Is Bioanalytical Chemistry Right for You?

Would you like to be part of a team working on preclinical and clinical trials of drug and biomolecule candidates? Would you like to learn how to harness the power of molecules for direct applications to human health and learn bioanalytical and chemical analysis techniques used for early diagnosis of human diseases including cancer, Parkinson’s, and Alzheimer’s? If so, the bioanalytical chemistry program is right for you.

What Makes This Program Unique?

• You will build a strong foundation in traditional chemistry and then develop sound knowledge and practical skills to earn a B.S. in this specialized program.

• You will gain an interdisciplinary background in bioanalytical theories and methods, and applications of analytical chemistry for detection, characterization, and quantification of biological systems.

• Illinois Tech Chemistry is the first department in the country to offer a B.S. in bioanalytical chemistry.

• Earn a B.S. degree in bioanalytical chemistry plus have an option to get a B.S. degree in chemistry.

Learn bioanalysis and clinical chemistry lab techniques that employers need.

Program Benefits

• Provides you with a specialized education in the area of bioanalysis and detection and characterization of biomolecules and molecular interaction.

• Teaches you hands-on lab techniques that employers need.

• Teaches you practical lab skills in analytical method development, instrumental analysis, quality control and assurance (QC & QA), and in vitro biochemical assays of biomolecules and biopharmaceuticals.

• Prepares you to be a viable candidate for professional positions in the biomedical, biotech, pharmaceutical, or medical industry and government labs.
Undergraduate Research Opportunities

Students may conduct research under the direction of chemistry faculty in the interfacing areas of bioanalysis, bioconjugate chemistry, bioanalytical chemistry, and protein and enzyme modeling, including:

- Development of biosensors for detection of proteins and DNAs (Professor Xiyun Guan)
- Microscopic detection of protein expression and association on cell membrane (Professor Rong Wang)
- Development of antibody drug conjugates and bioconjugate chemistry (Professor Hyun-Soon Chong)
- Computational simulation of protein-protein and enzyme-drug interaction (Professor David Minh)

Internship and Scholarship Opportunities

Students are encouraged to apply for internship and scholarship programs in academia, industry, and government, including:

- Defense Forensic Science Center University Internship Program, Department of Forensic Sciences
- Illinois State Police Internship Program
- FBI Honors Internship Program
- U.S. Drug Enforcement Administration Internship Program
- Science Undergraduate Laboratory Internships (SULI), Department of Energy (DOE)
- Society of Chemical Industry (SCI) Scholars Internship Program
- American Chemistry Society (ACS) Scholarship Program for African American, Hispanic, and American Indian students
- ACS Project SEED Scholarship
- Kilpatrick Undergraduate Scholarship, Chemistry Department, Illinois Tech
- Undergraduate Summer Research Stipend, College of Science, Illinois Tech

Career Pathways

- Become a bioanalytical chemist, an assay development chemist, an analytical method development chemist, a drug metabolism analyst, a pharmacokinetic analyst, a data analyst, an instrument analyst, a pharmaceutical analytical chemist, or a protein chemist.
- Work in a team of drug metabolism (DM), pharmacokinetics (PK), and pharmacodynamics (PD), assessing in vivo action and clinical validation of drugs and bioconjugate molecules.
- Work in the biotech, biomedical, biopharmaceutical, medical, or pharmaceutical industry.
- Work in research and development institutes or government labs including National Institutes of Health (NIH); Food and Drug Administration (FDA).
- Pursue a Ph.D. or Pharm. D. in biomedical science, pharmaceutical science, or pharmacology.

Contact

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