistry, forensic sciences, environmental sciences, industrial hygiene, medical chemistry or toxicology.

## For More Information

The department welcomes visitors. Call the WIU Department of Chemistry at (309) 298-1538 or email the advisor at [JL-Sandrik@wiu.edu](mailto:JL-Sandrik@wiu.edu). Learn more about the department by visiting [wiu.edu/chemistry](http://wiu.edu/chemistry).

## For Your General Outlook

Required courses include General Chemistry I & II (8 SH); Chemical Calculations (2 SH); Introduction to Forensic Applications (3 SH); Organic Chemistry I & II (9 SH); Analytical Techniques (3 SH); Analytical Chemistry (4 SH); Biochemistry (4 SH); Chemical Literature (1 SH); Safety Practices in Chemistry Research (1 SH); Applications of Forensic Chemistry (4 SH); Forensic Toxicology (4 SH); Forensic Serology and DNA Analysis (4 SH); Biological Diversity (4 SH); Biological Principles (4 SH); Calculus I & II (9 SH); STAT 171 (3 SH); Physics (8-10 SH) and Law Enforcement (6 SH).

## University Libraries

University Libraries consists of the Leslie F. Malpass Library, which is the main branch, and four other branches: the Physical Sciences Library, the Music Library, the Curriculum Library and the Quad Cities Library. Students have access to a variety of resources in print and online. Research assistance is available in person at the Reference Desk and via instant messaging. Check out our website for hours, events and services available at [wiu.edu/libraries](http://wiu.edu/libraries).



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